

**New Hampshire Retirement System (NHRS)
Investment Committee Meeting**

(Certain portions of the meeting may be held in Non-Public Session)

**Agenda
Tuesday, May 13, 2025**

- 9:00 am Call to Order
- 9:00 am Approve Minutes [Tab 1]
- April 8, 2025, Public Meeting Minutes *(Action Expected)*
- 9:05 am Comments from the Chief Investment Officer [Tab 2]
- Portfolio: Performance & Manager Update(s)
 - Holdings Update
 - Work Plan
- 9:15 am Core (EAFE) Non-U.S. Equity Structure Discussion [Tab 3] *(Action Expected)*
- 9:45 am Fixed Income Structure Discussion [Tab 4] *(Action Expected)*
- 10:30 am Adjournment

Informational Materials [Tab 5]

- Callan Monthly Review – March 2025
- Asset Allocation Update
- Private Debt & Equity Summary

Next Meeting: Tuesday, June 10, 2025

NOTE: The draft of these minutes from the April 8, 2025, Independent Investment Committee meeting is subject to approval and execution at a subsequent meeting.

**Independent Investment Committee Meeting
April 8, 2025
DRAFT Public Minutes**

**New Hampshire Retirement System
54 Regional Drive
Concord, NH 03301**

Committee Members:

- Christine Clinton, CFA, *Chair*
- Brian Bickford, CFA, CFP®, *Member*
- Maureen Kelliher, CFA, *Member*
- Mike McMahon, *Non-Voting Member*
- Paul Provost, CFP®, *Member (Absent)*

Staff:

- Jan Goodwin, *Executive Director*
- Raynald Leveque, *Chief Investment Officer*
- Gregory Richard, CAIA, CFA, CTP, *Senior Investment Officer*
- Shana Bilech, CFP®, *Senior Investment Officer*
- Jonathan Diaz, *Investment Officer*
- Jesse Pasierb, *Investment Operations Analyst*
- Heather Hoffacker, *Internal Auditor (by video conference)*
- Mark Cavanaugh, *Associate Counsel and Compliance Officer (by video conference)*

Guests:

- Pete Keliuotis, CFA, *Executive Vice President, Callan LLC*
- Angel Haddad, *Senior Vice President, Callan LLC*
- Britton Murdoch, *Senior Vice President, Callan LLC*
- Constantine Braswell, *Vice President, Callan LLC*
- Greg Reynolds, *Partner, Chief Investment Officer and Co-Head of Direct Lending, Comvest Partners*
- Nick McClelland, *Partner, Comvest Partners*
- Kristina O’Gannon, *Partner and Senior Managing Director, Wellington Management*
- David DiSilva, *Vice President and Investment Director, Wellington Management*
- Masmin Phelan, *Vice President, Wellington Management*

- Lily Orlin, CFA, *Vice President and Global Industry Analyst, Wellington Management*
- Jeffrey C. Paulis, CFA, *Senior Portfolio Manager, Segall Bryant & Hamill*
- Zachary T. Rosenstock, CFA, *Senior Equity Analyst, Segall Bryant & Hamill*
- Daniel J. McCormack, *Director, Segall Bryant & Hamill*

Chair Clinton called the meeting to order at 12:35 PM.

On a motion by Ms. Kelliher seconded by Mr. Bickford, the Independent Investment Committee (Committee) unanimously approved the public minutes of the February 11, 2025, Committee meeting as presented.

Mr. Leveque reviewed investment returns through recent periods and referred to the Callan Monthly Review for the period ending February 28, 2025. He provided an update on portfolio holdings and liquidity. Mr. Richard provided an update on recent rebalancing activity. Mr. Leveque and Ms. Bilech outlined upcoming structural changes under consideration for public equity and fixed income. The Committee then reviewed and discussed the Work Plan.

On a motion by Mr. Bickford, seconded by Ms. Kelliher, the Committee unanimously approved the Investment Work Plan for the first quarter of fiscal year 2026 as presented.

Next, Mr. Diaz presented a recommendation to renew the Investment Management Agreement with Boston Trust Walden for a five-year term. He reviewed the manager's long-term performance, investment approach, and role in the U.S. small cap allocation.

On a motion by Ms. Kelliher, seconded by Mr. Bickford, the Committee unanimously voted to renew the Investment Management Agreement with Boston Trust Walden for a five-year term through April 30, 2030.

Mr. Leveque introduced Comvest Credit Partners and the opportunity to invest in Comvest Credit Partners Fund VII (Unlevered). He provided background on the firm's relationship with NHRS, its investment strategy, and role in the portfolio. Mr. Braswell of Callan provided additional perspective and supported the recommendation. The Committee then received a presentation from representatives of Comvest on the firm, its strategy, and historical performance.

On a motion by Mr. Bickford, seconded by Ms. Kelliher, the Committee unanimously voted to commit \$50 million to Comvest Credit Partners Fund VII (Unlevered), subject to contract and legal review.

The Committee next discussed the structure of the Core (EAFE) Non-U.S. Equity allocation. Mr. Richard reviewed the relative performance of current managers, rationale for changes, and the impact on portfolio construction and fees. Callan summarized its analysis and concurred with the recommendation.

On a motion by Ms. Kelliher, seconded by Mr. Bickford, the Committee unanimously voted to terminate the System's investment in the Core Non-U.S. Equity portfolio managed by Lazard Asset Management, with liquidated assets to be reallocated to the BlackRock ACWI ex-U.S. IMI Superfund.

The Committee then received a presentation from representatives of Wellington Management on its U.S. small cap equity mandate. The firm provided an overview of its investment philosophy, process, and recent performance, with discussion of current opportunities in the small cap market.

Finally, the Committee received a presentation from representatives of Segall Bryant and Hamill on its U.S. small cap equity mandate. The firm reviewed its investment process, team, and long-term performance, and provided additional perspective on the current small cap environment.

On a motion by Ms. Kelliher, seconded by Mr. Bickford, the Committee unanimously voted to adjourn the meeting.

The meeting adjourned at 3:43PM.

Market Environment

As of March 31, 2025

Index	Last Month	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Russell 3000	(5.83)	(4.72)	7.22	8.22	18.18	11.80
S&P 500	(5.63)	(4.27)	8.25	9.06	18.59	12.50
Russell 2000	(6.81)	(9.48)	(4.01)	0.52	13.27	6.30
MSCI ACWI ex USA	(0.23)	5.23	6.09	4.48	10.92	4.98
MSCI Emerging Markets	0.63	2.93	8.09	1.44	7.94	3.71
Bloomberg Aggregate	0.04	2.78	4.88	0.52	(0.40)	1.46
NCREIF NFI-ODCE	0.32	0.96	1.28	(5.04)	2.03	4.72
Bloomberg Commodity Price	3.55	7.74	6.95	(5.08)	11.46	0.81

Equities and fixed income posted mixed results in March. Market performance was largely driven by heightened uncertainty surrounding tariffs and rapid political developments. Consumer sentiment fell to its lowest level since 2022 (The University of Michigan Consumer Sentiment Index) pressured by escalating policy uncertainty. Higher-than-expected February inflation data, released in early March, added to market volatility and further dampened investor confidence. The Fed held rates steady, maintaining its target range at 4.25%-4.50%, while also lowering its U.S. growth forecast for 2025 and raising its inflation outlook. U.S. equities declined sharply, with the S&P 500 entering correction territory. Global ex-U.S. equities outperformed U.S. markets, and emerging markets outperformed developed markets. In fixed income, bond prices rose as yields declined. Investment-grade corporate bonds underperformed Treasuries, and high-yield bonds posted weak returns.

Real, annualized U.S. GDP rose 2.4% in 4Q24, according to the third estimate, unchanged from the second estimate. Real GDP increased 3.1% in 3Q24. The 4Q reading reflects an increase in consumer spending and government spending, partially offset by a decrease in investments. Imports, which are subtracted in the calculation of GDP, decreased.

The U.S. economy added 228,000 jobs in March, beating expectations. In February, 151,000 jobs were added. Sectors experiencing employment growth included health care, social assistance, and transportation and warehousing. Retail trade also experienced an increase, reflecting the end of a worker's strike. The seasonally adjusted unemployment rate for March was 4.2%, a slight increase from the February reading of 4.1%. The labor force participation rate was 62.5%, a slight increase from the February reading of 62.4%.

The headline Consumer Price Index (CPI) rose 2.4% year-over-year in March, a decline from the February reading of 2.8%. Price levels rose 0.1% month-over-month in March, slightly down from the February gain of 0.2%. The decline in the index for gasoline offset increases in the electricity and natural gas indices. The food index also increased. Core CPI, which excludes more volatile food and energy prices, increased 2.8% in March, lower than the February reading of 3.1%. On a monthly basis, core CPI rose 0.1% in March, a decrease from the 0.2% rise in February.

*Due to a lag in the reporting of NCREIF NFI-ODCE Index returns, the monthly return shown is deduced from the most recent quarterly return.

U.S. Equity Overview

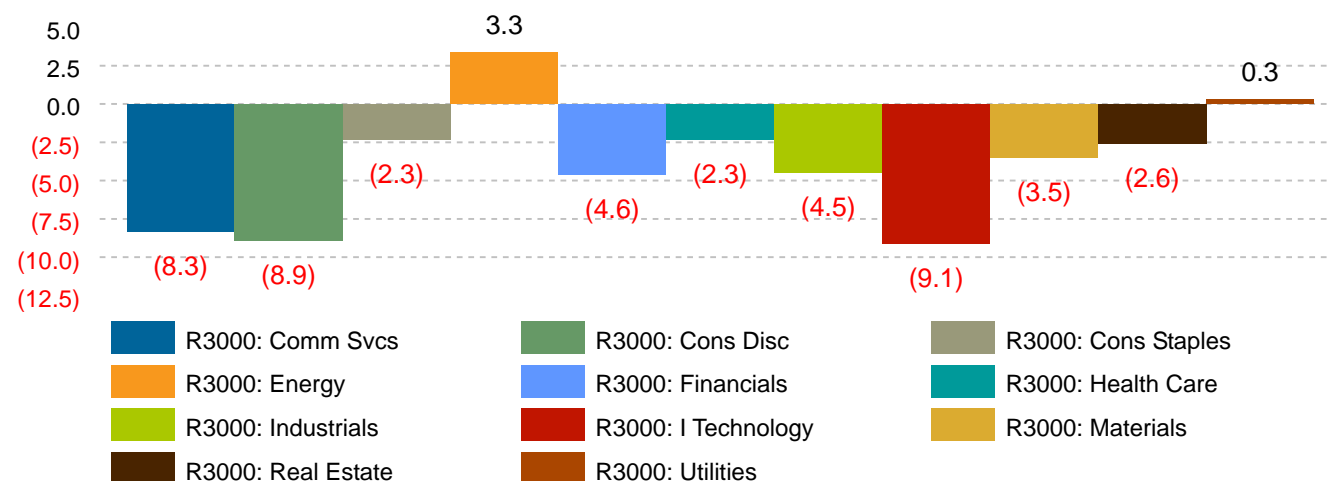
As of March 31, 2025

Index	Last Month	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Russell 3000	(5.83)	(4.72)	7.22	8.22	18.18	11.80
Russell 1000	(5.79)	(4.49)	7.82	8.65	18.47	12.18
Russell 1000 Growth	(8.42)	(9.97)	7.76	10.10	20.09	15.12
Russell 1000 Value	(2.78)	2.14	7.18	6.64	16.15	8.79
Russell Midcap	(4.63)	(3.40)	2.59	4.62	16.28	8.82
Russell 2000	(6.81)	(9.48)	(4.01)	0.52	13.27	6.30
Russell 2000 Growth	(7.58)	(11.12)	(4.86)	0.78	10.78	6.14
Russell 2000 Value	(6.00)	(7.74)	(3.12)	0.05	15.31	6.07

U.S. equities fell in March (Russell 3000 Index: -5.8%). U.S. equities faced significant headwinds as investor anxiety rose over an increasingly aggressive policy agenda from the White House. President Trump's sweeping executive orders and the announcement of new tariffs heightened fears of a global trade war and added to inflation concerns. Consumer sentiment declined 12% from February to March (The University of Michigan Consumer Sentiment Index: 64.7 to 57.0). The S&P 500 entered correction territory, posting its worst quarterly performance since 2022. Investors began rotating out of mega-cap growth stocks and shifted toward more defensive sectors in response to the growing uncertainty. For the month, both large cap stocks and small cap stocks posted negative returns (Russell 1000 Index: -5.8% vs. Russell 2000 Index: -6.8%). Large cap value stocks outperformed large cap growth stocks (Russell 1000 Value Index: -2.8% vs. Russell 1000 Growth Index: -8.4%). Small cap stocks performed poorly across the board (Russell 2000 Growth Index: -7.6% vs. Russell 2000 Value Index: -6.0%).

Sector performance was predominantly negative in March, with only 2 of the 11 sectors that comprise the Russell 3000 posting gains. The two positive-performing sectors were Energy (+3.3%) and Utilities (+0.3%). The worst-performing sectors were Information Technology (-9.1%), Consumer Discretionary (-8.9%), and Communication Services (-8.3%).

Russell 3000 Index 1 Month Sector Returns



Global ex-U.S. Equity Overview

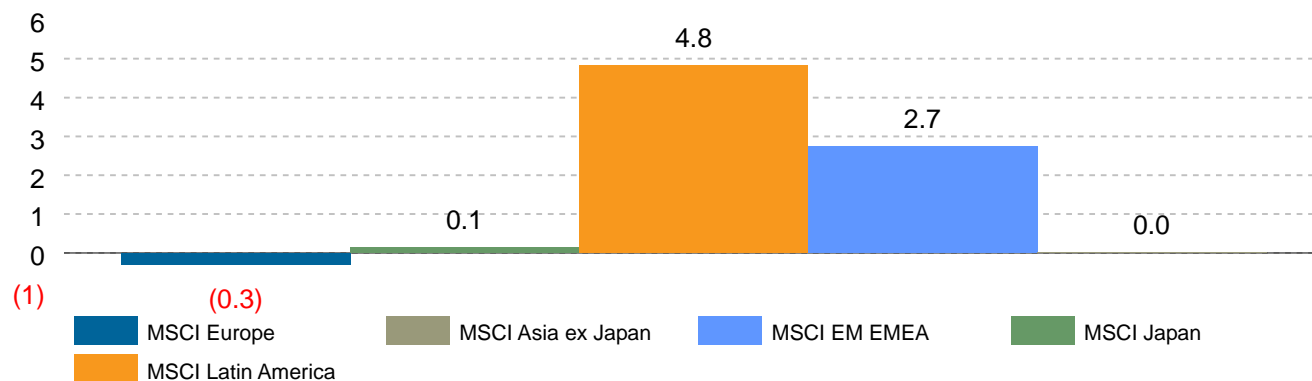
As of March 31, 2025

Index	Last Month	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
MSCI ACWI ex USA	(0.23)	5.23	6.09	4.48	10.92	4.98
MSCI EAFE	(0.40)	6.86	4.88	6.05	11.77	5.40
MSCI EAFE Hedged	(2.66)	3.36	6.76	11.84	15.59	8.24
MSCI Emerging Markets	0.63	2.93	8.09	1.44	7.94	3.71
MSCI ACWI ex USA Small Cap	0.39	0.64	1.87	0.99	11.84	5.32

Global ex-U.S. equities declined in March. The MSCI ACWI ex-USA Index fell 0.2%, with growth stocks underperforming value (MSCI ACWI ex-USA Growth Index: -2.3% vs. MSCI ACWI ex-USA Value Index: +1.8%) and large cap stocks underperforming small caps (MSCI ACWI ex-USA Large Cap Index: -1.8% vs. MSCI ACWI ex-USA Small Cap Index: +0.4%). In the euro zone, equities declined in March amid growing concerns over anticipated U.S. tariffs, particularly those affecting the region's auto industry. Germany's proposed increase in defense spending provided some initial support, but gains were ultimately offset by broader losses driven by trade tensions and mounting recession risks. In the U.K., markets pulled back from record highs, pressured by similar trade-related concerns and ongoing inflation. Chancellor Rachel Reeves' £8.4 billion in spending cuts had little impact on investor sentiment. Japanese equities also came under pressure, especially in export and tech sectors, as uncertainty surrounding U.S. policy and economic growth weighed on outlooks. However, signs of improving household consumption and easing inflation offered some underlying relief. The U.S. dollar weakened against a basket of developed market currencies over the month (MSCI EAFE Index: -0.4% vs. MSCI EAFE Hedged Index: -2.7%).

Emerging markets returned +0.6% in March (MSCI Emerging Markets Index). Modest gains were supported by declining U.S. Treasury yields and a weaker U.S. dollar. Latin America (MSCI Emerging Markets Latin America Index: +4.8%) saw a recovery driven by strong commodity prices and improving investor sentiment. India bounced back from early-year weakness, fueled by rising consumer demand, a strengthening rupee, and better-than-expected earnings in consumer and financial sectors. In contrast, Taiwan lagged due to worries over semiconductor tariffs and waning momentum in AI investment. In China, newly announced stimulus efforts aimed at boosting domestic consumption helped steady markets, though lingering concerns around real estate and trade weighed on broader confidence. Emerging Europe, the Middle East, and Africa (MSCI EM EMEA: +2.7%) posted gains.

MSCI Regional 1 Month Returns

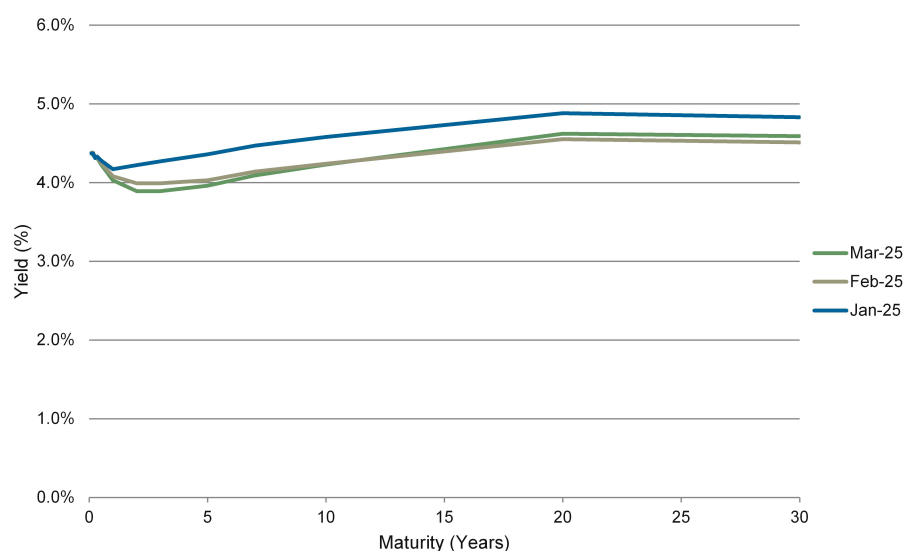


Fixed Income Overview

As of March 31, 2025

Index	Last Month	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Bloomberg Aggregate	0.04	2.78	4.88	0.52	(0.40)	1.46
Bloomberg Long Gov/Credit	(1.13)	3.57	1.72	(4.51)	(3.74)	1.01
Bloomberg Treasury	0.23	2.92	4.51	(0.05)	(1.67)	0.95
Bloomberg Credit	(0.24)	2.36	4.87	1.13	1.35	2.31
Bloomberg Mortgage	(0.02)	3.06	5.39	0.55	(0.69)	1.11
Bloomberg TIPS	0.64	4.17	6.17	0.06	2.36	2.51
Bloomberg Corp High Yield	(1.02)	1.00	7.69	4.98	7.29	5.01
Credit Suisse Leveraged Loans	(0.26)	0.61	7.02	7.10	8.90	4.98
90-day T-bill	0.33	1.02	4.97	4.23	2.56	1.87

Treasury Yield Curve



Fixed Income markets remained flat in March (Bloomberg US Aggregate Bond Index: +0.0%). Bond markets were influenced by overall declining Treasury yields, widening credit spreads, and shifting investor positioning. The U.S. Treasury yield curve steepened, with the 2-year yield declining by 10 basis points and the 30-year rising by 8 basis points. As front-end yields moved lower, investors began reallocating from cash-like instruments into longer-duration securities. Treasuries outperformed credit, with investment-grade and high yield corporates posting the weakest returns. In the municipal market, yields rose across the curve as elevated new issuance was met with somewhat muted demand.

Investment-grade bond issuance totaled \$184 billion in March, exceeding expectations. Investment grade spreads finished at 94 bps, compared to 87 bps in February. High yield bond activity added \$27 billion in new issuance, the busiest March activity since 2021. High-yield spreads widened by 67 bps, ending at 347 bps. The 90-day T-bill yield did not change, remaining at 4.32%, the 2-year fell 10 bps to 3.89%, the 10-year fell 1 bp to 4.23%, and the 30-year was up 8 bps ending at 4.59%. The 2- to 10-year Treasury yield spread widened from 25 bps to 34 bps.

Performance was mixed across fixed income sectors in March. The Bloomberg Credit Index and the Bloomberg High Yield Corporate Index decreased 0.2% and 1.0%, respectively. Long bonds (Bloomberg Long Gov/Credit Index) fell 1.1%. TIPS (Bloomberg US TIPS Index: +0.6%) outperformed nominal Treasuries (Bloomberg Treasury Index: +0.2%). The 10-year breakeven inflation rate was unchanged at 2.38%.

The table below details the rates of return for the fund's asset classes over various time periods ended March 31, 2025. Negative manager excess returns are shown in red, positive excess returns in green. Returns for one year or greater are annualized.

Net of Fees Returns for Periods Ended March 31, 2025									
Composite	Total Fund Weighting As of 3/31/2025	Last Month	Last 3 Months	FYTD	CYTD	LTM	3-YR	5-YR	10-YR
Total Global Equity	49.69%	-4.12%	-1.68%	4.17%	-1.68%	-	-	-	-
MSCI ACWI IMI		-3.88%	-1.61%	3.83%	-1.61%	-	-	-	-
Excess Return		-0.24%	-0.08%	0.34%	-0.08%	-	-	-	-
Total Domestic Equity	30.28%	-5.60%	-5.09%	3.35%	-5.09%	4.68%	6.62%	17.39%	10.33%
Domestic Equity Benchmark(1)		-5.83%	-4.72%	3.88%	-4.72%	7.22%	8.22%	17.34%	11.89%
Excess Return		0.23%	-0.37%	-0.53%	-0.37%	-2.54%	-1.60%	0.05%	-1.56%
Total Non US Equity	19.41%	-1.72%	4.15%	5.08%	4.15%	4.85%	6.50%	11.45%	5.52%
Non US Equity Benchmark(2)		-0.14%	4.59%	4.54%	4.59%	5.54%	4.30%	10.80%	4.92%
Excess Return		-1.57%	-0.45%	0.54%	-0.45%	-0.69%	2.20%	0.64%	0.59%
Total Fixed Income	21.91%	0.00%	2.64%	4.83%	2.64%	4.79%	0.98%	2.06%	2.33%
Bloomberg Capital Universe Bond Index		-0.02%	2.66%	5.04%	2.66%	5.24%	1.01%	0.32%	1.83%
Excess Return		0.02%	-0.02%	-0.21%	-0.02%	-0.45%	-0.03%	1.73%	0.51%
Total Cash	1.38%	0.37%	1.05%	3.62%	1.05%	4.96%	4.36%	2.66%	1.96%
3-Month Treasury Bill		0.33%	1.02%	3.60%	1.02%	4.97%	4.23%	2.56%	1.87%
Excess Return		0.03%	0.03%	0.01%	0.03%	-0.01%	0.13%	0.11%	0.09%
Total Real Estate (Q4)*	8.73%	0.74%	1.41%	1.40%	1.41%	-1.19%	-1.13%	5.38%	7.87%
Real Estate Benchmark(3)		0.32%	0.96%	0.32%	0.96%	-2.27%	-3.14%	1.99%	5.00%
Excess Return		0.42%	0.45%	1.08%	0.45%	1.08%	2.01%	3.39%	2.87%
Total Private Equity (Q4)*	13.29%	0.55%	0.51%	2.02%	0.51%	4.80%	3.59%	12.73%	12.09%
Private Equity Benchmark(4)		-2.83%	3.14%	14.09%	3.14%	25.96%	10.79%	17.11%	16.09%
Excess Return		3.38%	-2.63%	-12.07%	-2.63%	-21.16%	-7.20%	-4.38%	-4.00%
Total Private Debt (Q4)*	5.00%	1.38%	1.38%	3.14%	1.38%	6.05%	5.73%	6.09%	6.08%
Private Debt Benchmark(5)		0.08%	1.56%	7.36%	1.56%	9.46%	6.71%	5.29%	4.75%
Excess Return		1.30%	-0.18%	-4.21%	-0.18%	-3.41%	-0.98%	0.81%	1.33%
Total Fund Composite	100.00%	-1.89%	-0.01%	3.83%	-0.01%	4.47%	4.29%	10.22%	7.18%
Total Fund Benchmark(6)		-2.19%	0.39%	5.06%	0.39%	7.24%	5.00%	9.83%	7.49%
Excess Return		0.30%	-0.40%	-1.23%	-0.40%	-2.78%	-0.71%	0.39%	-0.31%

(1) The Domestic Equity Benchmark is the Russell 3000 Index as of 7/1/2021.

(2) The Non US Equity Index is the MSCI ACWI ex US IMI Index as of 7/1/2024. Prior to 7/1/2024, it was the MSCI ACWI Ex-US Index.

(3) The Real Estate Benchmark is the NCREIF NFI-ODCE Value Weight Net Index lagged 1 quarter as of 7/1/2015.

(4) The Private Equity Benchmark is the Russell 3000 Index + 2% lagged 1 quarter as of 7/1/2022.

(5) The Private Debt Benchmark is (50% MStar LSTA Leveraged Loan 100 Idx + 50% Bloomberg High Yield Index) + 1% lagged 1 quarter as of 7/1/2022.

(6) Current Month Target = 50.0% MSCI ACWI IMI, 25.0% Bloomberg Universal, 10.0% NCREIF NFI-ODCE Value Weight Net lagged 3 months, 10.0% Russell 3000 Index lagged 3 months+2.0%, 2.5% Bloomberg High Yield Corp lagged 3 months+1.0% and 2.5% MStar LSTA Lev Loan 100 lagged 3 months +1.0%.

(7) For the trailing 25 year period ended 3/31/25, the Total Fund has returned 5.76% versus the Total Fund Custom Benchmark return of 6.34%.

*Real Estate and Alternatives market values reflect current custodian valuations, which are typically lagged approximately 1 quarter.

Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of March 31, 2025, with the distribution as of February 28, 2025. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

Asset Distribution Across Investment Managers

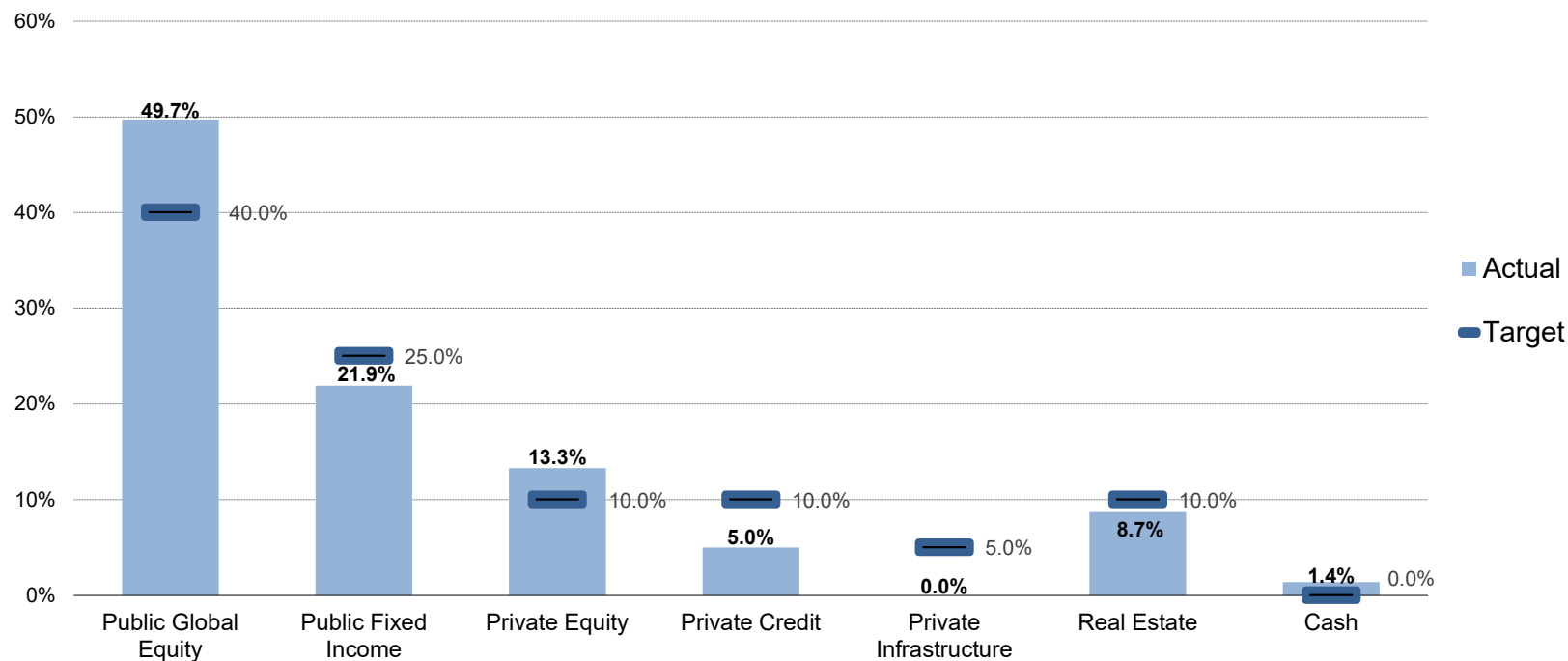
	March 31, 2025				February 28, 2025	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
Global Equity	\$6,251,400,856	49.69%	\$(6,833)	\$(266,757,115)	\$6,518,164,804	50.78%
Total Domestic Equity	\$3,809,980,330	30.28%	\$0	\$(225,217,725)	\$4,035,198,055	31.44%
Large Cap Domestic Equity	\$2,300,443,493	18.28%	\$0	\$(137,310,109)	\$2,437,753,602	18.99%
Blackrock S&P 500	2,300,443,493	18.28%	0	(137,310,109)	2,437,753,602	18.99%
SMid Cap Domestic Equity	\$722,684,825	5.74%	\$0	\$(43,325,419)	\$766,010,244	5.97%
AllianceBernstein	443,570,728	3.53%	0	(34,298,437)	477,869,166	3.72%
TSW	279,114,097	2.22%	0	(9,026,981)	288,141,078	2.24%
Small Cap Domestic Equity	\$786,852,012	6.25%	\$0	\$(44,582,197)	\$831,434,209	6.48%
Boston Trust	254,417,346	2.02%	0	(8,411,052)	262,828,398	2.05%
Segall Bryant & Hamill	254,555,738	2.02%	0	(18,605,953)	273,161,691	2.13%
Wellington	277,878,929	2.21%	0	(17,565,191)	295,444,120	2.30%
Total Non US Equity	\$2,441,420,526	19.41%	\$(6,833)	\$(41,539,390)	\$2,482,966,749	19.35%
Core Non US Equity (1)	\$1,526,742,603	12.14%	\$(6,833)	\$(12,151,145)	\$1,538,900,580	11.99%
Aristotle	190,965,098	1.52%	0	(963,372)	191,928,470	1.50%
Artisan Partners	456,556,818	3.63%	(6,833)	(2,067,069)	458,630,720	3.57%
BlackRock Superfund	209,795,044	1.67%	0	(126,745)	209,921,789	1.64%
Causeway Capital	497,098,181	3.95%	0	(6,401,170)	503,499,352	3.92%
Lazard	171,818,104	1.37%	0	(2,611,738)	174,429,842	1.36%
Emerging Markets	\$188,244,497	1.50%	\$0	\$3,162,764	\$185,081,733	1.44%
Wellington Emerging Markets	188,244,497	1.50%	0	3,162,764	185,081,733	1.44%
Non US Small Cap	\$143,585,079	1.14%	\$0	\$999,171	\$142,585,908	1.11%
Wellington Int'l Small Cap Research	143,585,079	1.14%	0	999,171	142,585,908	1.11%
World Equity	\$582,848,347	4.63%	\$0	\$(33,550,180)	\$616,398,527	4.80%
Walter Scott Global Equity	582,848,347	4.63%	0	(33,550,180)	616,398,527	4.80%
Total Fixed Income	\$2,755,999,694	21.91%	\$0	\$451,460	\$2,755,548,235	21.47%
BlackRock SIO Bond Fund	285,661,589	2.27%	0	(634,116)	286,295,705	2.23%
Brandywine Asset Mgmt	228,654,286	1.82%	0	3,272,349	225,381,936	1.76%
FIAM (Fidelity) Tactical Bond	395,205,485	3.14%	0	(751,818)	395,957,302	3.09%
Income Research & Management	822,624,095	6.54%	0	(543,674)	823,167,769	6.41%
Loomis Sayles	309,309,694	2.46%	0	(404,956)	309,714,650	2.41%
Manulife Strategic Fixed Income	225,642,610	1.79%	0	(681,185)	226,323,796	1.76%
Mellon US Agg Bond Index	488,901,935	3.89%	0	194,859	488,707,076	3.81%
Total Cash	\$173,044,296	1.38%	\$2,839,098	\$677,699	\$169,527,499	1.32%
Total Marketable Assets	\$9,180,444,846	72.97%	\$2,832,265	\$(265,627,956)	\$9,443,240,538	73.57%
Total Real Estate	\$1,098,858,666	8.73%	\$(6,676,156)	\$11,219,191	\$1,094,315,630	8.53%
Strategic Core Real Estate	622,617,474	4.95%	508,479	7,255,309	614,853,686	4.79%
Tactical Non-Core Real Estate	476,241,191	3.79%	(6,354,491)	3,133,739	479,461,943	3.74%
Total Alternative Assets	\$2,301,747,910	18.30%	\$(18,143,183)	\$22,541,021	\$2,297,350,073	17.90%
Private Equity	1,672,148,369	13.29%	(9,717,936)	11,229,085	1,670,637,220	13.02%
Private Debt	629,599,541	5.00%	(8,425,247)	11,311,936	626,712,852	4.88%
Total Fund Composite	\$12,581,051,422	100.0%	\$(21,987,075)	\$(231,867,744)	\$12,834,906,241	100.0%

-Alternatives market values reflect current custodian valuations, which may not be up to date.

(1) Includes \$509,356 in legacy assets that are not actively managed and in liquidation following the termination of Fisher Investments.

Current Status

Class Targets vs. Actual Allocation as of March 31, 2025 (Preliminary)



Figures in **bold** represent actual allocation amount.

Source: NHRS

Asset Class Allocations Relative to Policy Targets and Ranges



As of March 31, 2025 (preliminary)

Asset Class	Allocation				Objective	Comments
	Range ¹	Target	Actual	Variance		
Public Markets						
Global Equity	30 - 50%	40.0%	49.7%	9.7%	Action	Actual allocation to be reduced over subsequent periods to fund new infrastructure allocation and increase to private credit. A rebalance from Global Equity to Fixed Income was completed on 4/2/25.
Fixed Income	18 - 32%	25.0%	21.9%	-3.1%	Monitor	Variance being addressed in ongoing FI SAA discussions.
Private Markets						
Equity ¹	5 - 15%	10.0%	13.3%	3.3%	Monitor	No immediate action needed.
Credit ¹	0 - 15%	10.0%	5.0%	-5.0%	Action	To be scaled up incrementally over subsequent periods as part of SAA implementation.
Infrastructure	0 - 15%	5.0%	0.0%	-5.0%	Action	To be scaled up incrementally over subsequent periods as part of SAA implementation.
Real Estate (RE)	5 - 20%	10.0%	8.7%	-1.3%	Monitor	No immediate action needed.
Cash Equivalents	0 - 5%	0.0%	1.4%	1.4%	No Action	Minimal cash balance to provide liquidity, as needed, for annuities, capital calls and other plan needs.
		100.0%	100.0%	0.0%		

¹As reported on the March 31, 2025 Callan Monthly Review.

Source: NHRS



NHRS

New Hampshire Retirement System

To: Independent Investment Committee (IIC)
From: Raynald Leveque, Chief Investment Officer
Date: May 5, 2025
Re: **Work Plan / Recap of April Investment Committee Meeting**
Item: Action: ☐ Discussion: ☐ Informational: ☒

The attached six-month Work Plan summarizes the high-level tasks and projects being addressed by the IIC and Investment Team.

A recap of the April IIC meeting is as follows:

- The Investment Team presented an update on the monthly performance of the public market asset classes of the NHRS, holdings, and the Work Plan.
- The Committee voted to approve the five-year contract renewal for public equity manager Boston Trust Walden.
- The Committee received a presentation from private credit manager Comvest Partners regarding a potential investment in Comvest Credit Partners Fund VII, and subsequently voted to commit \$50 million, subject to contract and legal review.
- The Committee discussed the structure of the core (EAFE) non-U.S. equity allocation and voted to terminate the System's investment with Lazard Asset Management, reallocating the assets to BlackRock ACWI ex-U.S. Superfund.
- Public equity managers Wellington Management and Segall Bryant & Hamill presented on their respective U.S. small cap mandates.



To: Independent Investment Committee (IIC)
From: Raynald Leveque, Chief Investment Officer
Date: May 5, 2025
Re: **Six-Month Investment Work Plan**
Item: Action: ☐ Discussion: ☐ Informational: ☒

As time progresses, the Work Plan will be updated to reflect tasks and initiatives associated with the current and subsequent quarter. Items completed over the fiscal year will also be included.

Presentations are displayed using the following format:
IIC meeting date – Pertinent details

Updates from the prior month are highlighted in **bold**.

4th Quarter FY 2025: April – June 2025

Investment Program

- Continue implementation of Strategic Asset Allocation
- Rebalance portfolio as needed to fund increases to private credit and infrastructure sourced from global equity
 - April – Rebalance from Public Global Equity to Public Fixed Income within rebalancing ranges

Marketable Investments

- Schedule presentations of current investment managers
 - April – Boston Trust Walden, U.S. Small Cap Equity Contract Renewal Vote
 - April – Wellington Management, U.S. Small Cap Equity Contract Renewal Presentation
 - April – Segall Bryant & Hamill, U.S. Small Cap Equity Contract Renewal Presentation
 - April – Termination of Lazard, Core Non-U.S. Equity; Reallocation to BlackRock ACWI ex-U.S. – Superfund**
- Monitor and execute structure of marketable assets portfolio
 - May –**Continue discussion of Core Non-U.S. Equity structure**

Alternative Investments

- Continue implementation of 2025 Private Credit & Equity and Infrastructure Strategic Plans
 - April – Comvest, Comvest Credit Partners Fund VII, Private Credit **Unanimous approval of \$50 million commitment**
 - June - Callan, Semi-Annual Update on the Private Credit & Equity program
- Review Private Credit & Equity investments

Real Estate

- Continue implementation of 2025 Real Estate Investment Plan
- June – Townsend, Semi-Annual Update on Real Estate program

1st Quarter FY 2026: July – September 2025

Investment Program

- Discuss macroeconomic investment themes that may impact the portfolio

Marketable Investments

- Schedule presentations of current investment managers
 - August – AllianceBernstein, U.S. SMID Cap Equity Contract Renewal Presentation
 - August – Thompson, Siegel & Walmsley, U.S. SMID Cap Equity Contract Renewal Presentation
- Monitor and execute structure of marketable assets portfolio

Alternative Investments

- Continue implementation of 2025 Private Credit & Equity, and Infrastructure Strategic Plans

Real Estate

- Continue implementation of 2025 Real Estate Investment Plan

Completed Items – Fiscal Year 2025

3rd Quarter FY 2025: January – March 2025

Investment Program

- Continue implementation of Strategic Asset Allocation
- Discuss macroeconomic investment themes that may impact the portfolio
 - January - Review of Investment Manual, Unanimous approval of Investment Staff suggested changes and recommendation to the Board of Trustees for approval
 - February – Callan Capital Market Assumptions
 - February – Unanimous approval of the Investment Manual, including the revision of the Non-U.S. Equity benchmark to the MSCI ACWI ex. US IMI

Marketable Investments

- Schedule contract renewal presentations of current investment managers
- February – Boston Trust Walden, Small Cap U.S. Equity Contract Renewal Presentation
- Monitor marketable assets portfolio

Alternative Investments

- January – Callan, Annual Review of Private Credit & Private Equity Investment Plan
 - Approve 2025 Pacing Plan for Private Credit, Private Equity & Infrastructure, Unanimous approval in January

Real Estate

- January – Townsend review of the CY 2024 Investment Plan and approve proposed CY 2025 Plan, Unanimous approval in January

Vendors

- February – Abel Noser, trading cost analysis
- February – Abel Noser, annual update on Commission Sharing Agreements

2nd Quarter FY 2025: October – December 2024

Investment Program

- October / November – SAA Strategy & Implementation Plan:
Global Equity, Global Fixed Income, Infrastructure
- October - 2025 Investment Committee meeting schedule, unanimous approval in December
- December - FY 2024 Comprehensive Annual Investment Report, unanimous approval in December for recommendation to the Board of Trustees.

Marketable Investments

- Schedule presentations of current investment managers
- December – Causeway, Artisan, Non-U.S. Equity Contract Renewals, unanimous five-year renewal vote of Causeway contract in December; Artisan unanimous two-year renewal vote in January
- Monitor and execute structure of marketable assets portfolio

Alternative Investments

- Continue implementation of the 2024 Private Debt & Equity Investment Plan
December – TopTier, Venture Velocity Fund V, Private Equity, unanimous approval of \$25 million commitment
December – Blackstone, Blackstone Multi Asset Credit, Private Credit, unanimous approval of \$75 million commitment

Real Estate

- Continue implementation of Calendar Year 2024 Real Estate Investment Plan

1st Quarter FY 2025: July – September 2024

Investment Program

- Discuss macroeconomic investment themes that may impact the portfolio
July – NHRS Investment Office Strategic Plan Presentation
July – Funston Advisory Service Review of Investment Office Strategic Plan

Marketable Investments

- Schedule presentations of current investment managers
- Monitor and execute structure of marketable assets portfolio

Alternative Investments

- Continue implementation of 2024 Private Debt & Equity Strategic Plan
August – Oak Hill Advisors, Senior Private Lending Fund (OLEND), Private Debt, unanimous approval of \$100 million commitment
August – HarbourVest, HIPEP X, Private Equity, unanimous approval of \$75 million commitment

Real Estate

- Continue implementation of 2024 Real Estate Investment Plan



NHRS

New Hampshire Retirement System

To: Independent Investment Committee (IIC)
From: Raynald Leveque, Chief Investment Officer
Gregory Richard, CFA, CAIA, Senior Investment Officer
Date: May 2, 2025
Re: **Follow Up from April IIC Meeting: Aristotle**
Item: Action: ☒ Discussion: ☐ Informational: ☐

April IIC Meeting Recap

[For reference, the full materials from the 4/8/25 IIC meeting are attached]

The Investment Team, the IIC, and Callan discussed their views regarding allocating approximately \$165 million proceeds sourced from a to-be terminated manager, Lazard Asset Management (Lazard) to Aristotle Capital Management (Aristotle), a non-U.S. Equity Core (EAFE) manager. Aristotle manages an international equity strategy similar to the Lazard international equity strategy.

The IIC voted to terminate Lazard and reallocate the liquidated assets to the BlackRock ACWI ex-U.S. Superfund pending further discussion at the May IIC meeting in which the IIC requested additional information on Aristotle's performance.

Below is a summary of the performance information with the various charts/details on subsequent pages (*Source: Aristotle*).

- **Chart 1:** Details outperformance across ~80% of rolling 3-year periods over the entire history (NHRS inception in Dec 2020)
- **Table 2:** Illustrates positive alpha in 3 of 4 calendar years with 2022 the anomaly (see Table 3)
- **Table 3:** Illustrates that nearly all the since inception underperformance occurred in Q1 of 2022 when Russia invaded Ukraine and markets reversed rapidly
- **Chart 4-5:** Illustrates that 2022 was driven by low quality stocks (low price to book stocks outperformed high price to book stocks); Aristotle's underperformed in a similar pattern
- **Chart 6:** Illustrates that security selection is the predominant driver of excess returns

Recommendation:

The Investment Team recommends allocating the Lazard proceeds to Aristotle as the Team maintains conviction that the manager can generate alpha based on its strategy over the long term. As the subsequent charts illustrate, 2022 was an anomaly rather than a base case. Reallocation to another manager in the non-U.S. equity portion of the portfolio maintains our exposure to active management in an equalized allocation to existing managers.

Our Mission: To provide secure retirement benefits and superior service.

Callan, our investment consultant, supports the Investment Team's recommendation on the reallocation. Additionally, with the upsizing of the reallocated proceeds, Aristotle has proposed a lower fee which will save approximately 4 basis points per annum, in addition to manager consolidation.

Chart 1: Rolling 3-Year Excess Returns for Aristotle International Equity (IE)

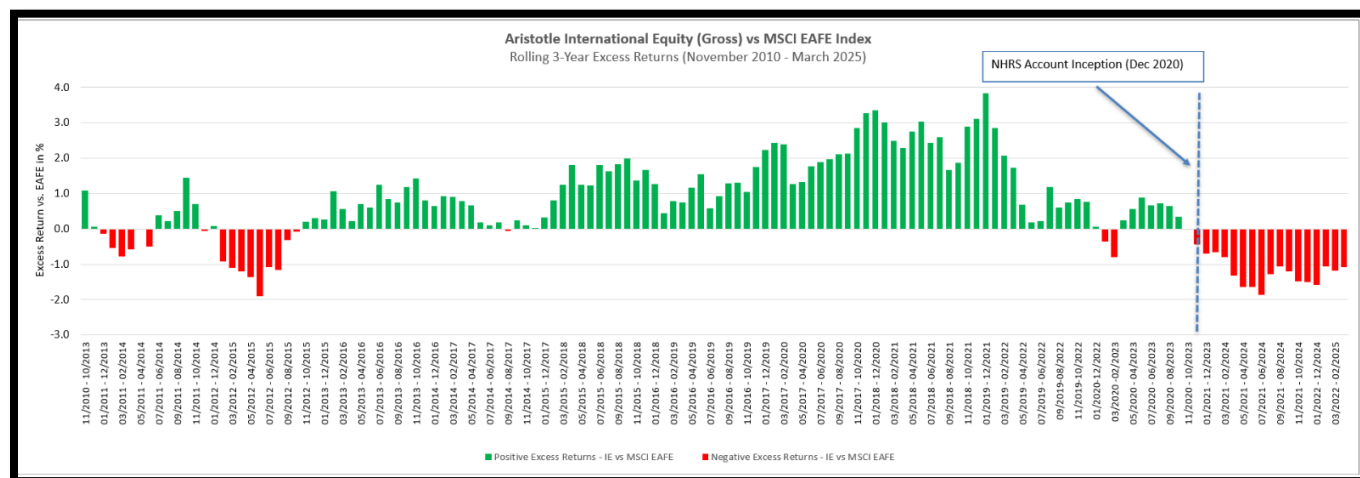


Table 2: Calendar Year Performance for Aristotle International Equity

	2021	2022	2023	2024
NHRS (net of fees)	16.8%	-20.8%	18.3%	6.0%
MSCI EAFE Index	11.3%	-14.8%	18.2%	3.8%
vs. EAFE Index	5.5%	-6.0%	0.1%	2.2%

Table 3: Q1 2022 and NHRS Since Inception Performance

As of 3/31/2025	1Q 2022	Since 12/31/2020
NHRS (net of fees)	-10.4%	20.2%
MSCI EAFE Index	-5.9%	24.9%
vs. EAFE Index	-4.5%	-4.6%

Chart 4: 2022 was driven by low quality stocks, as evidenced via low Price to Book (P/B) metric. The chart below shows returns of the MSCI EAFE index where low-quality stocks outperformed high quality stocks for the year.

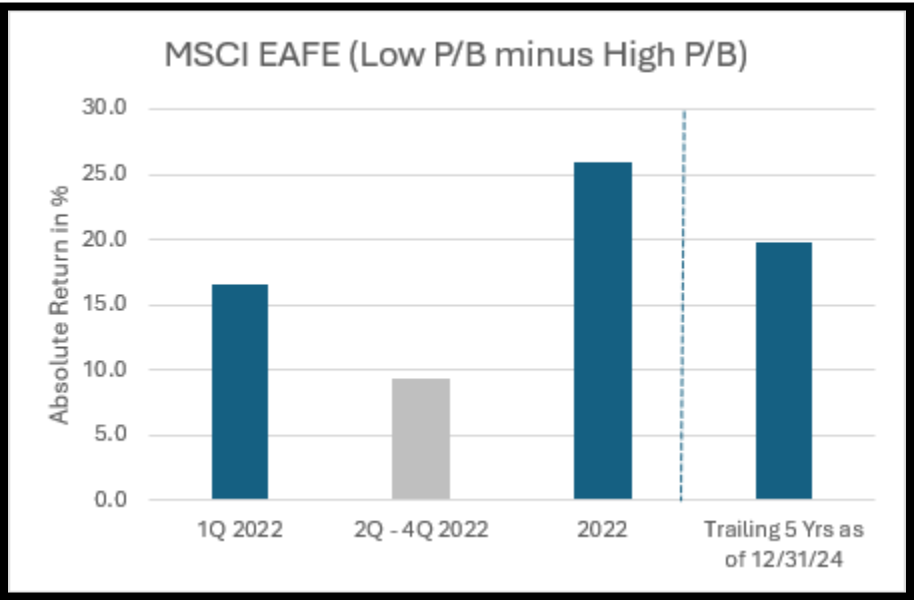
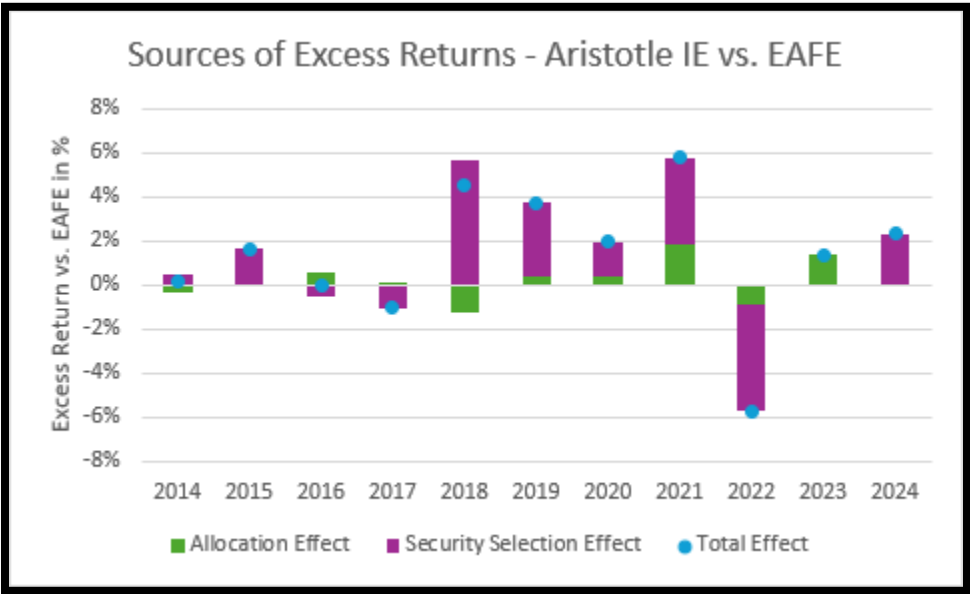


Chart 5: Aristotle’s strategy underperformed in a similar pattern but outperformed over the 5-years ended 12/31/24.



Chart 6: Performance attribution illustrating that security selection is the driver of excess returns, on average explaining ~85% each year.



Memorandum

To: Raynald Leveque, Chief Investment Officer for the NHRS
From: Angel G. Haddad, Britton M. Murdoch
Date: April 28, 2025
Subject: Reallocation of Lazard Proceeds to Aristotle

The New Hampshire Retirement System (NHRS) recently terminated the Lazard International Equity Strategy due to relative performance versus benchmark and peers. Lazard employed a bottom-up relative value philosophy with a focus on quality and a style that tended to be core with a slight growth tilt relative to the MSCI EAFE Index. Aristotle's investment philosophy consists of four tenets to capture market inefficiencies: identify high-quality businesses; analyze businesses from a global perspective; identify catalysts and invest with a long-term view; and construct focused portfolios. This philosophy leads to a portfolio that is diversified, high conviction, and low turnover with alpha generation driven by security selection. Given this process, Aristotle's style can oscillate between core, value and growth but will have persistent exposure to quality. NHRS inception in the Aristotle strategy is December 2020.

Aristotle's International Equity strategy performed very well in calendar years 2020 and 2021. The beginning of 2020 was upended by the unexpected Covid-19 pandemic. Aristotle's quality companies held up very well during this uncertain time period. Additionally, as the team is constantly seeking differentiated, bottom-up stock ideas, the portfolio held unique companies across multiple industries and sectors. This diversification helped to further protect on the downside. As difficulties from the pandemic began to subside and vaccines were introduced, Aristotle's allocation to more durable growth companies and lower weights to commodities benefited the portfolio in calendar year 2021.

However, the beginning of 2022 saw a dramatic shift in market preference. A confluence of events occurred simultaneously including Russia's invasion of the Ukraine as well as persistent inflation and increases in interest rates. Given this backdrop, commodities, specifically energy, benefited while the longer duration growth stocks that had performed so well just months prior sold off. This negatively impacted Aristotle's portfolio.

The Aristotle strategy's quality focus was rewarded in 2023 and 2024. In 2024, the Strategy outperformed the MSCI EAFE Index by 72 bps, net of fees, and ranked above its median peer in the 39th percentile. Overall, Aristotle's International Equity performance is within expectations given the firm's philosophy and process.

After a careful evaluation of the Fund's non-U.S. equity structure, the NHRS Investment Team recommended reallocating the Lazard assets (\$164 million as of 12/31/2024) to Aristotle. Callan agreed with the Investment Team's recommendation. The reallocation of assets to Aristotle provides reasonably similar core developed international equity exposure to that of Lazard and disrupts only one of the three active core international equity managers. In addition, if assets are reallocated from Lazard to Aristotle, we estimate that NHRS will incur annual fee savings of approximately \$253,000 compared to holding both managers.

As the NHRS portfolio moves toward funding the new target asset allocation, the Investment Team expects to equalize the dollar allocations between the three core managers as equity assets are drawn to fund allocations to infrastructure and private credit.

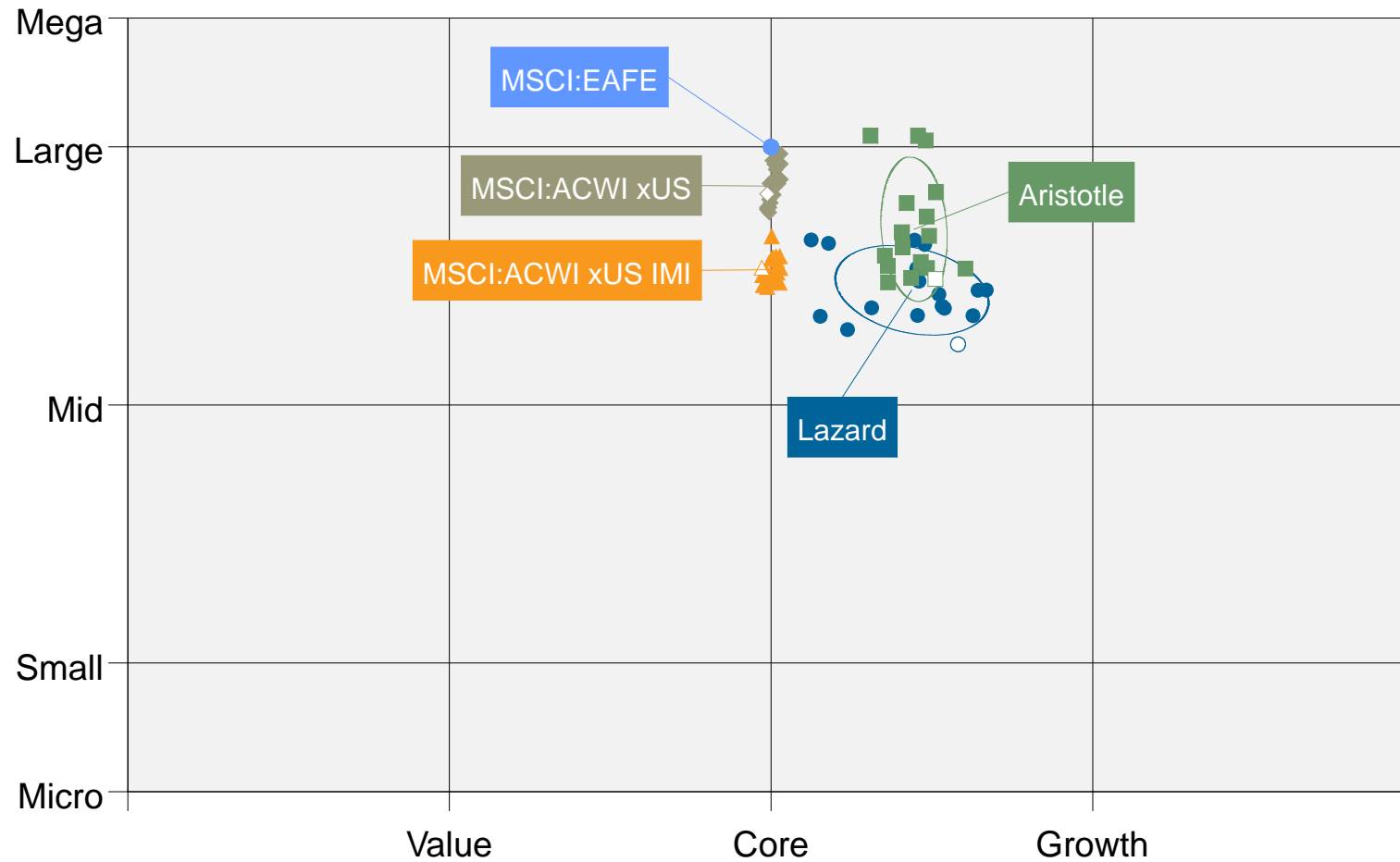
Please refer to the appendix for more information regarding the quantitative factors considered in our analysis.

APPENDIX

Style Map – Lazard and Aristotle

5 Years Ended December 31, 2024

International Equity Style Map for 5 Years Ended December 31, 2024

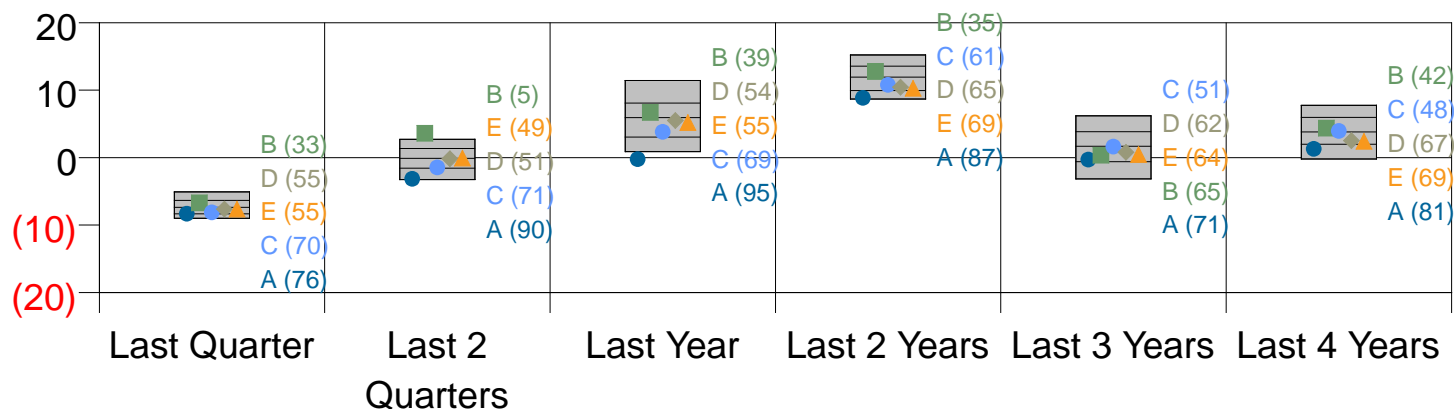


Trailing Performance and Rankings – Lazard and Aristotle

Periods Ended December 31, 2024

Gross of Fee Returns for Periods Ended December 31, 2024

Group: Callan Non-US Equity



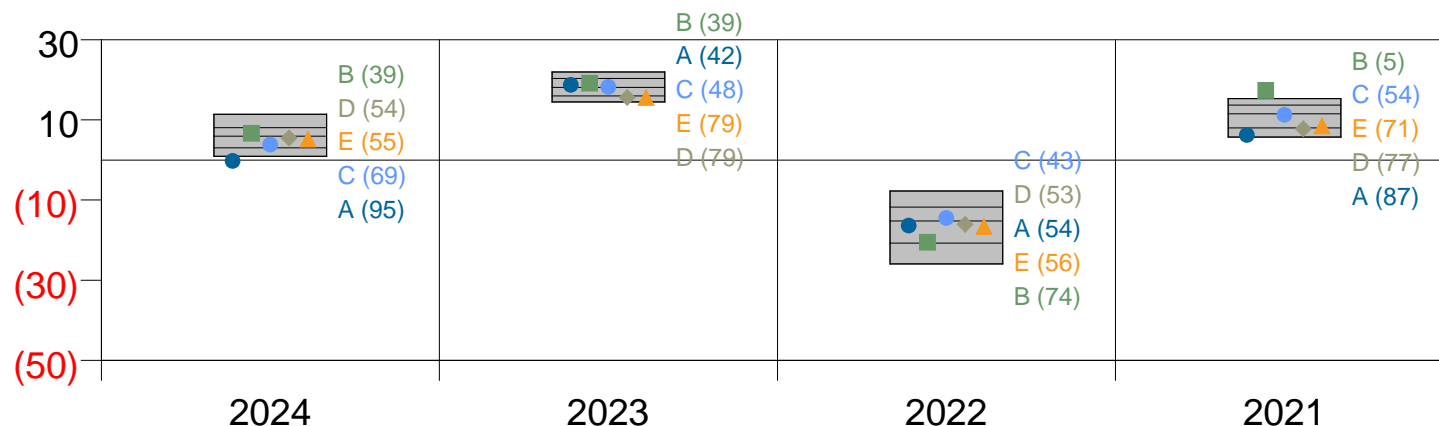
10th Percentile	(5.07)	2.72	11.47	15.24	6.23	7.78
25th Percentile	(6.33)	1.37	8.10	13.59	3.86	6.00
Median	(7.35)	(0.07)	5.96	11.97	1.72	3.83
75th Percentile	(8.31)	(1.53)	3.08	9.96	(0.58)	2.02
90th Percentile	(8.96)	(3.23)	0.93	8.70	(3.15)	(0.17)
Lazard ● A	(8.32)	(3.15)	(0.23)	8.86	(0.30)	1.30
Aristotle ■ B	(6.69)	3.64	6.71	12.79	0.38	4.38
MSCI:EAFE ● C	(8.11)	(1.44)	3.82	10.80	1.65	3.97
MSCI:ACWI xUS ◆ D	(7.60)	(0.15)	5.53	10.46	0.82	2.53
MSCI:ACWI xUS IMI ▲ E	(7.61)	(0.05)	5.23	10.30	0.50	2.45

Calendar Year Performance and Rankings – Lazard and Aristotle

Periods Ended December 31, 2024

Gross of Fee Calendar Year Returns for Periods Ended December 31, 2024

Group: Callan Non-US Equity

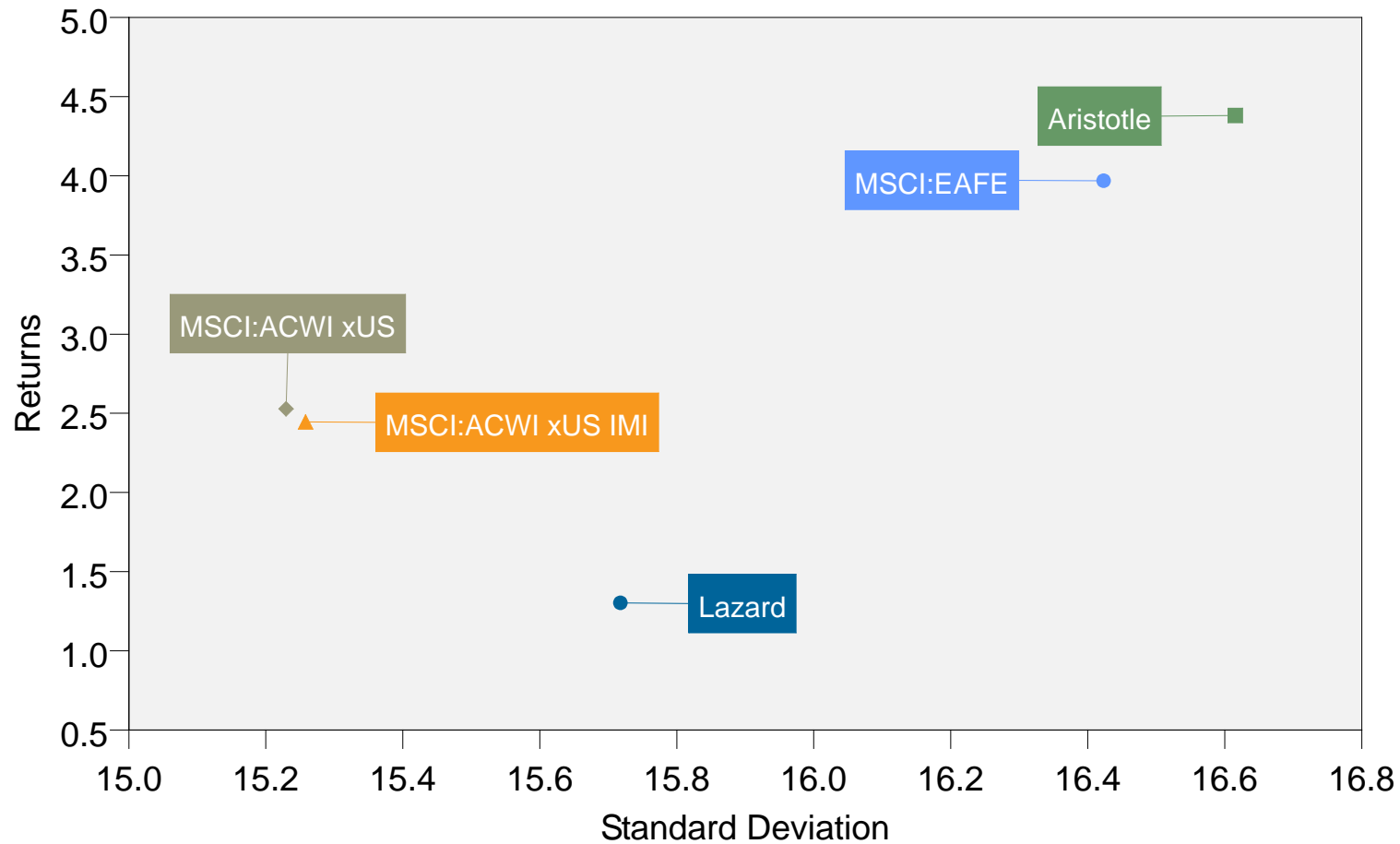


	2024	2023	2022	2021
10th Percentile	11.47	22.01	(7.73)	15.32
25th Percentile	8.10	20.35	(11.73)	13.71
Median	5.96	18.14	(15.20)	11.56
75th Percentile	3.08	16.00	(20.73)	8.02
90th Percentile	0.93	14.54	(25.92)	5.73
Lazard ● A	(0.23)	18.77	(16.36)	6.26
Aristotle ■ B	6.71	19.22	(20.48)	17.35
MSCI:EAFE ● C	3.82	18.24	(14.45)	11.26
MSCI:ACWI xUS ◆ D	5.53	15.62	(16.00)	7.82
MSCI:ACWI xUS IMI ▲ E	5.23	15.62	(16.58)	8.53

Risk vs Return – Lazard and Aristotle

Period Ended December 31, 2024

Risk vs Reward for 4 Years Ended December 31, 2024





To: Independent Investment Committee (IIC)
From: Raynald Leveque, Chief Investment Officer
Shana Bilech, CFP®, Senior Investment Officer
Date: May 6, 2025
Re: **Conversion of Fixed Income Non-Core Mandates to Core Plus Mandate**
Item: Action: ☒ Discussion: ☐ Informational: ☐

October 8, 2024, IIC Meeting Recap

The Investment Team (Team), the IIC and Callan discussed their views on the global fixed income asset class at the October 2024 IIC meeting. The following structural changes to the asset class were agreed upon as recommended by the Investment Team:

1. **Reduce the risk level for the Global Fixed Income asset class**, favoring more core exposure that seeks to preserve capital while improving returns through income generation. Fixed Income Core exposure is defined in the NHRS Fixed Income Guidelines as follows:
 - a) Securities held within the Bloomberg Barclays U.S. Aggregate Index which are characterized as investment grade (IG), U.S. dollar-denominated, fixed-rate taxable bond securities. The index includes U.S. Treasuries, government-related and corporate securities, mortgage-backed securities, asset backed securities, and commercial mortgage-backed securities. TIPS, 144a securities with registration rights and permanent 144a securities are also permitted.
2. **Limit the use of foreign exchange strategies** in manager mandates to reduce the overall volatility of the Global Fixed Income asset class.
3. **Continue to utilize active management** with Core oriented managers to outperform the passive unmanaged benchmark, while minimizing overall fees.

Portfolio Recommendations

1. **Convert the Manulife Strategic Fixed Income (Non-Core) mandate to a new Core Fixed Income mandate with the same manager** (different PM team). The conversion to Manulife's Core Bond Fund will orient the total global fixed income portfolio towards a more core approach, by reducing volatility associated with high yield debt, emerging markets credit, and foreign exchange currency exposure.
2. **Convert the Brandywine Global Opportunistic Fixed Income (Brandywine) mandate to the Manulife Core Fixed Income fund** given Brandywine's extensive usage of currencies to generate returns. Transitioning the Brandywine proceeds to Manulife will increase the portfolio's fixed income core exposure.

Callan, our investment consultant, supports the Investment Team’s recommendation on the reallocation within the Global Fixed Income portfolio. The attached Callan structure review discusses the proposed changes.

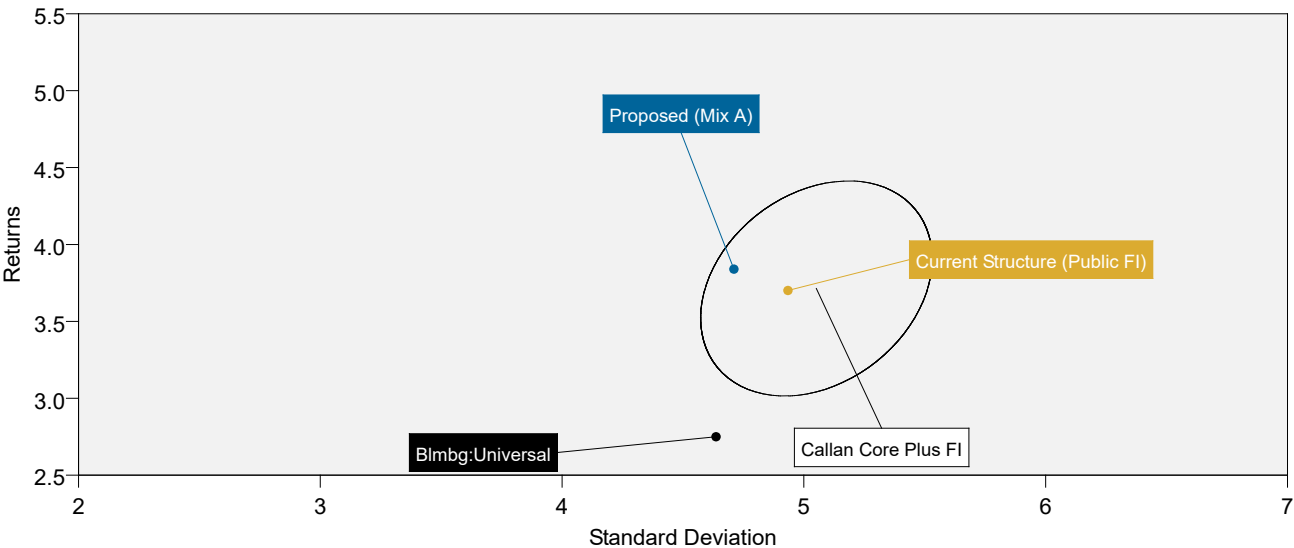
Supporting Rationale

1. Reduce non-core exposure for core exposure

- a) The restructured NHRS public fixed income portfolio will have greater core fixed income exposure. The overall global fixed income strategy will represent 65% core and 35% non-core exposure, from approximately 40% core and 60% non-core at 6/30/24.
- b) The Investment team believes that increasing IG exposure will reduce volatility from high yield corporates, emerging markets credit, and currencies.

Returns versus volatility (ex-post)

Scatter Chart
for 15 Years Ended December 31, 2024



Source: Callan

- c) Brandywine had the highest five-year average non-U.S., EMD and foreign currency exposure as of 12/31, followed by Manulife’s Strategic Fixed Income mandate.

Exposure to Non-Core Assets by Manager (Averages are for the five-year period ending 12/31/24)

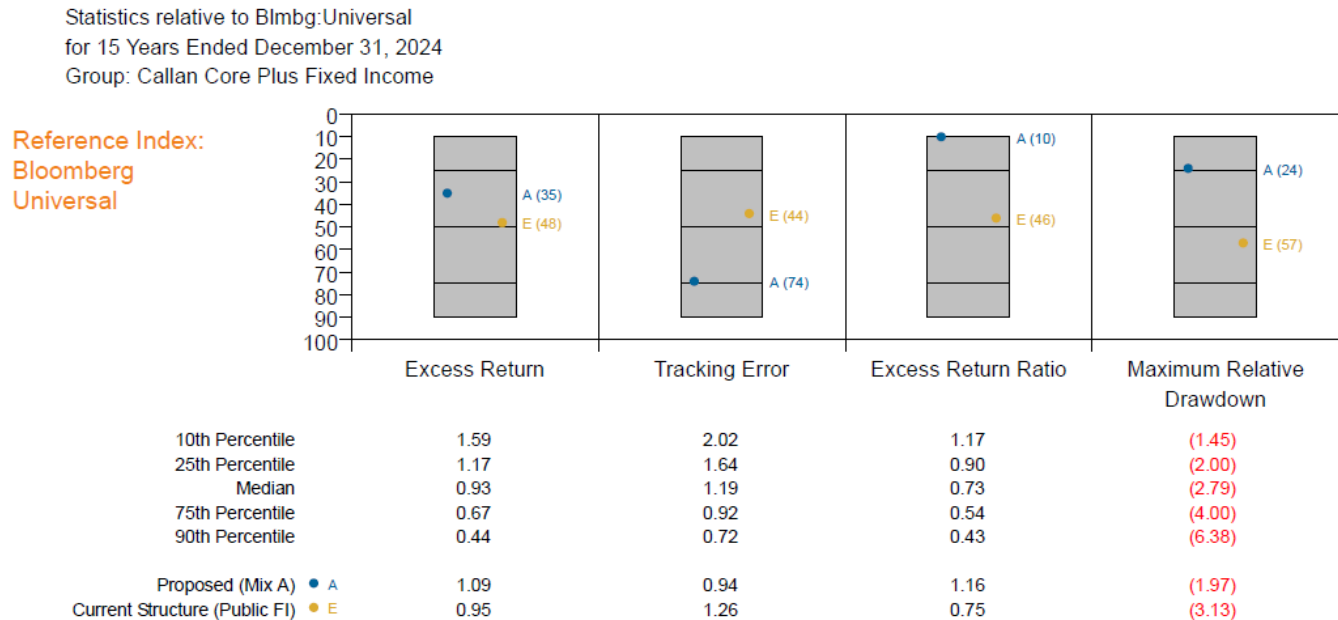
Manager	Permitted high yield exposure	Average high yield exposure	Permitted international exposure	Average international exposure	Average EMD exposure	Permitted non-USD exposure	Average non-USD exposure
BlackRock	No explicit limits	24%	No explicit limits	26%	8%	No explicit limits	4%
Brandywine	15%	11%	0-60%	75%	30%	0-70%	77%
Fidelity	70%	30%	No explicit limits	35%	8%	10%	2%
Loomis	35%	28%	20% excluding Canada	19%	7%	20%	1%
Manulife	50%	33%	25% in any one foreign government and 40% in emerging markets	37%	14%	0-100% of the fund's non-U.S. debt	13%

Source: NHRS and investment manager responses

2. Improve risk characteristics of global fixed income portfolio

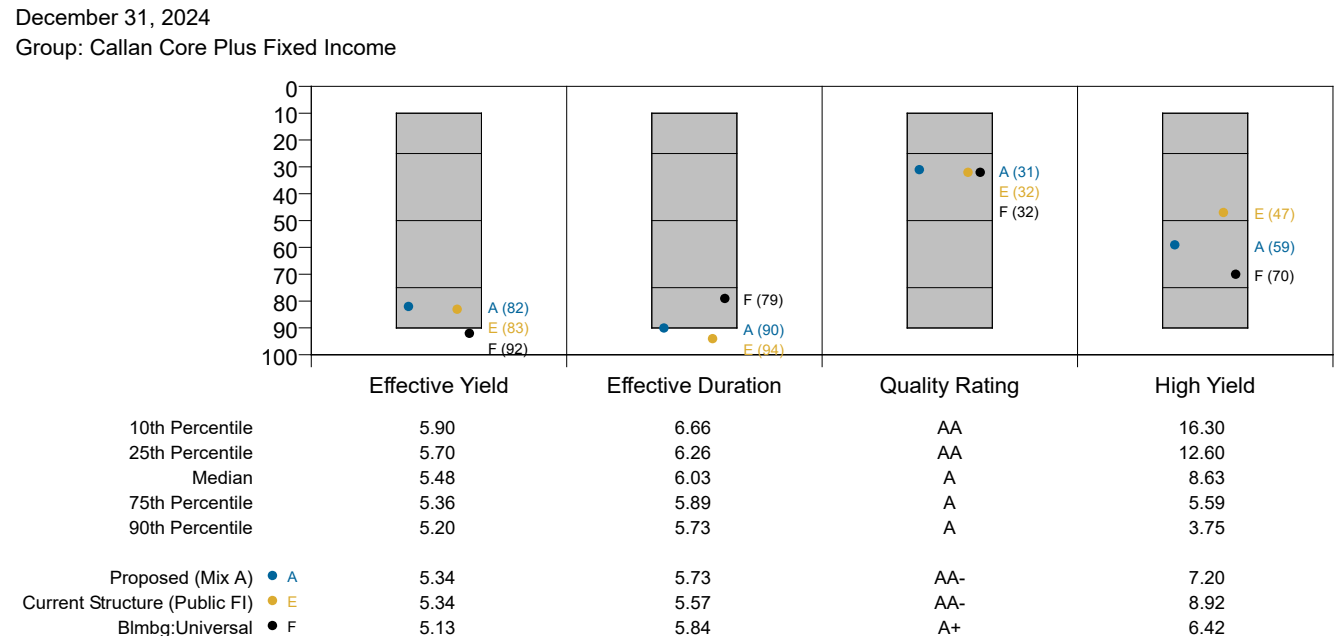
- a) The recommended portfolio has a lower tracking error, and less drawdown compared to the current portfolio. Effective yield based on Callan’s ex-post analysis remains steady, while maintaining a high-quality portfolio and lower allocation to high yield.

Portfolio Return and Risk Statistics relative to Universal Index and Core Plus Peers (ex-post)



Source: Callan

Portfolio Characteristics relative to Universal Index and Core Plus Peers (ex-post)



Source: Callan

- b) NHRS ex-ante analysis in Bloomberg similarly shows a slight reduction in yield while maintaining a high-quality portfolio. Total risk increased slightly.

Portfolio Characteristics (ex-ante)

	Proposed Portfolio Data as of 12/31/24	Current Portfolio as of 12/31/24	Difference
Market Value (%)	100.00	100.00	-
Yield to Maturity	5.94	6.61	(0.66)
Blended Avg/ Median Rating	A+/A	A+/A	-
Option Adjusted Duration	6.07	5.89	0.18
Standard Deviation	6.34	6.05	0.29

Source: NHRS (Bloomberg analysis)

3. Gain access to a strong core fixed income manager

- a) Tenured team: each of five PMs has been at the firm for over nine years. Two Senior PMs have been at firm for 23 and 32 years.
- b) High quality portfolio managed within one year of U.S. Aggregate Bond Index benchmark, with added alpha.
- c) **Strong long-term performance track record** dating back to 1996. The strategy has been in the top half of its peer group in the past 8/10 calendar years and outperforms its benchmark over the one, three, five and ten-year periods ending 12/31/24.
- d) Ability to deliver alpha in up markets while protecting on the downside (upside/downside capture of 112.7%/ 97.9% for the five-year period ending 12/31/24).
- e) The strategy has scale. The PM team manages \$14 billion in core fixed income and has separately managed accounts as well as commingled vehicles available.

4. Attribution of Manulife Core Fixed Income

- a) Sector allocation and security selection are the primary sources of investment returns.

Attribution for Manulife Core Fixed Income as of 3/31/25

Returns	1 Year	3 Year	5 Year
Manulife IM Core Fixed Income Composite (Gross)	5.57	0.96	0.67
Manulife IM Core Fixed Income Composite (Net)	5.26	0.66	0.37
Bloomberg US Aggregate Index	4.88	0.52	-0.40
Excess Return (Gross)	0.69	0.44	1.07
Excess Return (Net)	0.38	0.14	0.77
Excess Return Attribution (Gross)	1 Year	3 Year	5 Year
Sector Allocation	0.21	0.26	0.79
Security Selection	0.52	0.23	0.30
Currency	0.00	0.00	0.00
Duration/Yield Curve	-0.02	-0.05	0.03
Other	0.00	0.00	0.00
Total	0.71	0.43	1.11

Source: Manulife

5. Investment Staff to ensure a smooth transition of Manulife and Brandywine assets

- a) Transition of Manulife and Brandywine assets
 - i. The Manulife non-core assets are in a commingled investment trust vehicle and will transition smoothly to their Core Fixed Income vehicle (liquidate shares in the commingled fund versus selling individual securities).
 - ii. The Brandywine assets are in a separately managed account. The Investment Team will engage with Brandywine to determine the most efficient way to transfer assets to the Manulife Core Fixed Income fund.

6. Lower fees

- a) Manulife's proposed blended fee of 14.6 basis points will lower fees by over \$200,000 annually. The Core Fixed Income fees are below median for Callan's Core Fixed Income peer group.

Memorandum

To: Raynald Leveque, Chief Investment Officer for the NHRS
From: Angel G. Haddad, Britton M. Murdoch
Date: May 2, 2025
Subject: Fixed Income Portfolio Restructuring

The current New Hampshire Retirement System (NHRS) fixed income structure consists of seven managers, including a passive Aggregate mandate from Mellon, a conservative high-quality mandate from Income Research & Management, which serves as the anchor of the fixed income structure, and several opportunistic/unconstrained mandates. Typically, the role of fixed income is to serve as a low-risk, diversifying anchor against which an investor takes on riskier investments, such as equity. Callan reviewed a number of potential structure changes with the NHRS Investment Team within our fixed income structure analyses. In an effort to reduce the overall risk of the fixed income portfolio and move the structure to be more core in style, the NHRS Investment Team recommended terminating the Brandywine Global Fixed Income Fund (\$218 million global, opportunistic mandate as of 12/31/2024) and transitioning the current Manulife Strategic Fixed Income Fund (\$222 million global, opportunistic mandate as of 12/31/2024) to the Manulife Core Fixed Income Fund.

Manulife believes strong performance can be generated through bottom-up active management of sector allocation, issue selection and yield curve positioning. The team's disciplined investment process seeks to add value by following a relative value approach to sector allocation and issue selection, engaging in intensive fundamental credit research and identifying points on the yield curve with the greatest return potential. Additionally, the team seeks to maintain a yield that is above the benchmark yield in order to reduce portfolio volatility.

Callan agrees with the NHRS Investment Team's recommendation. The reallocation of assets to the Manulife Core Fixed Income strategy reduces exposure to credit risk relative to the incumbent, therefore reducing the portfolio's sensitivity to fluctuations in the stock market, particularly during stressed markets (this risk factor is defined as equity beta risk). Additionally, the tracking error of the portfolio and overall risk profile of the fixed income composite is reduced, while still allowing for potential active management outperformance. These changes are also conducive to lower costs. If assets are reallocated from Brandywine, and Manulife Strategic Fixed Income is transitioned to the Manulife Core strategy, we estimate that NHRS will incur annual fee savings of approximately \$240,000 compared to the current structure.

Callan maintains conviction in Manulife as a core fixed income manager. It is important to note that the Manulife Core mandate will be managed by a different team (Jeff Given and Howard Green) compared to Chris Chapman, who oversees the Manulife Strategic Fixed Income Fund.

Please refer to the appendix for more information regarding the quantitative factors considered in our analysis.



APPENDIX

May 2025



New Hampshire Retirement System

Fixed Income Structure Review

Kevin Machiz, CFA, FRM
Capital Markets Research

Angel Haddad
Fund Sponsor Consulting

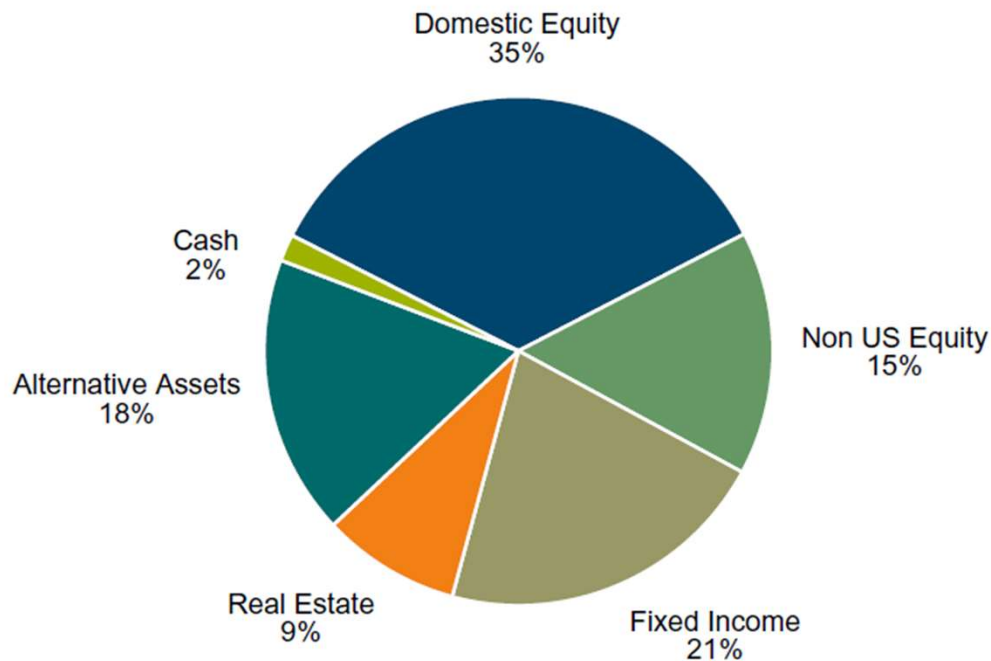
Britton Murdoch
Fund Sponsor Consulting

Important Disclosures regarding the use of this document are included at the end of this document. These disclosures are an integral part of this document and should be considered by the user.

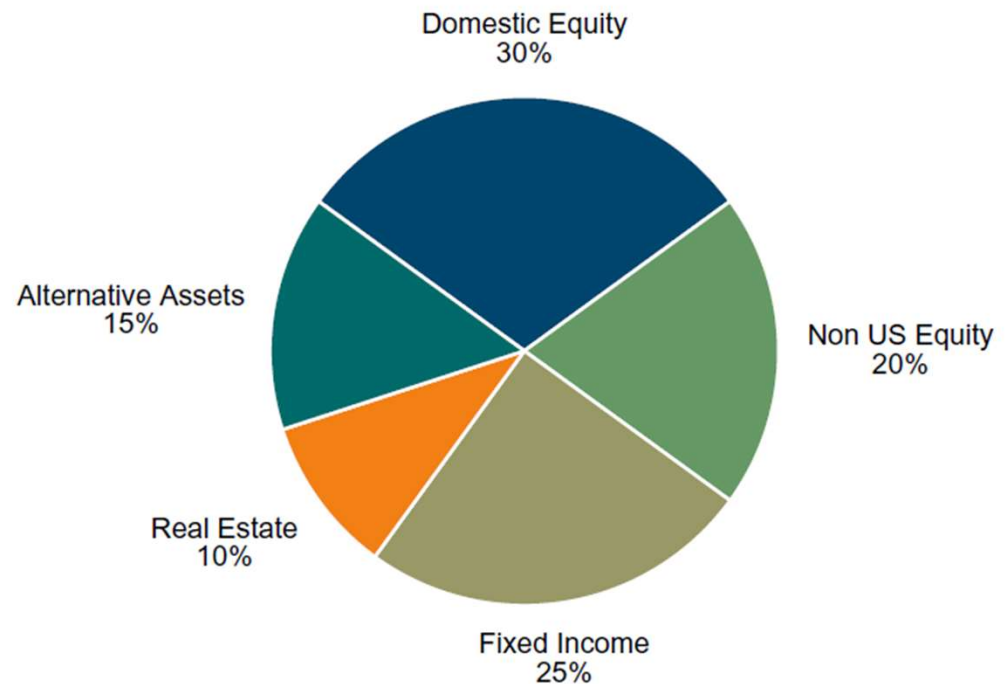
Current Asset Allocation

As of December 31, 2024

Actual Asset Allocation



Target Asset Allocation



- 50% Public Equity allocation shown in Current Target is expected to be reduced to 45% with 5% in Private Credit (a sub-asset class within Alternative Assets) expected to increase to 10%
- Current Actual Fixed Income asset allocation (21%) is 4% below Target (25%)

Fixed Income Styles

Role of Fixed Income

- The primary role of public equities in asset allocation is capital growth
- Fixed income is typically a low-risk, diversifying asset for the equity allocation rather than a primary source of additional return to a fund
 - Bonds offer protection in the short run
 - Dependable income provides comfort in economic downturns or sudden market corrections
- The fixed income allocation is the primary diversifier for the exposure to equities
- Fixed income can also serve as an important source of liquidity
- Is the fixed income allocation fulfilling an appropriate role?
- How should fixed income be structured to fulfill competing goals of safety, diversification, liquidity, and returns?
 - A Passive Aggregate allocation can reduce tracking error and fees while reliably providing liquidity
 - The IR&M strategy is also conservative and seeks out incremental returns within high quality fixed income markets
 - The other opportunistic/unconstrained strategies can pursue a variety of risk factors (e.g. duration, yield curve, currency, etc.) and have wide latitude to scale risks up and down in pursuit of returns, and in doing so are expected to diversify more traditional fixed income allocations

Fixed Income Opportunities

- The three main factors that define fixed income strategies are:
 - Broad market exposure vs. one narrowed by sector or duration
 - Use of tactical “core plus” mandates vs. dedicated allocations to “satellite” securities outside of the benchmark, such as low-quality credit or global bonds
 - Active vs. passive implementation
- Approaches include core, core plus, and specialty
 - Investment managers should be allowed to make tactical sector decisions
 - Managers have the knowledge, experience, tools, and focus to make value-adding decisions on sector allocations that reflect the relative attractiveness of the sectors
 - Overvalued sectors can be underweighted to limit losses consistent with the stabilizing role of fixed income
 - Limiting managers to specific sectors often results in more complex structures due to the need for an increased number of managers

Global Fixed Income Overview

- Expanding globally offers a differentiated source of return
 - Fixed income returns vary widely by country due to different business and monetary policy cycles
 - However, many developed countries face similar economic challenges as the U.S.
 - Active management is strongly encouraged
- Hedging currency is an important decision
 - Historically, unhedged non-U.S. fixed income has had a similar return with significantly more volatility
 - Predicting direction of US dollar is difficult but currency may be source of alpha for a global fixed income manager.
- Variety of styles available, from benchmark oriented to “unconstrained”

Core Bond Style vs. Bloomberg Aggregate

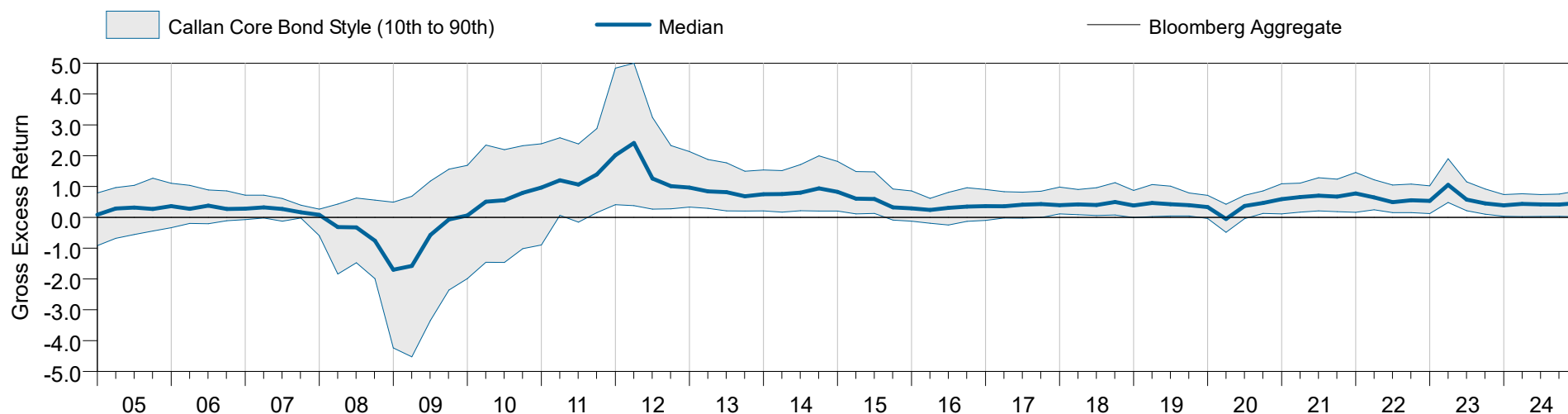
How often Manager Beat Benchmark by more than Fee Hurdle in Rolling 3-Year Periods over last 20 Years

Fee Hurdle	0.20%	0.25%	0.30%	0.35%	0.40%	0.45%	0.50%	0.55%	0.60%	0.65%
Median	86%	85%	76%	70%	56%	48%	41%	38%	31%	29%
45th Percentile	89%	89%	85%	75%	68%	51%	45%	41%	38%	34%
40th Percentile	90%	89%	89%	84%	80%	69%	53%	45%	41%	38%
35th Percentile	91%	90%	89%	86%	83%	79%	69%	56%	48%	43%
30th Percentile	93%	93%	91%	90%	89%	84%	80%	70%	59%	53%
25th Percentile	95%	93%	93%	91%	91%	90%	88%	81%	73%	66%

Average Annualized 3-Year Excess Return (gross) – Median Manager:

0.47%

Rolling 3-Year Gross Excess Return relative to Bloomberg Aggregate for 20 Years ended December 31, 2024



Core Plus Bond Style vs. Bloomberg Aggregate

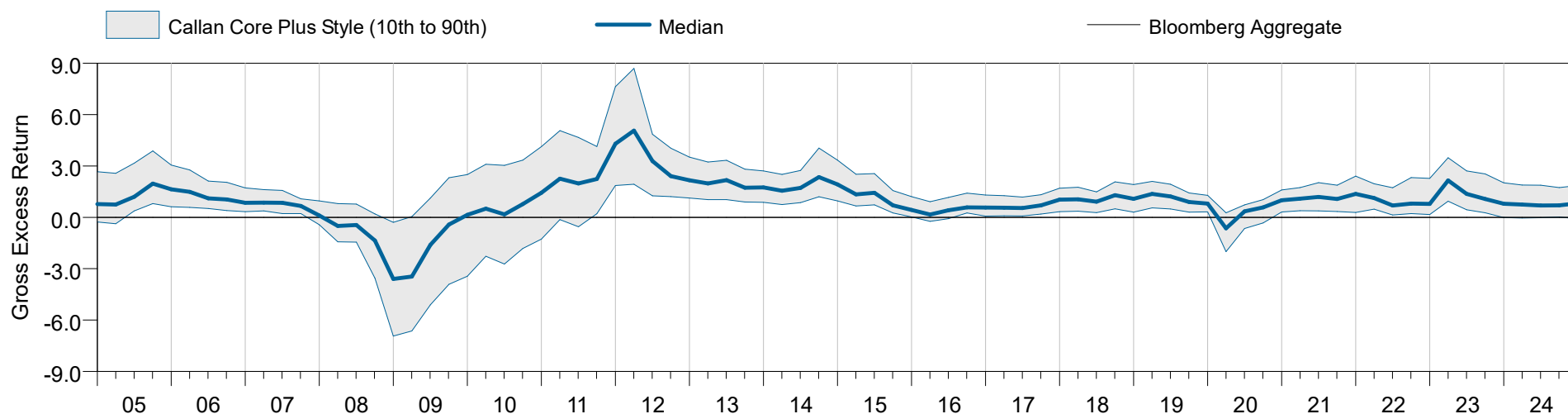
How often Manager Beat Benchmark by more than Fee Hurdle in Rolling 3-Year Periods over last 20 Years

Fee Hurdle	0.20%	0.25%	0.30%	0.35%	0.40%	0.45%	0.50%	0.55%	0.60%	0.65%
Median	85%	85%	85%	84%	84%	81%	81%	79%	74%	74%
45th Percentile	89%	88%	86%	86%	85%	83%	81%	81%	80%	75%
40th Percentile	90%	89%	89%	88%	88%	86%	85%	85%	84%	81%
35th Percentile	91%	90%	90%	89%	89%	89%	88%	88%	86%	84%
30th Percentile	91%	91%	91%	90%	90%	89%	89%	88%	88%	86%
25th Percentile	93%	93%	93%	93%	93%	90%	89%	89%	88%	88%

Average Annualized 3-Year Excess Return (gross) – Median Manager:

0.98%

Rolling 3-Year Gross Excess Return relative to Bloomberg Aggregate for 20 Years ended December 31, 2024



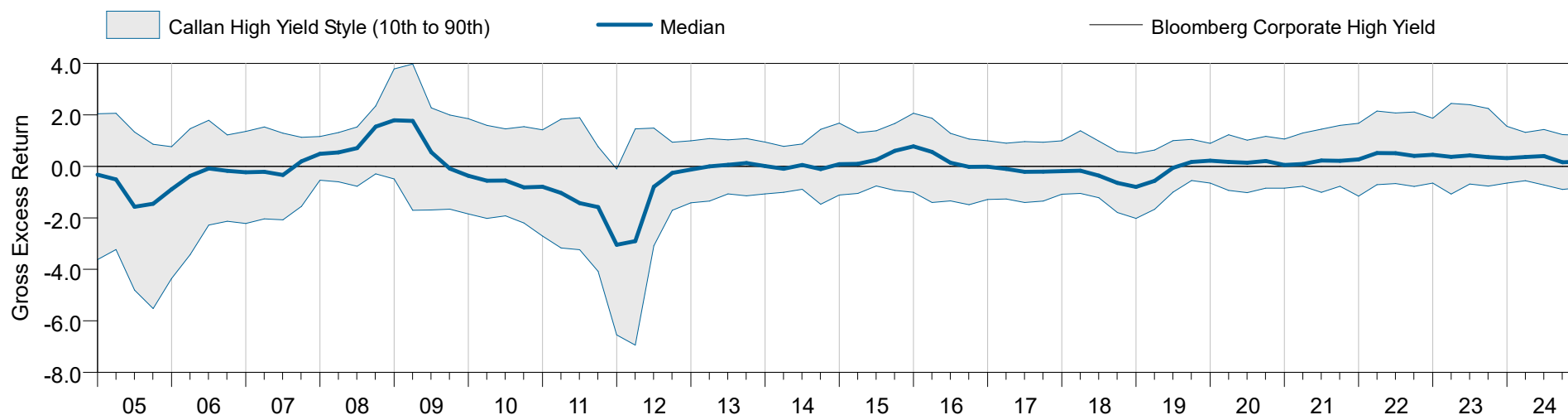
High Yield Style vs. Bloomberg Corporate High Yield

How often Manager Beat Benchmark by more than Fee Hurdle in Rolling 3-Year Periods over last 20 Years

Fee Hurdle	0.20%	0.25%	0.30%	0.35%	0.40%	0.45%	0.50%	0.55%	0.60%	0.65%
Median	33%	26%	25%	24%	20%	16%	14%	10%	8%	6%
45th Percentile	45%	38%	33%	26%	24%	20%	18%	15%	10%	10%
40th Percentile	51%	48%	45%	38%	35%	29%	26%	20%	19%	13%
35th Percentile	64%	59%	54%	49%	43%	35%	34%	31%	25%	20%
30th Percentile	79%	73%	65%	60%	53%	48%	44%	38%	34%	33%
25th Percentile	85%	84%	83%	79%	76%	68%	61%	55%	54%	44%

Average Annualized 3-Year Excess Return (gross) – Median Manager: -0.09%

Rolling 3-Year Gross Excess Return relative to Bloomberg Corporate High Yield for 20 Years ended December 31, 2024



Global Fixed Style vs. Bloomberg Global Aggregate

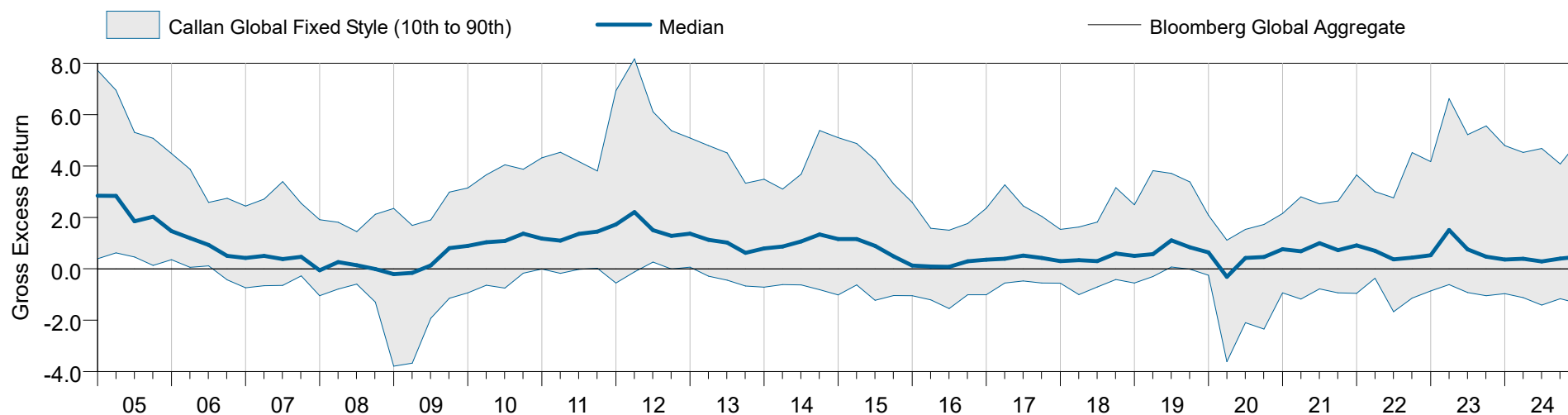
How often Manager Beat Benchmark by more than Fee Hurdle in Rolling 3-Year Periods over last 20 Years

Fee Hurdle	0.20%	0.25%	0.30%	0.35%	0.40%	0.45%	0.50%	0.55%	0.60%	0.65%
Median	88%	88%	83%	80%	71%	66%	60%	54%	51%	49%
45th Percentile	89%	88%	88%	86%	84%	79%	74%	63%	58%	56%
40th Percentile	94%	91%	90%	90%	89%	88%	81%	80%	78%	71%
35th Percentile	100%	99%	98%	96%	95%	91%	91%	89%	88%	85%
30th Percentile	100%	100%	100%	99%	99%	98%	96%	93%	90%	90%
25th Percentile	100%	100%	100%	100%	100%	100%	99%	99%	96%	94%

Average Annualized 3-Year Excess Return (gross) – Median Manager:

0.76%

Rolling 3-Year Gross Excess Return relative to Bloomberg Global Aggregate for 20 Years ended December 31, 2024



Do Core Plus Managers Add Value with Sector Rotation?

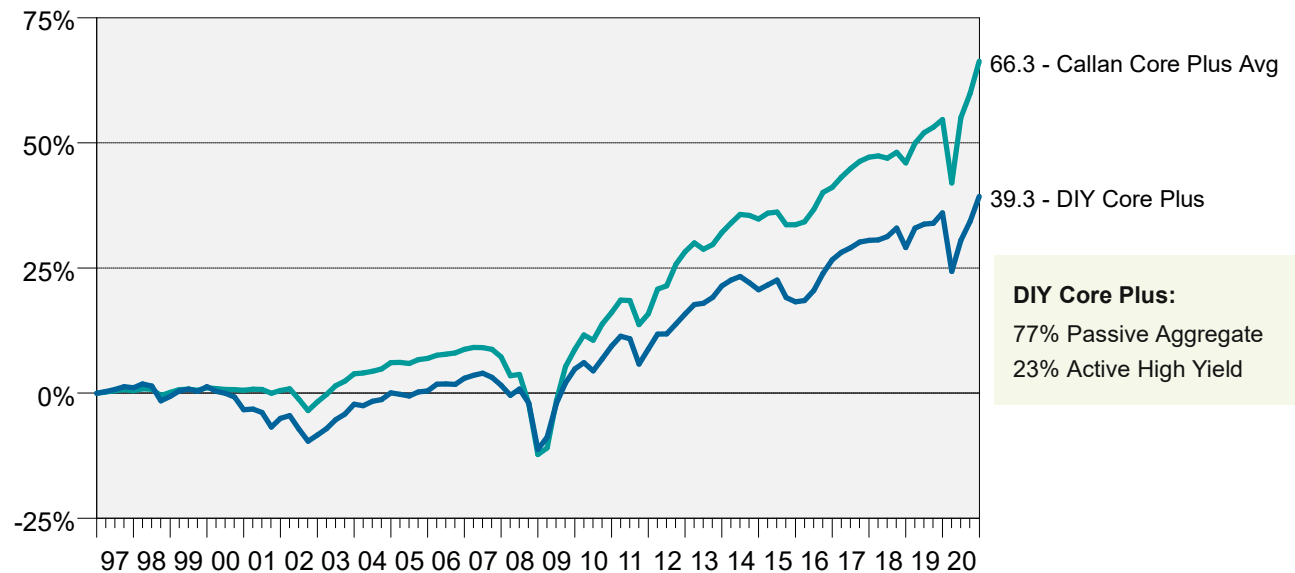
Idea: Core plus managers given an aggregate index benchmark will strategically overweight high yield credit

Question: Could asset owners reasonably take a do-it-yourself (DIY) approach to strategic sector allocation?

Goal: Perform a risk adjustment to the benchmarks to disentangle contribution to performance from a strategic overweight to credit vs. true sector rotation

Inputs: Bloomberg Barclays Aggregate, Callan High Yield peer group average return

Output: DIY portfolio that allocates to both and minimizes tracking error to the average active manager return



Source: Callan, details on methodology: <https://www.callan.com/research/active-fixed-income-managers/>

Fixed Income Strategies

Descriptions, Pros and Cons

Passive Aggregate: Attempts to replicate the return of the Bloomberg Aggregate index with minimal tracking error

Pros

- Minimal fee
- Minimal tracking error
- Liquidity

Cons

- Expected to underperform the index approximately by the amount of fees
- There is strong evidence that active fixed income managers have a high probability of outperforming

Purpose: Stability of Income/Diversification vs. Equity/Low Default Risk

Core Plus: Attempts to add value over the Bloomberg Aggregate with relatively high tracking error due in part to the use of non-index securities, such as low-quality credit or global bonds

Pros

- Managers have generally added value net of fees
- Use tactical allocation when valuations are attractive

Cons

- Higher tracking error than Core
- Non-index securities tend to have higher correlations to equities limiting potential diversification vs. equities

Purpose: Moderate Total Return

Fixed Income Strategies

Descriptions, Pros and Cons

Unconstrained Fixed Income: Attempts to achieve moderate to high total returns without the need to track the Bloomberg Aggregate index. Heavy use of non-index securities, such as low-quality credit or global bonds

Pros

- Higher potential for value added from active management due to relaxed constraints
- Able to allocate heavily to non-index securities and make significant use of sector rotation
- Greater potential for protection against a rising interest rate environment

Cons

- Untethering from benchmark may not be consistent with stabilizing role of fixed income
- Non-index securities tend to have higher correlation to equities, limiting portfolio diversification
- Heavily reliant on manager skill due to broad investment guidelines and tactical elements
- For these strategies to produce favorable risk-adjusted results, the manager must consistently make the right tactical choices

Purpose: Moderate to High Total Return, Diversification vs. Traditional Fixed Income

Fixed Income Strategies

Descriptions, Pros and Cons

Global: Broadly diversified allocations to bonds across the globe with varying degrees of risk and use of non-benchmark securities

Pros

- Managers have the ability to move between under- and over-valued markets
- Access to non-US markets can add significant diversification
- Broadening the opportunity set with active country allocations, especially to emerging markets, could add to returns

Cons

- Yields overseas are relatively low
- Requires a well-resourced firm to adequately cover the markets
- While leaving currency unhedged could allow greater diversification to Domestic Fixed Income, it comes with higher volatility

Purpose: Moderate Total Return/Some Diversification vs. Traditional Fixed Income

Callan

Fixed Income Structure Review

Current Fixed Income Structure

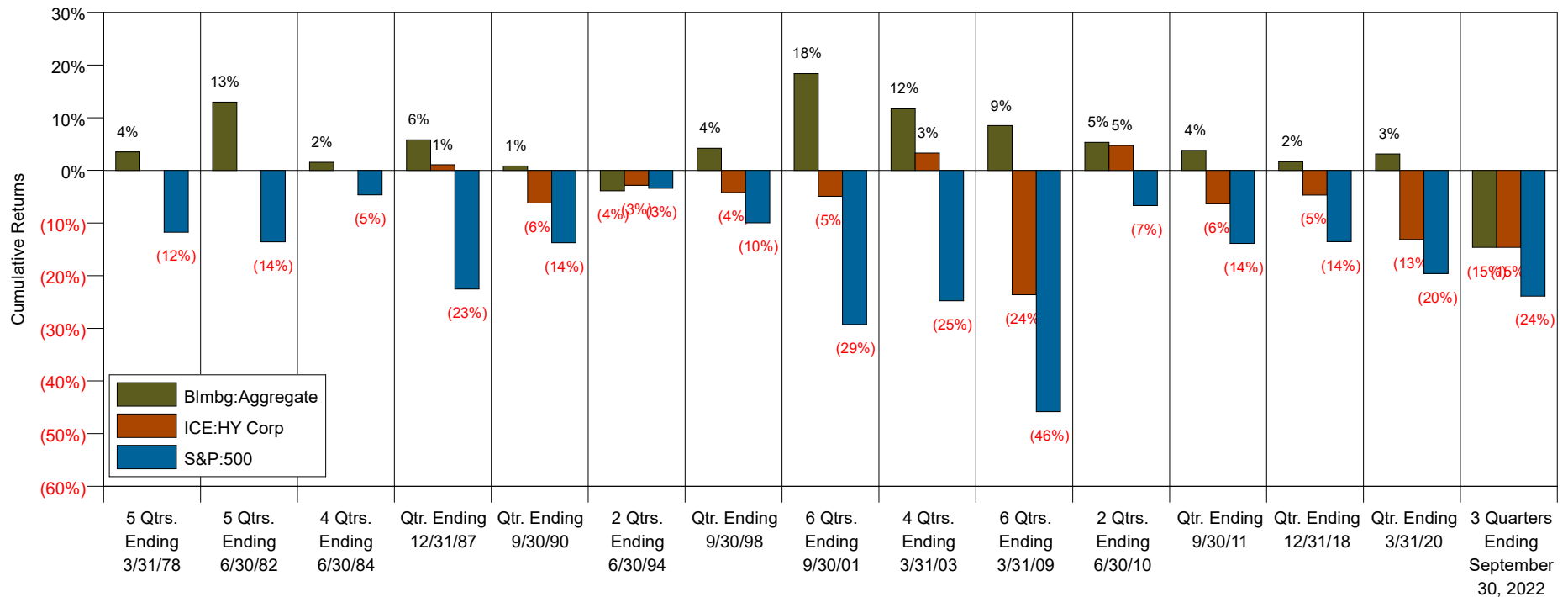
Category	Fund	Pro Forma Current \$	Current % of FI	Current % of Fund
Core	Mellon US Agg Bond Index	\$ 725,630,310	24.7%	5.8%
Core	Income Research & Management	\$ 801,047,806	27.3%	6.4%
Unconstrained/Opportunistic	FIAM (Fidelity) Tactical Bond	\$ 383,928,220	13.1%	3.0%
Unconstrained/Opportunistic	BlackRock SIO Bond Fund	\$ 280,412,435	9.6%	2.2%
Unconstrained/Opportunistic	Brandywine Asset Mgmt	\$ 218,003,975	7.4%	1.7%
Unconstrained/Opportunistic	Loomis Sayles	\$ 302,245,379	10.3%	2.4%
Unconstrained/Opportunistic	Manulife Strategic Fixed Income	\$ 222,406,981	7.6%	1.8%
	Total Fixed Income	\$ 2,933,675,106	100.0%	23.3%
	Core	\$ 1,526,678,116	52.0%	12.1%
	Unconstrained/Opportunistic	\$ 1,406,996,990	48.0%	11.2%

- The Current Fixed Income Structure consists of seven managers, a Passive Aggregate mandate from Mellon, a conservative high-quality mandate from Income Research & Management, and several opportunistic / unconstrained mandates

Current, as of 12/31/24 with "Pro Forma" reflecting an additional \$250 million of rebalancing from global equity to fixed income known to have occurred in April 2025

An Illustration of the Role of Fixed Income

Role as the “Anchor to Windward” – Fixed Income Performance in Declining Equity Environments

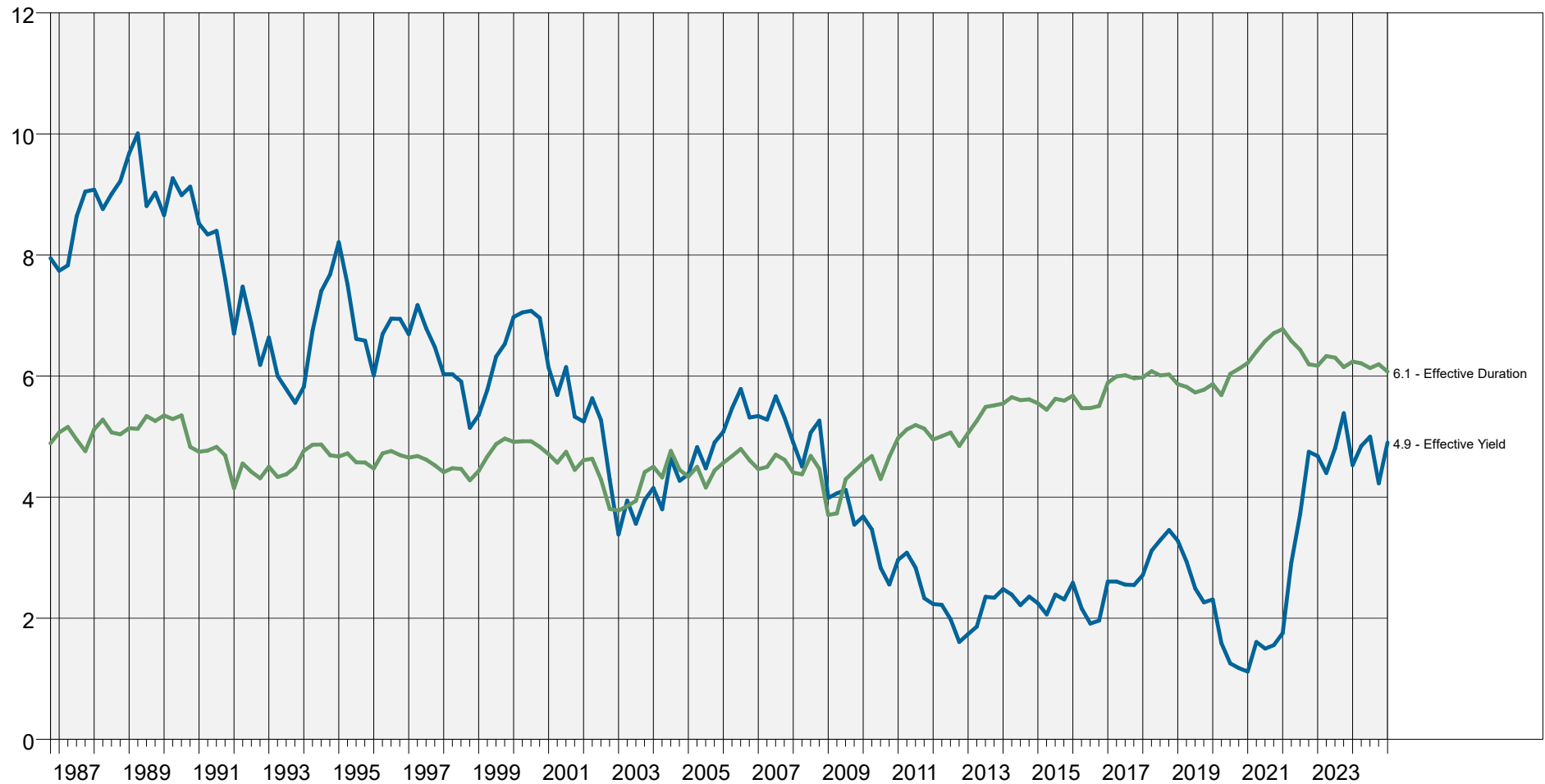


- Typically, the role of fixed income is to serve as a low-risk, diversifying anchor against which an investor takes on riskier investments in assets such as equity
 - Below-investment grade credit alone does not fulfill the role of anchor, but could be introduced alongside the anchor for other purposes

Inception of Merrill Lynch US High Yield Master II index is 4Q1986

Bond Yields Have Risen, Duration Remains Elevated

Portfolio: Blmbg:Aggregate



- Duration measures interest rate risk: at 6.1 years of duration, a 1% rise in yields would be expected to detract about 6.1% from returns
- Yield indicates the sustainable potential return if bonds are held to maturity without experiencing default

Fixed Income Structure Details

Fund	Current % of Fund	% of Fund	% of FI	% of FI		
	Fund	Proposed (Mix A)	Current	Mix A	Pro Forma Current	Proposed (Mix A)
Mellon US Agg Bond Index	5.8%	3.0%	24.7%	12.8%	\$725,630,310	\$375,630,310
Income Research & Management	6.4%	6.4%	27.3%	27.3%	\$801,047,806	\$801,047,806
Manulife Core Fixed Income	0.0%	6.3%	0.0%	26.9%	\$0	\$790,410,956
FIAM (Fidelity) Tactical Bond	3.0%	3.0%	13.1%	13.1%	\$383,928,220	\$383,928,220
BlackRock SIO Bond Fund	2.2%	2.2%	9.6%	9.6%	\$280,412,435	\$280,412,435
Brandywine Asset Mgmt	1.7%		7.4%	0.0%	\$218,003,975	\$0
Loomis Sayles	2.4%	2.4%	10.3%	10.3%	\$302,245,379	\$302,245,379
Manulife Strategic Fixed Income	1.8%		7.6%	0.0%	\$222,406,981	\$0
Total Fixed Income	23.3%	23.3%	100.0%	100.0%	\$2,933,675,106	\$2,933,675,106
Core	12.1%	15.6%	52.0%	67.1%	\$1,526,678,116	\$1,967,089,072
Unconstrained/Opportunistic	11.2%	7.7%	48.0%	32.9%	\$1,406,996,990	\$966,586,034

- Proposed Mix A seeks to increase the core exposure within the fixed income portfolio. Mix A eliminates Brandywine Global Fixed Income and transitions the current Manulife Strategic Fixed Income strategy to the Manulife Core Fixed Income strategy.
- Fixed income strategies are broken into two categories: core and unconstrained/opportunistic. Core strategies are more conservative and have less credit risk than unconstrained/opportunistic strategies. Core strategies include Mellon U.S. Aggregate Bond Index, Income Research and Management and Manulife Core Fixed Income. Unconstrained/opportunistic strategies include FIAM Tactical Bond, BlackRock SIO, Loomis Sayles and Manulife Strategic Fixed Income

Current, as of 12/31/24 with "Pro Forma" reflecting an additional \$250 million of rebalancing from global equity to fixed income known to have occurred in April 2025

Introduction to Proposed Mix

Proposed Mix relative to Current Structure:

Proposed Mix (Mix A)	
Potential Return	Similar
Volatility	Lower
Interest Rate Risk (Duration)	Lower
Credit Risk	Lower
Beta to Equity	Lower
Tracking Error	Lower
Fees	Similar

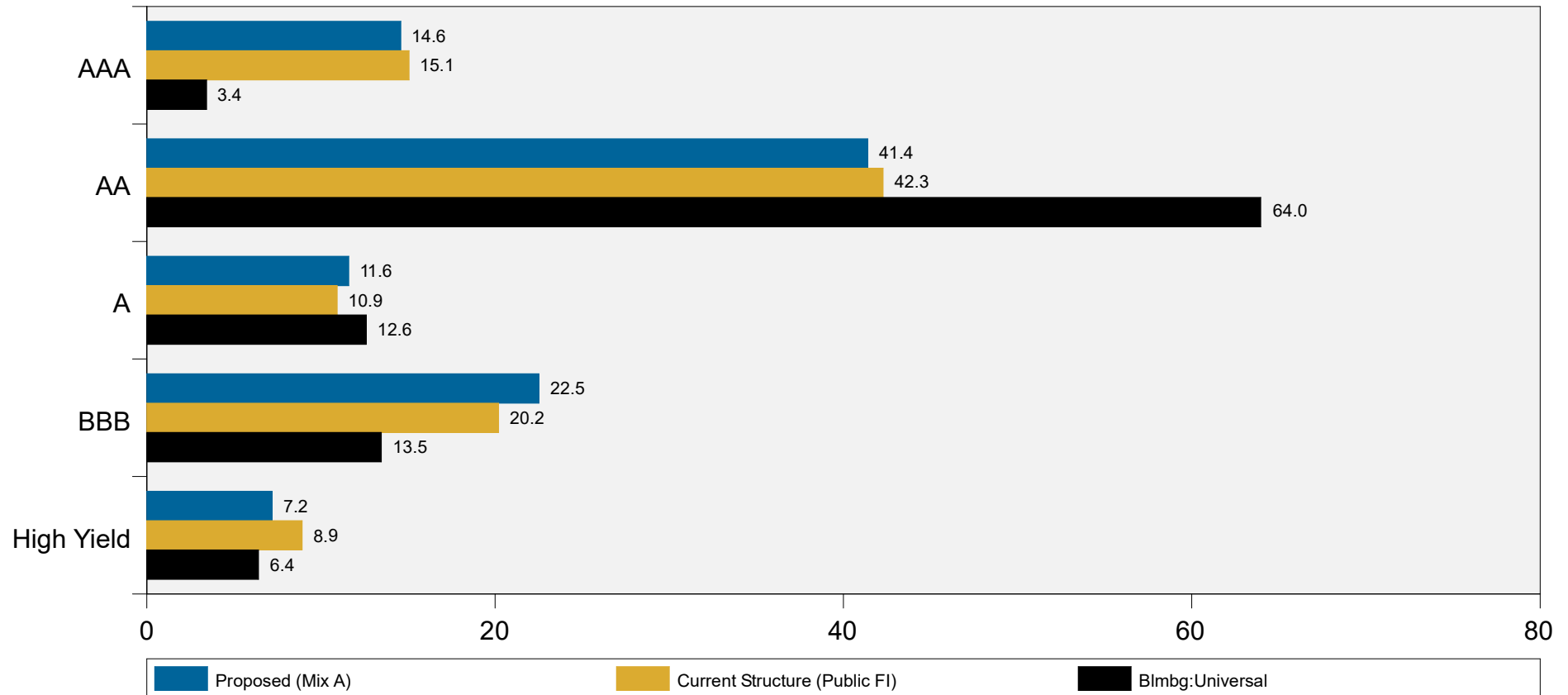
- Greater risk-taking could increase potential return, while reduced risk-taking may be associated with lower potential return

Historical Return Analysis

- To analyze historical results, Callan observed the Current Structure and modeled historical returns assuming monthly rebalancing
- This is an analysis of how structures would have performed historically, **not the portfolio's actual performance**
- The Current Structure is compared to Mix A
- All returns shown gross of fees unless noted otherwise
- Other material assumptions disclosed in appendix

Credit Quality Allocations

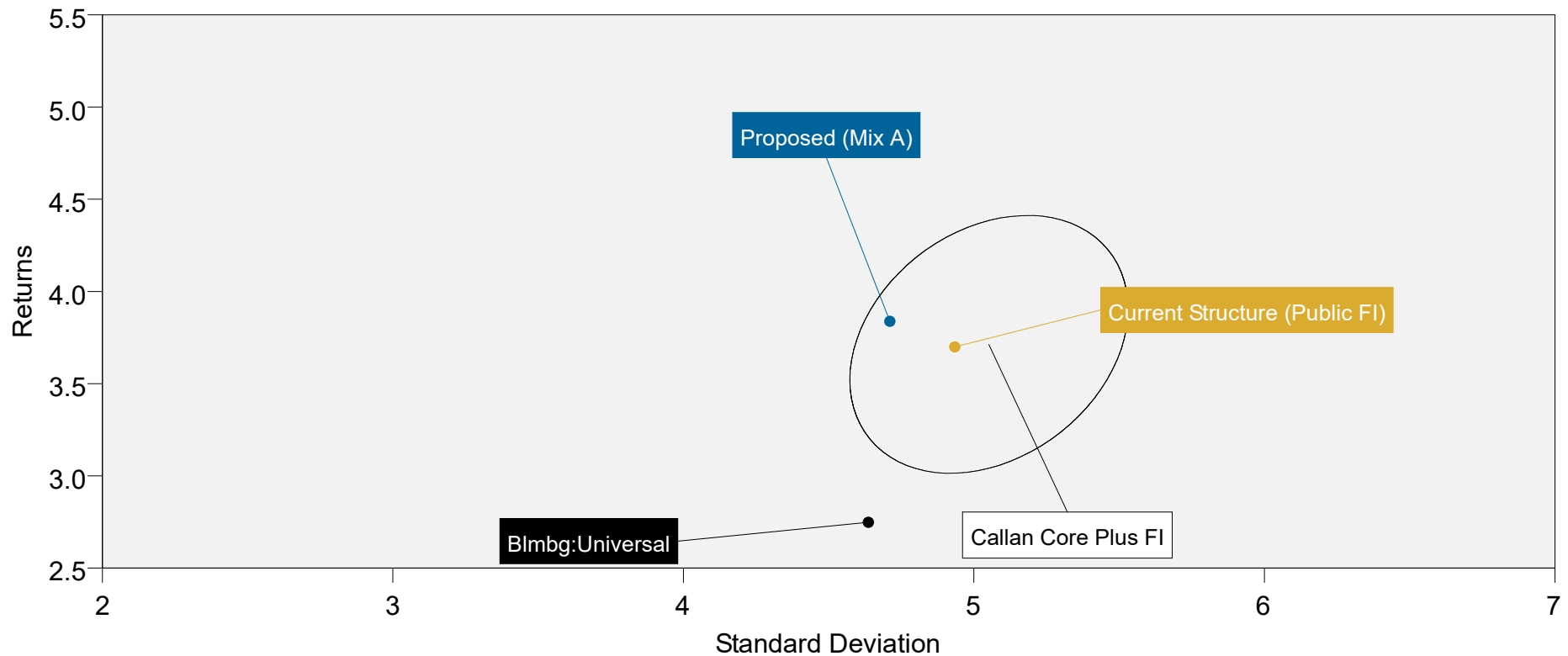
December 31, 2024



- The alternative mix has slightly lower credit risk, as indicated by a smaller allocations to bonds rated BB or below (non-investment grade)

Return vs. Volatility

Scatter Chart
for 15 Years Ended December 31, 2024

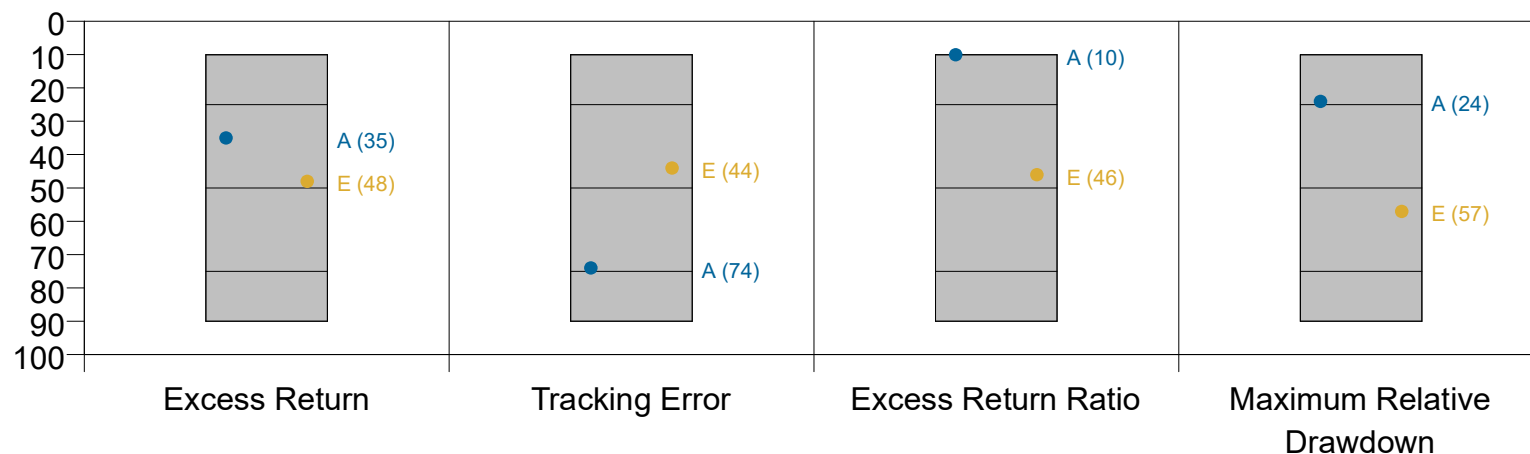


- The alternative mix exhibited relatively lower volatility than the Current Structure, but slightly higher return

Comparison to Institutional Core Plus Fixed Income Managers (vs. Universal Index)

Statistics relative to Blmbg:Universal
for 15 Years Ended December 31, 2024
Group: Callan Core Plus Fixed Income

Reference Index:
Bloomberg
Universal



10th Percentile	1.59	2.02	1.17	(1.45)
25th Percentile	1.17	1.64	0.90	(2.00)
Median	0.93	1.19	0.73	(2.79)
75th Percentile	0.67	0.92	0.54	(4.00)
90th Percentile	0.44	0.72	0.43	(6.38)
Proposed (Mix A) ● A	1.09	0.94	1.16	(1.97)
Current Structure (Public FI) ● E	0.95	1.26	0.75	(3.13)

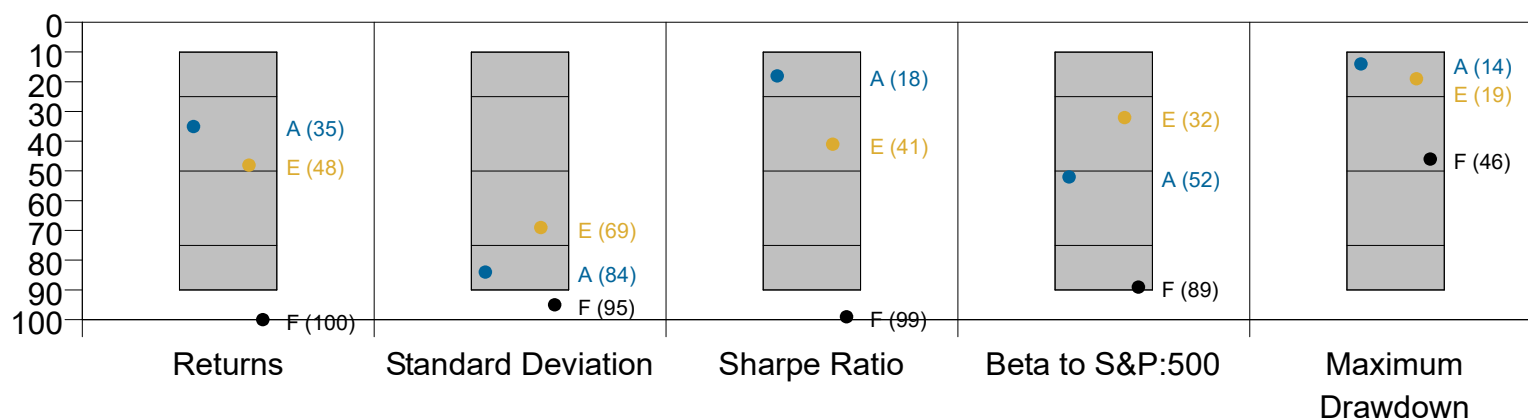
- Deviating relatively more from the benchmark (higher tracking error) did not necessarily allow for higher excess returns over the time period

Comparison to Institutional Core Plus Fixed Income Managers

Statistics

for 15 Years Ended December 31, 2024

Group: Callan Core Plus Fixed Income



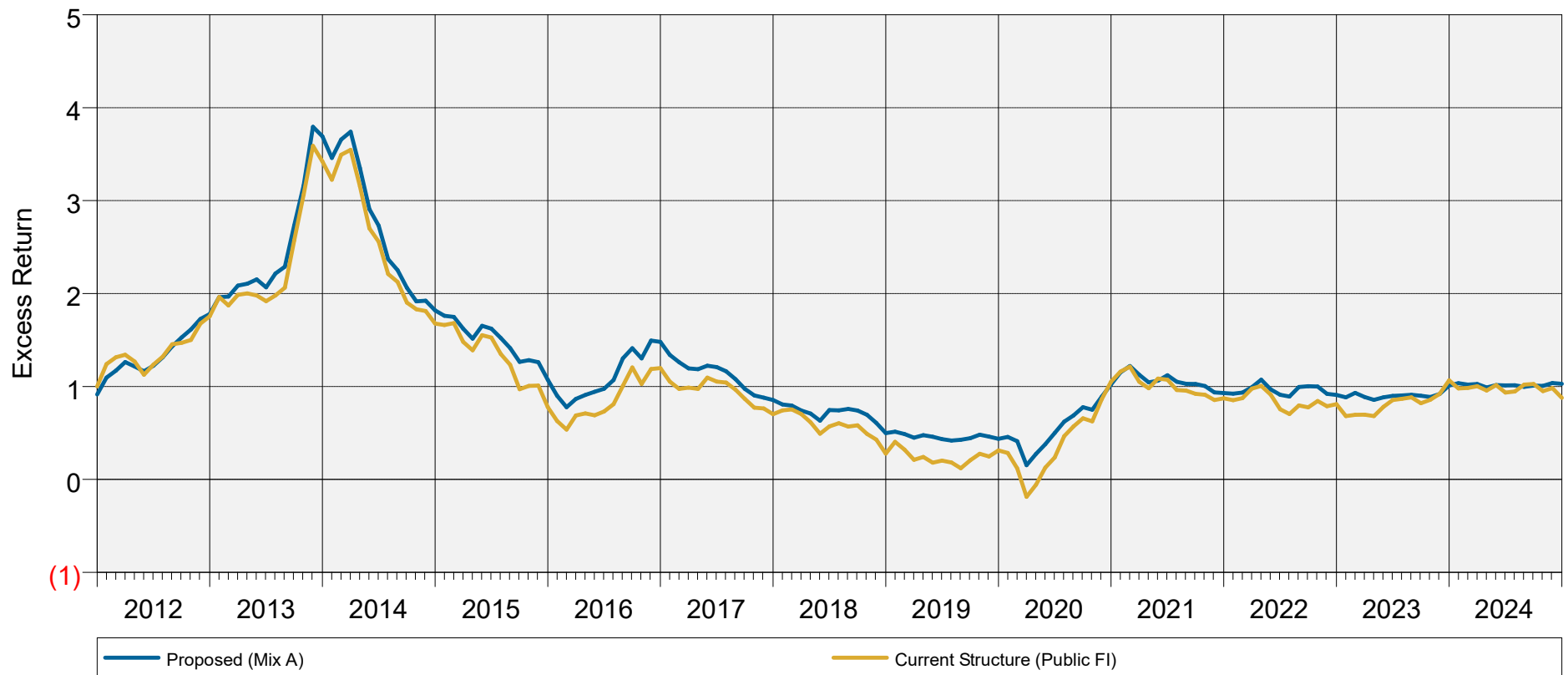
10th Percentile	4.34	5.16	0.64	0.18	(15.15)
25th Percentile	3.92	4.93	0.57	0.17	(16.13)
Median	3.67	4.74	0.52	0.14	(16.84)
75th Percentile	3.42	4.53	0.46	0.12	(17.62)
90th Percentile	3.19	4.37	0.42	0.10	(18.66)

Proposed (Mix A)	● A	3.84	4.39	0.60	0.14	(15.44)
Current Structure (Public FI)	● E	3.70	4.59	0.54	0.16	(15.59)
Blmbg:Universal	● F	2.75	4.32	0.36	0.11	(16.76)

- Similar returns over the time period shown for Mix A were accompanied by lower Beta to stocks and maximum drawdown compared to the Current Structure

Excess Returns

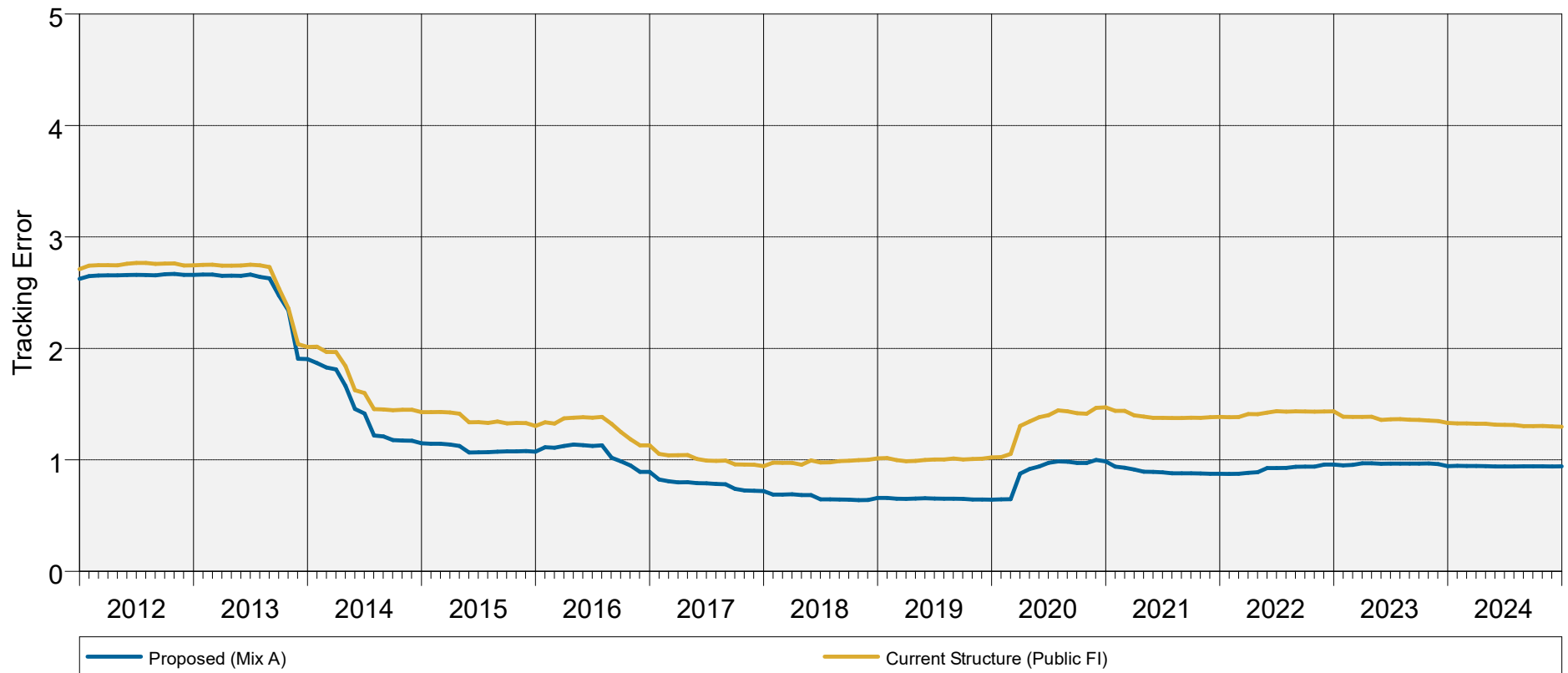
Rolling 60 Month Excess Return Relative To Blmbg:Universal
for 13 Years Ended December 31, 2024



- Mix A and the Current Structure outperformed the Universal index close to or all of the time

Tracking Error

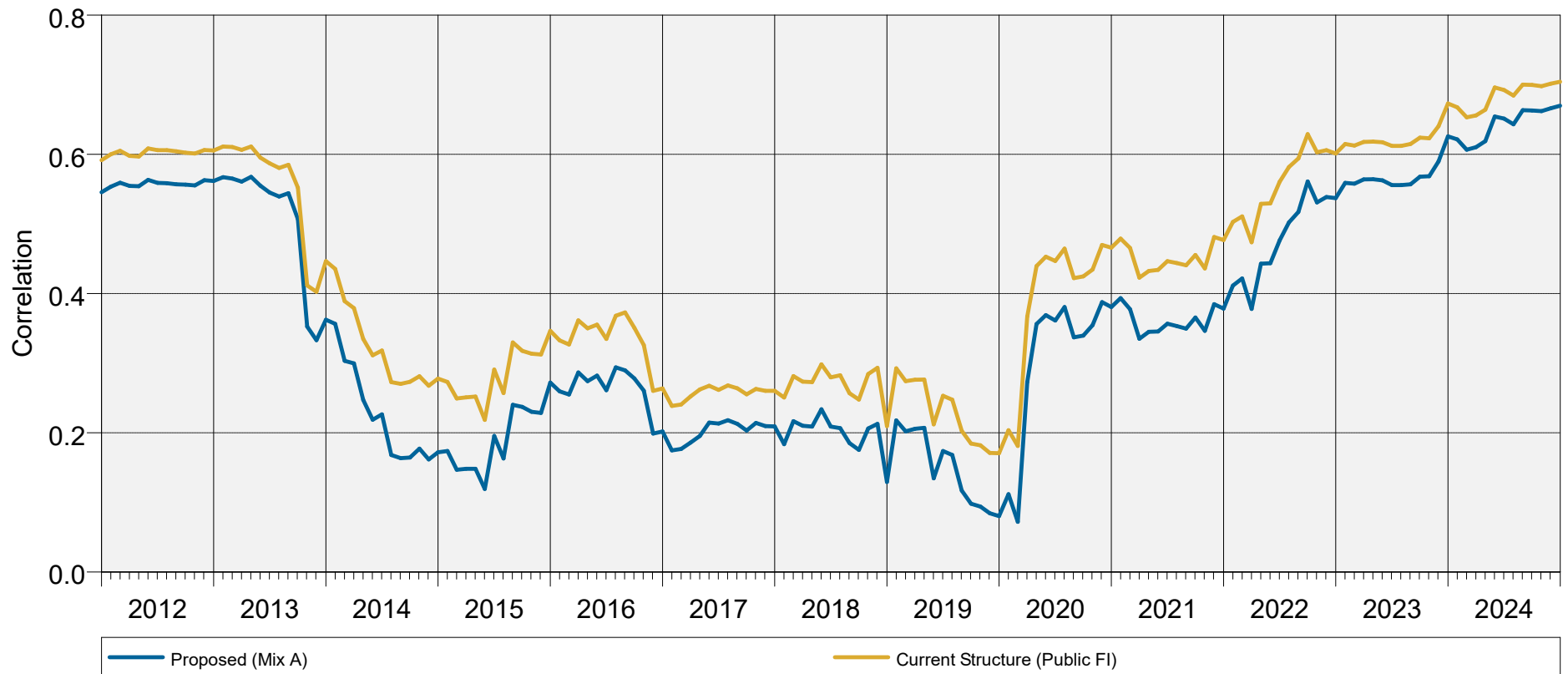
Rolling 60 Month Tracking Error Relative To Blmbg:Universal
for 13 Years Ended December 31, 2024



- Mix A delivered consistently lower tracking error than the Current Structure by primarily by decreasing foreign currency exposure

Correlation to Stocks

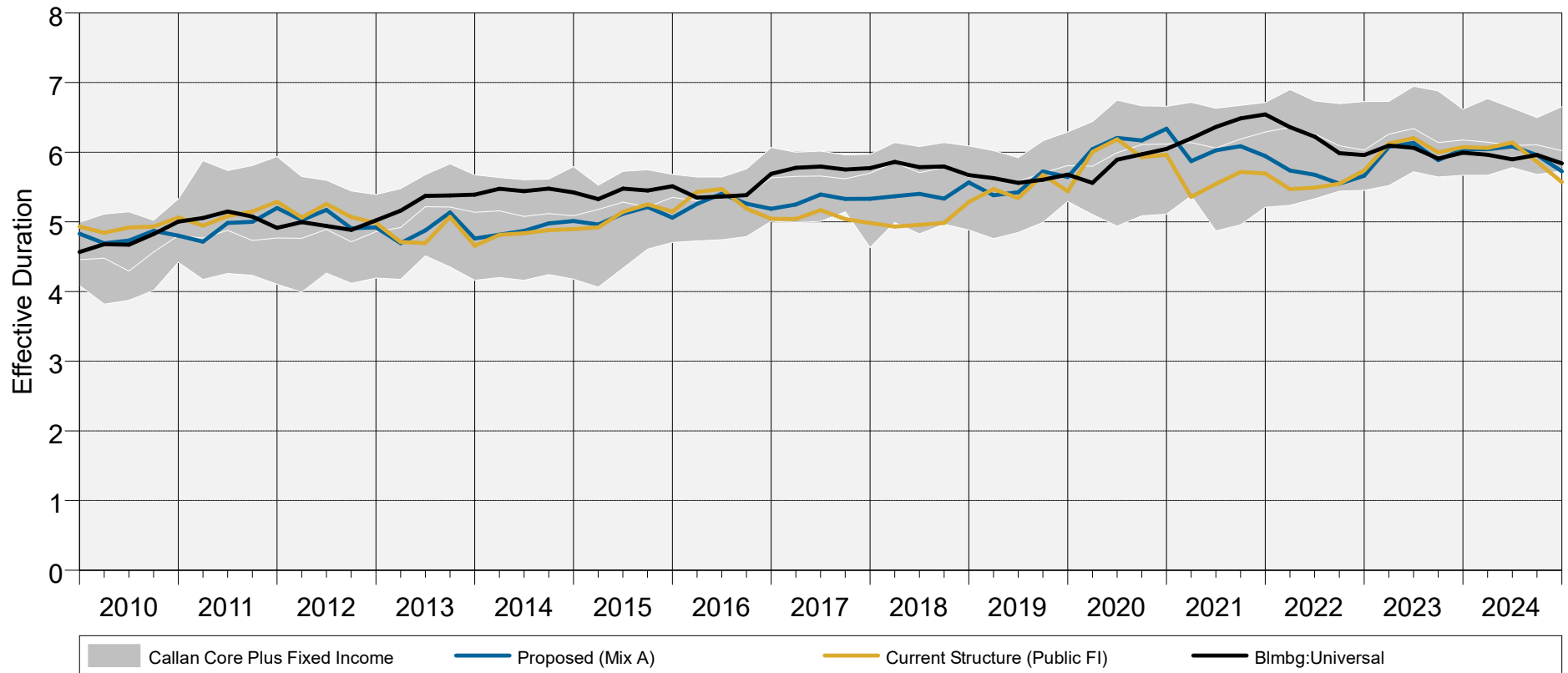
Rolling 60 Month Correlation Relative To S&P:500
for 13 Years Ended December 31, 2024



- Mix A delivered consistently lower correlation to stocks

Duration

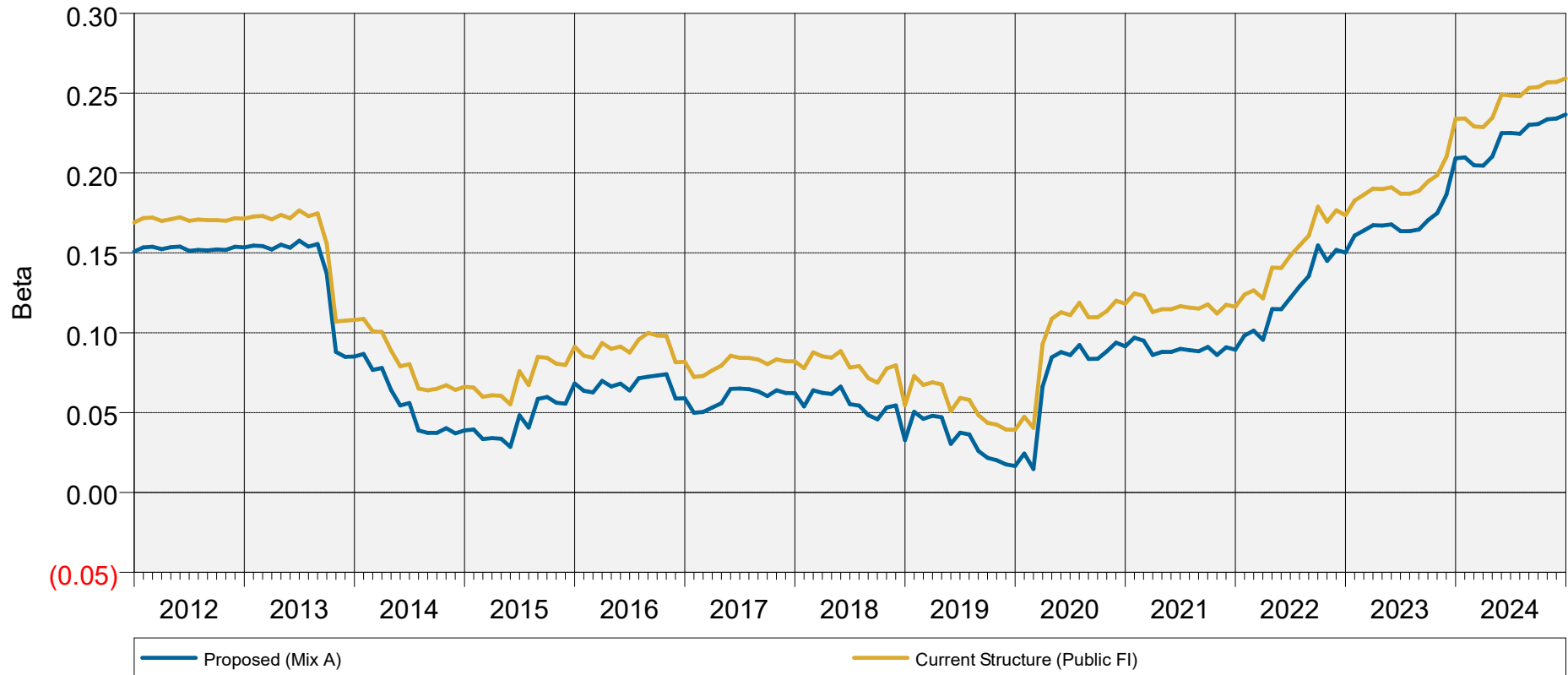
Effective Duration
for 15 Years Ended December 31, 2024



- The Current Structure is notable for liberal use of duration positioning as a source of potential outperformance

Equity Beta

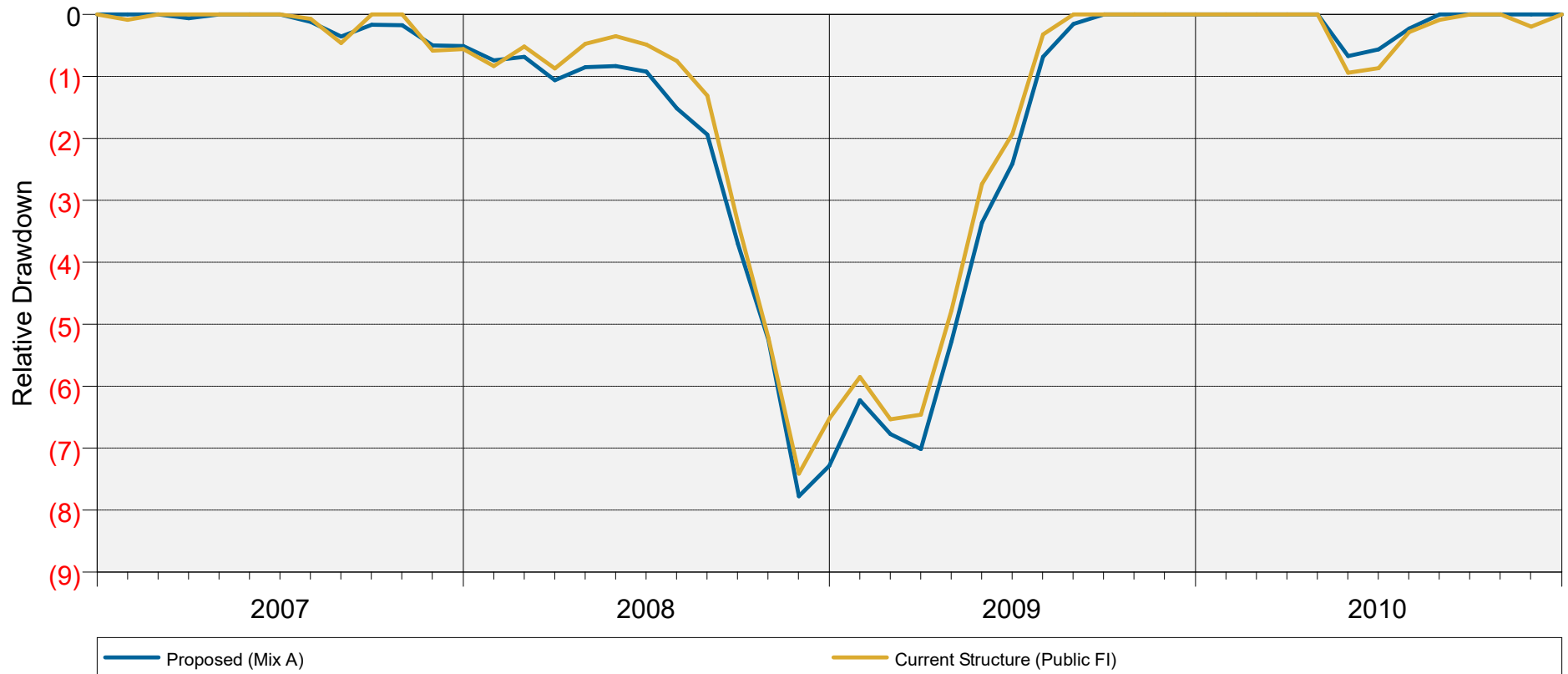
Rolling 60 Month Beta Relative To S&P:500
for 13 Years Ended December 31, 2024



- Equity Beta seeks to capture sensitivity or “hidden” exposure to stocks
- Mix A delivered consistently lower Beta to stocks due to reduced reliance on credit exposure

Global Financial Crisis Relative Drawdown

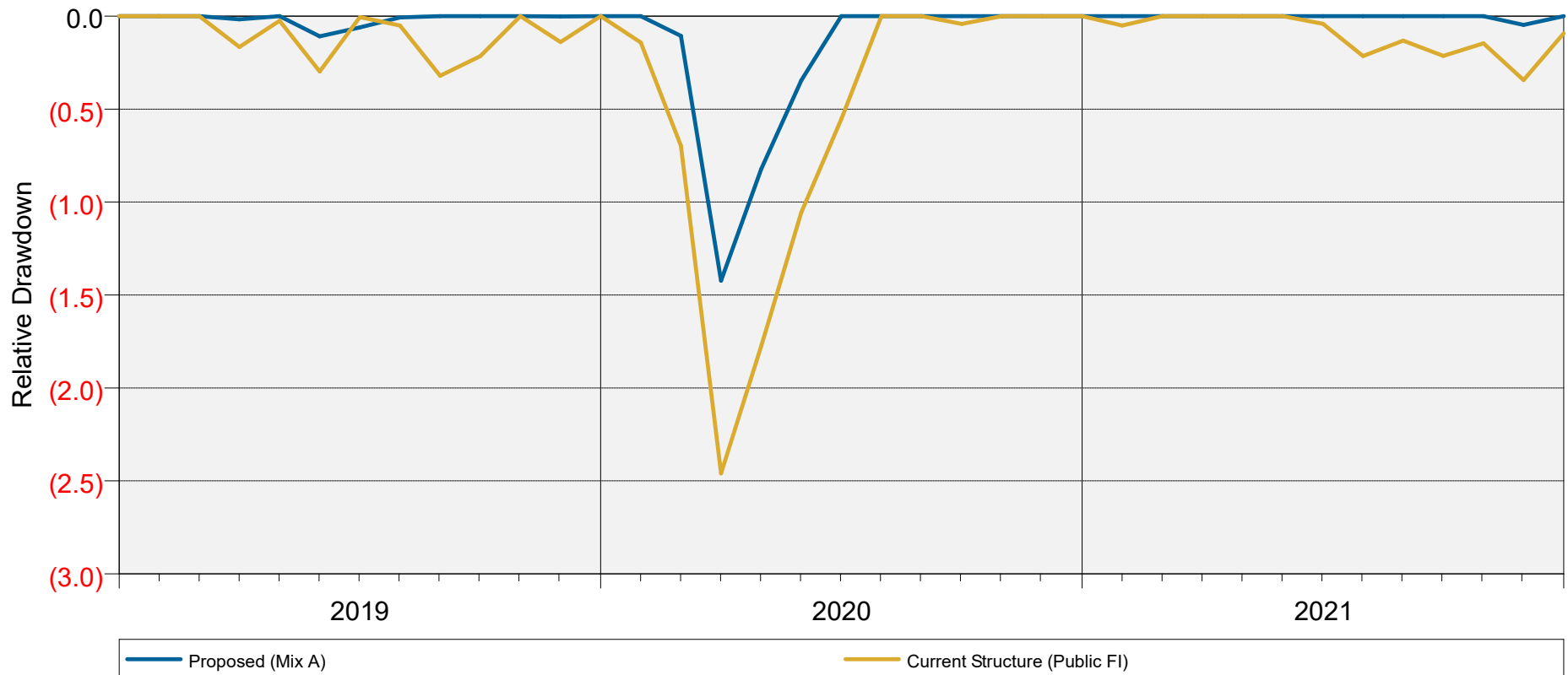
Relative Drawdown Relative To Blmbg:Universal
for 4 Years Ended December 31, 2010



- Mix A lagged the benchmark by a similar amount during the Global Financial Crisis period

COVID-19 Outbreak Relative Drawdown

Relative Drawdown Relative To Blmbg:Universal
for 3 Years Ended December 31, 2021



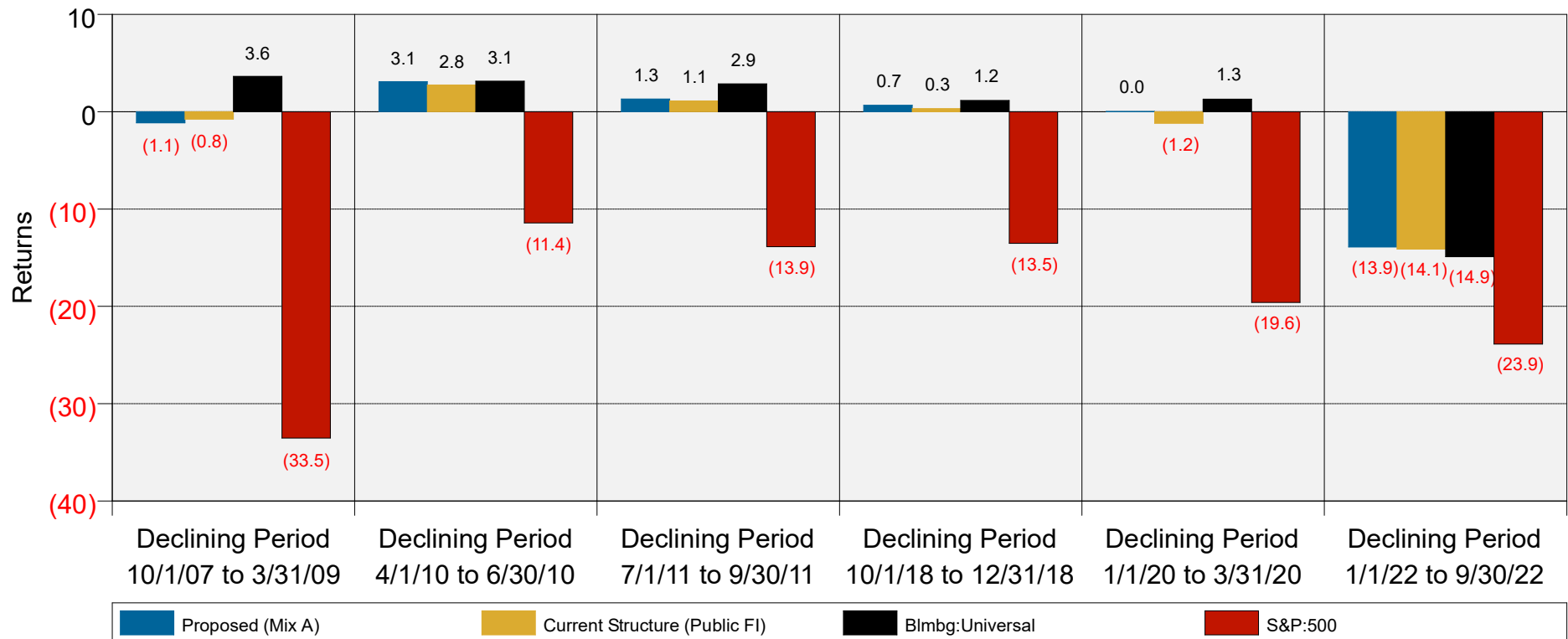
- While Mix A lagged the benchmark by less during the outbreak of the COVID-19 pandemic in 2020, the relative performance disruption was short-lived, lasting less than a year

Cumulative Returns During Various Equity Drawdown Periods

Returns

for Domestic Equity Declining Periods

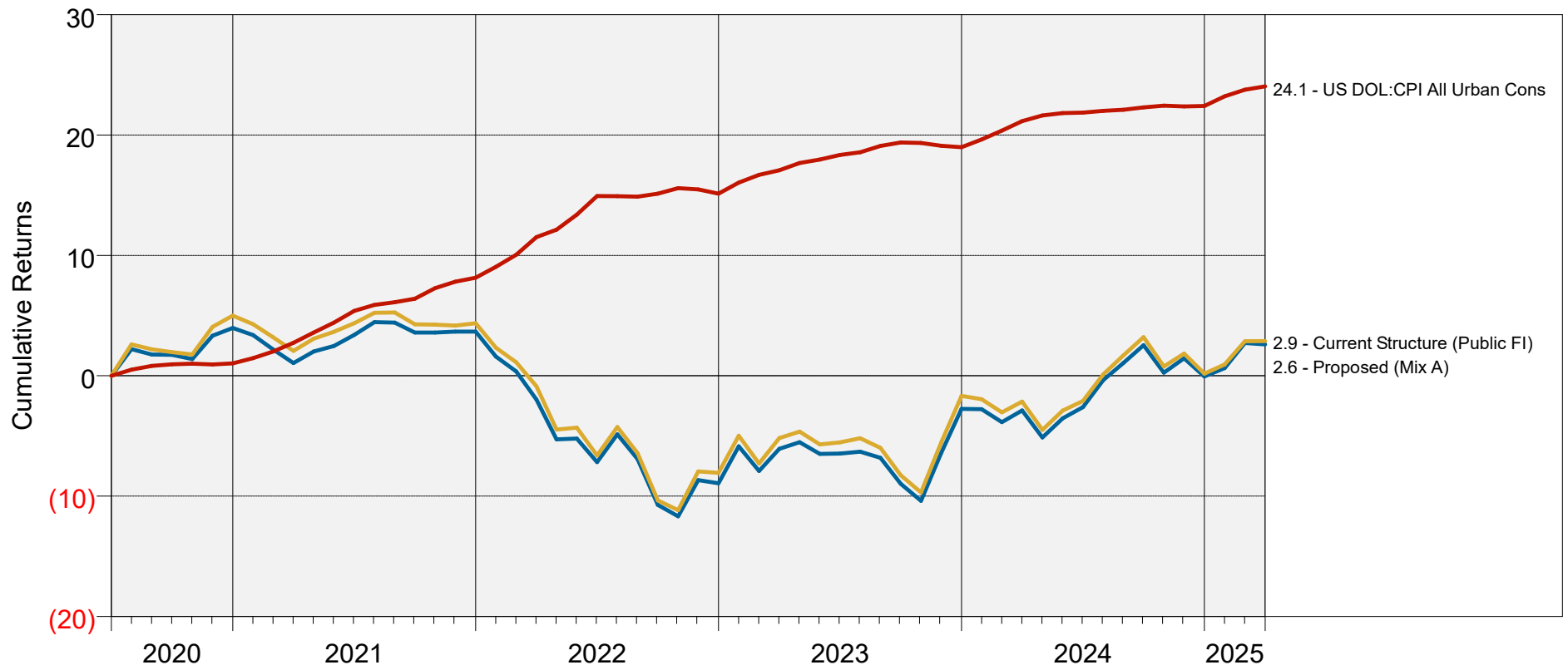
18 Years Ended December 31, 2024



- Mix A tended to outperform during declining equity market periods shown above due to reduced reliance on credit exposure

Returns During Inflationary Environment

Cumulative Returns
for 4 3/4 Years Ended March 31, 2025



- The current inflationary environment, defined as the period since June 2020, has made it difficult for interest rate-sensitive fixed income to generate returns

Callan

Appendix

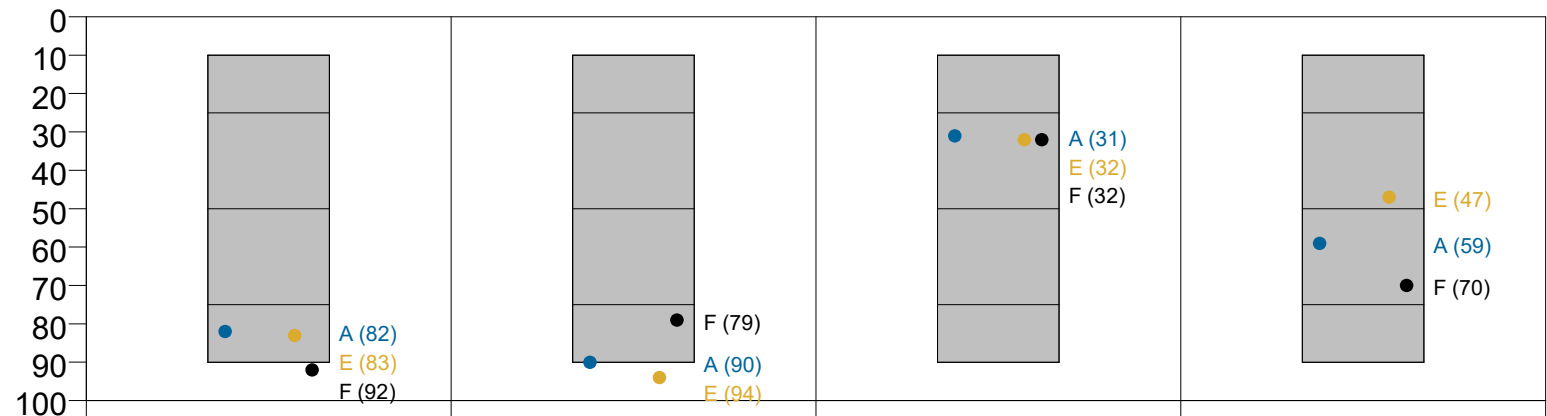
Other Material Assumptions for Historical Return Analysis

- To analyze historical results, Callan observed the Current Structure and modeled historical returns assuming monthly rebalancing
- This is an analysis of how structures would have performed historically, **not the portfolio's actual performance**
 - Fees based on current NHRS fee schedules if available, or Callan's recent searches for similar sized mandates and the Callan 2023 Investment Management Fee Study of actual client mandate fees
 - BlackRock Strategic Income Opportunities represented by mutual fund since inception March 2008 and Manulife Strategic Income prior to inception
 - Income Research & Management, Brandywine, Fidelity, Loomis Sayles, and Manulife respective composites

Portfolio Characteristics vs. Institutional Core Plus Fixed Income Managers

December 31, 2024

Group: Callan Core Plus Fixed Income



Effective Yield

Effective Duration

Quality Rating

High Yield

10th Percentile

5.90

6.66

AA

16.30

25th Percentile

5.70

6.26

AA

12.60

Median

5.48

6.03

A

8.63

75th Percentile

5.36

5.89

A

5.59

90th Percentile

5.20

5.73

A

3.75

Proposed (Mix A) ● A

5.34

5.73

AA-

7.20

Current Structure (Public FI) ● E

5.34

5.57

AA-

8.92

Blmbg:Universal ● F

5.13

5.84

A+

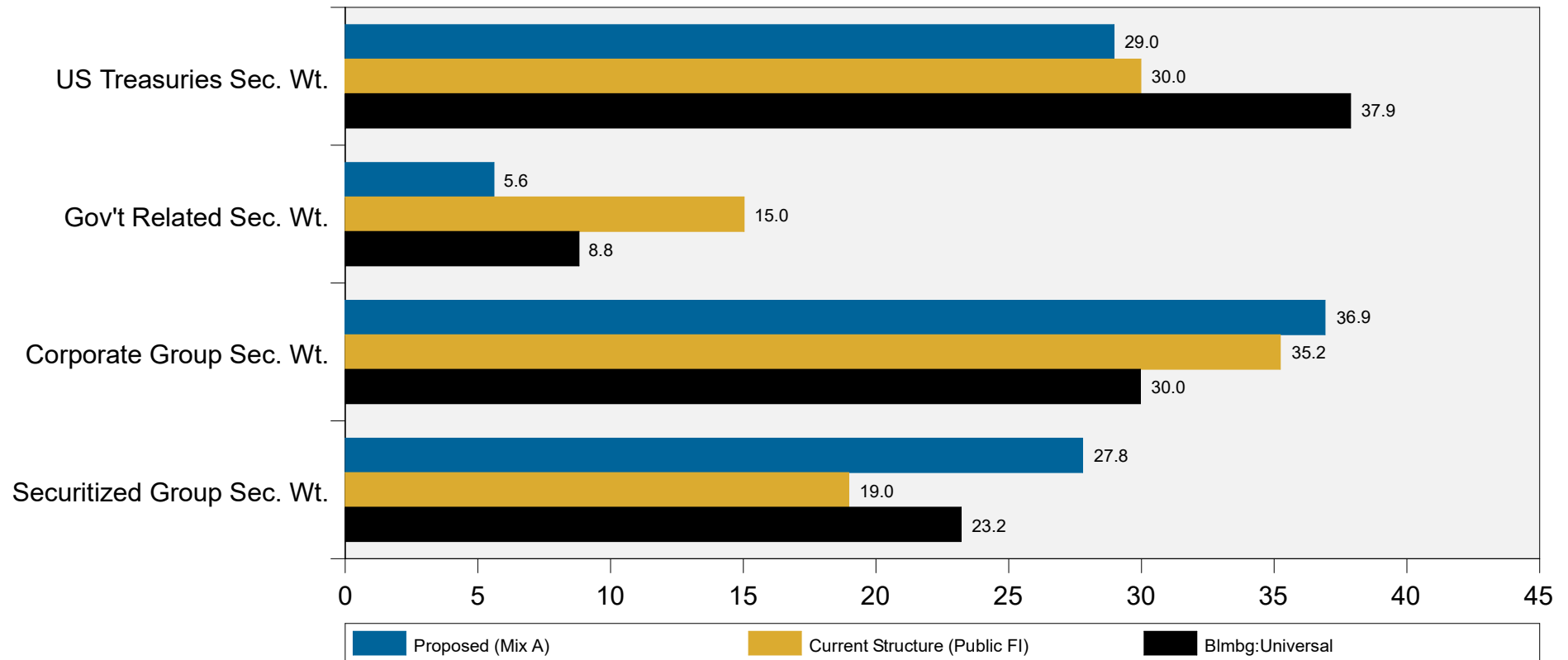
6.42

➤ Mix A pursues slightly lower yield

Sector Group Exposures

Statistics

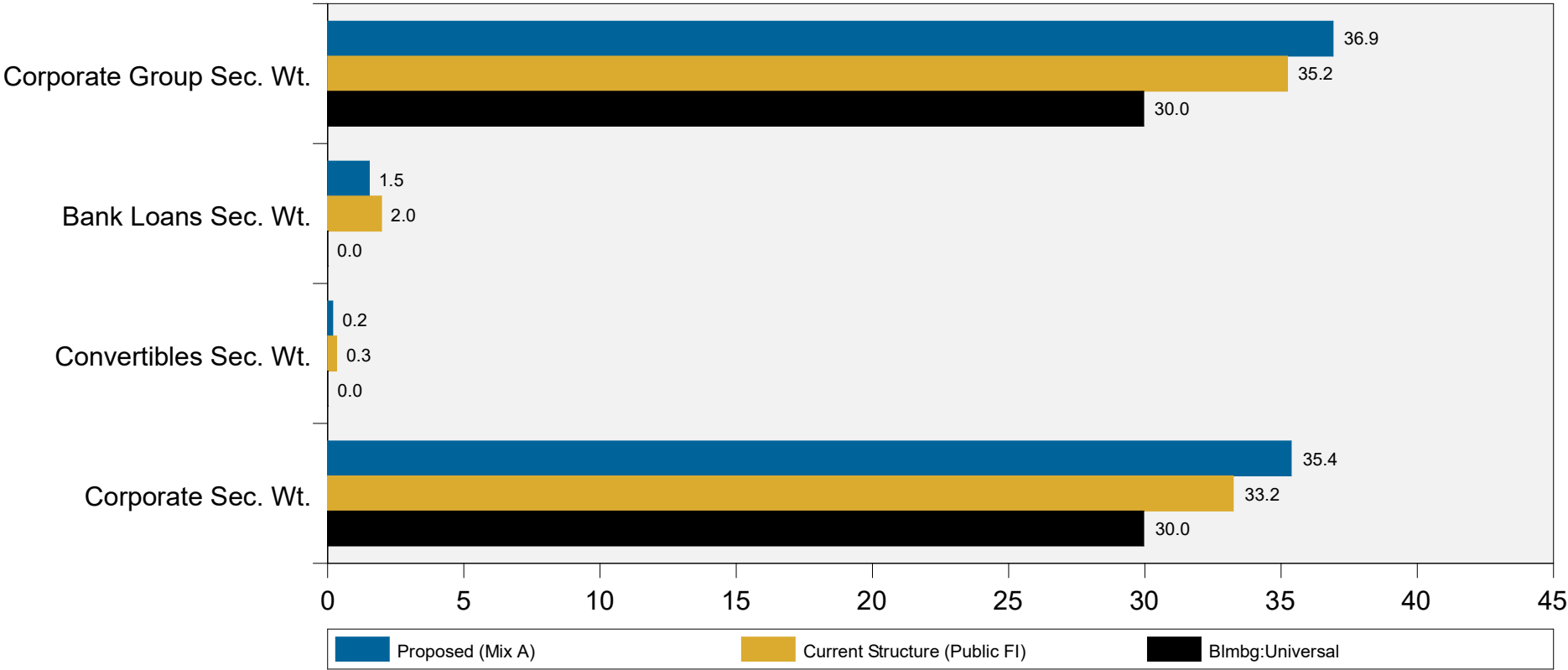
for 1 Quarter Ended December 31, 2024



- Mix A has relatively lower reliance on non-US government bonds

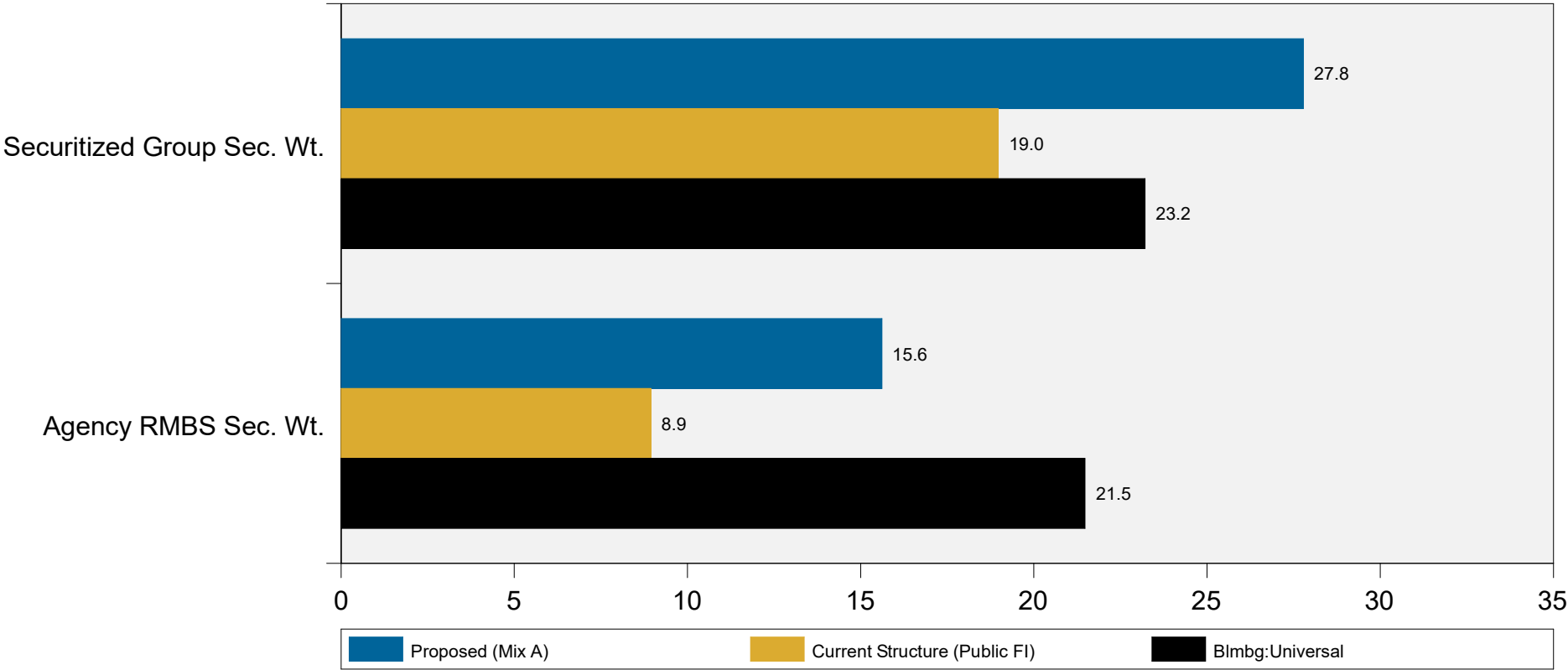
Corporate Sector Exposures

Statistics
for 1 Quarter Ended December 31, 2024



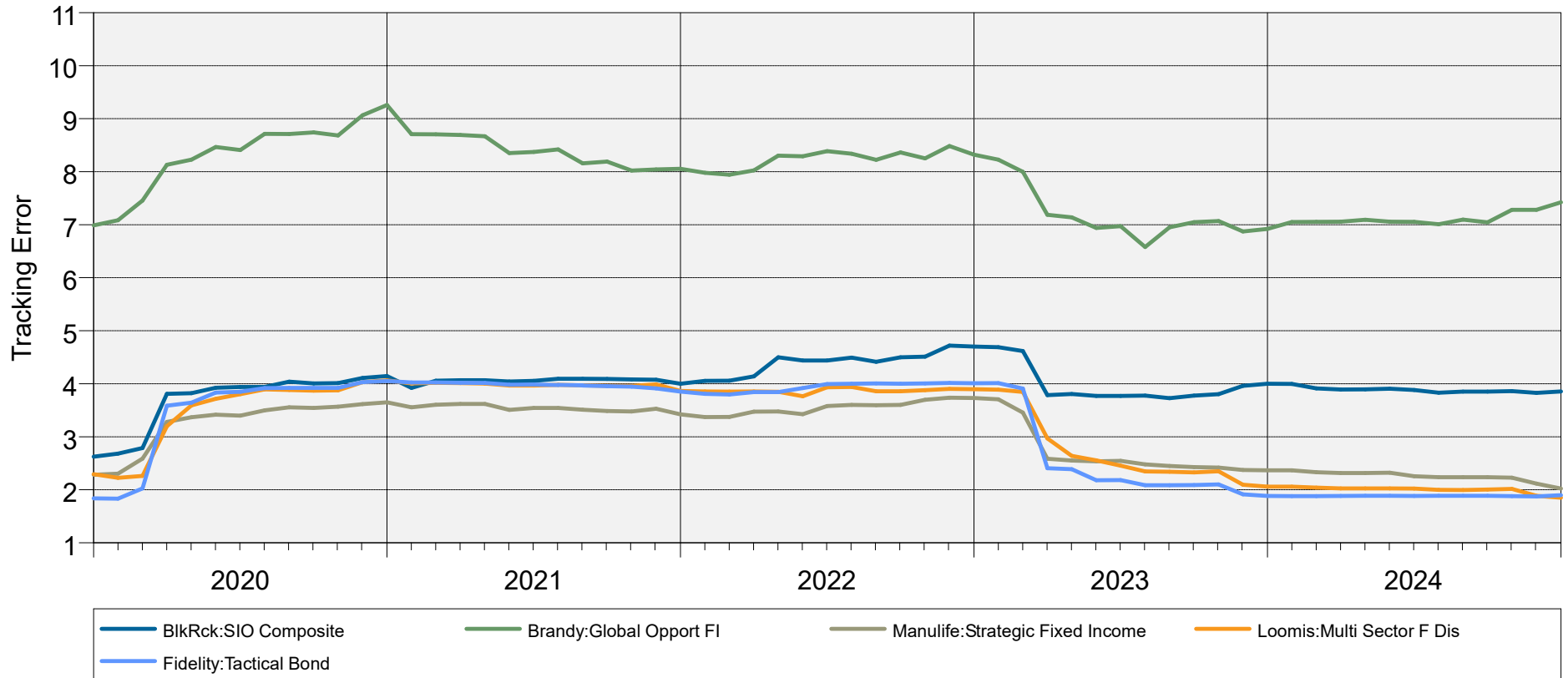
Securitized Sector Exposures

Statistics
for 1 Quarter Ended December 31, 2024



Active Manager Tracking Error

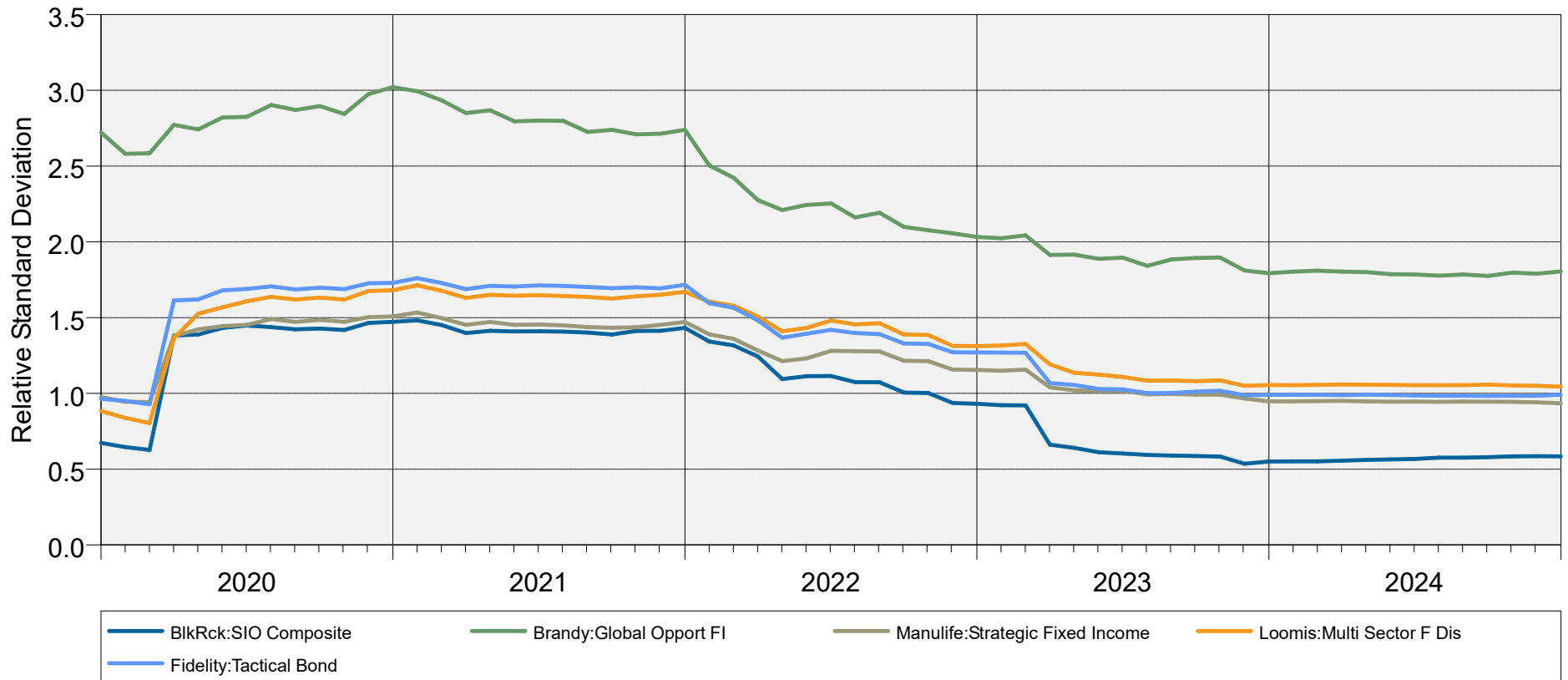
Rolling 36 Month Tracking Error Relative To Blmbg:Universal
for 5 Years Ended December 31, 2024



- BlackRock had slightly higher tracking error than Manulife, Loomis, and Fidelity
- Brandywine had much higher tracking error

Active Manager Relative Standard Deviation

Rolling 36 Month Relative Standard Deviation Relative To Blmbg:Universal
for 5 Years Ended December 31, 2024



- Brandywine consistently had much higher volatility than the Bloomberg Universal index

Relative Standard Deviation is portfolio Standard Deviation divided by Benchmark Standard Deviation (e.g. 1.0 is neutral)

Active Manager Returns-Based Analysis

<i>BlackRock</i>	Isolated Risk	Contribution to Risk (Annualized Vol)	Contribution to Risk (% of Total)	Contribution to Return Over Cash (Monthly Arithmetic)
Intercept				0.04
Duration FMP	1.77	0.61	16%	-0.02
Credit FMP	3.08	2.27	59%	0.14
Currency FMP	0.16	0.08	2%	-0.01
"Idiosyncratic Risk"		0.88	23%	
Total Excess Return Over Cash		3.84		0.16
Cash Return				0.15
Total Return				0.30

<i>Loomis</i>	Isolated Risk	Contribution to Risk (Annualized Vol)	Contribution to Risk (% of Total)	Contribution to Return Over Cash (Monthly Arithmetic)
Intercept				0.06
Duration FMP	3.56	1.85	31%	-0.03
Credit FMP	4.57	3.19	53%	0.20
Currency FMP	0.85	0.51	8%	-0.03
"Idiosyncratic Risk"		0.50	8%	
Total Excess Return Over Cash		6.05		0.19
Cash Return				0.15
Total Return				0.34

<i>Fidelity</i>	Isolated Risk	Contribution to Risk (Annualized Vol)	Contribution to Risk (% of Total)	Contribution to Return Over Cash (Monthly Arithmetic)
Intercept				0.01
Duration FMP	3.83	2.16	37%	-0.04
Credit FMP	4.31	2.81	49%	0.19
Currency FMP	0.37	0.20	3%	-0.01
"Idiosyncratic Risk"		0.62	11%	
Total Excess Return Over Cash		5.79		0.15
Cash Return				0.15
Total Return				0.30

<i>Manulife</i>	Isolated Risk	Contribution to Risk (Annualized Vol)	Contribution to Risk (% of Total)	Contribution to Return Over Cash (Monthly Arithmetic)
Intercept				0.00
Duration FMP	3.29	1.95	39%	-0.03
Credit FMP	3.48	2.16	43%	0.15
Currency FMP	0.63	0.38	8%	-0.03
"Idiosyncratic Risk"		0.53	11%	
Total Excess Return Over Cash		5.02		0.09
Cash Return				0.15
Total Return				0.24

➤ *Isolated Risk = Exposure x Factor Risk*

➤ *Contribution to Risk = Exposure x Factor Risk x Correlation to Portfolio*

Contribution to Risk sums to total risk

Cash is 3-Month Treasury Bills

Credit Factor Mimicking Portfolio is Long Bloomberg High Yield index/Short Duration-Matched Treasuries

Duration Factor Mimicking Portfolio is Long Duration-Matched Treasuries (from above)/short Cash

Currency Factor Mimicking Portfolio is Long Bloomberg Global Aggregate index/Short Bloomberg Global Aggregate Hedged index

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Any decision made on the basis of this document is sole responsibility of the client, as the intended recipient, and it is incumbent upon the client to make an independent determination of the suitability and consequences of such a decision.

Callan undertakes no obligation to update the information contained herein except as specifically requested by the client.

Past performance is no guarantee of future results.



February 2025
NHRS
Investment Manager Information
Core

CONFIDENTIAL

Core Bond Manager Information

	Investment Manager	Strategy
The following investment manager organizations have submitted information to Callan regarding their investment management capabilities. The information has been summarized in this report for the consideration of NHRS.	BlackRock	Customized Core Bond
	BlackRock	BlackRock Total Return Fund
	Fidelity Institutional Asset Management	FIAM Broad Market Duration
	Income Research + Management	IR+M Core Plus
	Loomis, Sayles & Company, L.P.	Core Disciplined Alpha
	Loomis, Sayles & Company, L.P.	Core Fixed Income
	Manulife Investment Management	Core Fixed Income

The investment managers included in this review book are per the request of the New Hampshire Retirement System. The information related to each investment manager is being provided solely for comparison purposes and is not the result of Callan's Manager Search process. Callan has neither rejected nor endorsed these investment managers or their respective strategies.

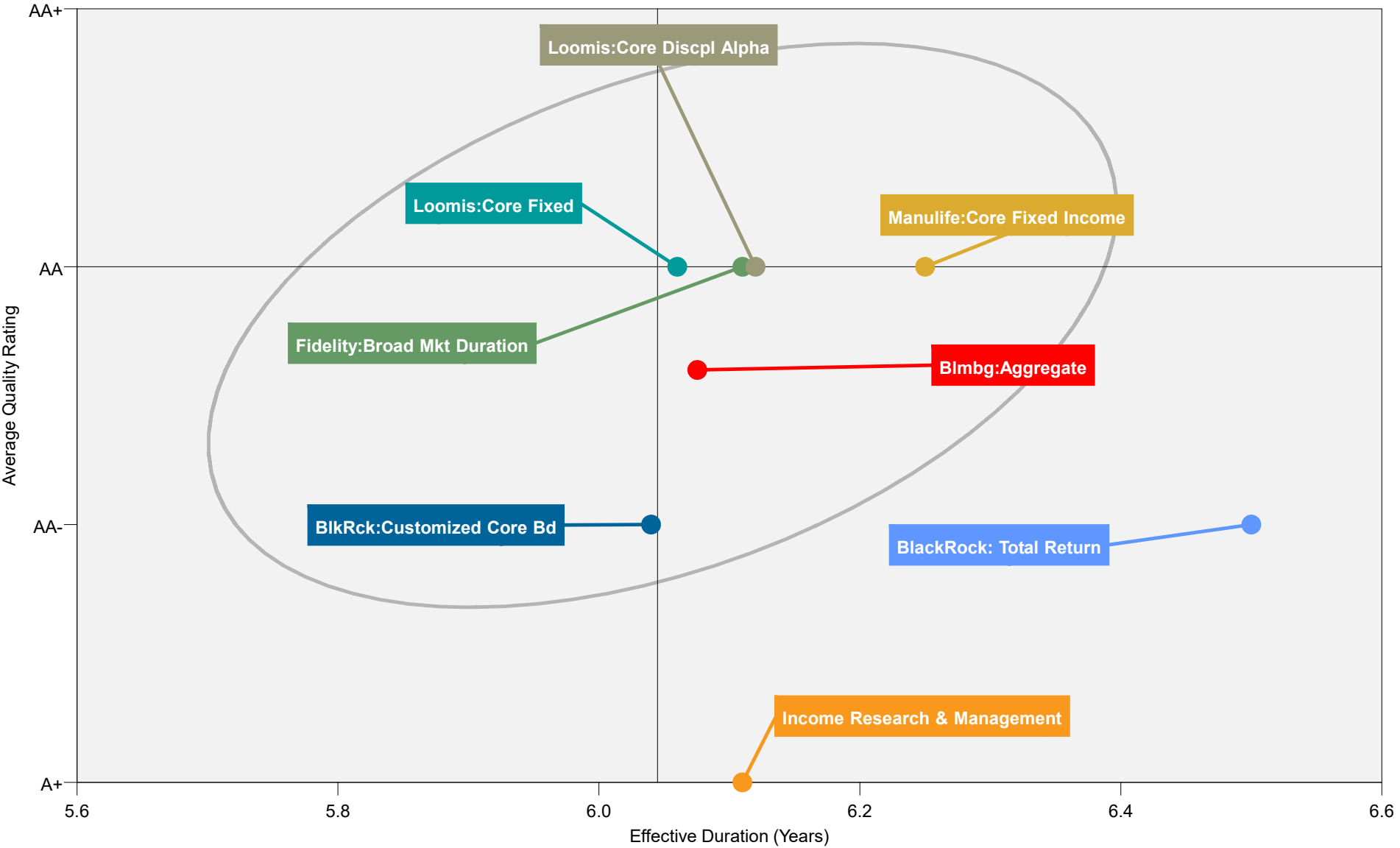
The investment manager organizations contained herein have submitted information to Callan regarding their investment management capabilities, for which information Callan has not necessarily verified the accuracy or completeness of or updated. The information provided to Callan has been summarized in this report for your consideration. Unless otherwise noted, performance figures reflect a commingled fund or a composite of discretionary accounts. All written comments in this report are based on Callan's standard evaluation procedures which are designed to provide objective comments based upon facts provided to Callan. The appropriateness of the candidate investment vehicle(s) discussed herein is based on Callan's understanding of the client's portfolio as of the date hereof. Certain operational topics may be addressed in this investment evaluation for information purposes. Unless Callan has been specifically engaged to do so, Callan has not conducted due diligence of the operations of the candidate or investment vehicle(s), as may be typically performed in an operational due diligence evaluation assignment. The investment evaluation and any related due diligence questionnaire completed by the candidate may contain highly confidential information that is covered by a non-disclosure or other related agreement with the candidate which must be respected by the client and its representatives. The client agrees to adhere to the conditions of any applicable confidentiality or non-disclosure agreement.



Candidate Portfolio Characteristics

Average Quality Rating vs. Effective Duration

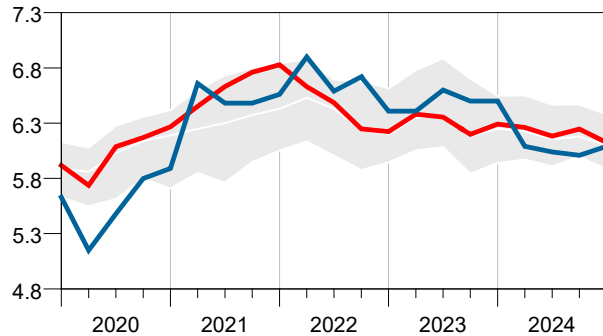
Average Quality Rating vs. Effective Duration for Quarter Ended December 31, 2024
Group: Callan Core Bond FI (Ellipse with Median at Central Axis)



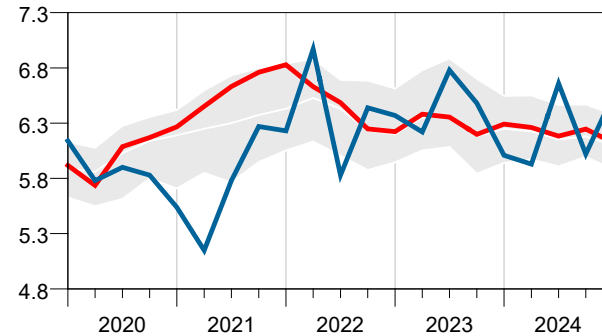
Effective Duration

The charts below illustrate Effective Duration (Years) for different managers over time. As a backdrop, the range (from 10th to 90th percentile) is shown for the Callan Core Bond Fixed Income group. The Bloomberg Aggregate index is shown in red for comparison.

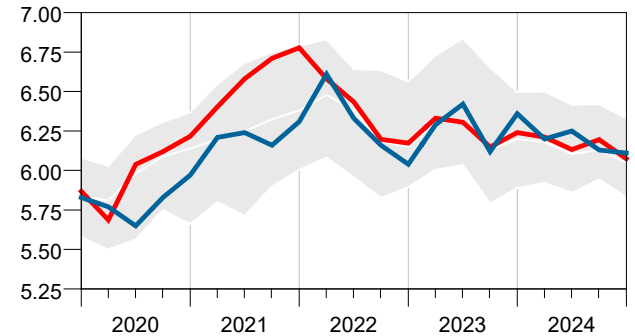
BlkRck:Customized Core Bd



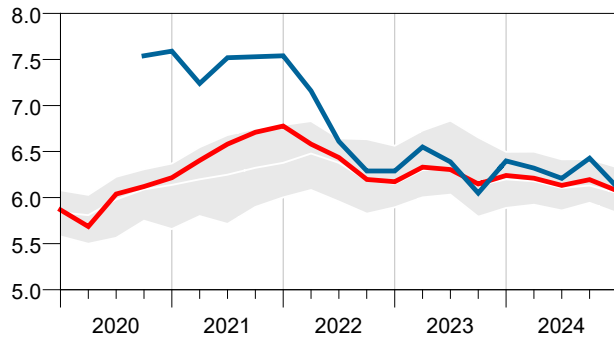
BlackRock: Total Return



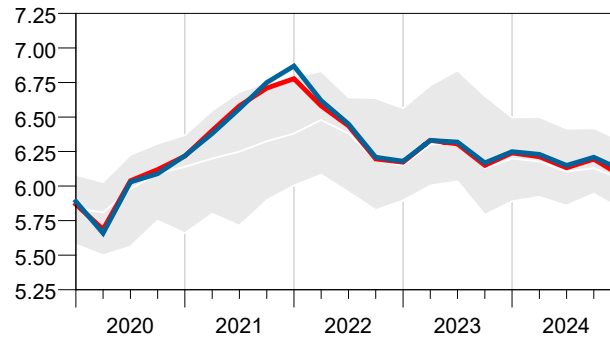
Fidelity:Broad Mkt Duration



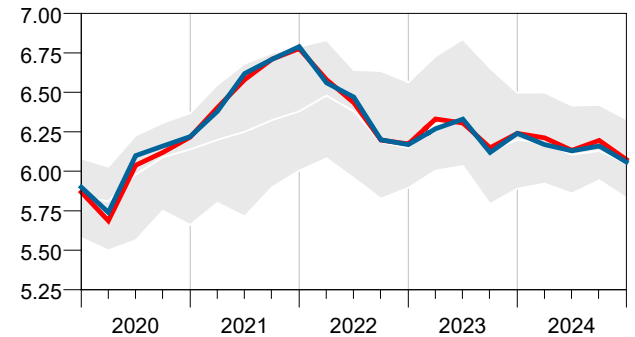
Income Research & Management



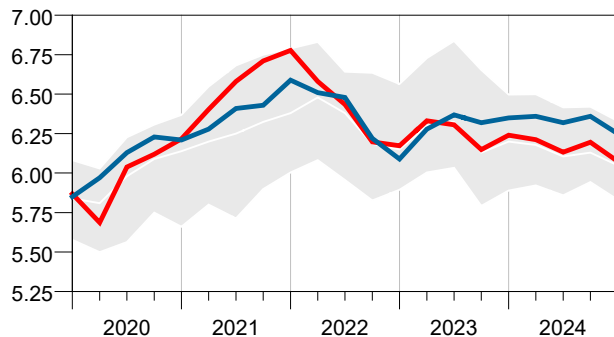
Loomis:Core Discl Alpha



Loomis:Core Fixed

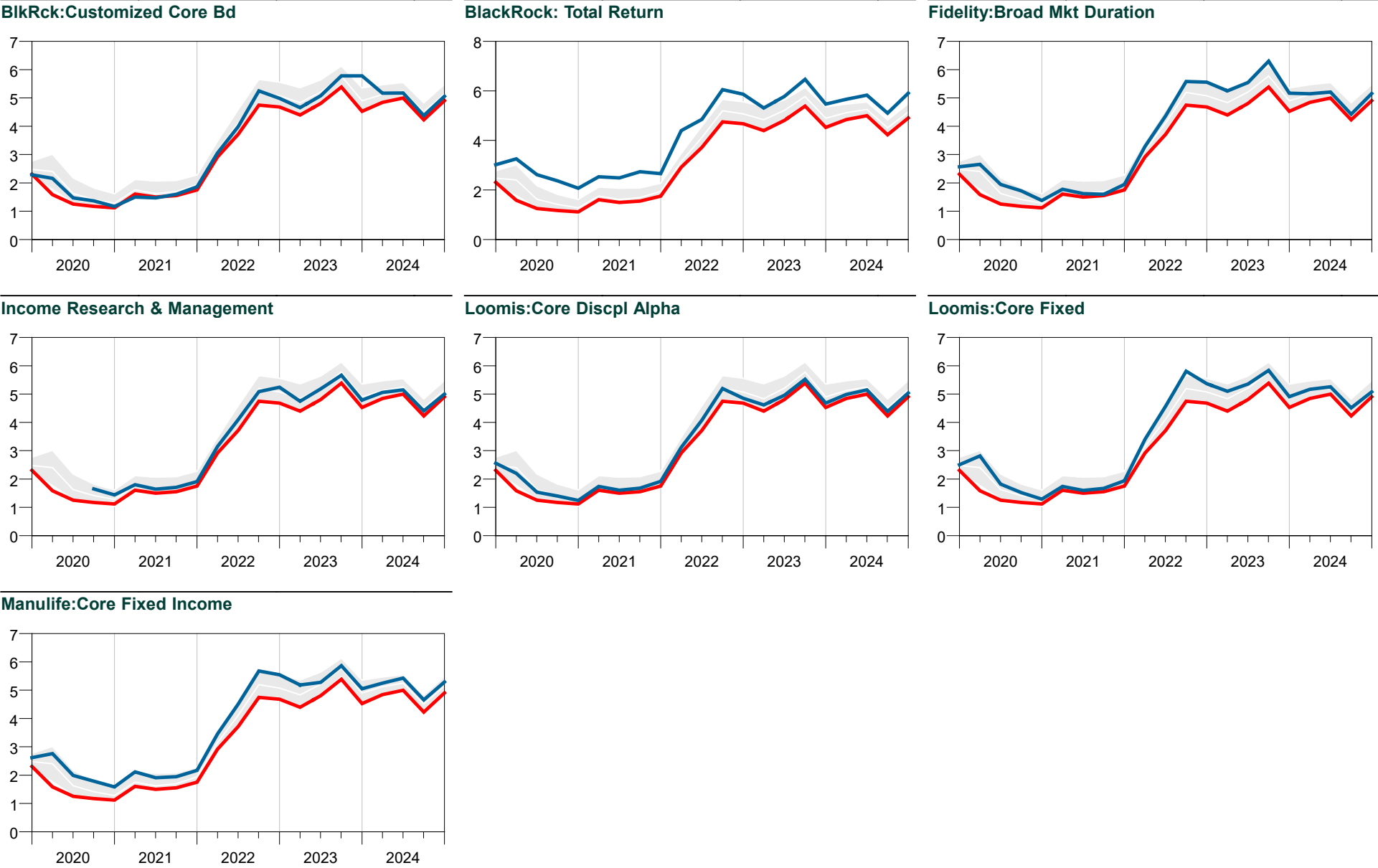


Manulife:Core Fixed Income



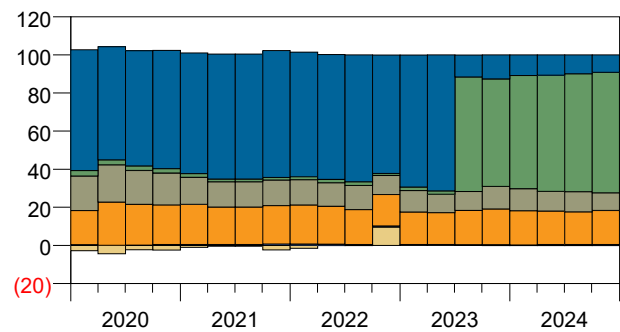
Effective Yield

The charts below illustrate Effective Yield (%) for different managers over time. As a backdrop, the range (from 10th to 90th percentile) is shown for the Callan Core Bond Fixed Income group. The Bloomberg Aggregate index is shown in red for comparison.

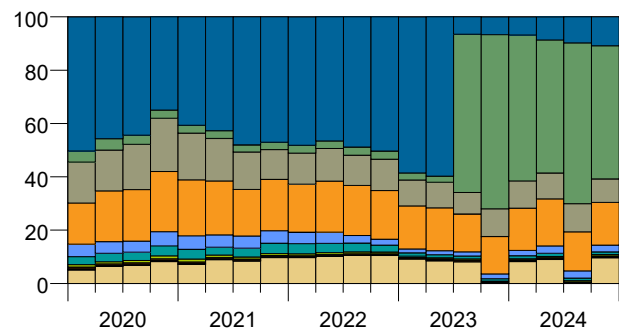


Quality Exposure

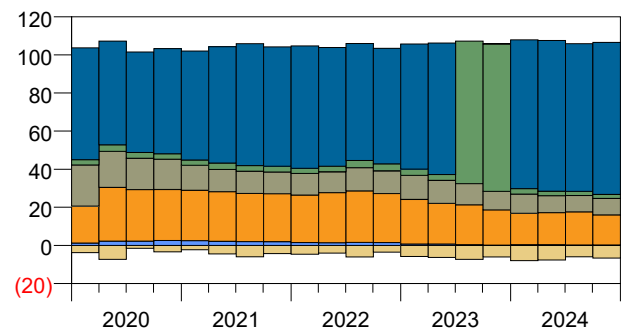
BlkRck:Customized Core Bd



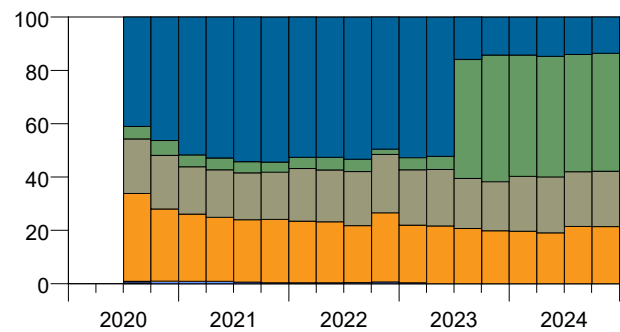
BlackRock: Total Return



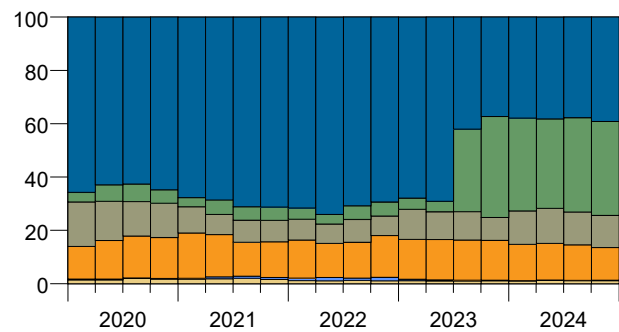
Fidelity:Broad Mkt Duration



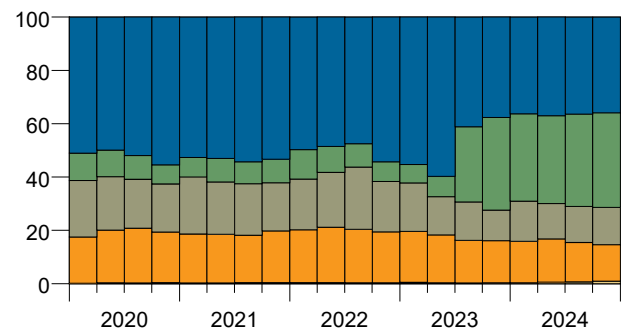
Income Research & Management



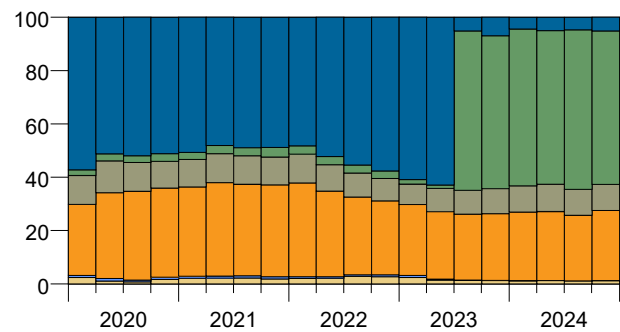
Loomis:Core Discl Alpha



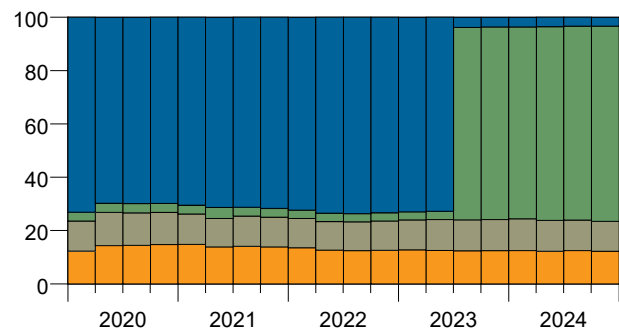
Loomis:Core Fixed



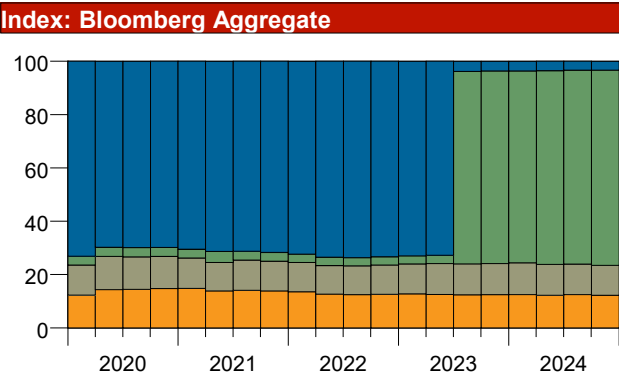
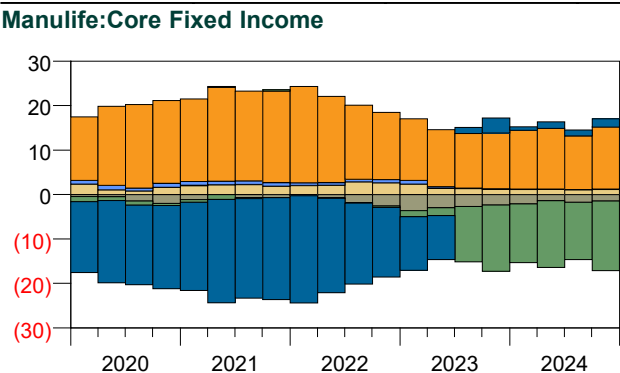
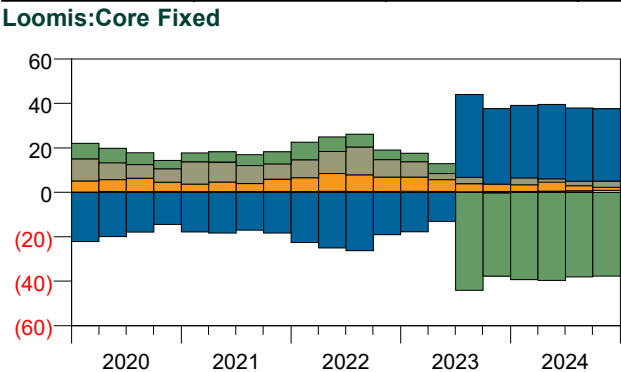
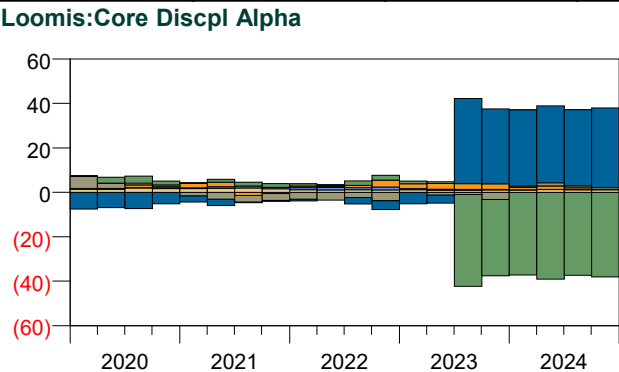
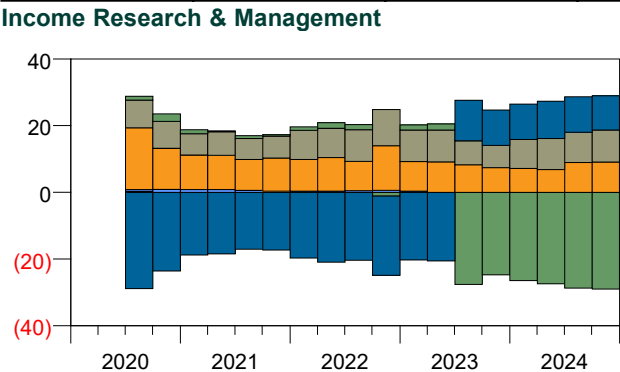
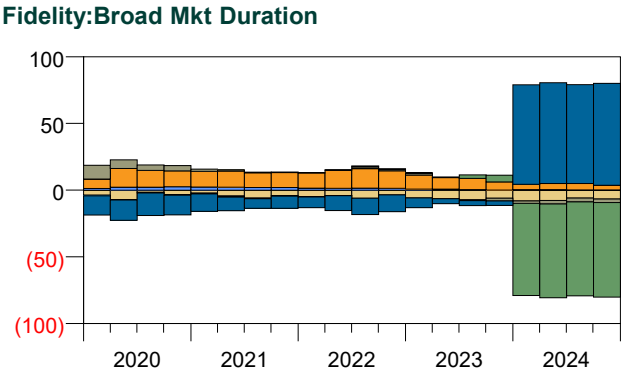
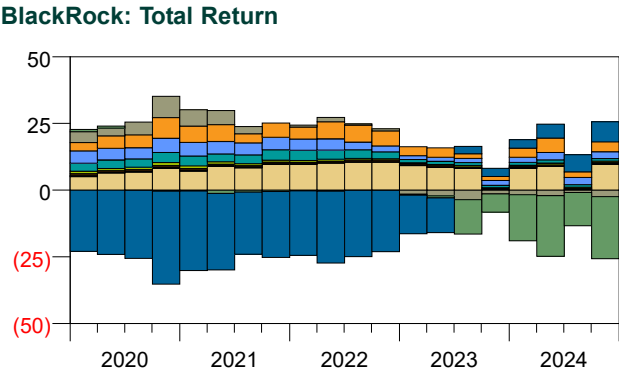
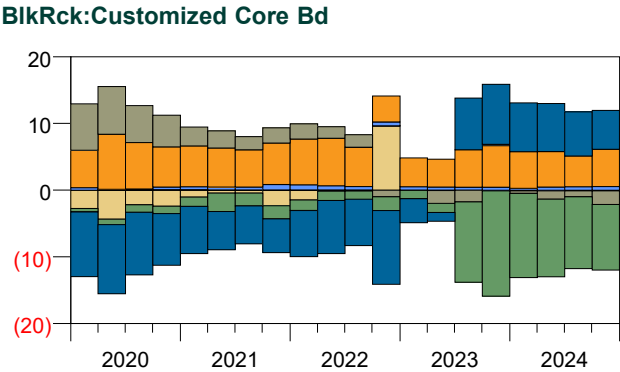
Manulife:Core Fixed Income



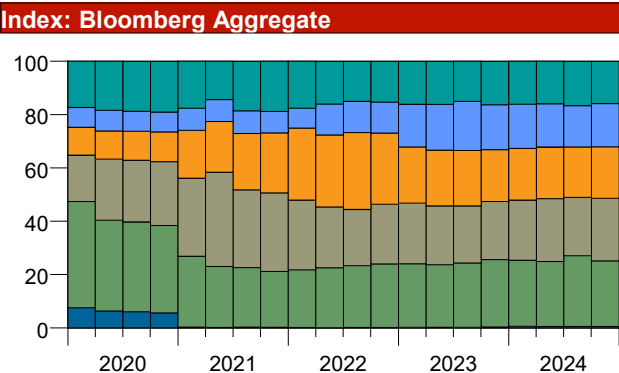
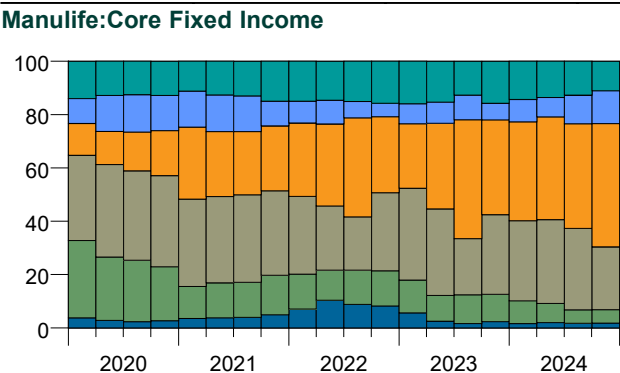
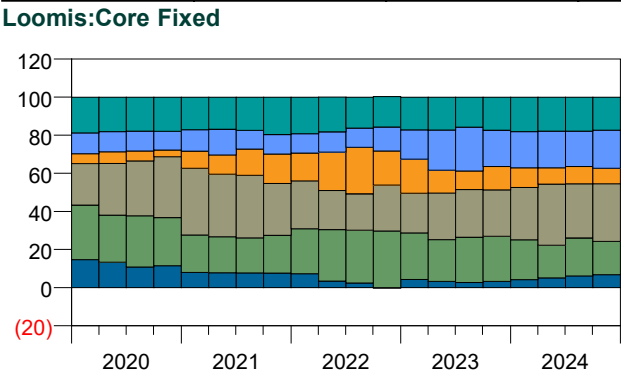
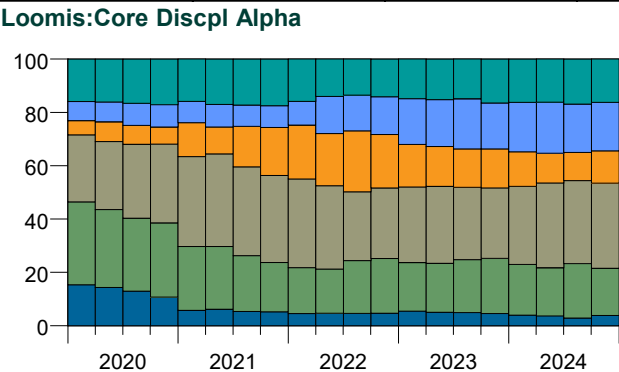
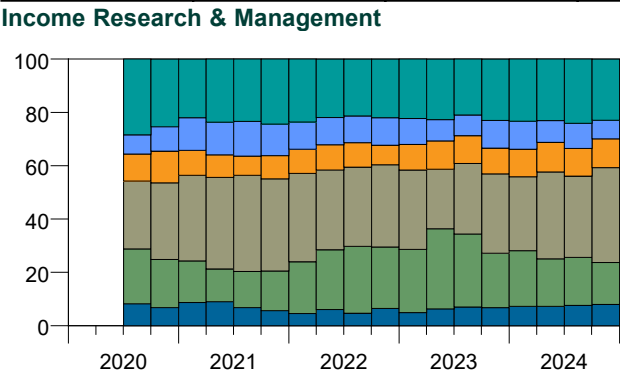
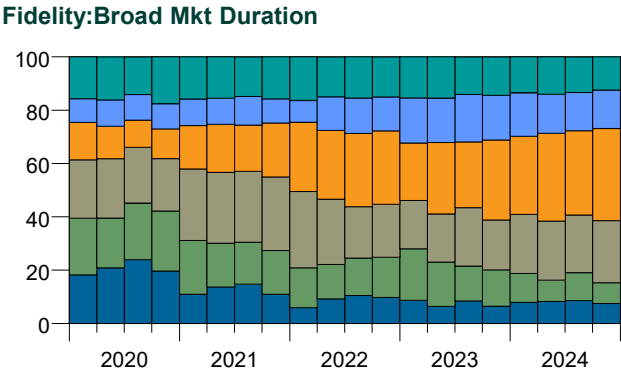
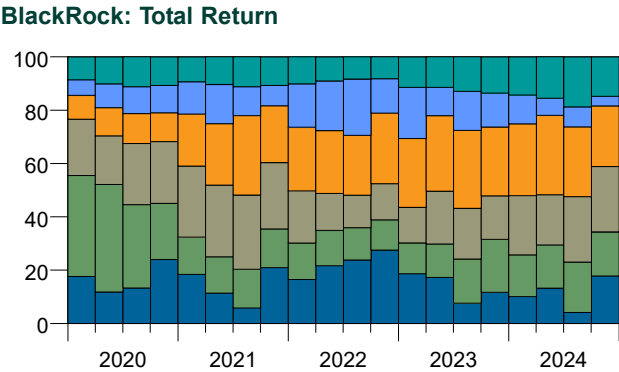
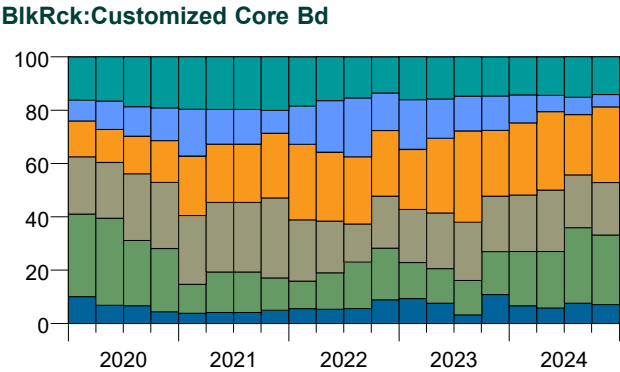
Index: Bloomberg Aggregate



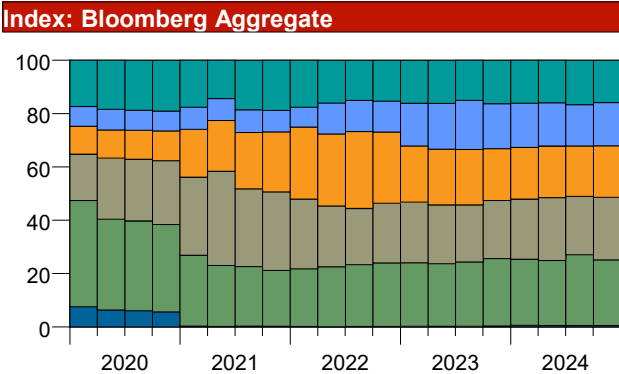
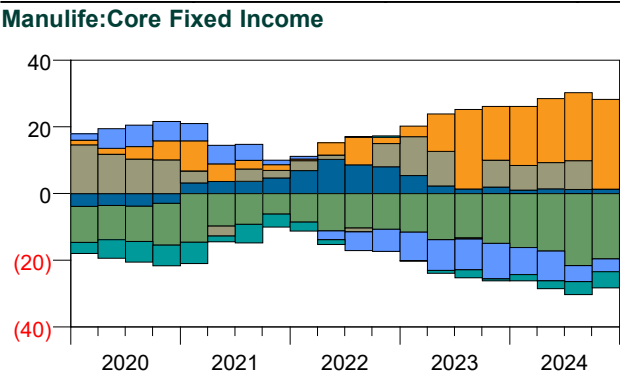
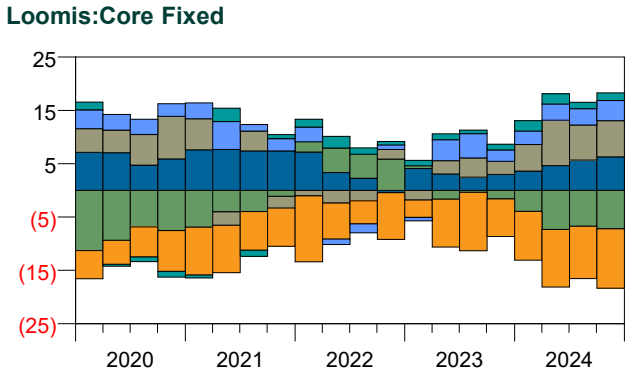
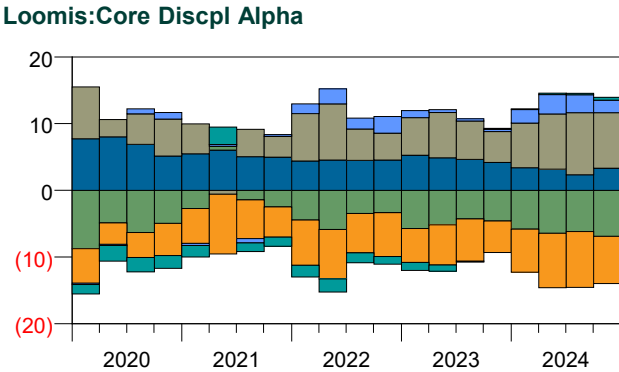
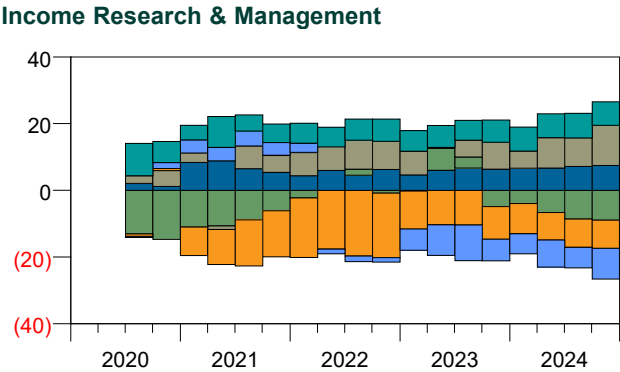
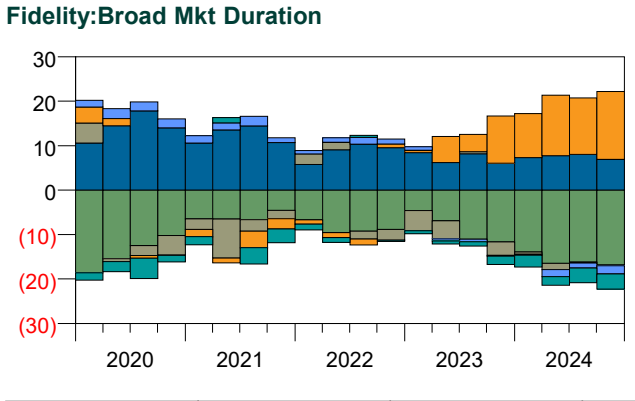
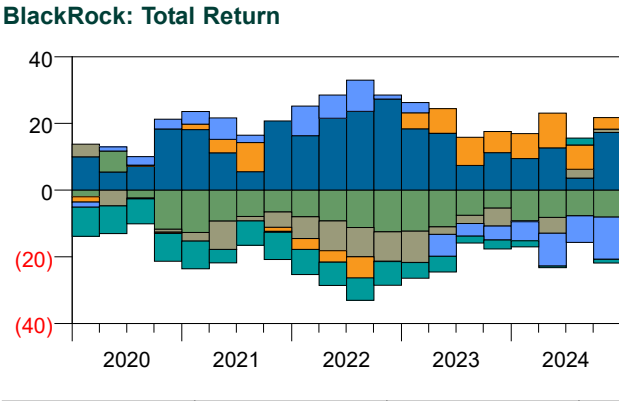
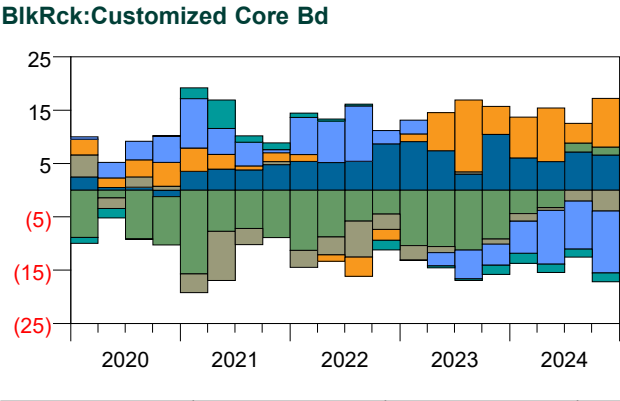
Quality Exposure Relative to Blmbg:Aggregate



Duration Exposure

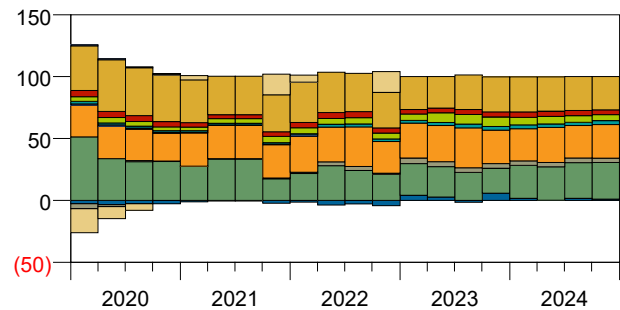


Duration Exposure Relative to Blmbg:Aggregate

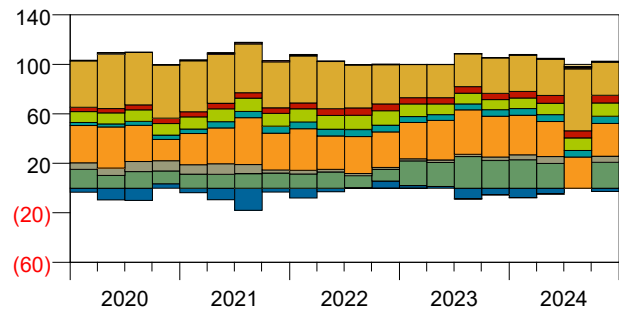


Sector Allocation

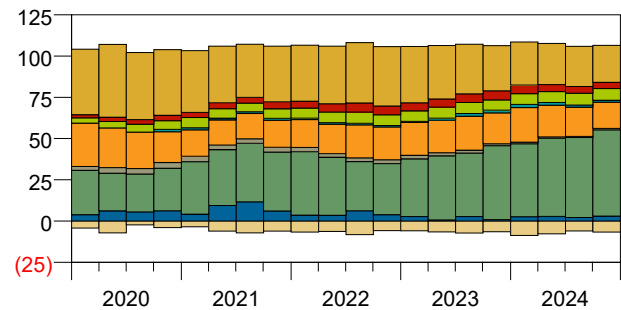
BlkRck:Customized Core Bd



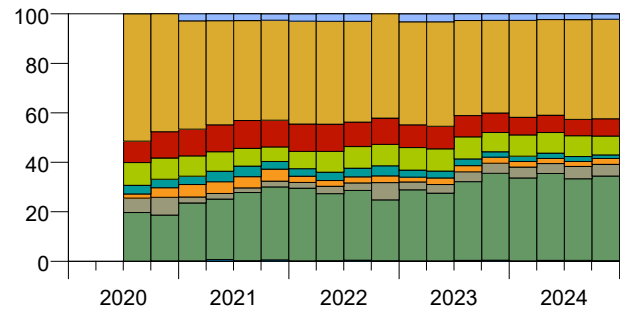
BlackRock: Total Return



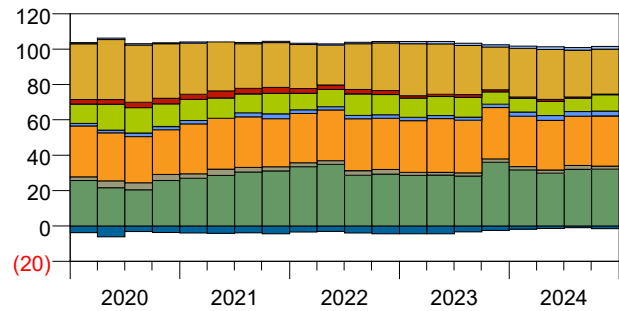
Fidelity:Broad Mkt Duration



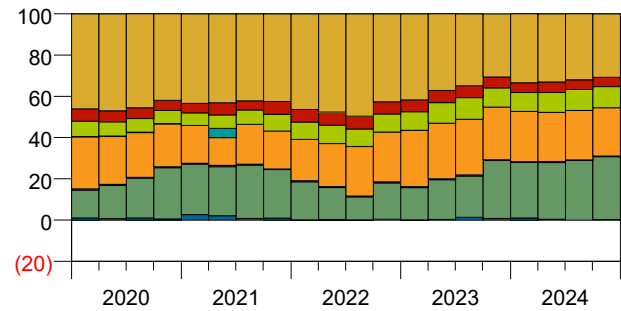
Income Research & Management



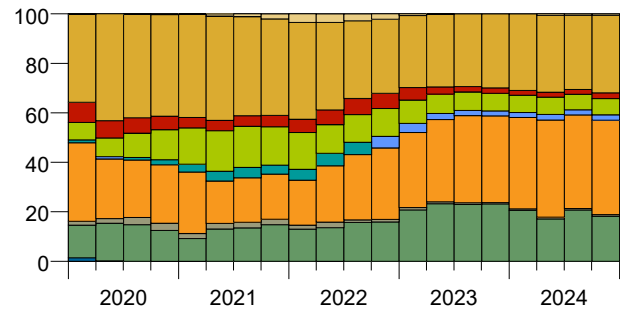
Loomis:Core Discl Alpha



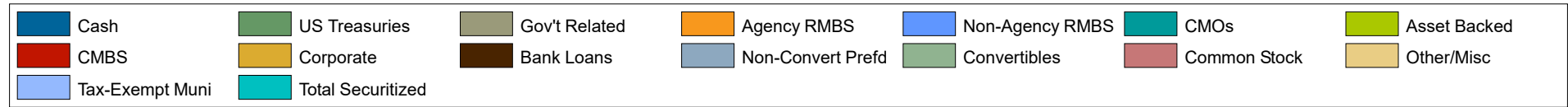
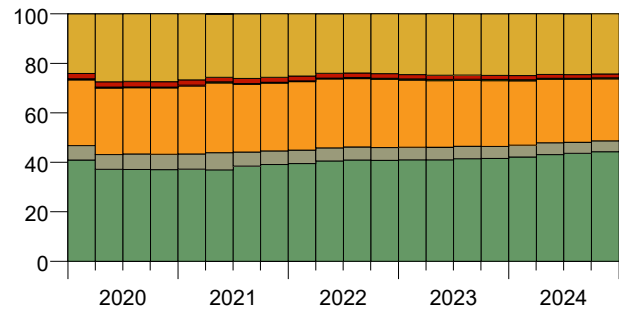
Loomis:Core Fixed



Manulife:Core Fixed Income

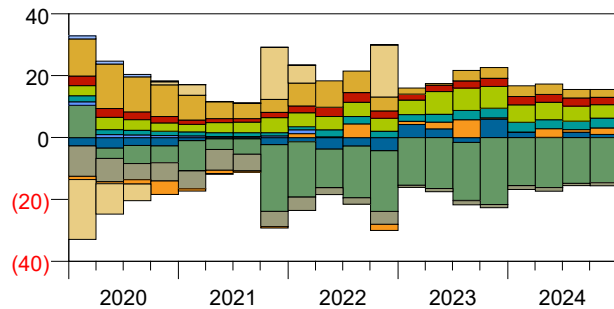


Index: Bloomberg Aggregate

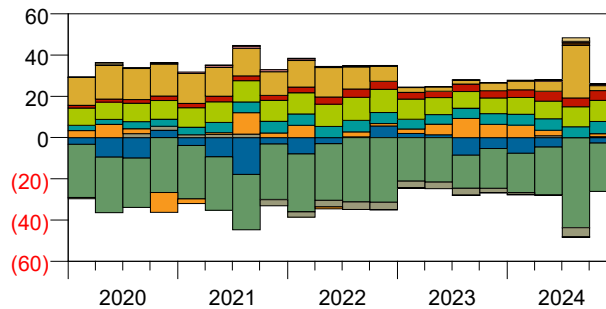


Sector Allocation Relative to Bimbg:Aggregate

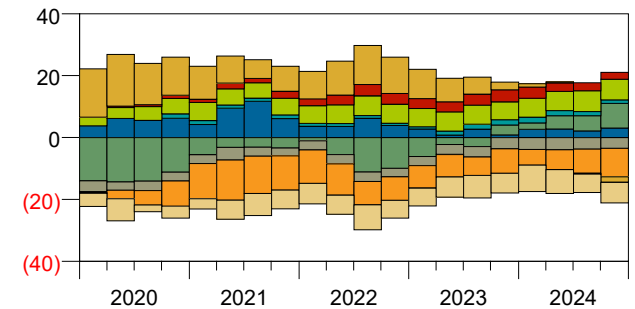
BlkRck:Customized Core Bd



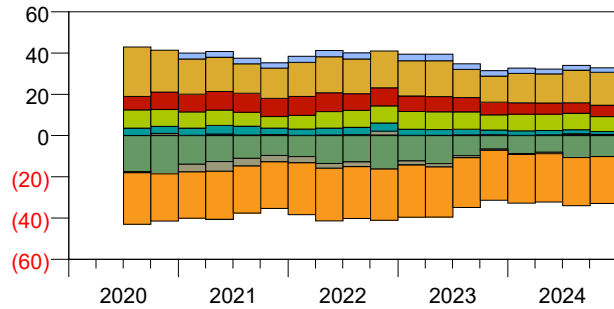
BlackRock: Total Return



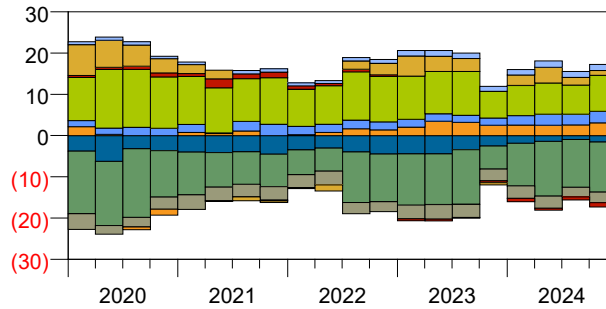
Fidelity:Broad Mkt Duration



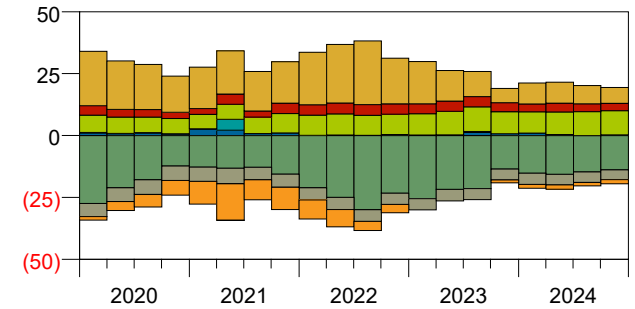
Income Research & Management



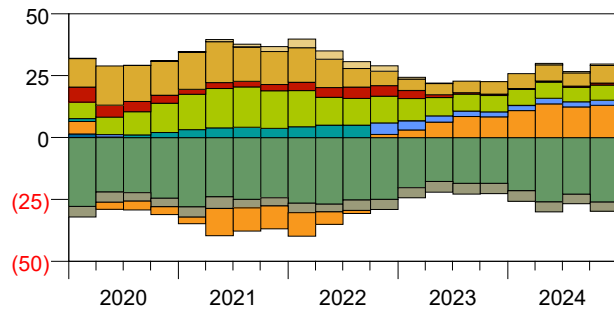
Loomis:Core Discl Alpha



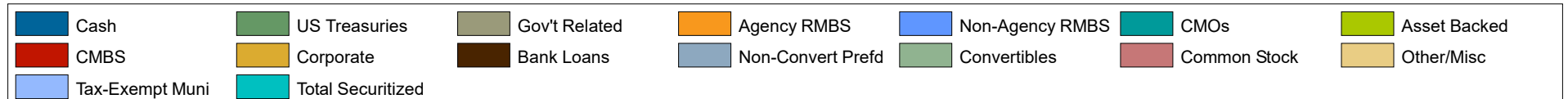
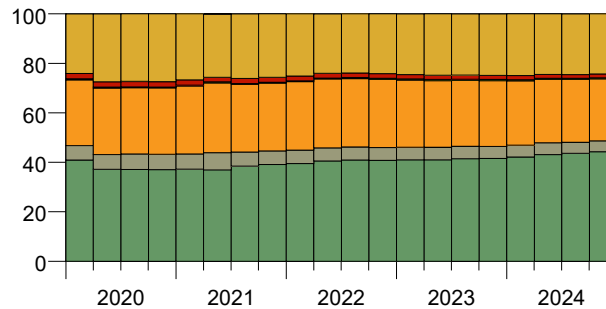
Loomis:Core Fixed



Manulife:Core Fixed Income



Index: Bloomberg Aggregate





Candidate Performance

Returns and Peer Group Rankings - Trailing Periods

Returns for Periods Ended December 31, 2024

Group: Callan Core Bond FI (Percentile Rankings in Parentheses)

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
BlkRck:Customized Core Bd	(2.96) (57)	1.85 (56)	(2.05) (65)	0.17 (67)	1.39 (70)	1.75 (65)
BlackRock:Total Return	(3.12) (86)	2.21 (32)	(2.12) (75)	0.46 (26)	1.75 (16)	2.20 (11)
Fidelity:Broad Mkt Duration	(2.94) (50)	2.11 (40)	(1.69) (16)	0.82 (5)	1.95 (4)	2.31 (4)
Income Research & Management	(2.83) (31)	1.92 (51)	(2.20) (82)	0.43 (30)	1.66 (23)	1.98 (35)
Loomis:Core Discpl Alpha	(2.92) (46)	1.80 (61)	(2.01) (59)	0.33 (45)	1.53 (44)	1.93 (44)
Loomis:Core Fixed	(2.74) (16)	2.48 (17)	(1.77) (26)	0.64 (14)	1.89 (7)	2.29 (6)
Manulife:Core Fixed Income	(3.04) (74)	2.30 (25)	(2.04) (62)	0.38 (40)	1.59 (33)	2.03 (31)
Callan Core Bond FI*	(2.94)	1.93	(1.95)	0.30	1.48	1.86
BImbg:Aggregate	(3.06) (78)	1.25 (93)	(2.41) (91)	(0.33) (95)	0.97 (97)	1.35 (98)

*Results reflect group median.

Manager candidate performance shown is gross-of-fees unless otherwise noted.

Returns and Peer Group Rankings - Calendar Years

Returns for Periods Ended December 31, 2024

Group: Callan Core Bond FI (Percentile Rankings in Parentheses)

	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
BlkRck:Customized Core Bd	1.85 (56)	6.23 (43)	(13.15) (67)	(1.27) (64)	8.71 (50)	9.18 (49)	0.02 (62)	3.83 (65)	3.01 (59)	0.96 (37)
BlackRock:Total Return	2.21 (32)	6.43 (26)	(13.81) (93)	(0.31) (10)	9.49 (21)	10.54 (2)	(0.19) (79)	4.88 (10)	3.98 (18)	0.94 (39)
Fidelity:Broad Mkt Duration	2.11 (40)	6.72 (14)	(12.80) (41)	(0.30) (10)	9.93 (12)	9.98 (5)	(0.04) (68)	4.53 (19)	5.16 (3)	(0.15) (94)
Income Research & Management	1.92 (51)	6.41 (27)	(13.74) (90)	(1.49) (83)	10.89 (3)	9.91 (10)	(0.12) (76)	4.41 (24)	3.78 (24)	0.13 (88)
Loomis:Core Discpl Alpha	1.80 (61)	6.13 (58)	(12.91) (52)	(1.14) (54)	9.29 (26)	9.17 (51)	0.18 (40)	3.93 (55)	3.68 (27)	1.10 (29)
Loomis:Core Fixed	2.48 (17)	6.17 (51)	(12.89) (49)	(0.71) (28)	9.69 (13)	10.19 (4)	0.24 (36)	4.53 (21)	4.14 (15)	1.06 (31)
Manulife:Core Fixed Income	2.30 (25)	6.40 (27)	(13.64) (83)	(0.71) (29)	9.17 (33)	9.15 (54)	0.40 (21)	4.55 (18)	3.60 (29)	1.03 (35)
Callan Core Bond FI*	1.93	6.17	(12.91)	(1.03)	8.71	9.17	0.10	3.96	3.14	0.84
Blmbg:Aggregate	1.25 (93)	5.53 (86)	(13.01) (58)	(1.54) (88)	7.51 (93)	8.72 (83)	0.01 (62)	3.54 (88)	2.65 (87)	0.55 (72)

*Results reflect group median.

Manager candidate performance shown is gross-of-fees unless otherwise noted.

Returns and Peer Group Rankings - Rolling Three-Year Periods

Returns for Rolling Three-Year Periods Ended December 31, 2024

Group: Callan Core Bond FI (Percentile Rankings in Parentheses)

	Last 3 Yrs.	3 Yrs. Ending 12/31/23	3 Yrs. Ending 12/31/22	3 Yrs. Ending 12/31/21	3 Yrs. Ending 12/31/20
BlkRck:Customized Core Bd	(2.05) (65)	(3.06) (66)	(2.31) (67)	5.43 (62)	5.89 (58)
BlackRock:Total Return	(2.12) (75)	(2.94) (52)	(2.02) (32)	6.46 (4)	6.50 (9)
Fidelity:Broad Mkt Duration	(1.69) (16)	(2.46) (7)	(1.50) (5)	6.43 (6)	6.52 (9)
Income Research & Management	(2.20) (82)	(3.30) (92)	(1.96) (27)	6.29 (8)	6.77 (3)
Loomis:Core Discpl Alpha	(2.01) (59)	(2.96) (58)	(2.01) (31)	5.66 (40)	6.13 (32)
Loomis:Core Fixed	(1.77) (26)	(2.80) (31)	(1.74) (16)	6.27 (10)	6.61 (5)
Manulife:Core Fixed Income	(2.04) (62)	(3.01) (62)	(2.18) (50)	5.76 (29)	6.16 (29)
Callan Core Bond FI*	(1.95)	(2.92)	(2.18)	5.57	5.93
BImbg:Aggregate	(2.41) (91)	(3.31) (92)	(2.71) (95)	4.79 (94)	5.34 (97)

*Results reflect group median.

Manager candidate performance shown is gross-of-fees unless otherwise noted.

Statistics and Peer Group Rankings - Up & Down Market Capture

The table below illustrates Up Market Capture and Down Market Capture for seven years versus the Callan Core Bond FI group. A manager with an up-market capture greater than 100 has outperformed the index during the up market and a manager with a down-market capture less than 100 has outperformed the index during the down market. The Down Market Capture rankings are inverted.

Up Market Capture and Down Market Capture Relative to the Blmbg:Aggregate for Seven Years Ended December 31, 2024

Group: Callan Core Bond FI (Percentile Rankings in Parentheses)

	Up Market Capture (%)	Down Market Capture (%)
BlkRck:Customized Core Bd	109.56 (41)	99.71 (18)
BlackRock:Total Return	117.60 (6)	99.22 (26)
Fidelity:Broad Mkt Duration	115.78 (9)	93.38 (77)
Income Research & Management	116.85 (6)	100.50 (10)
Loomis:Core Discl Alpha	109.83 (38)	97.14 (47)
Loomis:Core Fixed	114.48 (14)	93.54 (76)
Manulife:Core Fixed Income	110.71 (29)	96.60 (50)
Callan Core Bond FI*	108.31	96.60

*Results reflect group median.

Manager candidate performance shown is gross-of-fees unless otherwise noted.

Statistics and Peer Group Rankings - Up & Down Market Capture

The table below illustrates Up Market Capture and Down Market Capture for five years versus the Callan Core Bond FI group. A manager with an up-market capture greater than 100 has outperformed the index during the up market and a manager with a down-market capture less than 100 has outperformed the index during the down market. The Down Market Capture rankings are inverted.

Up Market Capture and Down Market Capture Relative to the Blmbg:Aggregate for Five Years Ended December 31, 2024

Group: Callan Core Bond FI (Percentile Rankings in Parentheses)

	Up Market Capture (%)	Down Market Capture (%)
BlkRck:Customized Core Bd	111.10 (40)	99.97 (15)
BlackRock:Total Return	118.05 (8)	100.19 (14)
Fidelity:Broad Mkt Duration	117.16 (10)	93.88 (76)
Income Research & Management	117.44 (10)	100.22 (14)
Loomis:Core Discpl Alpha	110.73 (43)	97.20 (43)
Loomis:Core Fixed	112.75 (25)	93.64 (79)
Manulife:Core Fixed Income	112.74 (26)	97.85 (40)
Callan Core Bond FI*	109.64	96.85

*Results reflect group median.

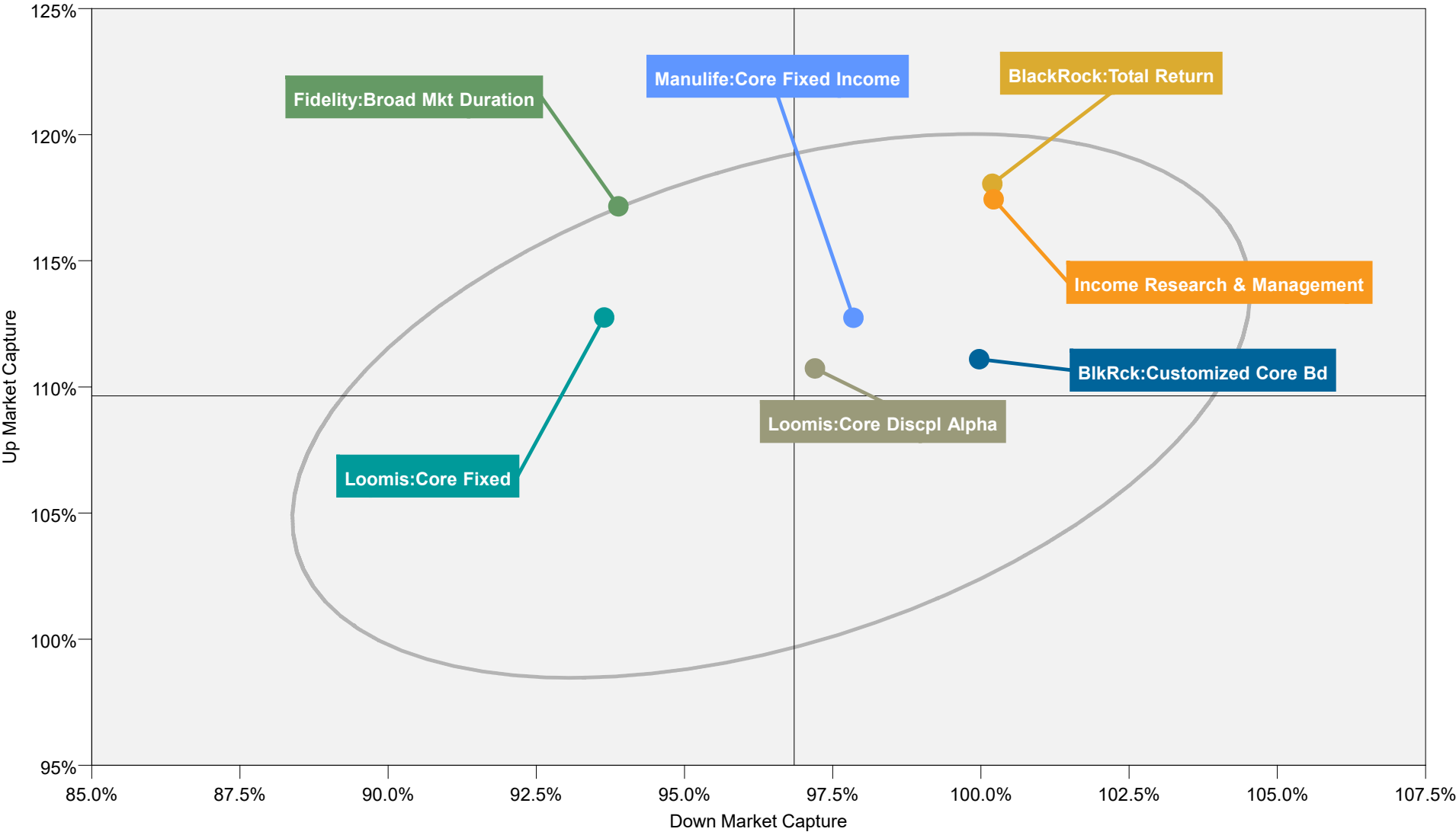
Manager candidate performance shown is gross-of-fees unless otherwise noted.

Up Market Capture vs. Down Market Capture

The chart below illustrates Up Market Capture and Down Market Capture for five years versus the Callan Core Bond FI group. A manager with an up-market capture greater than 100 has outperformed the index during the up market and a manager with a down-market capture less than 100 has outperformed the index during the down market.

Up Market Capture vs. Down Market Capture for Five Years Ended December 31, 2024

Group: Callan Core Bond FI (Ellipse with Median at Central Axis)



Manager candidate performance shown is gross-of-fees unless otherwise noted.

Excess Correlation Table

This excess correlation table shows the correlation of one portfolio's excess return to another portfolio's excess return. Excess return is the return minus a benchmark. For instance, Excess Correlation could measure the correlation of Manager A's return in excess of a benchmark with Manager B's return in excess of the same benchmark. Excess Correlation is used to indicate whether different managers outperform a market index at the same time.

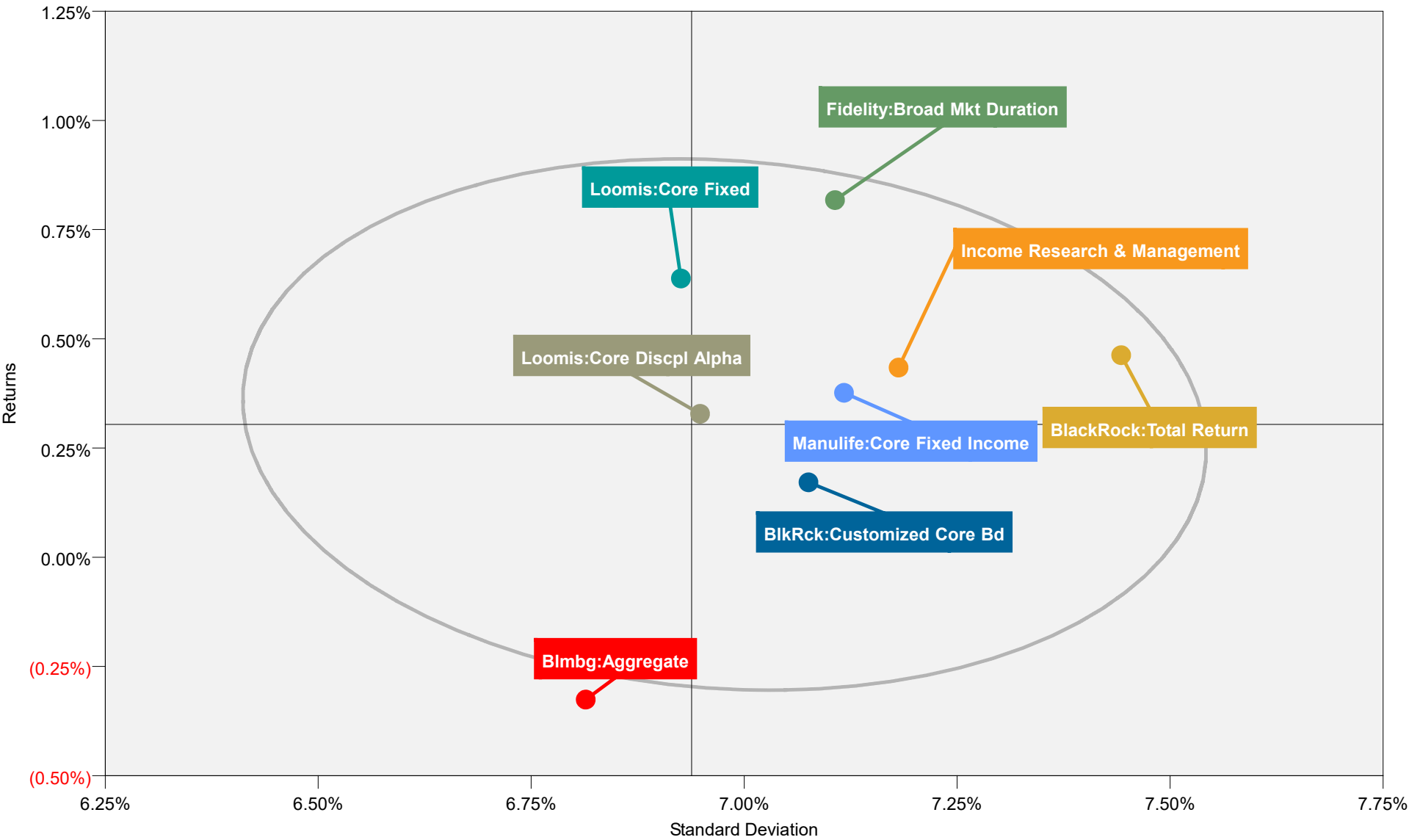
Benchmark: Bloomberg Aggregate for Five Years Ended December 31, 2024

BlkRck:Customized Core Bd	1.00						
BlackRock:Total Return	0.88	1.00					
Fidelity:Broad Mkt Duration	0.89	0.96	1.00				
Income Research & Management	0.60	0.42	0.48	1.00			
Loomis:Core Discpl Alpha	0.87	0.77	0.85	0.73	1.00		
Loomis:Core Fixed	0.89	0.86	0.94	0.61	0.92	1.00	
Manulife:Core Fixed Income	0.89	0.97	0.97	0.52	0.82	0.91	1.00
	BlkRck:Customized Core Bd	BlackRock:Total Return	Fidelity:Broad Mkt Duration	Income Research & Management	Loomis:Core Discpl Alpha	Loomis:Core Fixed	Manulife:Core Fixed Income

Manager candidate performance shown is gross-of-fees unless otherwise noted.

Risk/Reward Structure

Risk/Reward for Five Years Ended December 31, 2024
Group: Callan Core Bond FI (Ellipse with Median at Central Axis)



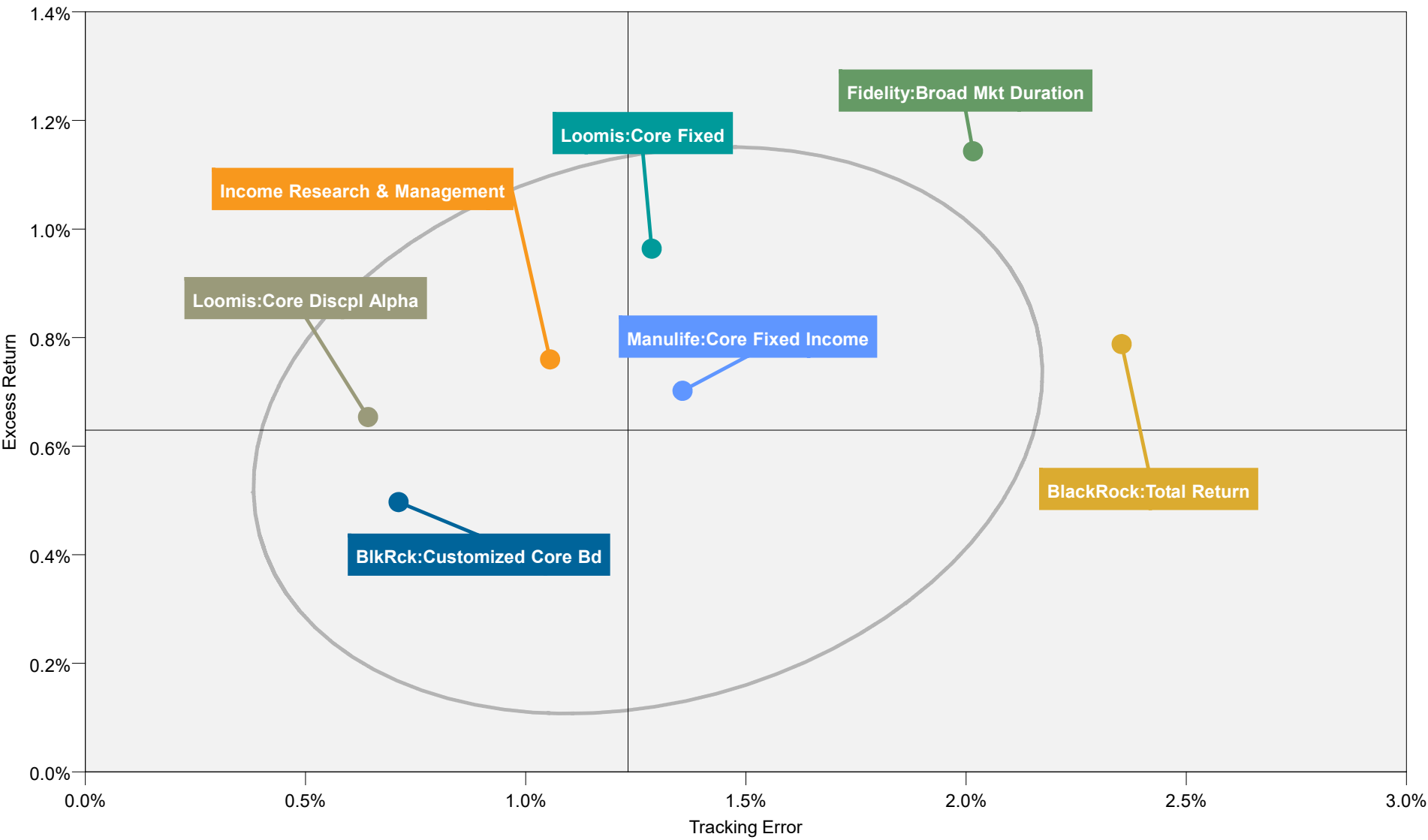
Manager candidate performance shown is gross-of-fees unless otherwise noted.

Excess Return vs. Tracking Error

Excess Return vs Tracking Error for Five Years Ended December 31, 2024

Benchmark: Bloomberg Aggregate

Group: Callan Core Bond FI (Ellipse with Median at Central Axis)



Manager candidate performance shown is gross-of-fees unless otherwise noted.

Risk Statistics

Return-Based Risk Statistics Relative to Blmbg:Aggregate for Five Years Ended December 31, 2024

Group: Callan Core Bond FI (Percentile Ranking in Parentheses)

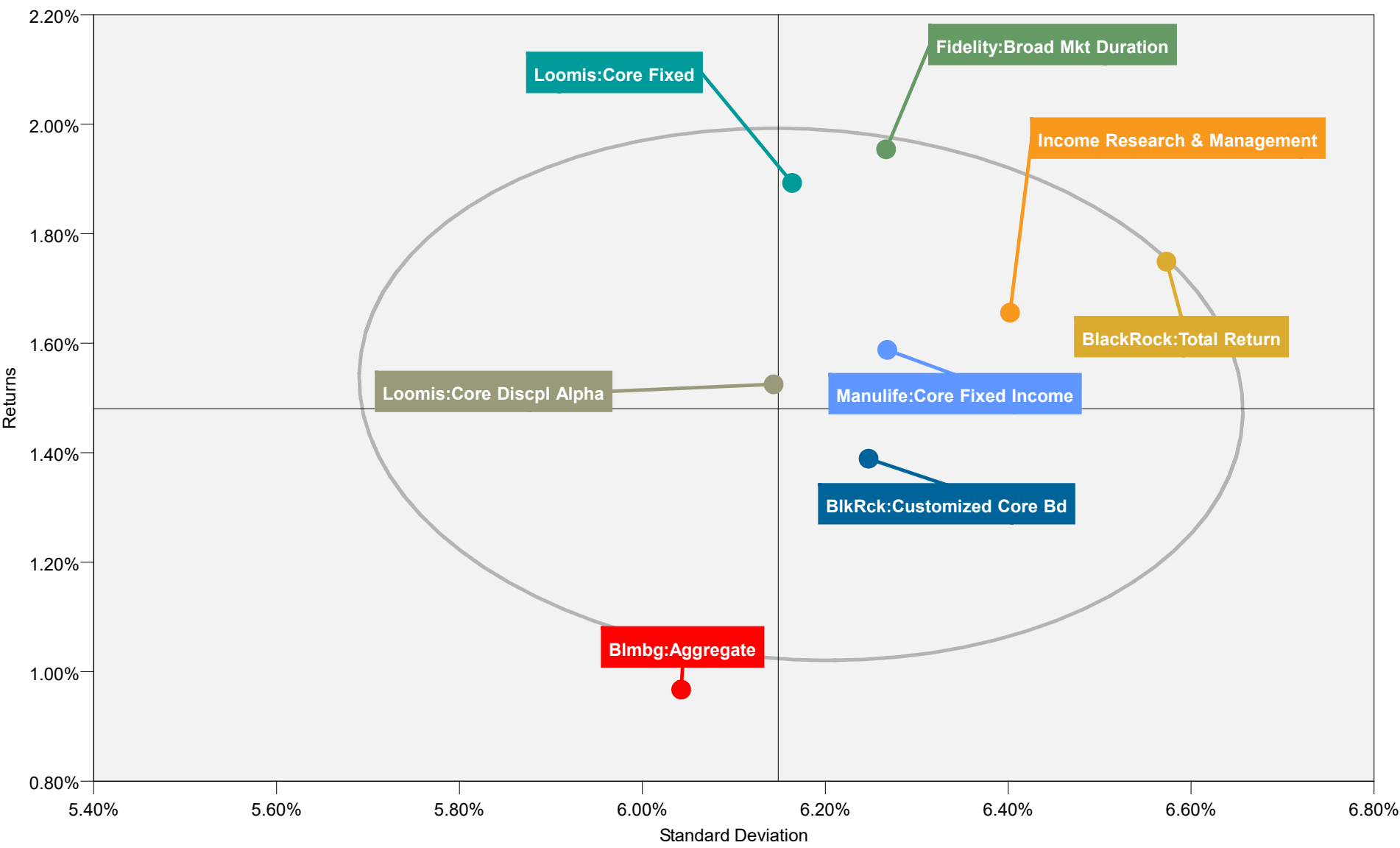
	Standard Deviation	Downside Risk	Sharpe Ratio	Information Ratio	Alpha	Beta	Correlation
BlkRck:Customized Core Bd	7.08 (31)	0.34 (83)	(0.32) (59)	0.89 (22)	0.61 (56)	1.04 (20)	1.00 (19)
BlackRock:Total Return	7.44 (7)	1.64 (7)	(0.27) (17)	0.40 (73)	0.96 (16)	1.05 (15)	0.95 (94)
Fidelity:Broad Mkt Duration	7.11 (28)	1.25 (19)	(0.23) (5)	0.58 (55)	1.20 (4)	1.01 (50)	0.96 (84)
Income Research & Management	7.18 (21)	0.45 (65)	(0.28) (23)	0.89 (22)	0.91 (17)	1.05 (15)	0.99 (40)
Loomis:Core Discpl Alpha	6.95 (46)	0.13 (94)	(0.31) (47)	1.11 (7)	0.71 (44)	1.02 (36)	1.00 (15)
Loomis:Core Fixed	6.93 (54)	0.60 (54)	(0.26) (15)	0.75 (32)	0.99 (14)	1.00 (58)	0.98 (59)
Manulife:Core Fixed Income	7.12 (26)	0.85 (40)	(0.29) (36)	0.59 (53)	0.81 (31)	1.03 (25)	0.98 (60)
Callan Core Bond FI*	6.94	0.70	(0.31)	0.60	0.67	1.01	0.99
Blmbg:Aggregate	6.81 (77)	0.00 (99)	(0.41) (96)	0.00 (95)	0.00 (96)	1.00 (63)	1.00 (1)

*Results reflect group median.

Manager candidate performance shown is gross-of-fees unless otherwise noted.

Risk/Reward Structure

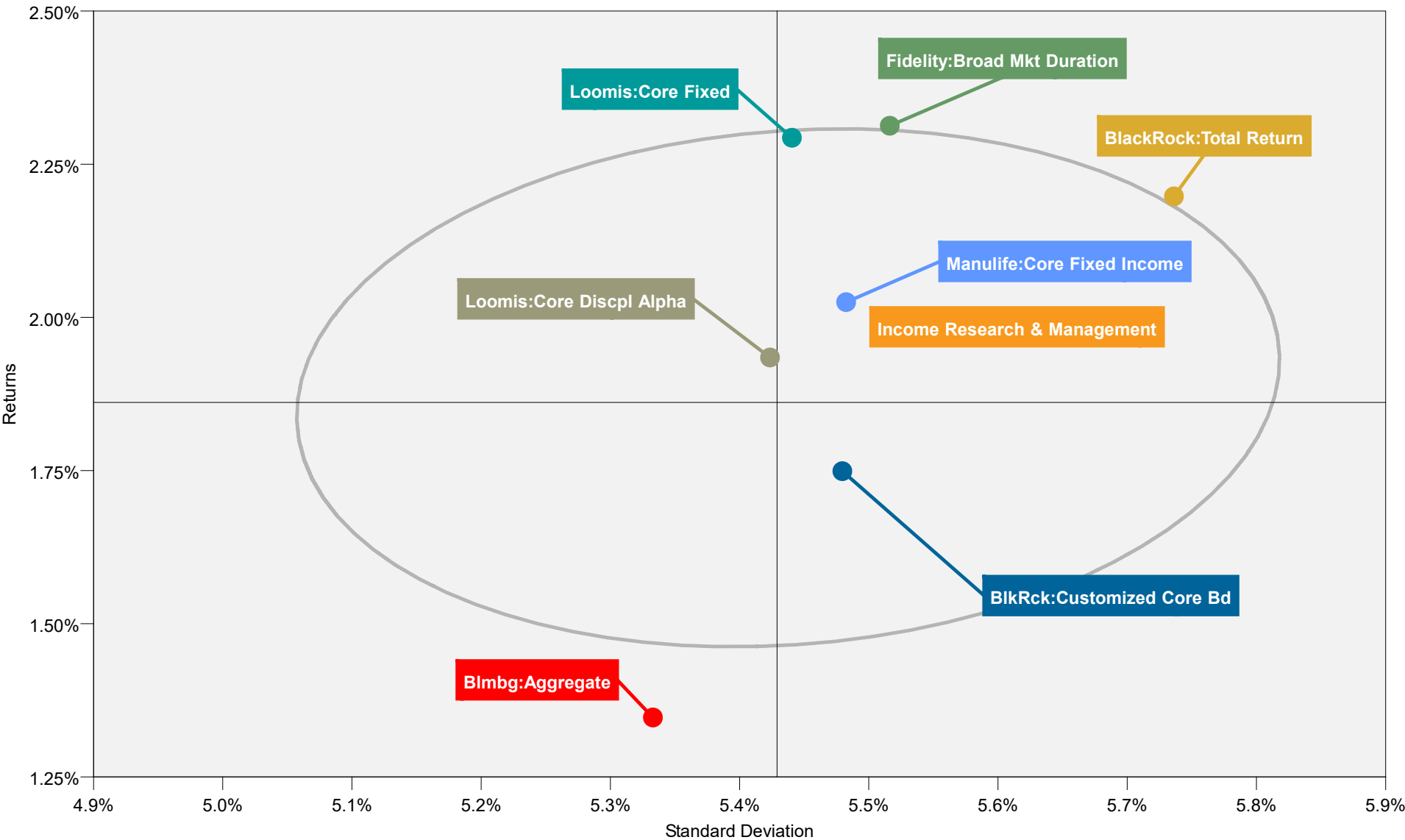
Risk/Reward for Seven Years Ended December 31, 2024
Group: Callan Core Bond FI (Ellipse with Median at Central Axis)



Manager candidate performance shown is gross-of-fees unless otherwise noted.

Risk/Reward Structure

Risk/Reward for Ten Years Ended December 31, 2024
Group: Callan Core Bond FI (Ellipse with Median at Central Axis)



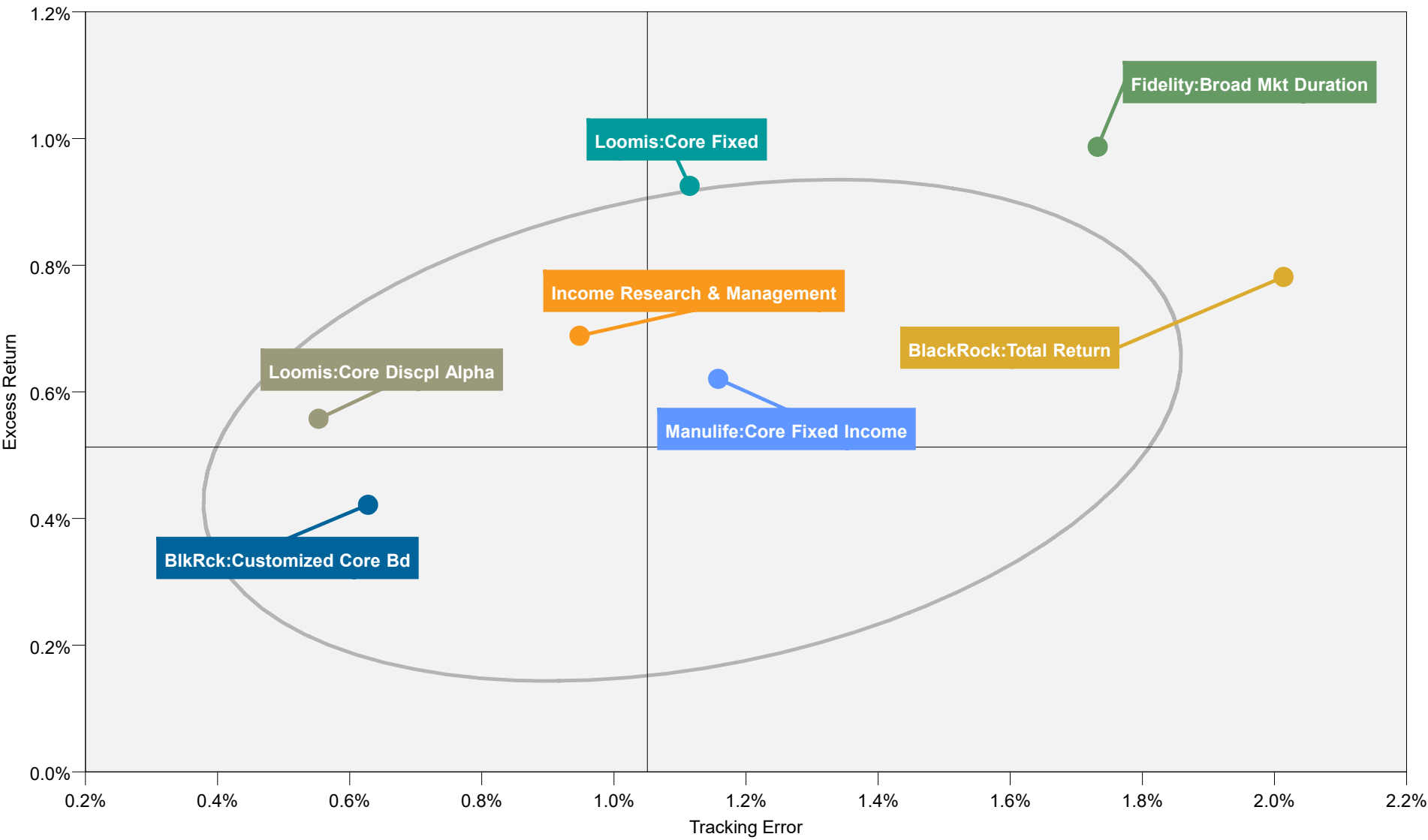
Manager candidate performance shown is gross-of-fees unless otherwise noted.

Excess Return vs. Tracking Error

Excess Return vs Tracking Error for Seven Years Ended December 31, 2024

Benchmark: Bloomberg Aggregate

Group: Callan Core Bond FI (Ellipse with Median at Central Axis)



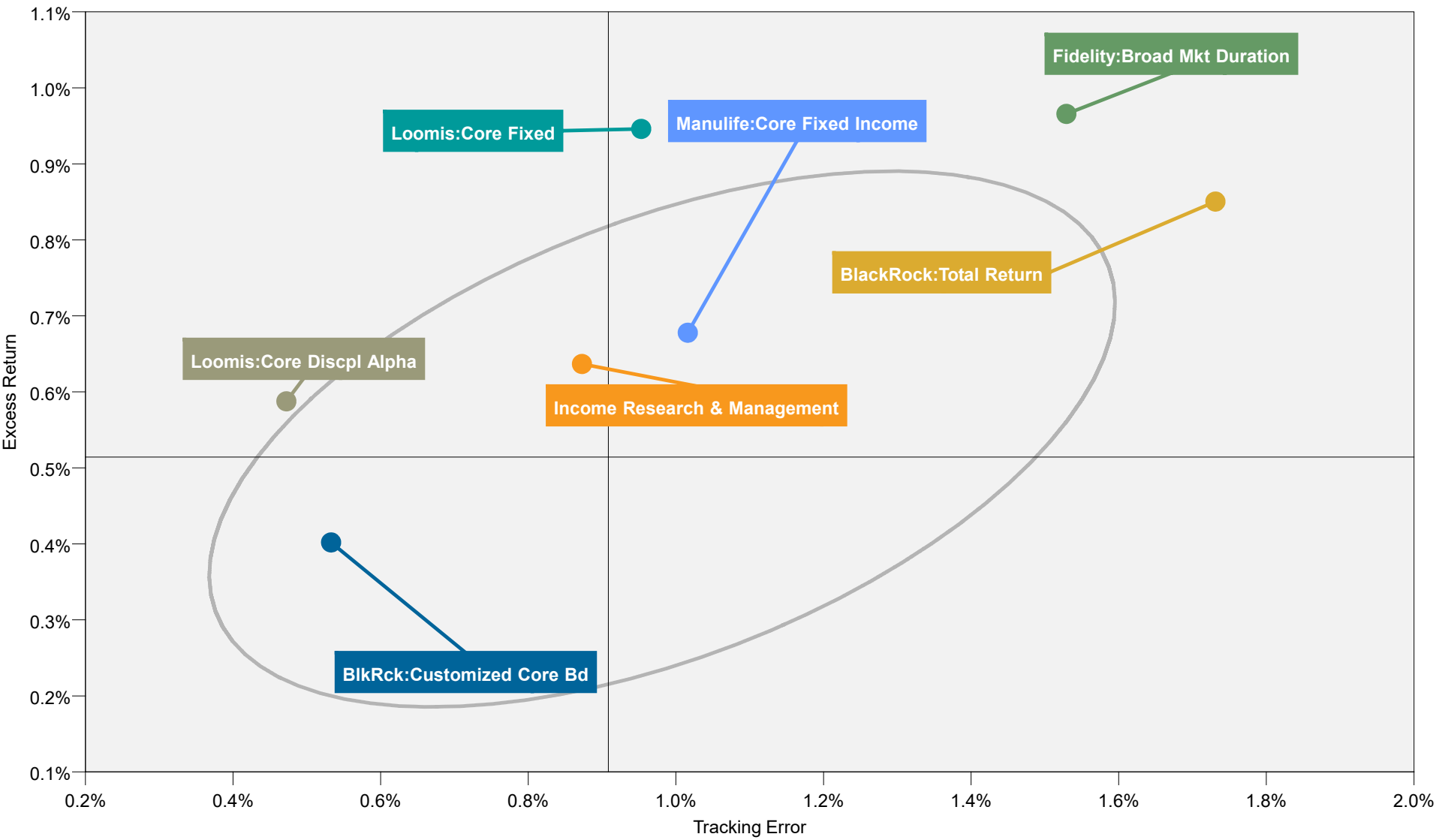
Manager candidate performance shown is gross-of-fees unless otherwise noted.

Excess Return vs. Tracking Error

Excess Return vs Tracking Error for Ten Years Ended December 31, 2024

Benchmark: Bloomberg Aggregate

Group: Callan Core Bond FI (Ellipse with Median at Central Axis)



Manager candidate performance shown is gross-of-fees unless otherwise noted.

Risk Statistics

Return-Based Risk Statistics Relative to Blmbg:Aggregate for Seven Years Ended December 31, 2024

Group: Callan Core Bond FI (Percentile Rankings in Parentheses)

	Standard Deviation	Downside Risk	Sharpe Ratio	Information Ratio	Alpha	Beta	Correlation
BlkRck:Customized Core Bd	6.25 (34)	0.30 (82)	(0.15) (67)	0.77 (21)	0.47 (59)	1.03 (24)	1.00 (21)
BlackRock:Total Return	6.57 (7)	1.40 (7)	(0.09) (13)	0.43 (68)	0.87 (11)	1.05 (11)	0.95 (93)
Fidelity:Broad Mkt Duration	6.27 (31)	1.08 (19)	(0.06) (4)	0.57 (47)	1.00 (6)	1.01 (52)	0.96 (84)
Income Research & Management	6.40 (15)	0.41 (67)	(0.11) (22)	0.85 (17)	0.77 (17)	1.05 (10)	0.99 (40)
Loomis:Core Discpl Alpha	6.14 (52)	0.11 (98)	(0.13) (43)	1.04 (7)	0.58 (43)	1.02 (37)	1.00 (10)
Loomis:Core Fixed	6.16 (46)	0.52 (56)	(0.07) (7)	0.82 (19)	0.94 (7)	1.01 (48)	0.98 (59)
Manulife:Core Fixed Income	6.27 (30)	0.73 (42)	(0.12) (33)	0.56 (48)	0.66 (31)	1.02 (27)	0.98 (60)
Callan Core Bond FI*	6.15	0.61	(0.14)	0.56	0.53	1.01	0.99
Blmbg:Aggregate	6.04 (78)	0.00 (99)	(0.23) (97)	0.00 (96)	0.00 (97)	1.00 (62)	1.00 (1)

*Results reflect group median.

Manager candidate performance shown is gross-of-fees unless otherwise noted.

Risk Statistics

Return-Based Risk Statistics Relative to Blmbg:Aggregate for Ten Years Ended December 31, 2024

Group: Callan Core Bond FI (Percentile Rankings in Parentheses)

	Standard Deviation	Downside Risk	Sharpe Ratio	Information Ratio	Alpha	Beta	Correlation
BlkRck:Customized Core Bd	5.48 (38)	0.26 (85)	0.00 (65)	0.79 (20)	0.41 (63)	1.02 (26)	1.00 (18)
BlackRock:Total Return	5.74 (9)	1.19 (8)	0.08 (12)	0.50 (66)	0.87 (11)	1.04 (16)	0.95 (94)
Fidelity:Broad Mkt Duration	5.52 (28)	0.95 (18)	0.10 (3)	0.62 (46)	0.97 (4)	1.00 (54)	0.96 (87)
Income Research & Management	5.71 (9)	0.38 (66)	0.04 (36)	0.82 (17)	0.67 (32)	1.06 (6)	0.99 (39)
Loomis:Core Discpl Alpha	5.42 (51)	0.09 (98)	0.03 (44)	1.26 (3)	0.59 (44)	1.02 (35)	1.00 (8)
Loomis:Core Fixed	5.44 (45)	0.44 (59)	0.10 (4)	0.98 (6)	0.94 (6)	1.01 (44)	0.98 (55)
Manulife:Core Fixed Income	5.48 (34)	0.63 (42)	0.05 (31)	0.67 (37)	0.68 (31)	1.01 (40)	0.98 (58)
Callan Core Bond FI*	5.43	0.53	0.02	0.60	0.51	1.00	0.99
Blmbg:Aggregate	5.33 (74)	0.00 (99)	(0.08) (97)	0.00 (97)	0.00 (97)	1.00 (57)	1.00 (1)

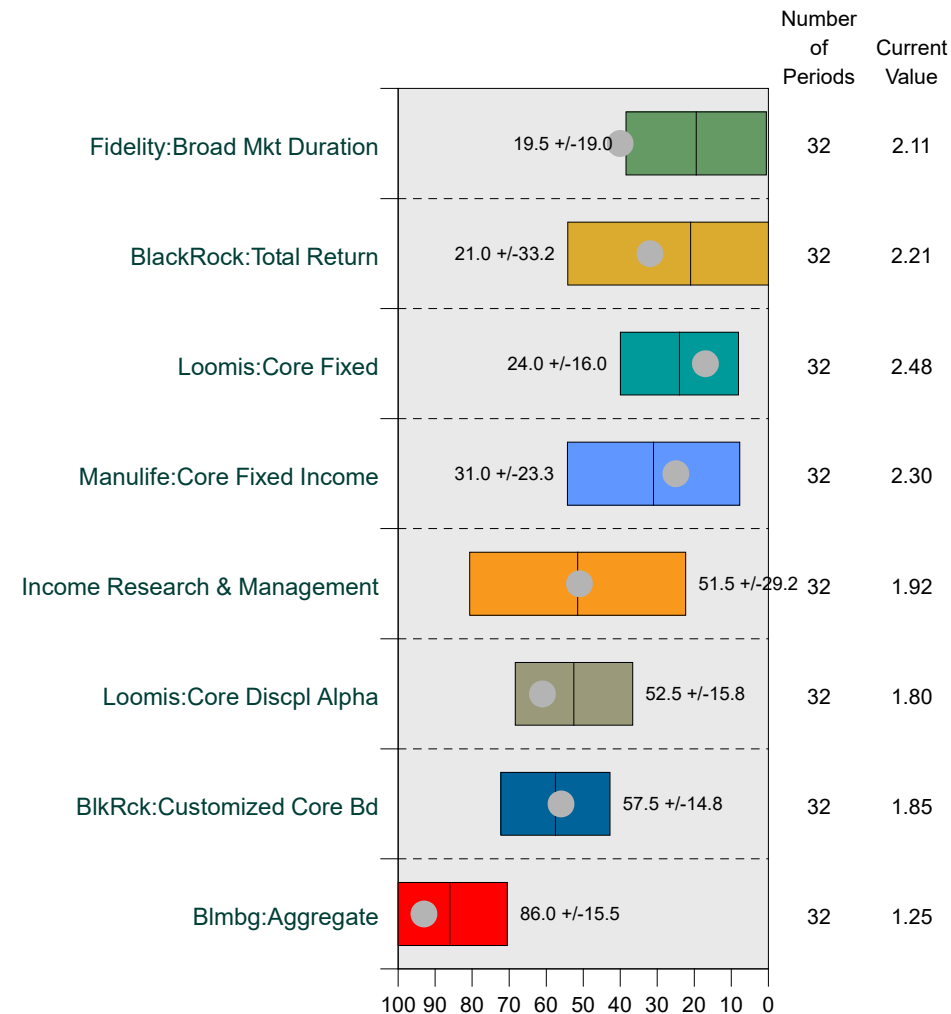
*Results reflect group median.

Manager candidate performance shown is gross-of-fees unless otherwise noted.

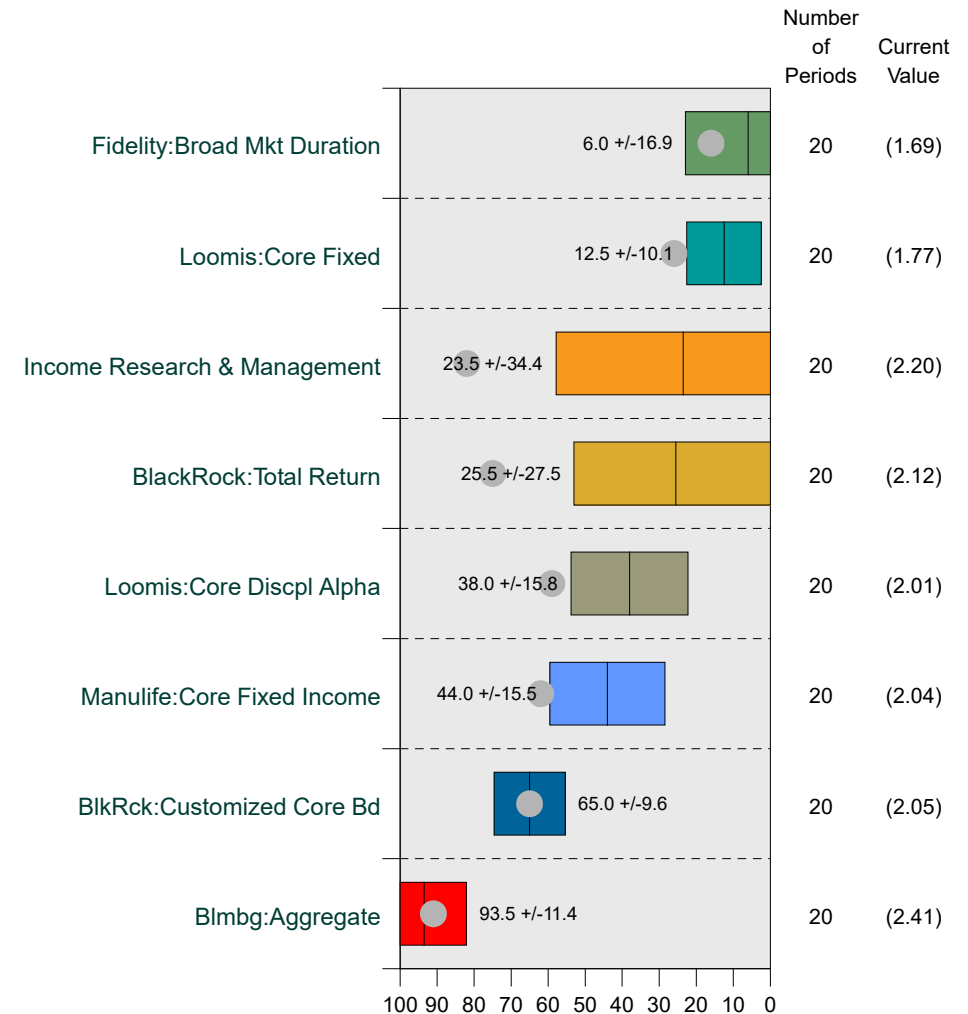
Historical Rankings - Returns

This page compares multiple portfolios to each other by analyzing both the historical median ranking for a given metric versus a relevant peer group, and the consistency and range (standard deviation) of that ranking over time. The midpoint of each sideways bar represents the median ranking of a given portfolio over time, and the width of the bar represents the consistency and range of that ranking (+/- 1 standard deviation). The slash-separated numbers show the median and standard deviation, respectively, of the portfolios' ranking. The current ranking of each portfolio is demarcated by a dot, while the corresponding current value of the metric is displayed on the far right.

Rolling One-Year Returns Against Callan Core Bond FI for Eight Years Ended December 31, 2024



Rolling Three-Year Returns Against Callan Core Bond FI for Five Years Ended December 31, 2024

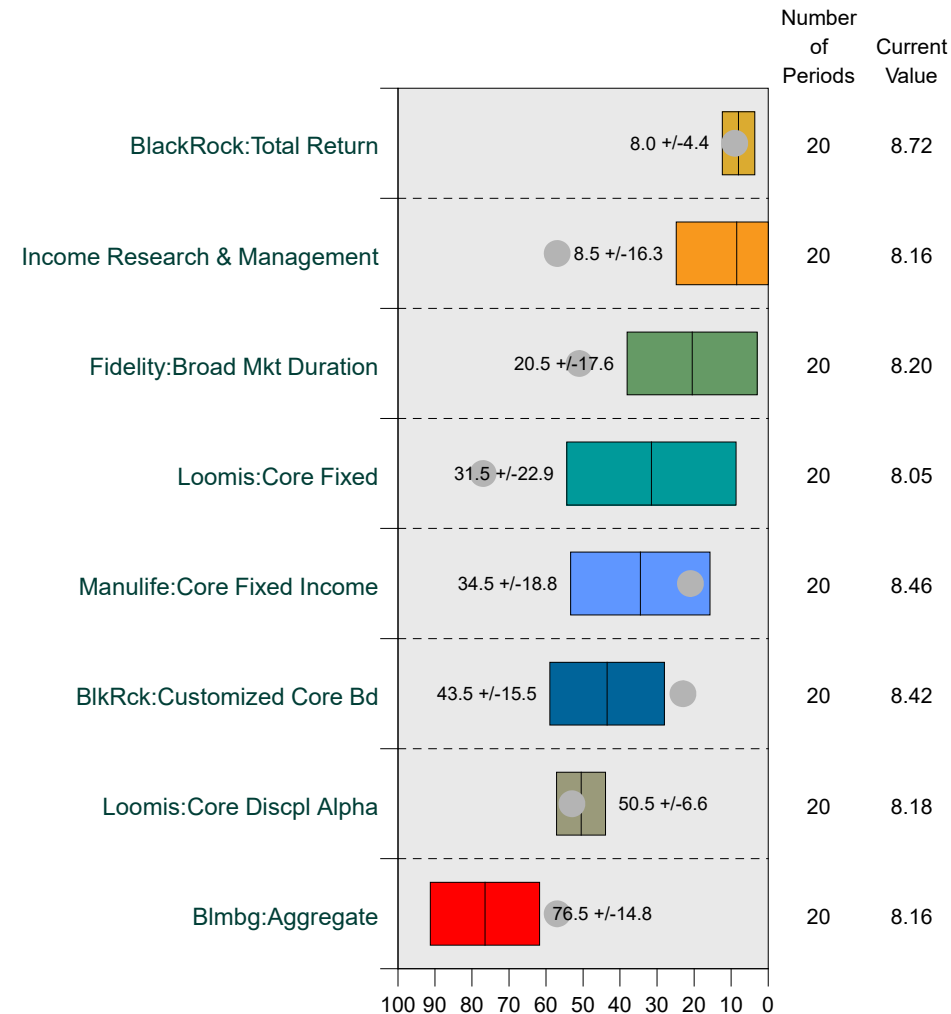


Manager candidate performance shown is gross-of-fees unless otherwise noted.

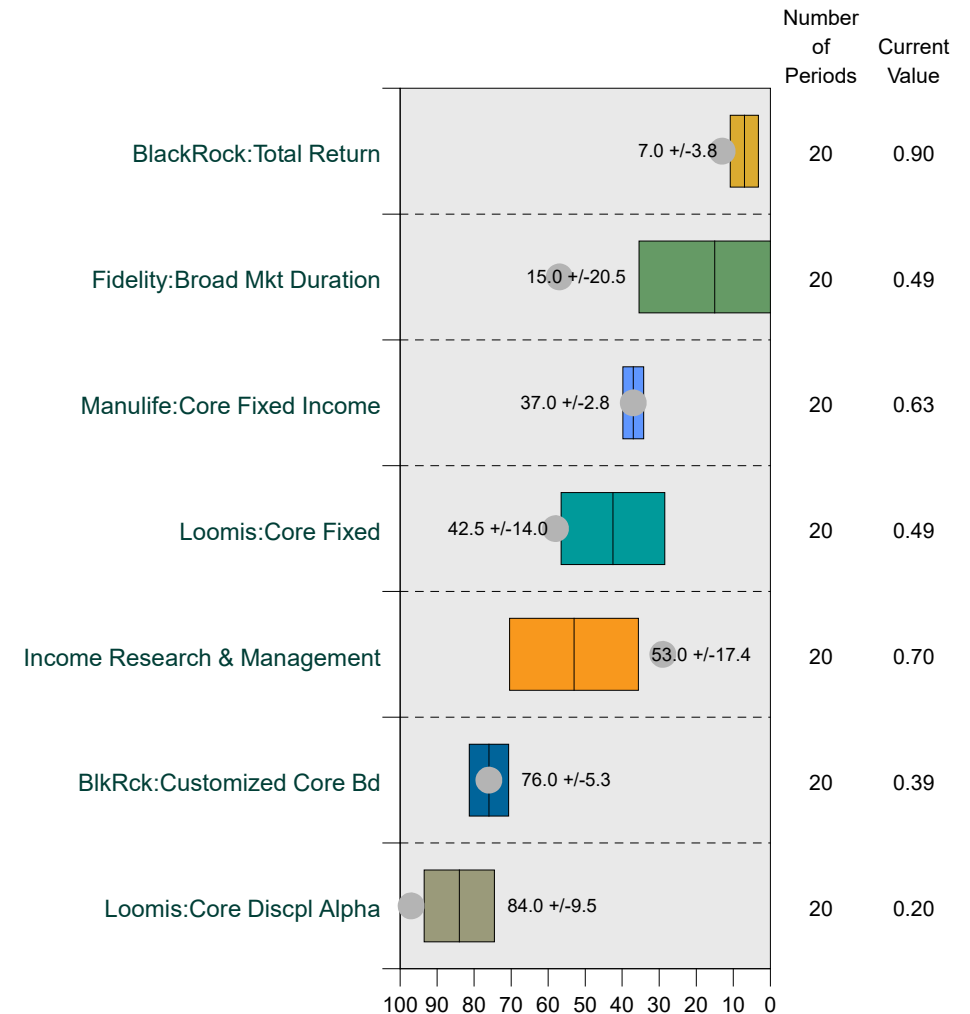
Historical Rankings - Standard Deviation & Tracking Error

This page compares multiple portfolios to each other by analyzing both the historical median ranking for a given metric versus a relevant peer group, and the consistency and range (standard deviation) of that ranking over time. The midpoint of each sideways bar represents the median ranking of a given portfolio over time, and the width of the bar represents the consistency and range of that ranking (+/- 1 standard deviation). The slash-separated numbers show the median and standard deviation, respectively, of the portfolios' ranking. The current ranking of each portfolio is demarcated by a dot, while the corresponding current value of the metric is displayed on the far right.

Rolling Three-Year Standard Deviation Against Callan Core Bond FI for Five Years Ended December 31, 2024



Rolling Three-Year Tracking Error Against Callan Core Bond FI for Five Years Ended December 31, 2024

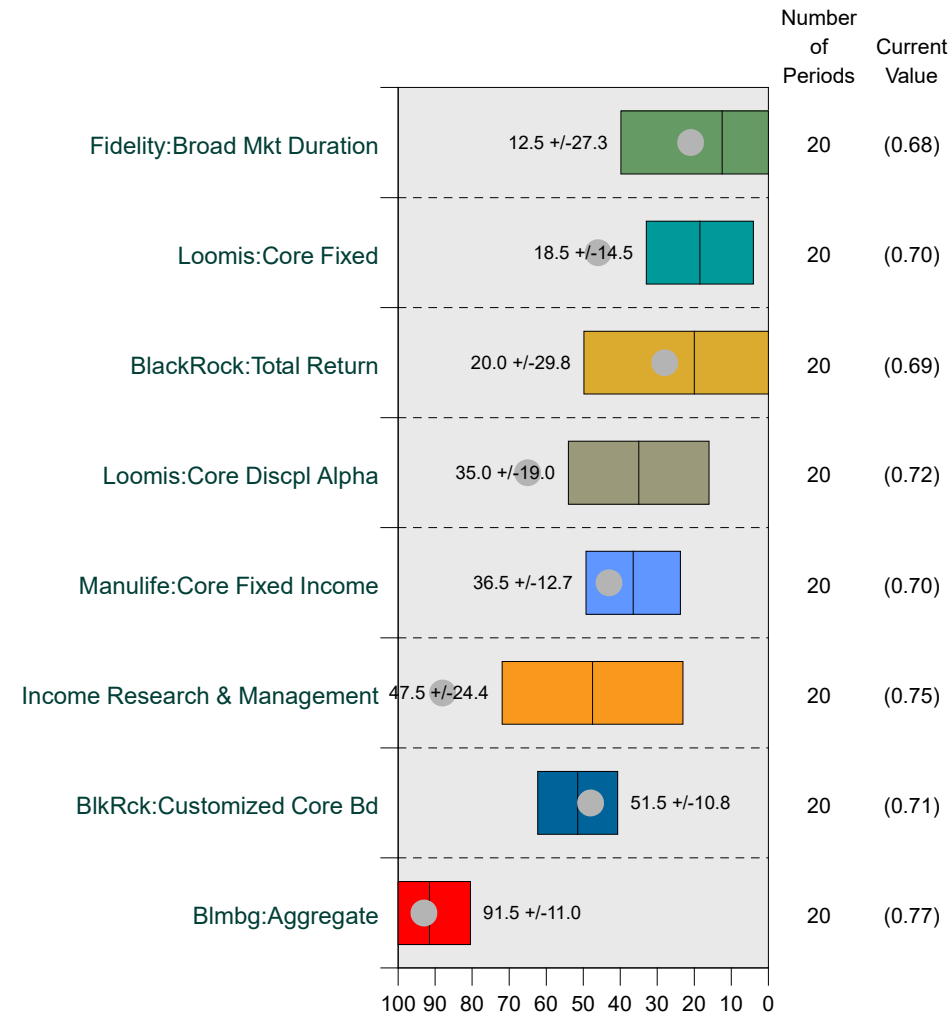


Manager candidate performance shown is gross-of-fees unless otherwise noted.

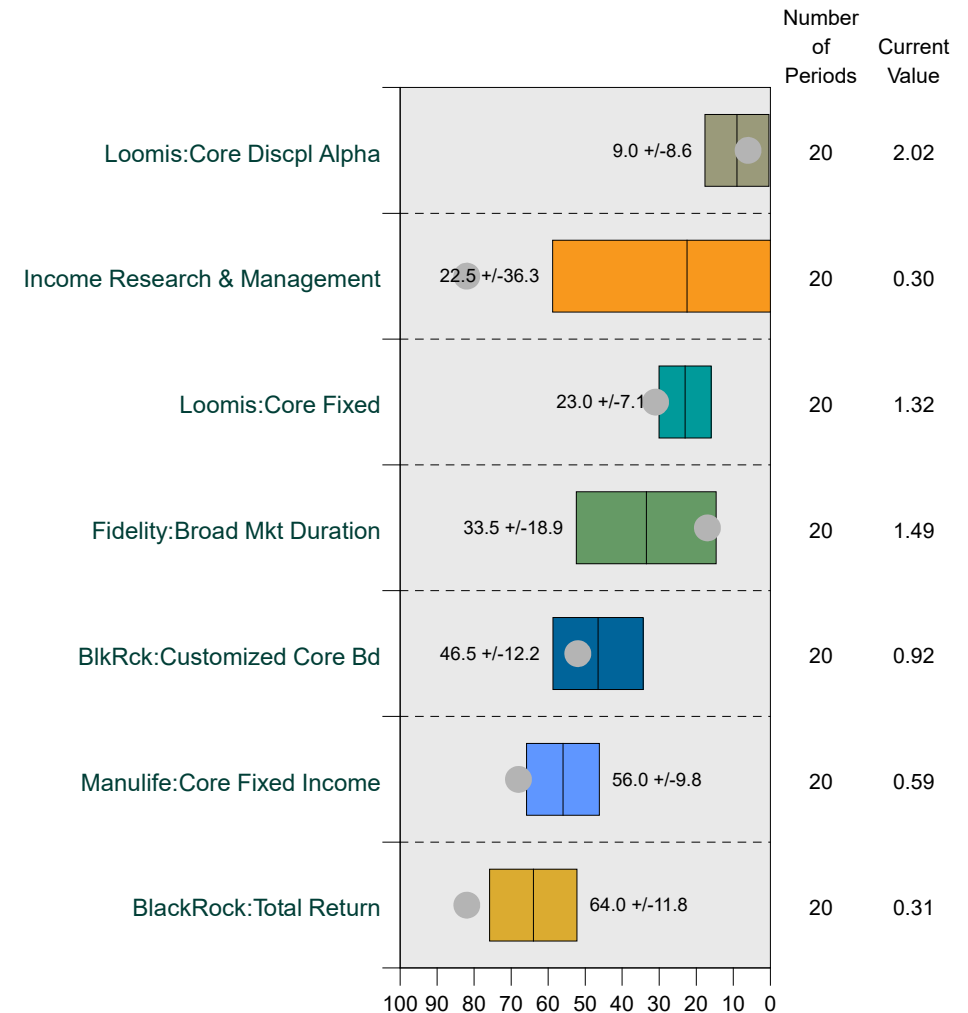
Historical Rankings - Sharpe Ratio & Excess Return Ratio

This page compares multiple portfolios to each other by analyzing both the historical median ranking for a given metric versus a relevant peer group, and the consistency and range (standard deviation) of that ranking over time. The midpoint of each sideways bar represents the median ranking of a given portfolio over time, and the width of the bar represents the consistency and range of that ranking (+/- 1 standard deviation). The slash-separated numbers show the median and standard deviation, respectively, of the portfolios' ranking. The current ranking of each portfolio is demarcated by a dot, while the corresponding current value of the metric is displayed on the far right.

Rolling Three-Year Sharpe Ratio Against Callan Core Bond FI for Five Years Ended December 31, 2024



Rolling Three-Year Excess Return Ratio Against Callan Core Bond FI for Five Years Ended December 31, 2024



Manager candidate performance shown is gross-of-fees unless otherwise noted.



Appendix

Definitions

Alpha measures a portfolio's return in excess of the market return adjusted for risk. It is a measure of the manager's contribution to performance with reference to security selection. A positive alpha indicates that a portfolio was positively rewarded for the residual risk which was taken for that level of market exposure.

Beta measures the sensitivity of rates of portfolio returns to movements in the market index. A portfolio's beta measures the expected change in return per 1% change in the return on the market. If a beta of a portfolio is 1.5, a 1 percent increase in the return on the market will result, on average, in a 1.5 percent increase in the return on the portfolio. The converse would also be true.

Combined Z Score is the difference between the MSCI Growth Z Score and the MSCI Value Z Score (Growth - Value). A significant positive Combined Z Score implies significant "growthiness" in the stock or portfolio. A Combined Z Score close to 0.00 (positive or negative) implies "core-like" style characteristics, and a significantly negative Combined Z Score implies more "valueyness" in the stock or portfolio.

Correlation measures the degree to which two variables are associated. Correlation is a commonly used tool for constructing a well-diversified portfolio. Traditionally, equities and fixed-income asset returns have not moved closely together. The asset returns are not strongly correlated. A balanced fund with equities and fixed-income assets represents a diversified portfolio that attempts to take advantage of the low Correlation between the two asset classes. The value for Correlation ranges from +1.0 to -1.0. A positive Correlation means that the two variables move, to a degree, in the same manner or direction, and a negative Correlation means that the variables move, to a degree, in the opposite manner or direction. A Correlation of +1.0 (-1.0) means the two variables move in exactly the same (opposite) direction.

Coupon Rate is the market value weighted average coupon of all securities in the portfolio. The total coupon payments per year are divided by the total portfolio par value.

Dividend Yield reflects the total amount of dividends paid out for a stock over the proceeding twelve months divided by the closing price of a share of the common stock.

Downside Risk differentiates between "good risk" (upside volatility) and "bad risk" (downside volatility). Whereas standard deviation captures both upside and downside volatility, downside risk measures only the volatility of returns below the target. Returns above the target are assigned a deviation of zero. Both the frequency and magnitude of underperformance affect the amount of downside risk.

Effective Yield is the actual total annualized return that would be realized if all securities in the portfolio were held to their expected maturities. Effective yield is calculated as the internal rate of return, using the current market value and all expected future interest and principal cash flows.

Effective Duration is one measure of the portfolio's exposure to interest rate risk. Generally, the higher a portfolio's duration, the more that its value will change in response to interest rate changes. The option adjusted duration for each security in the portfolio is calculated using models which determine the expected stream of cash-flows for the security based on various interest rate scenarios.

Definitions (continued)

Excess Correlation is the correlation of a portfolio's excess return to another portfolio's excess return. Excess return is the portfolio return minus the benchmark return. For instance Excess Correlation could measure the correlation of Manager A's return in excess of a benchmark with Manager B's return in excess of the same benchmark. Excess Correlation is used to indicate whether different managers outperform a market index at the same time.

Excess Return is the portfolio return minus the benchmark return.

Excess Return Ratio is a measure of risk adjusted relative return. This ratio captures the amount of active management performance (value added relative to an index) per unit of active management risk (tracking error against the index.) It is calculated by dividing the manager's annualized cumulative excess return relative to the index by the standard deviation of the individual quarterly excess returns. The Excess Return Ratio can be interpreted as the manager's active risk/reward tradeoff for diverging from the index when the index is mandated to be the "riskless" market position.

Forecasted Growth in Earnings is a measure of a company's expected long-term success in generating future year-over-year earnings growth. This growth rate is a market value weighted average of the consensus (mean) analysts' long-term earnings growth rate forecast for each company in the portfolio. The definition of long-term varies by analyst but is limited to a 3-8 year range. This value is expressed as the expected average annual growth of earnings in percent.

Forecasted P/E is a forward-looking valuation measure of a company's common stock. It encapsulates the amount of earnings estimated for next year per dollar of current share price. This value is calculated by dividing the present stock price of each company in the portfolio by the consensus (mean) analysts' earnings forecasts for the next year. These earnings estimates are for recurring, non-extraordinary earnings per primary common share. The individual P/E stock ratios are then weighted by their respective portfolio market values in order to calculate a weighted average representative of the portfolio as a whole.

Growth Z Score is a holdings-based measure of the "growthiness" of an individual stock or portfolio of stocks based on fundamental financial ratio analysis. The MSCI Growth Z Score is an aggregate score based on the growth score of five separate financial fundamentals: Long Term Forward Earnings Growth, Short Term Forward Earnings Growth, Current Internal Growth ($\text{ROE} * (1 - \text{payout ratio})$), Long Term Historical Earnings Growth, and Long Term Historical Sales Growth.

Information Ratio measures the manager's market risk-adjusted excess return per unit of residual risk relative to a benchmark. It is computed by dividing alpha by the residual risk over a given time period. Assuming all other factors being equal, managers with lower residual risk achieve higher values in the information ratio. Managers with higher information ratios will add value relative to the benchmark more reliably and consistently.

Issue Diversification is the number of stocks (largest holdings) making up half of the market value of the total portfolio.

Market Capitalization (Weighted Median / Weighted Average) - Market capitalization is the market value of a company's outstanding shares. This figure is found by taking the stock price and multiplying it by the total number of shares outstanding. The weighted median market cap is the point at which half of the market value of the portfolio is invested in stocks with a greater market cap, and consequently the other half is invested in stocks with a lower market cap. Weighted average market cap for a portfolio is defined as the sum of each of the security's weight in the portfolio multiplied by its intrinsic market capitalization.

Definitions (continued)

Price to Earnings Ratio (P/E) is a measure of value for a company. It is equal to the price of a share of common stock divided by the earnings per share for a twelve-month period.

Price to Book Value (P/B) is a measure of value for a company. It is equal to the market value of all the shares of common stock divided by the book value of the company. The book value is the sum of capital surplus, common stock, and retained earnings.

Quality Rating is a way to measure the credit quality as determined by the individual security ratings. The ratings for each security are compiled into a composite rating for the whole portfolio. Quality symbols range from AAA (highest investment quality and lowest credit risk) to D (lowest investment quality and highest credit risk).

R-Squared (R²) is a statistical measure that indicates the extent to which the variability of a security or portfolio's returns is explained by the variability of the market. The value will be between 0 and 1. The higher the number, the greater the extent to which portfolio returns are related to market return.

Residual Risk is the unsystematic, firm-specific, or diversifiable risk of a security or portfolio that can be reduced by including assets that do not have similar unique risk. It is the portion of the total risk of a security or portfolio that is unique to the security or portfolio itself and is not related to the overall market.

Return on Equity (ROE) is a measure of a company's profitability, specifically relating profits to the equity investment employed to achieve the profits. Return on Equity focuses on the returns accruing to the residual owners of a company, the equity holders. It is equal to income divided by total common equity. Income is after all expenses, including income taxes and minority interest, but before provision for dividends, extraordinary items, and discontinued operations. Common equity includes common stock outstanding, capital surplus, and retained earnings.

Rising/Declining Periods is determined by evaluating the cumulative relative sub-asset class index performance to that of the broader asset class index. For example, in determining the Growth Style cycle, the S&P 500 Growth Index (sub-asset class) performance is compared to that of the S&P 500 Index (broader asset class). The analysis determines if a significant "cycle reversal" has occurred over a period. If the magnitude of the cumulative relative return is greater than one standard deviation when the number of periods is four or more quarters or two standard deviations for periods less than 4 quarters a significant reversal has occurred. The process is repeated until all the different combinations of recent periods are evaluated, and a break point is determined.

Sharpe Ratio is a measure of risk-adjusted return. It is calculated by subtracting the "risk-free" return (usually 3 Month Treasury Bill) from the portfolio return and dividing the resulting "excess return" by the portfolio's risk level (standard deviation). The result is a measure of return gained per unit of risk taken.

Stability Score is calculated as the difference between the Defensive and Dynamic scores and can range from -1 to +1. A stability score of +1 indicates a Low Risk and High Quality portfolio (or stock), whereas, a stability score of -1 indicates a High Risk and Low Quality portfolio (or stock). The underlying variables that drive the stability scores are Total Return Volatility, Debt/Equity Ratio, Earnings Volatility and Return on Assets and together encompass both observed price risk and current balance sheet risk.

Definitions (continued)

Standard Deviation is a statistical measure of portfolio risk. It reflects the average deviation of the observations from their sample mean. Standard deviation is used as an estimate of risk since it measures how wide the range of returns typically is. The wider the typical range of returns, the higher the standard deviation of returns, and the higher the portfolio risk. If returns are normally distributed (i.e., has a bell shaped curve distribution) then approximately 2/3 of the returns would occur within plus or minus one standard deviation from the sample mean.

Style Map (Holdings Based) - Morgan Stanley Capital International (MSCI) has developed security-level style scores which are based on multiple fundamental ratios that classify stocks as "value" or "growth." On a relative basis we can match these to a manager's portfolio holdings to get a score for the portfolio that is more reliable and current than traditional returns-based regression analysis. Using the combined Z score and weighted median market cap, the holdings based style map allows for viewing manager style in a two dimensional space.

Tracking Error is a statistical measure of a portfolio's risk relative to an index. It reflects the standard deviation of a portfolio's individual quarterly or monthly returns from the index's returns. Typically, the lower the Tracking Error, the more "index-like" the portfolio.

Up Market (Down Market) Capture is a measure of relative performance in up-markets (down-markets). It is determined by the index which has an Up Capture (Down Capture) ratio of 100% when the index is performing positively (negatively). If a manager captures more than 100% of the rising (declining) market it is said to be "offensive" ("defensive").

Value Z Score is a holdings-based measure of the "valueyness" of an individual stock or portfolio of stocks based on fundamental financial ratio analysis. The MSCI Value Z Score is an aggregate score based on the value scores of three separate financial fundamentals: Price/Book, Price/Forward Earnings, and Dividend Yield.

Weighted Average Life is the weighted average time remaining until the principal is paid off for all securities in a portfolio.

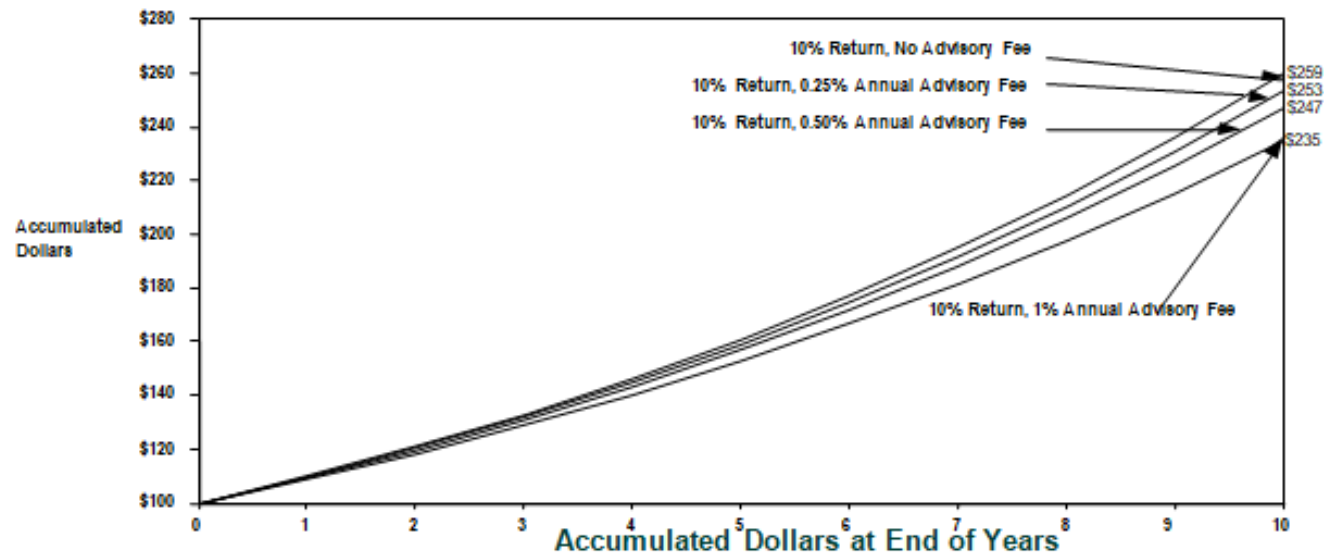
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The following graphical and tabular example illustrates the cumulative effect of investment advisory fees on a \$100 investment growing at 10% over ten years. Fees are assumed to be paid monthly.

In addition to asset-based investment advisory fees, some strategies may include performance-based fees ("carry") that may further lower the returns realized by investors. These performance-based fees can be substantial, are most prevalent in "Alternative" strategies like hedge funds and many types of private markets, but can occur elsewhere. The effects of performance-based fees are dependent on investment outcomes and are not included in the example below.

The Cumulative Effect of Advisory Fees



	1	2	3	4	5	6	7	8	9	10
No Fee	110.0	121.0	133.1	146.4	161.1	177.2	194.9	214.4	235.8	259.4
25 Basis Points	109.7	120.4	132.1	145.0	159.1	174.5	191.5	210.1	230.6	253.0
50 Basis Points	109.5	119.8	131.1	143.5	157.1	172.0	188.2	206.0	225.5	246.8
100 Basis Points	108.9	118.6	129.2	140.7	153.3	166.9	181.8	198.0	215.6	234.9

10% Annual Return Compounded Monthly, Annual Fees Paid Monthly.

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Fidelity Institutional Asset Management	X	
Loomis, Sayles & Company, L.P.	X	
Loomis, Sayles & Company, L.P.	X	
Manulife Investment Management	X	
Income Research + Management	X	

*Based upon Callan manager clients as of the most recent quarter end.

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Past performance is no guarantee of future results.

Biographies

Jeffrey N. Given, CFA

Head of Developed-Market Fixed Income, Senior Portfolio Manager, Co-Head of U.S. Core and Core-Plus Fixed Income, Manulife Investment Management

Jeff is head of developed-market fixed income and co-head of the U.S. core and core-plus fixed-income team at Manulife Investment Management. He oversees the firm's U.S.- and Canada-based investment and credit research teams and is responsible for investment performance and process execution. In his role as co-head of the U.S. core and core-plus fixed-income team, he looks after the securitized, core, core-plus, and government bond strategies. Prior to joining the portfolio management team, Jeff was focused on research and trading in mortgage-backed securities within the MIM's fixed-income teams and, prior to that, he was an investment compliance analyst at the company. Jeff holds the Chartered Financial Analyst designation and is a member of the CFA Society Boston.

Education: M.S., Finance, Boston College; B.S., Business Administration, Boston University

Joined the company: 1993

Began career: 1993

Lee M. Giunta, CFA

Managing Director, U.S. Core and Core-Plus Fixed Income, Securitized Assets, Manulife Investment Management

Lee is a senior client portfolio manager for the U.S. core and core-plus fixed-income and securitized assets teams, acting as a strategy expert and representing the teams' capabilities with current clients, prospective clients, and investment consultants. He's also responsible for developing marketing content and collateral for these strategies. Previously, Lee was an operations analyst at Regiment Capital and, prior to that, he worked at U.S. Bank, serving first as a collateralized loan obligation (CLO) administrator and later as a CLO analyst. Lee holds the Chartered Financial Analyst designation.

Education: B.S., Finance, Bryant University

Joined company: 2015

Began career: 2011

Biographies

Mark R. Flinn, CFA

Head of Relationship Management–United States, Manulife Investment Management

Mark is responsible for the development and management of the organization's relationships with new and existing institutional clients in the United States. He has extensive experience in client service and relationship management with both subadvisory and institutional clients. Prior to joining the firm, he served as a relationship manager at State Street Global Advisors and has held client service positions at State Street Research & Management and Standish Mellon. Mark holds the Chartered Financial Analyst designation and is a member of the CFA Society Boston.

Education: B.A., Economics, Assumption College

Joined the company: 2009

Began career: 1997

First quarter 2025

Core Fixed Income Strategy

Prepared for New Hampshire Retirement System

For a discussion of the risks associated with this strategy, please see the Investment Considerations page at the end of the presentation. For Institutional/Investment Professional Use Only. Not for distribution to the public.



What sets Manulife Investment Management apart

We strive to be the partner of choice for institutional investors globally

**Benefiting from
Manulife Financial,
our insurance
business¹ —
its stability and
financial strength**

AA- S&P
A1 Moody's
A+ AM Best
AA Fitch
AA DBRS Morningstar



**Asia-, Europe-, and
North America-
based investment
professionals**

Covering both public
and private markets to
help our clients
capitalize on emerging
trends



**We are one of the
world's leading
natural capital
investment managers²**

Offering a range of
sustainable
investments, including
thematic, impact, and
ESG-integrated
portfolios



¹ Financial strength ratings are for The Manufacturers Life Insurance Company: <https://www.manulife.com/en/investors/ratings.html>. All ratings are current as of December 31, 2024. ² IPE research, as of January 24, 2025. Ranking is based on total Natural Capital AUM, which includes forestry/timberland and agriculture/farmland AUM. Firms were asked to provide AUM and the as of dates vary from 12/31/2023 to 12/31/2024.

Our investment management capabilities combine local insight with global reach



Source: MFC statistical information package, as of December 31, 2024. AUM is in U.S. dollars. AUM includes assets internally managed by Manulife Investment Management on behalf of external clients, the Manulife general account and other affiliated businesses. The methodologies used to compile the total AUM are subject to change and may not reflect regulatory AUM as reported on certain affiliates' Form ADV. Manulife Investment Management AUMA at December 31, 2024 which includes \$496.5 billion assets under management and \$0.9 billion assets under administration. Manulife Investment Management's global investment professional team includes expertise from several Manulife Investment Management affiliates and joint ventures. Not all entities represent all asset classes.

We offer deep, integrated capabilities across both public and private markets

Fixed income

Offering broad capabilities across the credit spectrum in both regionally focused and global portfolios

\$198.0B¹

Equity

Customizable, differentiated strategies pursuing specialized and durable sources of alpha

\$113.1B²

Private markets

Offering clients access to a broad range of solutions across real asset and private equity and credit strategies

\$73.8B³

Multi-asset solutions

Over 25 years of experience delivering custom-built active asset allocation solutions

\$150.6B⁴

Source: Manulife Financial Corporation as of December 31, 2024. Excludes subadvised assets under management. Assets are shown in U.S. dollars. Manulife Investment Management's global investment professional team includes expertise from several Manulife Investment Management affiliates and joint ventures. Not all entities represent all asset classes. The methodologies used to compile the total AUM are subject to change and may not reflect regulatory AUM as reported on certain affiliates' Form ADV. ¹ AUM includes the balanced funds mainly fixed income weighted. ² AUM includes the balanced funds mainly equity weighted. ³ AUM managed by Manulife IM Private Markets. ⁴ AUM includes \$5.8 billion advised by MAST, managed by other Manulife IM investment teams, and \$35.2 billion allocated to investment strategies managed by other Manulife IM investment teams.

Global fixed-income team

Global coverage, local expertise

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John F. Addeo, CFA, Chief Investment Officer, Global fixed-income (public markets)*

Developed market fixed-income, Jeffrey N. Given, Head

Core, core plus and securitized

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Spencer Godfrey²
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Yume Suzuki

Miki Anzai
Aki Ogai

Manulife | CQS IM⁴

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+51 investment professionals⁵

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Ramiya Krishnan
Alyson Slater

Yijin Guo
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Eric Nietsch, CFA
Kiley Hannan
Yi Chen Chiang
Amarilys Simoneau

(+ 4 dedicated analysts through our partner, Acuity)

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Paula Chan, CMT, Head
Eric Lo, CFA
Andrew Cheung, CFA
Chris Lam, CFA
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Eric Bebel

India

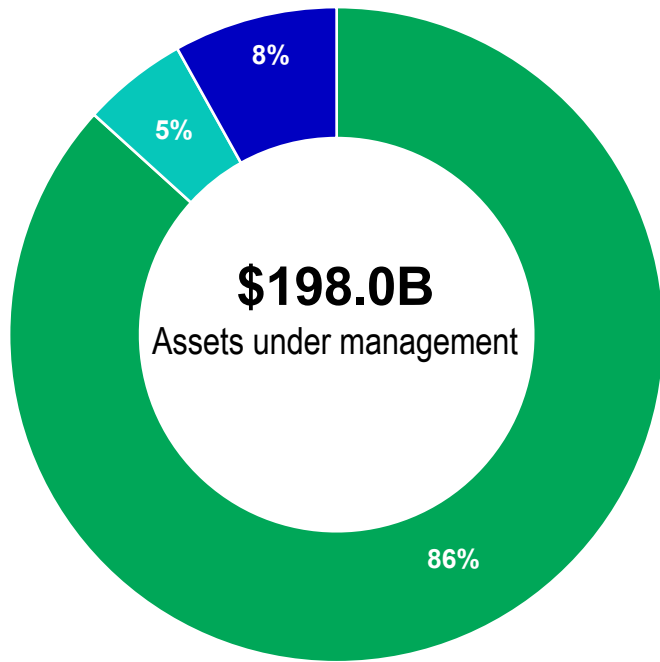
Kush Sonigara

As of April 24, 2025. *Will be leaving the firm as of March 31, 2026. 1 Based in London. 2 Dual role. 3 Based in Hong Kong. 4 Acquired by Manulife IM in April 2024.

5 Includes portfolio managers, analysts and investment risk team.

Representative list of fixed income strategies

Assets under management



- Active and index — bonds
- Active — balanced
- Money market

Global fixed income

- Emerging Markets Debt
- Yield Opportunities
- Global Climate Bond
- Global Investment Grade

U.S. fixed income

- High Yield
- Multi-Sector Libor Plus
- Municipal Opportunities
- Short Duration Municipal Opportunities
- Preferred Income
- U.S. Core
- U.S. Core Plus
- U.S. Government
- U.S. High Yield Municipal
- U.S. Intermediate Duration
- U.S. Long Duration
- U.S. Money Market
- U.S. Short Duration
- U.S. TIPS

Canadian fixed income

- Canadian Core
- Canadian Core Plus
- Canadian Corporate Plus
- Canadian IG Corporate
- Canadian Long Duration
- Canadian Money Market
- Canadian Short
- Canadian Short / Mid Duration
- Canadian Ultra Long Duration
- Fixed Income Balanced
- Passive Canadian Fixed Income (Universe & Long)

Asian fixed income

- Asia Credit
- Asia Short Duration
- Asia High Yield
- Asia Pacific Investment Grade
- Asia Total Return Bond
- China Fixed Income (Onshore CNY & Offshore CNH)
- Hong Kong Fixed Income
- Japan Fixed Income
- Sustainable Asian Bond
- Singapore Fixed Income

Opportunistic

- Strategic Fixed Income
- Strategic Fixed Income Opportunities
- Investment Grade Strategic Fixed Income
- U.S. Unconstrained
- Global Unconstrained

Manulife | CQS Alternative Credit

- Multi Asset Credit
- Convertibles
- Asset Backed Securities
- Loans
- Collateralized Loan Obligations
- Regulatory Capital

AUM in U.S. dollars as of December 31, 2024, rounded to the nearest billion. May not add to 100% due to rounding. AUM includes the balanced funds mainly fixed income weighted. The methodologies used to compile the total AUM are subject to change and may not reflect regulatory AUM as reported on certain affiliates' Form ADV.

Core & Core Plus Fixed Income Strategies

Dependable, Predictable, and Repeatable

Experienced Investment Team

- PMs average 28 years of investment experience and over 10 years of firm experience
- Investment team is exclusively responsible for all investment decisions related to the strategy

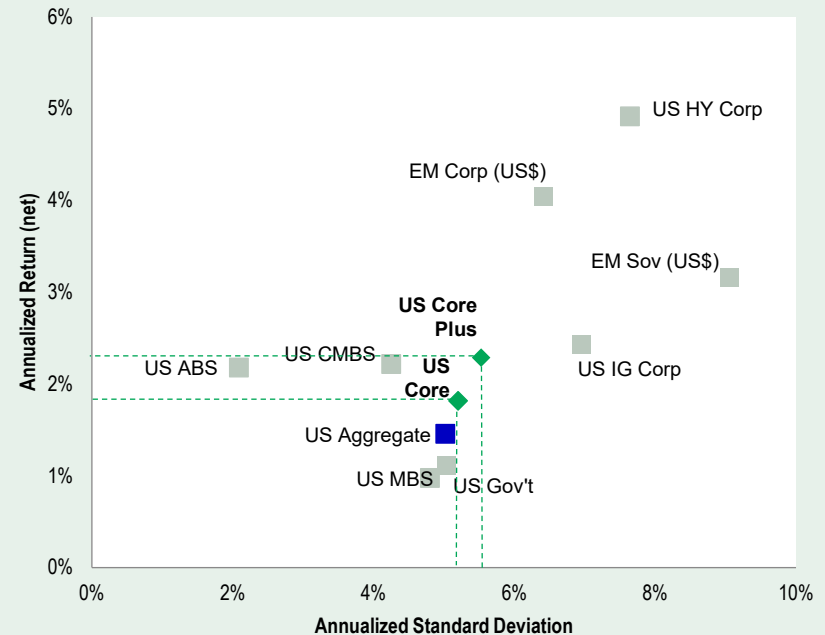
Fundamental Bottom-Up Philosophy and Process

- We believe security selection and sector allocation are primary drivers of relative performance
- Active duration bets and other top-down macro calls are not a meaningful part of the process
- Expertise across corporate credit and securitized assets

Seeks to focus on Risk Efficiency

- Consistent long-term returns
- Multiple statistical measures support team's bottom-up approach

Fixed Income Asset Classes 10-Year Risk/Return Profile
As of March 31, 2025



Source: eVestment, Morningstar, Manulife Investment Management as of March 31, 2025

Performance calculated in USD. Returns are net of fees.

US Gov't Bonds = Bloomberg US Government Bond Index, World Gov't = FTSE World Government Bond Index, US Aggregate = Bloomberg US Aggregate Bond Index, US IG Corp = Bloomberg US Corporate Index, US HY Corp = BofA ML US High Yield Master II Index, EM Corporates (US\$) = JPMorgan CEMBI Diversified Index, US CMBS = Bloomberg US CMBS Index, US ABS = Bloomberg US ABS Index, US MBS = Bloomberg US MBS Bond Index

Returns greater than one year are annualized. Past performance is not indicative of future results. Performance is shown in USD (net). Net performance results reflect the application of the highest incremental rate of the standard investment advisory fee schedule to gross performance results. Changes in exchange rates may have adverse effects.

U.S. core and core plus fixed-income team

Investment Team

Portfolio Management 27 Avg Years Experience

Jeffrey N. Given, CFA¹
Senior Portfolio Manager

Howard C. Greene, CFA¹
Senior Portfolio Manager

Connor Minnaar, CFA
Portfolio Manager

Pranay Sonalkar, CFA
Portfolio Manager

Spencer Godfrey, CFA²
Associate Portfolio Manager

Client Portfolio Managers 19 Avg Years Experience

Lee M. Giunta, CFA

Andy Shafter, CTP

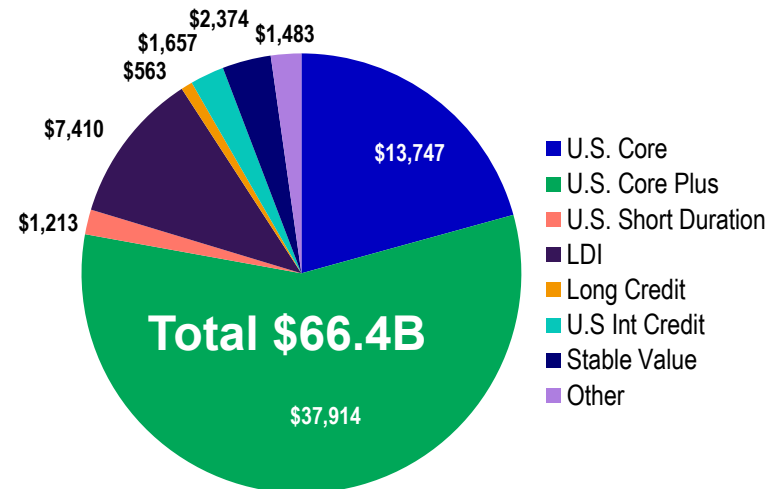
Ednize Silveira

Implementation Analysts 6 Avg Years Experience

Jack Field

Dinko Slavov

Assets under Management³



Research and trading

Spencer Godfrey, CFA²
Head of Global Developed-Market Fixed Income Research

Corporate Credit
13 analysts
14 avg years experience

Securitized Assets
5 analysts
18 avg years experience

Christopher A. Coccoluto
Head of Global Fixed Income Trading

16 traders
18 avg years experience

Investment risk and quantitative analytics ESG research & integration

Amirali Assef, CFA
Global Head of Investment
Risk and Quantitative Analytics
Risk analysts: 11

Brian Kernohan
Chief Sustainable Investment
Officer
ESG analysts: 16






As of April 24, 2025.

¹ As co-heads, they have joint management responsibilities for all aspects of the team. ² Dual role. ³ AUM does not include Money Market strategies.

Core & Core Plus Fixed Income Strategies

Formal and informal communication

Formal Meeting Schedule		
Daily		8:40am Trader Led Meeting
		9:15am US Core/Core Plus Team Huddle
		11:00am Credit Meeting
Weekly		US Core/Core Plus Team Meeting
		US Treasury Market Review
		Credit Analysts In-Depth Review
		Securitized Analysts Meeting
Biweekly		Rotating Credit Sector Review
		PM Team meet with CIO
Monthly		Global Fixed Income PM Call
		Global Engagement Research Initiative Meeting
Quarterly		Quarterly Global Economist Call
		US Core/Core Plus Quarterly Review
		Global Investment Strategy Call
		US Core/Core Plus ESG Meeting

	All strategy PMs, analysts and traders globally
	All fixed income PMs, analysts and traders globally
	US Core/Core Plus team
	US credit analysts
	US securitized analysts

- Communication among portfolio managers and shared resources is essential; formal and informal meetings provide the opportunities to collaborate
- 8:40 am meeting is a trader roundtable update from each sector trader followed by a brief update from each analyst regarding any relevant news
- 11:00 am meeting is analyst led and attended by PMs and analysts. Source of bi-weekly sector updates, daily single name updates and idea generation
- Informal communication is as important as formal communication and is highly encouraged by the flat structure and open door policy. Includes: in-person meetings, emails, video conferencing, instant messaging, etc.

The calendar is for illustrative purposes only and may change at any time.
Source: Manulife Investment Management

Core Fixed Income Strategy

Investment philosophy & guidelines

Philosophy

We believe strong relative performance can be generated through bottom-up active management of sector allocation and issue selection, combined with yield curve positioning. Our disciplined investment process seeks to add value by:

- Following a relative value approach to sector allocation and issue selection
- Engaging in intensive fundamental credit research
- Identifying points on the yield curve with the greatest return potential

Core Fixed Income Strategy	Representative Portfolio Guidelines
Benchmark	Bloomberg US Aggregate Bond Index
Average Duration	+/- 1 year of benchmark duration
Average Credit Quality	Minimum average credit quality of A
Credit Exposure	Investment grade only
Diversification Guidelines	Broadly diversified, corporate issues generally limited to max 1% per issuer

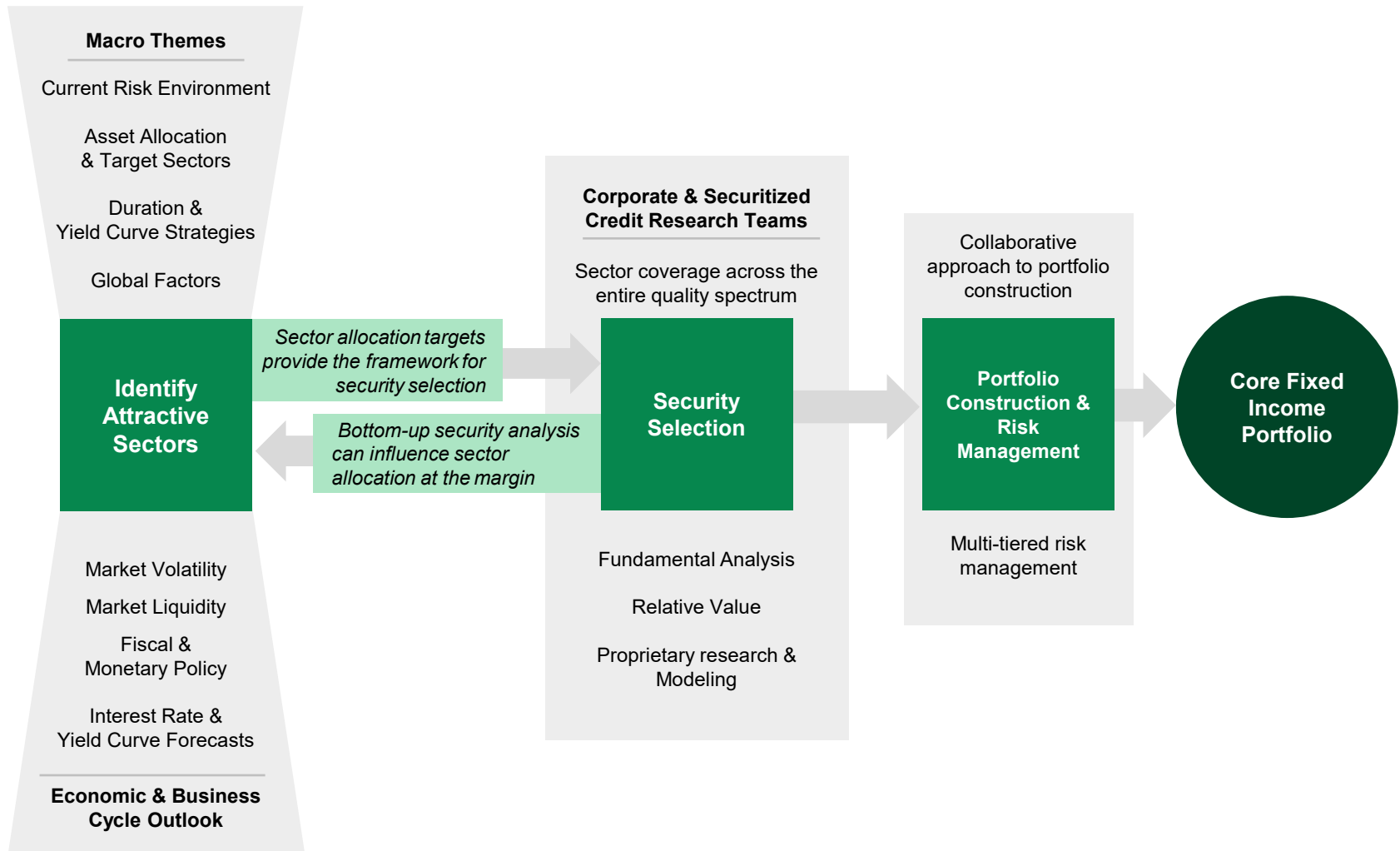
Diversification does not guarantee a profit or eliminate the risk of a loss. The Bloomberg U.S. Aggregate Bond Index tracks the performance of U.S. investment-grade bonds in government, asset-backed, and corporate debt markets. It is not possible to invest directly in an index.

Investment process

This information is intended only to illustrate some of the investment methodologies and philosophies of the strategy team. The material does not constitute an offer or an invitation by or on behalf of Manulife Investment Management (US) to any person to buy or sell any security. This material should not be viewed as a current or past recommendation or solicitation of an offer to buy or sell any investment products or to adopt any investment strategy. The historical success, or the strategy team's belief in future success, of any of the strategies is not indicative of, and has no bearing on, future results. Risk controls and other proprietary technology do not promise any level of performance or guarantee against loss of principal. Past performance is not indicative of future results. The securities described do not represent all of the securities purchased, sold or recommended for the portfolio. It should not be assumed that an investment in the securities or sectors was or will be profitable.

Core Fixed Income Strategy

Investment process: a disciplined, fundamental bottom-up approach

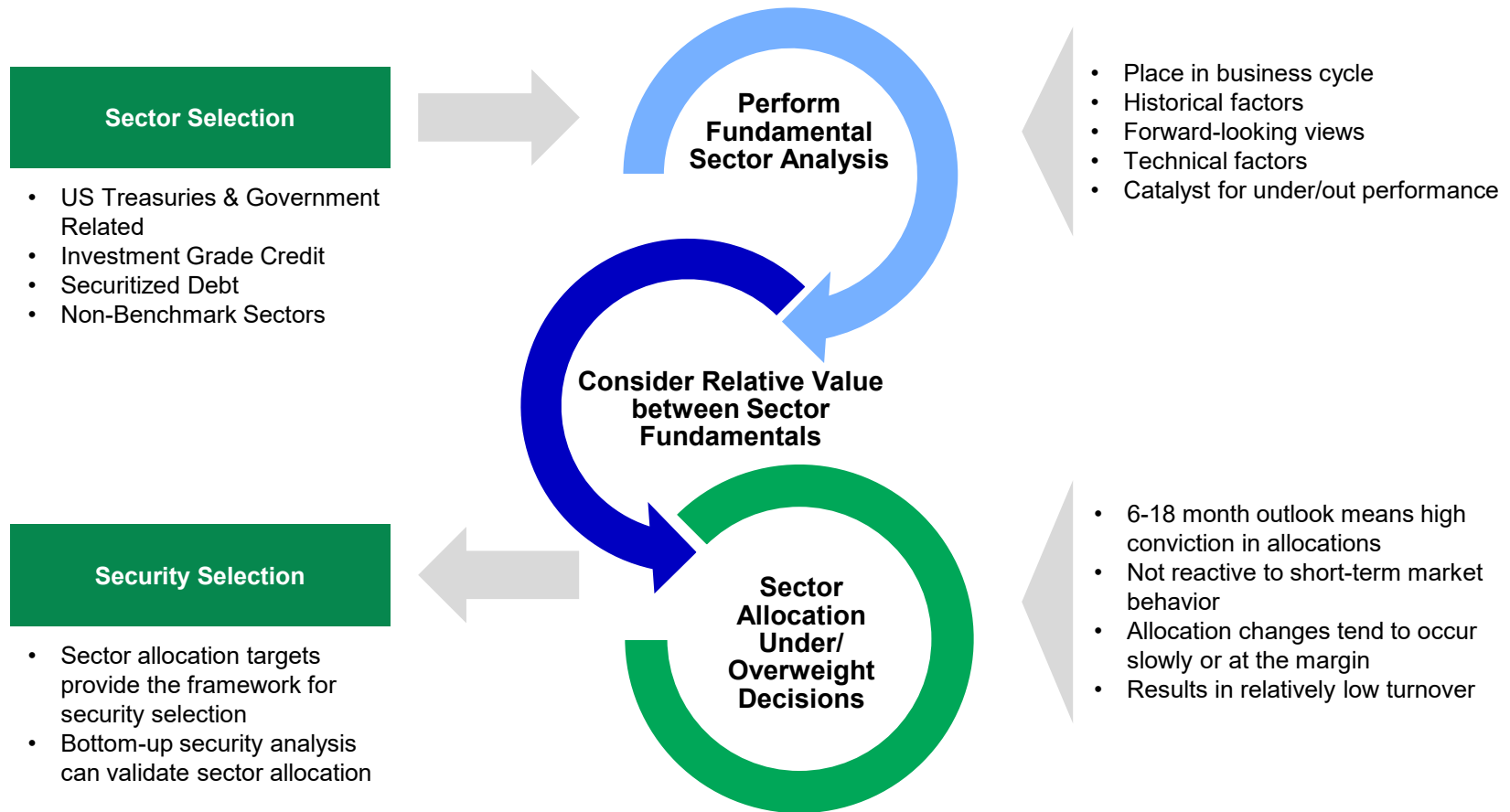


For illustrative purposes only.

Core Fixed Income Strategy

Identification of attractive sectors

The Strategy's sector allocation approach is based on a bottom-up evaluation of each sector's long-term risk and return characteristics relative to each other

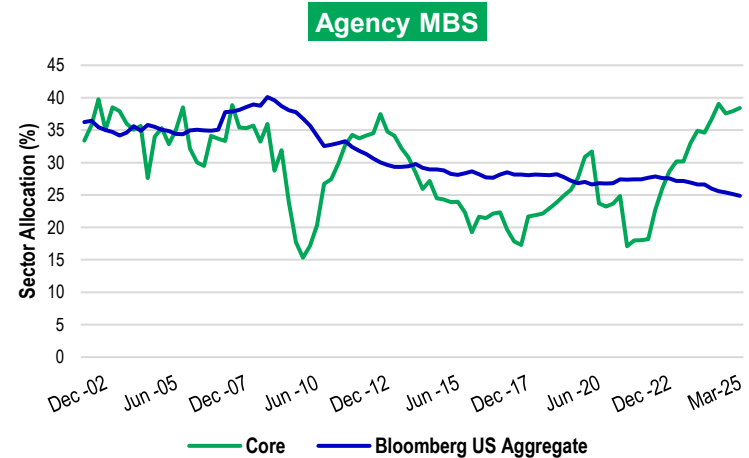
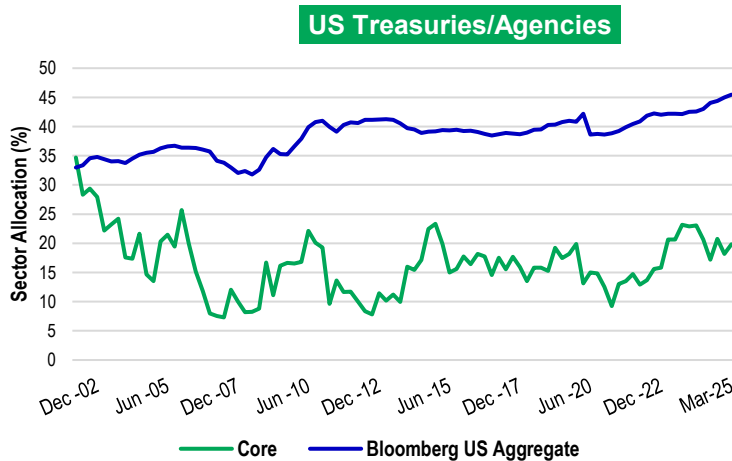


For illustrative purposes only.

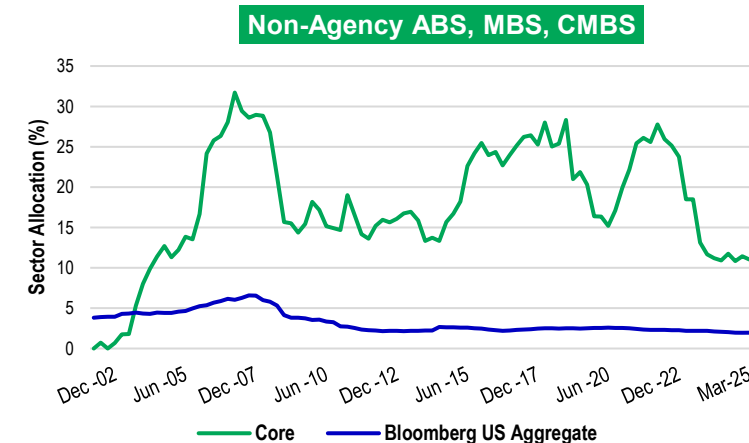
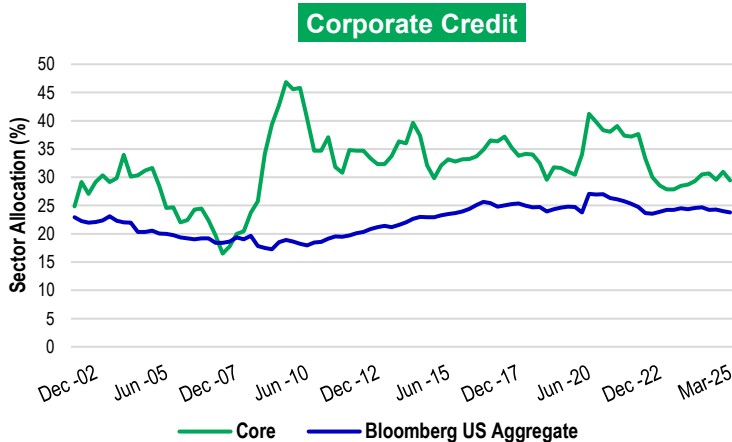
Core Historical Sector Allocation

Consistently overweight credit/underweight rates

Interest
rate
sensitive
sectors



Credit
sensitive
sectors



As of March 31, 2025.

Holdings, sector weightings, market capitalisation and portfolio characteristics are subject to change at any time and are for illustrative and reference purpose only. This information does not constitute, and should not be construed as, investment advice or recommendations with respect to the securities and sectors listed. This information is supplemental to the GIPS Report included as a part of this material.

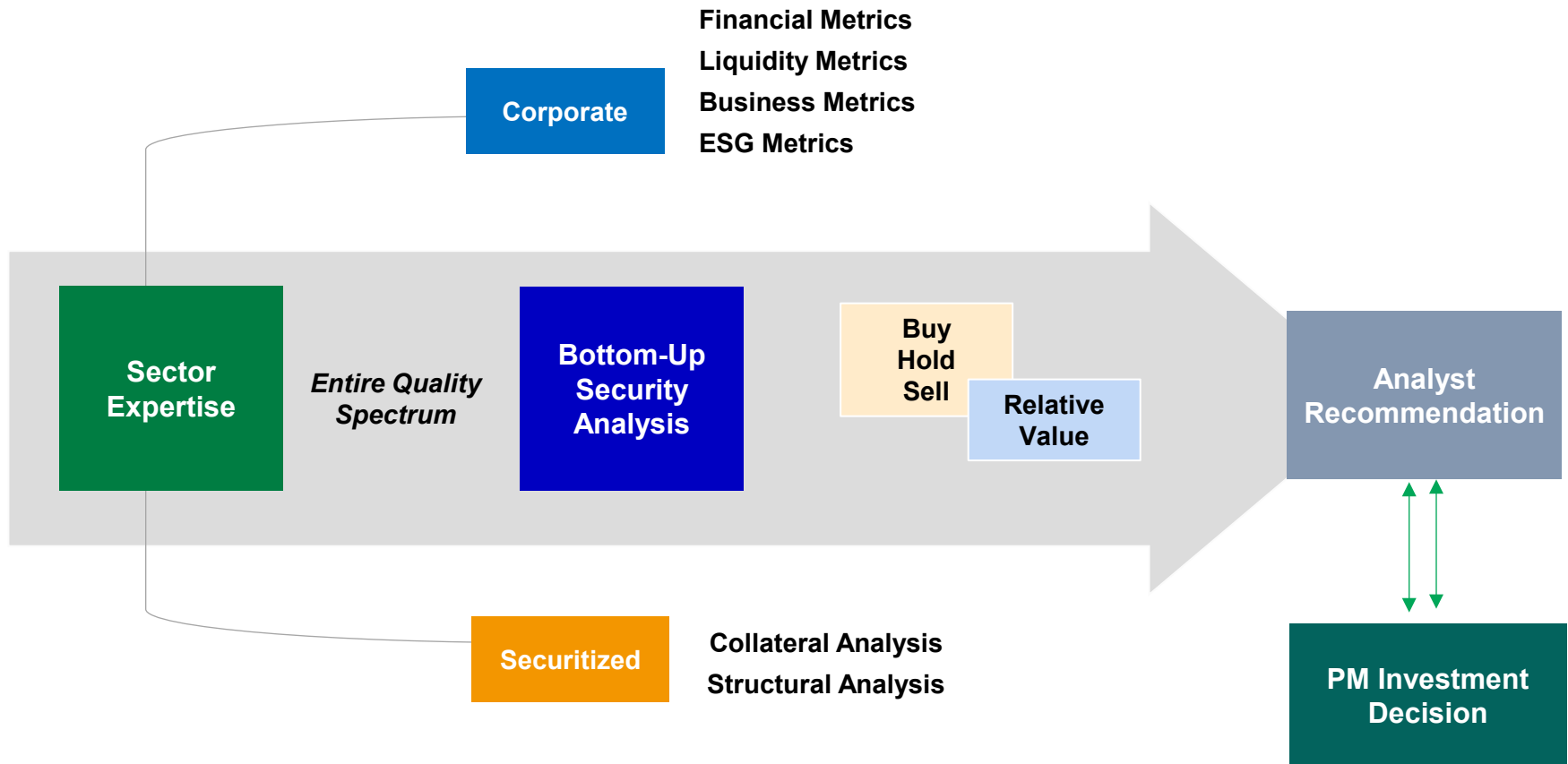
Source: Manulife Investment Management, Barclays POINT, Bloomberg

Please see Index Definitions slide for further information.

Core Fixed Income Strategy

Fixed income research: security selection

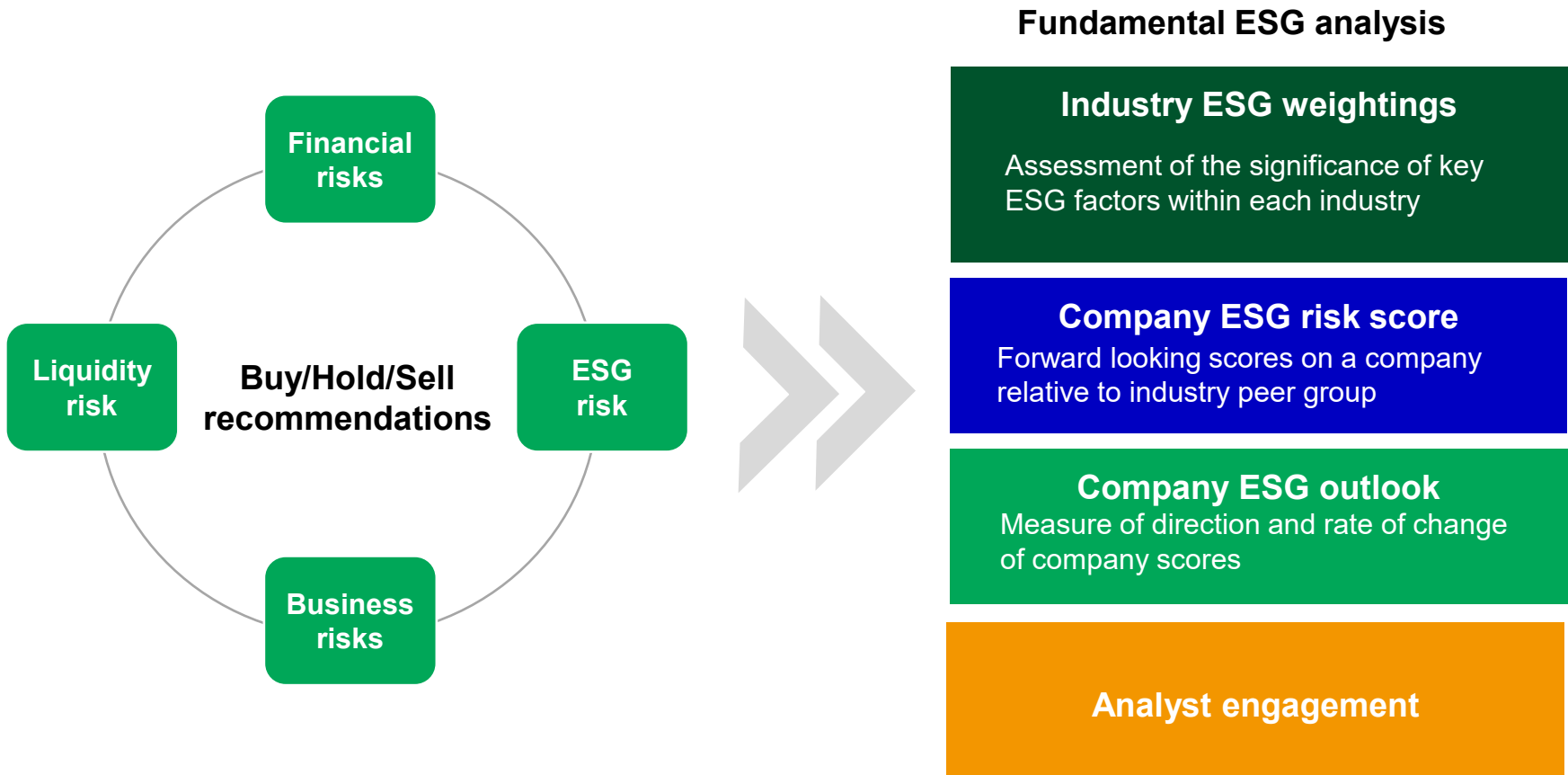
Analysts search for value in individual issuers, using industry expertise and comprehensive knowledge of influencing factors in the selection process.



For illustrative purposes only.

Core Fixed Income Strategy

ESG formally integrated into corporate credit research process

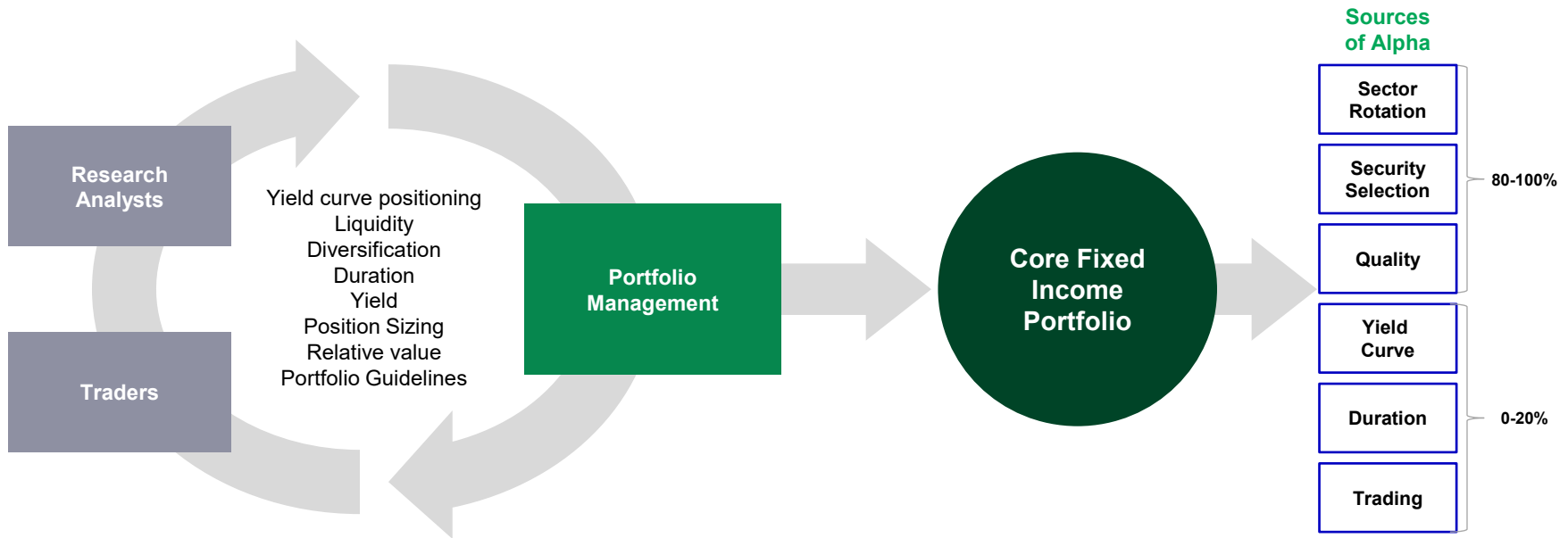


For illustrative purposes only. Investment process is subject to change without notice.

Core Fixed Income Strategy

Portfolio construction

Portfolio construction is a collaborative effort between experienced portfolio managers, research analysts and traders



The construction process and team approach provide flexibility to respond to different market conditions:

- Continuous monitoring of market conditions, sectors, securities, risk characteristics and performance drives active management
- Changes in business cycles, credit fundamentals and sudden government policy shifts or identification of better relative value can be catalysts for change in the portfolio

For illustrative purposes only.

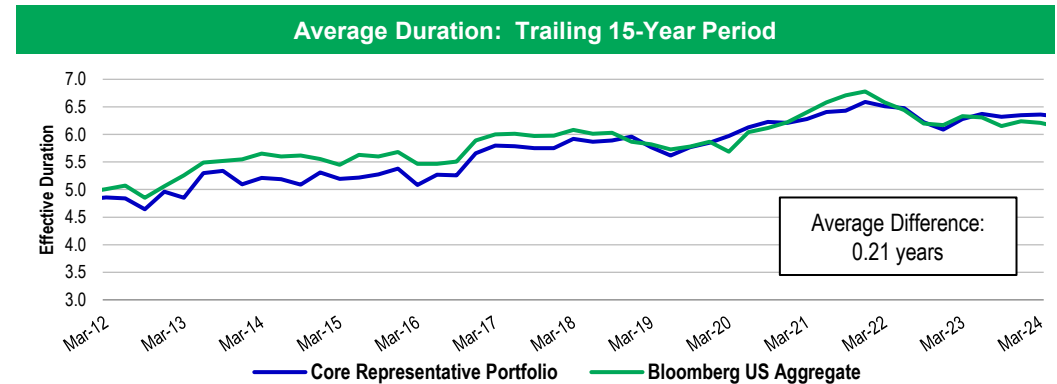
Diversification does not guarantee a profit nor protect against loss in any market.

Core Fixed Income Strategy

Representative portfolio level risk management

Interest Rate Risk:

- Do not take active duration bets
- Duration band +/- 1 year of index
- Measure CTD in addition to market value
- Manage key rate duration and yield curve positioning



Credit Risk:

- Largest source of intentional risk in the portfolio
- Delimited by strategy guidelines of single-A average credit quality, 1% max exposure/issue
- Sector allocation and security selection are primary drivers of relative performance
- Bottom-up process, flexibility and size of strategy are compatible with this approach

The team believes a focus on credit sensitive sectors provides the best opportunity to add value in a repeatable process and multiple market conditions

Most interest
rate risk

↓

Least interest
rate risk

US Treasuries/Govt Agencies
Agency MBS
Securitized
Investment Grade
High Yield

Least credit
risk

↑

Most credit
risk

Portfolio Risk Metrics:

- Current PM team in place during all time periods*

	3 yr	5 yr	10 yr
Information Ratio (net)	0.21	0.93	0.40
Up Capture (net)	101.91	108.90	105.21
Down Capture (net)	100.13	99.81	99.81

Source: Manulife Investment Management, Barclays POINT, Bloomberg as of March 31, 2025.

Returns greater than one year are annualized. Past performance is not indicative of future results. Performance is shown in USD (net). Net performance results reflect the application of the highest incremental rate of the standard investment advisory fee schedule to gross performance results. The Bloomberg U.S. Aggregate Bond Index tracks the performance of U.S. investment-grade bonds in government, asset-backed, and corporate debt markets. It is not possible to invest directly in an index.

Core Fixed Income Strategy

Multi-dimensional risk management

Investment Philosophy

- Relative Value Approach to Sector and Security Selection
- Intensive Fundamental Credit Research
- Optimize Yield Curve Positioning

Senior Management Oversight

- Seek to identify and monitor risks
- Operational risk oversight
- Operating Committee
- Derivative usage and counterparty selection policies

Compliance Monitoring

- Bloomberg
- Pre-trade compliance
- Over-night compliance
- Investigation, documentation and resolution of violations



Guideline

Core Fixed Income Limit

Minimum Average Portfolio Quality

A

Duration

+/- 1.0 year of benchmark

Average Holding Size

Corporate holding size generally limited to 1% per issue

Risk Management

- Dedicated risk management team
- Daily reporting
- Volatility forecasts
- Tracking error decomposition
- Value at Risk (VaR)
- Scenario analysis/stress testing
- ESG exposure analysis

For illustrative purposes only. Investment process is subject to change without notice.

Core Fixed Income Strategy

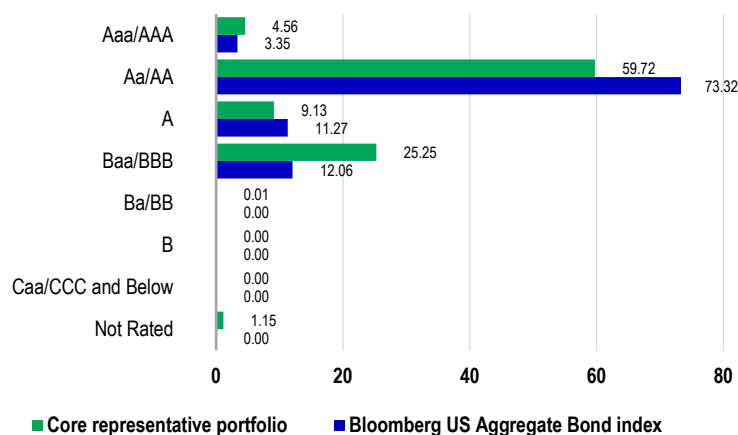
Portfolio Structure, Performance & Historical Allocations

Core Fixed Income Strategy

Representative portfolio characteristics as of March 31, 2025

Characteristic	Core representative portfolio	Bloomberg US Aggregate Bond Index
Average Rating ¹	Aa3/A1	Aa2/Aa3
Average Coupon (%)	3.64	3.50
Average Life (Years)	8.55	8.35
Yield to Maturity (%)	5.03	4.60
Yield to Worst (%)	5.01	4.60
Effective Duration (Years)	6.21	6.09

Quality (%)



Sector Allocation (%)	% Market Value		% Duration	
	Core rep portfolio	Index	Core rep portfolio	Index
US Government	20.15	45.94	30.54	44.65
US Treasuries	19.82	44.80	29.81	43.58
US Agency	0.00	0.66	0.00	0.35
Municipal	0.34	0.48	0.73	0.72
Credit	29.48	23.76	26.79	26.83
IG Corporates	29.47	23.76	26.78	26.83
HY Corporates	0.00	0.00	0.00	0.00
Bank Loans	0.00	0.00	0.00	0.00
Convertibles	0.01	0.00	0.01	0.00
Equities	0.00	0.00	0.00	0.00
Securitized	49.45	26.83	42.13	25.49
Agency MBS	38.41	24.87	36.12	24.29
Non-Agency MBS	2.00	0.00	1.68	0.00
ABS	6.65	0.45	3.09	0.20
CMBS	2.40	1.50	1.25	1.01
Foreign Developed	0.14	2.21	0.08	1.42
Govt & Agency	0.14	0.89	0.08	0.62
Supranationals	0.00	1.33	0.00	0.80
Emerging Markets	0.59	1.26	0.45	1.60
Emerging Markets — USD	0.59	1.26	0.45	1.60
Emerging Markets — Non-USD	0.00	0.00	0.00	0.00

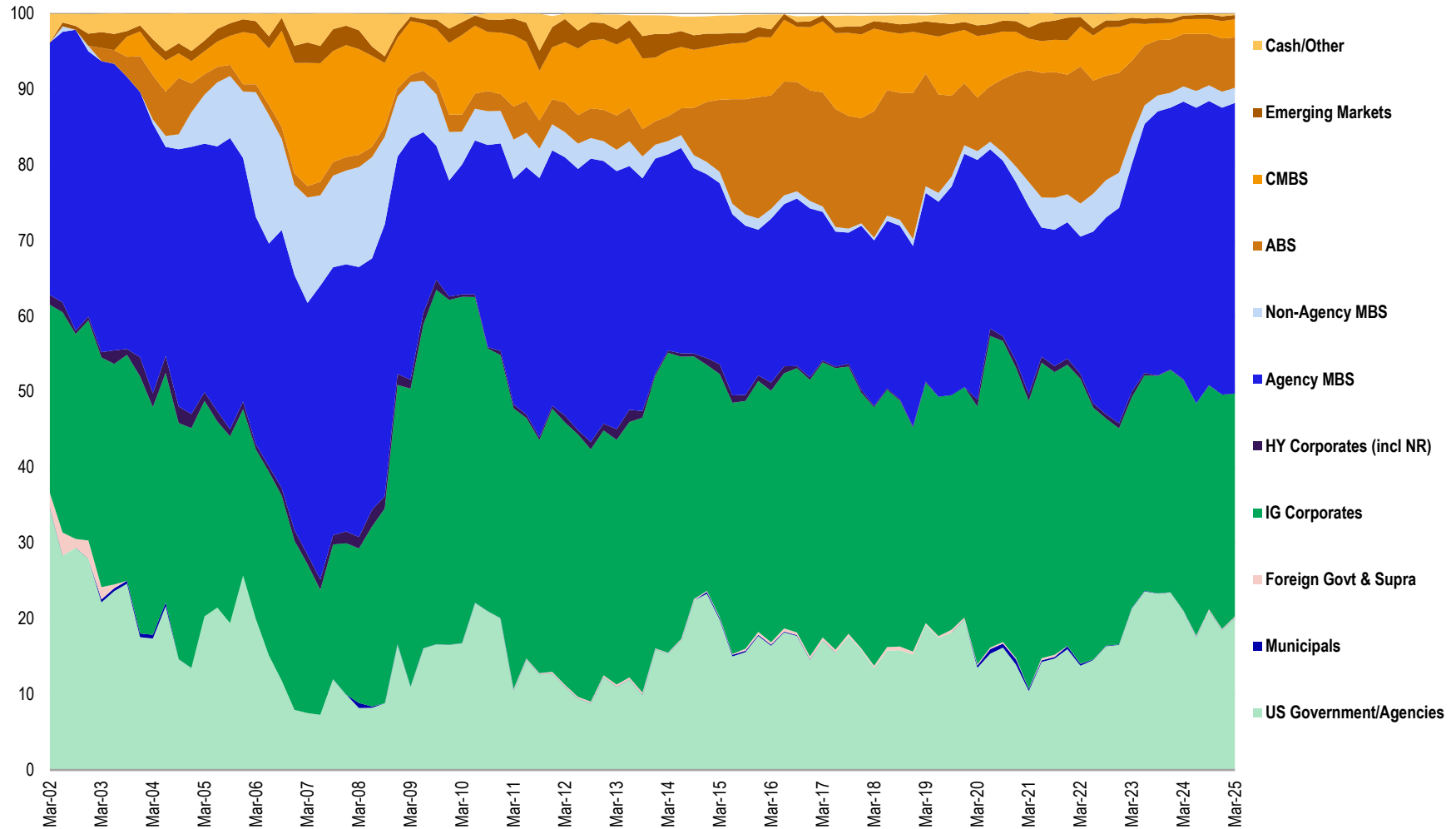
In USD

Holdings, sector weightings, market capitalisation and portfolio characteristics are subject to change at any time and are for illustrative and reference purpose only.

Holdings, sector weightings, market capitalisation and portfolio characteristics of individual client portfolios in the program may differ, sometimes significantly, from those shown. This information does not constitute, and should not be construed as, investment advice or recommendations with respect to the securities and sectors listed. This information is supplemental to the GIPS compliant presentation included as a part of this material. The specific investment identified and described is not representative of all of the investments purchased, sold, or recommended for the strategy. It should not be assumed that any investment identified has or will be profitable. There can be no guarantee that similar investment opportunities will be available in the future or that the strategy will be able to exploit similar investment opportunities should they arise.

Core Fixed Income Strategy

Representative portfolio sector allocation as of March 31, 2025

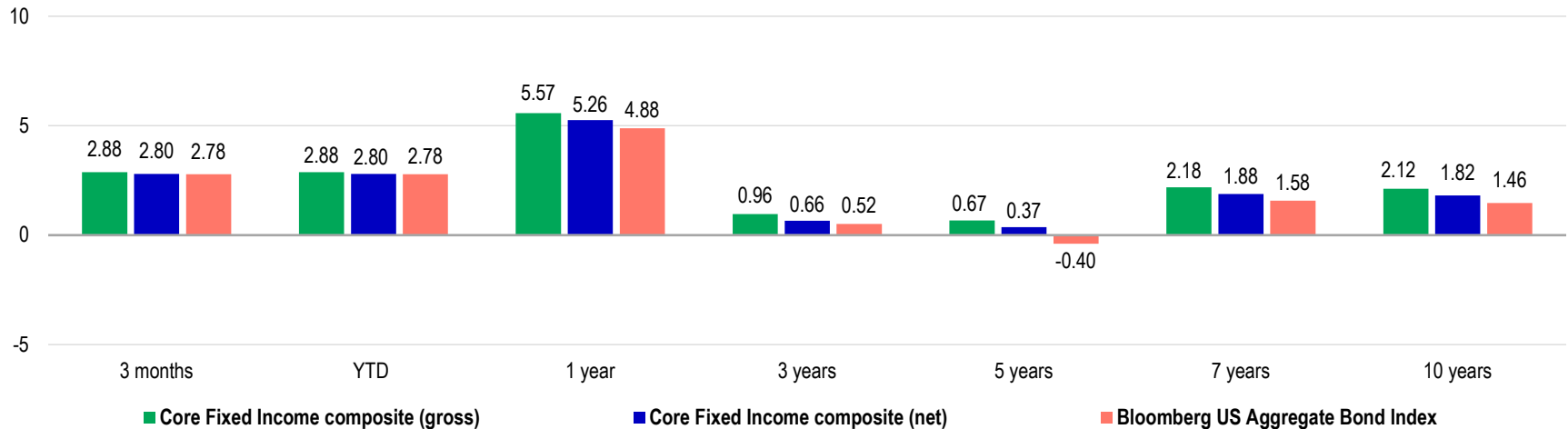


Source: Manulife Investment Management. Data as of March 31, 2025.
For illustrative purposes only. Portfolio allocation is subject to change without notice.

Core Fixed Income composite

Investment results as of March 31, 2025

Annualized returns (%)



Calendar year returns (%)

	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
Core Fixed Income composite (gross)	2.30	6.40	-13.64	-0.71	9.17	9.15	0.40	4.55	3.60	1.03
Core Fixed Income composite (net)	2.00	6.08	-13.90	-1.01	8.84	8.82	0.10	4.24	3.29	0.73
Bloomberg US Aggregate Bond Index	1.25	5.53	-13.01	-1.54	7.51	8.72	0.01	3.54	2.65	0.55
Excess return (gross)	1.05	0.87	-0.63	0.83	1.66	0.43	0.39	1.01	0.96	0.48
Excess return (net)	0.75	0.55	-0.89	0.53	1.34	0.10	0.09	0.70	0.65	0.18

Composite inception date: January 1996.

Past performance is not indicative of future results. Performance is shown in USD. Returns greater than one year are annualized. Gross performance results do not reflect the deduction of investment management fees, and are net of commissions and foreign withholding tax. Net performance results reflect the application of the highest incremental rate of the standard investment advisory fee schedule to gross performance results. Actual fees may vary depending on, among other things, the applicable fee schedule and portfolio size. Changes in exchange rates may have an adverse effect. This information is supplemental to the GIPS report included as a part of this presentation.

Core Fixed Income Strategy

Summary as of March 31, 2025

Long-term Track Record in Core Fixed Income

- PMs average 28 years of investment experience and 10 years of firm experience
- Investment team is exclusively responsible for all investment decisions related to the strategy
- Annualized excess returns of 0.59% since inception of the strategy*

Sector Allocation & Bottom-Up Security Selection

- We believe they are true drivers of portfolio performance
- Repeatable process
- Not dependent on predicting the timing of macro and market events

Collaborative Team Approach

- Effective, constant communication among portfolio managers, analysts and traders
- Flat structure and unique research team model and help maximize efficiency

Physical Bond Portfolio Implementation

- Allows targeted and precise sector and security specific selection
- Permits yield curve implementation and key rate duration management
- Provides transparency

Consistent, Competitive Historical Returns with Efficient Use of Risk

- 10-year Up Market Capture of 105.21%, Down Market Capture of 99.81%

Consistent and competitive performance through diverse market conditions**

Source: eVestment Alliance and Manulife Investment Management

Past results are not necessarily indicative of future results.

*Inception Date: January 1996

**Past performance is not indicative of future results. Please see page 23 performance for more information.

Returns greater than one year are annualized. Past performance is not indicative of future results. Performance is shown in USD (net). Net performance results reflect the application of the highest incremental rate of the standard investment advisory fee schedule to gross performance results. Changes in exchange rates may have an adverse effect. Diversification does not guarantee a profit nor protect against loss in any market.

Appendix

Biographies

Howard C. Greene, CFA

Senior Portfolio Manager, Co-Head of U.S. Core and Core-Plus Fixed Income, Manulife Investment Management

Howard is co-head of the firm's U.S. core and core-plus fixed-income team and serves as a co-lead portfolio manager for the core and core-plus fixed-income strategies. Prior to joining the company, he spent more than 14 years at Sun Life Financial Services of Canada as a senior vice president for Sun Capital Advisers, managing investment-grade and high-yield fixed-income portfolios. Earlier in his career, he worked at Baring Asset Management as a fixed-income analyst. Howard holds the Chartered Financial Analyst designation and is a member of CFA Society Boston.

Education: B.B.A., Business Administration, University of Massachusetts; M.B.A., Northeastern University

Joined the company: 2002

Began career: 1983

Jeffrey N. Given, CFA

Head of Developed-Market Fixed Income, Senior Portfolio Manager, Co-Head of U.S. Core and Core-Plus Fixed Income, Manulife Investment Management

Jeff is head of developed-market fixed income and co-head of the U.S. core and core-plus fixed-income team at Manulife Investment Management. He oversees the firm's U.S.- and Canada-based investment and credit research teams and is responsible for investment performance and process execution. In his role as co-head of the U.S. core and core-plus fixed-income team, he looks after the securitized, core, core-plus, and government bond strategies. Prior to joining the portfolio management team, Jeff was focused on research and trading in mortgage-backed securities within the MIM's fixed-income teams and, prior to that, he was an investment compliance analyst at the company. Jeff holds the Chartered Financial Analyst designation and is a member of the CFA Society Boston.

Education: M.S., Finance, Boston College; B.S., Business Administration, Boston University

Joined the company: 1993

Began career: 1993

Biographies

Pranay Sonalkar, CFA

Portfolio Manager, U.S. Core and Core Plus Fixed Income, Manulife Investment Management

Pranay is a portfolio manager on the firm's U.S. Core and Core Plus Fixed Income team. Previously, he was a credit research analyst and sector lead responsible for research coverage of the industrials, utilities, and energy sectors. Prior to that, he was a lead credit analyst with Standard & Poor's on various chemical and environmental services issuers and, before that, he worked for Barclays Capital as a sell-side credit analyst assisting coverage in multiple sectors.

Education: B.A., Economics and Mathematical Science, Colby College; M.B.A., Cornell University–Samuel Curtis Johnson Graduate School of Management

Joined the company: 2014

Began career: 2007

Connor Minnaar, CFA

Portfolio Manager, U.S. Core and Core-Plus Fixed Income, Securitized Assets, Manulife Investment Management

Connor is a portfolio manager on the U.S. core and core-plus and securitized assets teams. Previously, he was an investment analyst on the firm's securitized assets research team, where he was responsible for coverage of the agency and nonagency mortgage-backed securities sectors as well as certain subsectors of the asset-backed securities market. Prior to joining the firm, he was a senior capital reporting and control specialist at Pioneer Investments. Connor holds the Chartered Financial Analyst designation.

Education: M.B.A., Boston University; B.A., Economics, Drew University

Joined the company: 2006

Began career: 2002

Biographies

Spencer Godfrey, CFA

Head of Global Developed-Market Fixed-Income Research, Associate Portfolio Manager, U.S. Core and Core-Plus Fixed Income, Manulife Investment Management

Spencer is responsible for fixed-income research across global developed markets. In this role, he has primary research coverage responsibilities for the telecommunications, commercial services, transportation and logistics, and industrials sectors. Spencer is also a portfolio manager on the U.S. core and core-plus fixed-income team. Prior to joining the firm, he worked as an analyst at KDP Investment Advisors and, before that, he took on different roles at various firms, including Tully & Holland, AIG, and American International Underwriters. Spencer holds the Chartered Financial Analyst designation and is a member of the CFA Society Boston.

Education: M.B.A., Boston College, Carroll School of Management; B.A., Middlebury College

Joined the company: 2016

Began career: 2003

Biographies

Andrew A. Shafter, CTP

Managing Director, U.S. Core and Core-Plus Fixed Income, Manulife Investment Management

Andy is a managing director and client portfolio manager within the core and core-plus fixed-income team at Manulife Investment Management, supporting the investment and client-facing teams in the effective communication and positioning of our core and core-plus products, focusing on the retail market. Prior to this, Andy worked at Community Capital Management, where he spent nine years working as a client portfolio manager, acting on behalf of portfolio managers across a range of taxable and tax-exempt fixed-income strategies through independent representation in communications with prospects, clients, and consultants. Before that, he spent four years working for Longfellow Investment Management in various roles, including as a product manager, senior analyst, and portfolio manager and, earlier in his career, he worked at several sell-side firms as a bond broker, trader, and salesperson. Andy brings over 30 years of investment industry experience to his role and holds the Certified Treasury Professional designation.

Education: M.B.A., Kellogg Graduate School of Business, Northwestern University; B.A., Economics, Hobart College

Joined the company: 2022

Began career: 1988

Lee M. Giunta, CFA

Managing Director, U.S. Core and Core-Plus Fixed Income, Securitized Assets, Manulife Investment Management

Lee is a senior client portfolio manager for the U.S. core and core-plus fixed-income and securitized assets teams, acting as a strategy expert and representing the teams' capabilities with current clients, prospective clients, and investment consultants. He's also responsible for developing marketing content and collateral for these strategies. Previously, Lee was an operations analyst at Regiment Capital and, prior to that, he worked at U.S. Bank, serving first as a collateralized loan obligation (CLO) administrator and later as a CLO analyst. Lee holds the Chartered Financial Analyst designation.

Education: B.S., Finance, Bryant University

Joined company: 2015

Began career: 2011

Institutional Investment Management Fee Schedule

Core Fixed Income Strategy

Basis Points	AUM
30 bps on the first	\$25 million
25 bps on the next	\$50 million
20 bps thereafter	

Minimum account sizes may apply.

Benchmark Definitions

Index	Definition
Bloomberg US Aggregate Bond Index	The Bloomberg US Aggregate Bond Index represents securities that are US domestic, taxable, dollar-denominated. The index covers the US investment-grade fixed-rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities.
FTSE World Government Bond Index	The FTSE World Government Bond Index is a market capitalization weighted bond index consisting of the government bond markets of multiple countries. The index includes government bonds that meet certain investability criteria, including, but not limited to, a fixed-rate coupon, an investment grade quality rating, a remaining maturity of one year or longer and a minimum issuance size.
Bloomberg US Government Index	Comprised of the US Treasury and US Agency Indices, the US Government Index contains securities issued by the US Government.
Bloomberg US Corporate Index	The Bloomberg US Corporate Index represents publicly issued US corporate and specified foreign debentures and secured notes that meet the specified maturity, liquidity, and quality requirements. To qualify, bonds must be SEC-registered.
BofA Merrill Lynch US High Yield Master II Index	The BofA Merrill Lynch US High Yield Master II Index is composed of bonds in the form of publicly placed nonconvertible, coupon-bearing US domestic debt and must carry a maturity of at least one year. Issues must be rated by Standard & Poor's or Moody's Investors Service as less than investment grade (i.e., BBB or Baa) but not in default (i.e., DD1 or less). This index excludes floating rate debt, equipment trust certificates and Title 11 securities.
JP Morgan Emerging Markets Bond Index (EMBI) Global Diversified Index	The JP Emerging Markets Bond Index (EMBI) Global Diversified Index tracks the performance of U.S. dollar-denominated Brady bonds, Eurobonds, and traded loans issued by sovereign and quasisovereign entities. The index caps its exposure to countries with larger amounts of outstanding debt.
JP Morgan CEMBI Broad Diversified	The JP Morgan Corporate Emerging Markets Bond Index (CEMBI) is a market capitalization weighted index consisting of liquid USD-denominated emerging market corporate bonds
Bloomberg US CMBS Index	The Bloomberg CMBS ERISA-Eligible Index is the ERISA-eligible component of the Bloomberg CMBS Index. This index, which includes investment grade securities that are ERISA eligible under the underwriters exemption, is the only CMBS sector that is included in the US Aggregate Index.
Bloomberg US ABS Index	The Bloomberg Asset-Backed Securities (ABS) Index has three subsectors (credit cards, autos and utilities). The index includes pass-through, bullet, and controlled amortization structures. The ABS Index includes only the senior class of each ABS issue and the ERISA-eligible B and C tranche.
Bloomberg US MBS Index	The Bloomberg US MBS Index represents the universe of fixed-rate US agency issued mortgage-backed securities guaranteed by the United States government.

Manulife Investment Management

Core Fixed Income Composite

Prelim – Only Schedule of Year End Returns updated per SEC Marketing Rule

Creation Date: January 1, 2018

Inception Date: January 1, 1996

Reporting Currency: USD

Schedule of Calendar Year Returns and Assets

Year End	Gross of Fees Return (%)	Net of Fees Return (%)	Benchmark Return (%)	Composite Net 3-Yr Std. Dev. (%)	Benchmark 3-Yr Std. Dev. (%)	Number of Portfolios End of Period	Composite Dispersion (%)	Total Assets End of Period (Millions)	Firm Assets End of Period (Millions)
2023	6.40	6.08	5.53	7.28	7.14	<=5	N/A	4,924	486,485
2022	-13.64	-13.90	-13.01	6.14	5.77	<=5	N/A	2,930	422,291
2021	-0.71	-1.01	-1.54	3.82	3.35	<=5	N/A	3,853	455,705
2020	9.17	8.84	7.51	3.75	3.36	<=5	N/A	3,447	421,097
2019	9.15	8.82	8.72	2.76	2.87	<=5	N/A	2,156	422,034
2018	0.40	0.10	0.01	2.63	2.84	<=5	N/A	1,400	392,058
2017	4.55	4.24	3.54	2.68	2.78	<=5	N/A	1,325	N/A
2016	3.60	3.29	2.65	2.87	2.98	<=5	N/A	652	N/A
2015	1.03	0.73	0.55	3.06	2.88	<=5	N/A	401	N/A
2014	7.04	6.72	5.97	2.87	2.63	<=5	N/A	288	N/A

Schedule of Year End Returns

Date	Return	1 Year Gross (%)	5 Year Gross (%)	10 Year Gross (%)	SI Gross (%)	1 Year Net (%)	5 Year Net (%)	10 Year Net (%)	SI Net (%)
12/31/24	Composite	2.30	0.38	2.03	5.02	2.00	0.08	1.72	4.70
Date	Return	1 Year	5 Year	10 Year	SI				
12/31/24	Benchmark	1.25	-0.33	1.35	4.11				

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Composite Description: The Core Fixed Income strategy seeks to generate a high rate of total return consistent with prudent risk, through investment in a diversified core strategy of investment grade debt. There is a \$500,000 asset requirement to be eligible for inclusion in the strategy.

Fee Schedule: This report is intended for institutional investors and the standard investment advisory fee schedule is 0.30% on the first 25 million; 0.25% on the next 50 million; 0.20% thereafter.

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Investment Considerations

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GIPS Performance

Unless otherwise noted, all performance represents composite data. Gross of fees returns do not include advisory fees and other expenses an investor may incur, which when deducted will reduce returns. Changes in exchange rates may have an adverse effect. Actual fees may vary depending on, among other things, the applicable fee schedule, portfolio size and/or investment management agreement. Unless otherwise noted, returns greater than 1 year are annualized;

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The principal risks associated with investing in a fixed income investment strategy include economic and market events, government regulations, geopolitical events, credit risk, interest rate risk, and risks associated with credit ratings, counterparties, foreign securities, currency exchange, hedging, derivatives and other strategic transactions, high portfolio turnover, liquidity, mortgage-backed and asset-backed securities, call or prepayment risk, and issuer stability along with environmental, social and corporate governance risk factors. The market value of fixed income securities will fluctuate in response to changes in interest rates, currency values and the credit worthiness of the issuer.

Principal risk factors that impact upon the performance of our asset allocation strategies include all the risks associated with the underlying funds and asset classes in which they are invested, in addition to overall asset allocation investment decisions. In addition, the underlying funds' performance may be lower than expected.

Investment Considerations (continued)

Information about SFDR

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March 31, 2025



New Hampshire Retirement System

Investment Measurement Service Monthly Review

The table below details the rates of return for the fund's asset classes over various time periods ended March 31, 2025. Negative manager excess returns are shown in red, positive excess returns in green. Returns for one year or greater are annualized.

Net of Fees Returns for Periods Ended March 31, 2025									
Composite	Total Fund Weighting As of 3/31/2025	Last Month	Last 3 Months	FYTD	CYTD	LTM	3-YR	5-YR	10-YR
Total Global Equity	49.69%	-4.12%	-1.68%	4.17%	-1.68%	-	-	-	-
MSCI ACWI IMI		-3.88%	-1.61%	3.83%	-1.61%	-	-	-	-
Excess Return		-0.24%	-0.08%	0.34%	-0.08%	-	-	-	-
Total Domestic Equity	30.28%	-5.60%	-5.09%	3.35%	-5.09%	4.68%	6.62%	17.39%	10.33%
Domestic Equity Benchmark(1)		-5.83%	-4.72%	3.88%	-4.72%	7.22%	8.22%	17.34%	11.89%
Excess Return		0.23%	-0.37%	-0.53%	-0.37%	-2.54%	-1.60%	0.05%	-1.56%
Total Non US Equity	19.41%	-1.72%	4.15%	5.08%	4.15%	4.85%	6.50%	11.45%	5.52%
Non US Equity Benchmark(2)		-0.14%	4.59%	4.54%	4.59%	5.54%	4.30%	10.80%	4.92%
Excess Return		-1.57%	-0.45%	0.54%	-0.45%	-0.69%	2.20%	0.64%	0.59%
Total Fixed Income	21.91%	0.00%	2.64%	4.83%	2.64%	4.79%	0.98%	2.06%	2.33%
Bloomberg Capital Universe Bond Index		-0.02%	2.66%	5.04%	2.66%	5.24%	1.01%	0.32%	1.83%
Excess Return		0.02%	-0.02%	-0.21%	-0.02%	-0.45%	-0.03%	1.73%	0.51%
Total Cash	1.38%	0.37%	1.05%	3.62%	1.05%	4.96%	4.36%	2.66%	1.96%
3-Month Treasury Bill		0.33%	1.02%	3.60%	1.02%	4.97%	4.23%	2.56%	1.87%
Excess Return		0.03%	0.03%	0.01%	0.03%	-0.01%	0.13%	0.11%	0.09%
Total Real Estate (Q4)*	8.73%	0.74%	1.41%	1.40%	1.41%	-1.19%	-1.13%	5.38%	7.87%
Real Estate Benchmark(3)		0.32%	0.96%	0.32%	0.96%	-2.27%	-3.14%	1.99%	5.00%
Excess Return		0.42%	0.45%	1.08%	0.45%	1.08%	2.01%	3.39%	2.87%
Total Private Equity (Q4)*	13.29%	0.55%	0.51%	2.02%	0.51%	4.80%	3.59%	12.73%	12.09%
Private Equity Benchmark(4)		-2.83%	3.14%	14.09%	3.14%	25.96%	10.79%	17.11%	16.09%
Excess Return		3.38%	-2.63%	-12.07%	-2.63%	-21.16%	-7.20%	-4.38%	-4.00%
Total Private Debt (Q4)*	5.00%	1.38%	1.38%	3.14%	1.38%	6.05%	5.73%	6.09%	6.08%
Private Debt Benchmark(5)		0.08%	1.56%	7.36%	1.56%	9.46%	6.71%	5.29%	4.75%
Excess Return		1.30%	-0.18%	-4.21%	-0.18%	-3.41%	-0.98%	0.81%	1.33%
Total Fund Composite	100.00%	-1.89%	-0.01%	3.83%	-0.01%	4.47%	4.29%	10.22%	7.18%
Total Fund Benchmark(6)		-2.19%	0.39%	5.06%	0.39%	7.24%	5.00%	9.83%	7.49%
Excess Return		0.30%	-0.40%	-1.23%	-0.40%	-2.78%	-0.71%	0.39%	-0.31%

(1) The Domestic Equity Benchmark is the Russell 3000 Index as of 7/1/2021.

(2) The Non US Equity Index is the MSCI ACWI ex US IMI Index as of 7/1/2024. Prior to 7/1/2024, it was the MSCI ACWI Ex-US Index.

(3) The Real Estate Benchmark is the NCREIF NFI-ODCE Value Weight Net Index lagged 1 quarter as of 7/1/2015.

(4) The Private Equity Benchmark is the Russell 3000 Index + 2% lagged 1 quarter as of 7/1/2022.

(5) The Private Debt Benchmark is (50% MStar LSTA Leveraged Loan 100 Idx + 50% Bloomberg High Yield Index) + 1% lagged 1 quarter as of 7/1/2022.

(6) Current Month Target = 50.0% MSCI ACWI IMI, 25.0% Bloomberg Universal, 10.0% NCREIF NFI-ODCE Value Weight Net lagged 3 months, 10.0% Russell 3000 Index lagged 3 months+2.0%, 2.5% Bloomberg High Yield Corp lagged 3 months+1.0% and 2.5% MStar LSTA Lev Loan 100 lagged 3 months +1.0%.

(7) For the trailing 25 year period ended 3/31/25, the Total Fund has returned 5.76% versus the Total Fund Custom Benchmark return of 6.34%.

*Real Estate and Alternatives market values reflect current custodian valuations, which are typically lagged approximately 1 quarter.

The table below details the rates of return for the fund's investment managers over various time periods ended March 31, 2025. Negative manager excess returns are shown in **red**, positive excess returns in **green**. Returns for one year or greater are annualized.

Net of Fees Returns for Periods Ended March 31, 2025									
Composite	Total Fund Weighting As of 3/31/2025	Last Month	Last 3 Months	FYTD	CYTD	LTM	3-YR	5-YR	10-YR
Total Domestic Equity	30.28%	-5.60%	-5.09%	3.35%	-5.09%	4.68%	6.62%	17.39%	10.33%
Domestic Equity Benchmark(1)		-5.83%	-4.72%	3.88%	-4.72%	7.22%	8.22%	17.34%	11.89%
Excess Return		0.23%	-0.37%	-0.53%	-0.37%	-2.54%	-1.60%	0.05%	-1.56%
Large Cap Domestic Equity	18.28%	-5.63%	-4.27%	3.79%	-4.27%	8.31%	9.03%	18.36%	11.64%
S&P 500 Index		-5.63%	-4.27%	3.80%	-4.27%	8.25%	9.06%	18.59%	12.50%
Excess Return		0.00%	0.00%	-0.01%	0.00%	0.06%	-0.04%	-0.23%	-0.86%
BlackRock S&P 500	18.28%	-5.63%	-4.27%	3.79%	-4.27%	8.31%	9.03%	18.54%	12.47%
S&P 500 Index		-5.63%	-4.27%	3.80%	-4.27%	8.25%	9.06%	18.59%	12.50%
Excess Return		0.00%	0.00%	-0.01%	0.00%	0.06%	-0.04%	-0.05%	-0.03%
Smid Cap Domestic Equity	5.74%	-5.70%	-5.81%	2.20%	-5.81%	-2.19%	2.41%	15.87%	7.30%
Russell 2500 Index		-6.27%	-7.50%	1.22%	-7.50%	-3.11%	1.78%	14.91%	7.46%
Excess Return		0.57%	1.69%	0.98%	1.69%	0.92%	0.63%	0.95%	-0.16%
AllianceBernstein	3.53%	-7.22%	-8.53%	-0.93%	-8.53%	-5.41%	1.19%	14.99%	8.04%
Russell 2500 Index		-6.27%	-7.50%	1.22%	-7.50%	-3.11%	1.78%	14.91%	7.46%
Excess Return		-0.95%	-1.03%	-2.14%	-1.03%	-2.30%	-0.59%	0.08%	0.58%
TSW	2.22%	-3.18%	-1.15%	7.59%	-1.15%	3.41%	4.47%	17.34%	6.23%
TSW Blended Benchmark (2)		-5.44%	-5.83%	2.96%	-5.83%	-1.47%	2.27%	16.65%	7.49%
Excess Return		2.25%	4.69%	4.63%	4.69%	4.88%	2.21%	0.69%	-1.27%
Small Cap Domestic Equity	6.25%	-5.41%	-6.73%	2.51%	-6.73%	0.84%	3.81%	16.47%	9.22%
Russell 2000 Index		-6.81%	-9.48%	-0.75%	-9.48%	-4.01%	0.52%	13.27%	6.30%
Excess Return		1.40%	2.74%	3.26%	2.74%	4.84%	3.29%	3.20%	2.93%
Boston Trust	2.02%	-3.23%	-3.23%	7.09%	-3.23%	3.79%	4.98%	16.23%	9.75%
Russell 2000 Index		-6.81%	-9.48%	-0.75%	-9.48%	-4.01%	0.52%	13.27%	6.30%
Excess Return		3.58%	6.25%	7.84%	6.25%	7.79%	4.46%	2.96%	3.46%
Segall Bryant & Hamill	2.02%	-6.87%	-8.79%	-2.94%	-8.79%	-4.07%	2.95%	15.26%	8.55%
Russell 2000 Index		-6.81%	-9.48%	-0.75%	-9.48%	-4.01%	0.52%	13.27%	6.30%
Excess Return		-0.06%	0.69%	-2.18%	0.69%	-0.06%	2.43%	1.99%	2.26%
Wellington	2.21%	-6.00%	-7.89%	2.72%	-7.89%	1.58%	3.47%	17.22%	9.28%
Russell 2000 Index		-6.81%	-9.48%	-0.75%	-9.48%	-4.01%	0.52%	13.27%	6.30%
Excess Return		0.80%	1.59%	3.47%	1.59%	5.59%	2.94%	3.95%	2.98%

(1) The Domestic Equity Benchmark is the Russell 3000 Index as of 7/1/2021.

(2) TSW Blended Benchmark is the Russell 2500 Value Index as of 7/1/2019. Prior to 7/1/2019 it was the Russell 2500.

The table below details the rates of return for the fund's investment managers over various time periods ended March 31, 2025. Negative manager excess returns are shown in **red**, positive excess returns in **green**. Returns for one year or greater are annualized.

Composite	Net of Fees Returns for Periods Ended March 31, 2025								
	Total Fund Weighting As of 3/31/2025	Last Month	Last 3 Months	FYTD	CYTD	LTM	3-YR	5-YR	10-YR
Total Non US Equity	19.41%	-1.72%	4.15%	5.08%	4.15%	4.85%	6.50%	11.45%	5.52%
Non US Equity Benchmark (1)		-0.14%	4.59%	4.54%	4.59%	5.54%	4.30%	10.80%	4.92%
Excess Return		-1.57%	-0.45%	0.54%	-0.45%	-0.69%	2.20%	0.64%	0.59%
Core Non US Equity	12.14%	-0.83%	7.45%	8.37%	7.45%	8.05%	8.51%	12.83%	5.32%
Core Non US Benchmark (2)		-0.23%	5.23%	5.08%	5.23%	6.09%	4.48%	10.92%	4.98%
Excess Return		-0.60%	2.22%	3.30%	2.22%	1.96%	4.03%	1.91%	0.34%
Aristotle	1.52%	-0.54%	3.53%	7.07%	3.53%	6.13%	4.76%	-	-
MSCI EAFE		-0.40%	6.86%	5.32%	6.86%	4.88%	6.05%	-	-
Excess Return		-0.13%	-3.33%	1.75%	-3.33%	1.25%	-1.29%	-	-
Artisan Partners	3.63%	-0.50%	9.09%	11.64%	9.09%	10.23%	8.96%	11.14%	5.63%
MSCI EAFE		-0.40%	6.86%	5.32%	6.86%	4.88%	6.05%	11.77%	5.40%
Excess Return		-0.10%	2.22%	6.32%	2.22%	5.35%	2.91%	-0.63%	0.24%
BlackRock SuperFund	1.67%	-0.06%	5.51%	5.16%	5.51%	6.36%	-	-	-
MSCI ACWI Ex-US		-0.23%	5.23%	5.08%	5.23%	6.09%	-	-	-
Excess Return		0.16%	0.28%	0.08%	0.28%	0.27%	-	-	-
Causeway Capital	3.95%	-1.32%	9.40%	10.10%	9.40%	11.53%	12.70%	18.13%	6.54%
MSCI EAFE		-0.40%	6.86%	5.32%	6.86%	4.88%	6.05%	11.77%	5.40%
Excess Return		-0.91%	2.54%	4.78%	2.54%	6.65%	6.65%	6.35%	1.14%
Lazard	1.37%	-1.54%	4.64%	1.09%	4.64%	-2.07%	3.37%	-	-
MSCI EAFE		-0.40%	6.86%	5.32%	6.86%	4.88%	6.05%	-	-
Excess Return		-1.14%	-2.22%	-4.24%	-2.22%	-6.95%	-2.68%	-	-
Emerging Markets	1.50%	1.62%	3.80%	3.91%	3.80%	6.70%	2.88%	6.38%	2.66%
MSCI EM		0.63%	2.93%	2.95%	2.93%	8.09%	1.44%	7.94%	3.71%
Excess Return		0.99%	0.87%	0.96%	0.87%	-1.40%	1.43%	-1.56%	-1.05%
Wellington Emerging Markets	1.50%	1.62%	3.80%	3.91%	3.80%	6.70%	2.98%	7.00%	3.17%
MSCI EM		0.63%	2.93%	2.95%	2.93%	8.09%	1.44%	7.94%	3.71%
Excess Return		0.99%	0.87%	0.96%	0.87%	-1.40%	1.53%	-0.94%	-0.54%
Non US Small Cap	1.14%	0.64%	4.22%	4.54%	4.22%	0.96%	2.05%	7.93%	0.82%
MSCI EAFE Small Cap		0.53%	3.69%	5.04%	3.69%	3.10%	0.88%	9.89%	5.34%
Excess Return		0.11%	0.53%	-0.50%	0.53%	-2.14%	1.16%	-1.96%	-4.52%
Wellington Int'l Small Cap Research	1.14%	0.64%	4.22%	4.54%	4.22%	0.96%	2.05%	-	-
MSCI EAFE Small Cap		0.53%	3.69%	5.04%	3.69%	3.10%	0.88%	-	-
Excess Return		0.11%	0.53%	-0.50%	0.53%	-2.14%	1.16%	-	-
Global Equity	4.63%	-5.48%	-3.54%	-2.22%	-3.54%	-2.35%	4.66%	12.36%	10.10%
MSCI ACWI net		-3.95%	-1.32%	4.16%	-1.32%	7.15%	6.91%	15.18%	8.84%
Excess Return		-1.53%	-2.22%	-6.39%	-2.22%	-9.50%	-2.25%	-2.81%	1.26%
Walter Scott Global Equity	4.63%	-5.48%	-3.54%	-2.22%	-3.54%	-2.35%	4.66%	12.36%	10.10%
Walter Scott Blended Benchmark (3)		-3.95%	-1.32%	4.16%	-1.32%	7.15%	6.91%	15.18%	8.84%
Excess Return		-1.53%	-2.22%	-6.39%	-2.22%	-9.50%	-2.25%	-2.81%	1.26%

(1) The Non US Equity Index is the MSCI ACWI ex US IMI Index as of 7/1/2024. Prior to 7/1/2024, it was the MSCI ACWI Ex-US Index.

(2) The Core Non US Equity Index is the MSCI ACWI ex US Index as of 7/1/2007. Prior to 7/1/2007 it was the MSCI EAFE Index.

(3) The Walter Scott Blended Benchmark is the MSCI ACWI Index as 5/1/2008. Prior to 5/1/2008 it was the MSCI EAFE Index.

The table below details the rates of return for the fund's investment managers over various time periods ended March 31, 2025. Negative manager excess returns are shown in red, positive excess returns in green. Returns for one year or greater are annualized.

Composite	Total Fund Weighting As of 3/31/2025	Net of Fees Returns for Periods Ended March 31, 2025							
		Last Month	Last 3 Months	FYTD	CYTD	LTM	3-YR	5-YR	10-YR
Total Fixed Income	21.91%	0.00%	2.64%	4.83%	2.64%	4.79%	0.98%	2.06%	2.33%
<i>Fixed Income Benchmark (1)</i>		-0.02%	2.66%	5.04%	2.66%	5.24%	1.01%	0.32%	1.83%
<i>Excess Return</i>		0.02%	-0.02%	-0.21%	-0.02%	-0.45%	-0.03%	1.73%	0.51%
BlackRock SIO Bond Fund	2.27%	-0.26%	1.76%	5.12%	1.76%	5.91%	3.48%	4.14%	-
<i>BlackRock Custom Benchmark (2)</i>		0.37%	1.08%	3.73%	1.08%	5.15%	4.44%	2.74%	-
<i>Excess Return</i>		-0.63%	0.67%	1.39%	0.67%	0.76%	-0.95%	1.40%	-
Brandywine Asset Mgmt	1.82%	1.43%	4.81%	2.77%	4.81%	0.05%	-4.02%	0.70%	0.46%
<i>Brandywine Custom Benchmark (3)</i>		0.74%	2.87%	3.74%	2.87%	1.84%	-3.03%	-3.06%	-0.10%
<i>Excess Return</i>		0.69%	1.94%	-0.96%	1.94%	-1.79%	-1.00%	3.76%	0.55%
FIAM (Fidelity) Tactical Bond	3.14%	-0.22%	2.86%	5.02%	2.86%	5.01%	1.38%	3.39%	-
<i>Bloomberg Aggregate</i>		0.04%	2.78%	4.81%	2.78%	4.88%	0.52%	-0.40%	-
<i>Excess Return</i>		-0.25%	0.08%	0.21%	0.08%	0.13%	0.86%	3.78%	-
Income Research & Management	6.54%	-0.08%	2.65%	4.71%	2.65%	4.85%	0.65%	0.11%	1.88%
<i>Bloomberg Gov/Credit</i>		0.05%	2.70%	4.62%	2.70%	4.66%	0.45%	-0.34%	1.58%
<i>Excess Return</i>		-0.13%	-0.05%	0.10%	-0.05%	0.19%	0.20%	0.45%	0.30%
Loomis Sayles	2.46%	-0.16%	2.26%	6.53%	2.26%	7.08%	2.89%	4.57%	3.92%
<i>Loomis Sayles Custom Benchmark (4)</i>		-0.33%	2.16%	5.42%	2.16%	5.87%	2.09%	2.27%	2.74%
<i>Excess Return</i>		0.18%	0.10%	1.11%	0.10%	1.21%	0.80%	2.31%	1.17%
Manulife Strategic Fixed Income	1.79%	-0.32%	1.39%	4.37%	1.39%	4.62%	1.87%	2.93%	2.42%
<i>Bloomberg Multiverse</i>		0.59%	2.63%	4.34%	2.63%	3.26%	-1.35%	-1.03%	0.80%
<i>Excess Return</i>		-0.91%	-1.24%	0.03%	-1.24%	1.37%	3.22%	3.97%	1.62%
Mellon US Agg Bond Index	3.89%	0.04%	2.79%	4.75%	2.79%	4.83%	-	-	-
<i>Bloomberg Aggregate Bond Index</i>		0.04%	2.78%	4.81%	2.78%	4.88%	-	-	-
<i>Excess Return</i>		0.00%	0.01%	-0.06%	0.01%	-0.05%	-	-	-
Total Cash	1.38%	0.37%	1.05%	3.62%	1.05%	4.96%	4.36%	2.66%	1.96%
<i>3-month Treasury Bill</i>		0.33%	1.02%	3.60%	1.02%	4.97%	4.23%	2.56%	1.87%
<i>Excess Return</i>		0.03%	0.03%	0.01%	0.03%	-0.01%	0.13%	0.11%	0.09%
Total Marketable Assets	72.97%	-2.84%	-0.39%	4.52%	-0.39%	5.04%	5.04%	10.86%	6.65%
<i>Total Marketable Index (5)</i>		-2.59%	-0.17%	4.28%	-0.17%	5.97%	4.86%	9.88%	6.82%
<i>Excess Return</i>		-0.24%	-0.22%	0.24%	-0.22%	-0.93%	0.19%	0.98%	-0.17%

(1) The Fixed Income Benchmark is the Bloomberg Universal Bond Index as of 7/1/2007.

(2) The BlackRock Custom Benchmark is 3 Month SOFR compounded in arrears as of 1/1/2022.

(3) The Brandywine Blended Benchmark is the FTSE WGBI Ex-China Index as of 11/1/2021.

(4) The Loomis Sayles Custom Benchmark is 65% Bloomberg Aggregate and 35% Bloomberg High Yield.

(5) Marketable Assets Index is 66.7% MSCI ACWI IMI and 33.3% Bloomberg Universal as of 7/1/24. Prior, the benchmark was 40% Russell 3000, 26.7% MSCI ACWI ex US, and 33.3% Bloomberg Universal (as of 7/1/2021).

The table below details the rates of return for the fund's investment managers over various time periods ended March 31, 2025. Negative manager excess returns are shown in red, positive excess returns in green. Returns for one year or greater are annualized.

Net of Fees Returns for Periods Ended March 31, 2025									
Composite	Total Fund Weighting As of 3/31/2025	Last Month	Last 3 Months	FYTD	CYTD	LTM	3-YR	5-YR	10-YR
Total Real Estate (Q4)* (5)	8.73%	0.74%	1.41%	1.40%	1.41%	-1.19%	-1.13%	5.38%	7.87%
Real Estate Benchmark (1)		0.32%	0.96%	0.32%	0.96%	-2.27%	-3.14%	1.99%	5.00%
Excess Return		0.42%	0.45%	1.08%	0.45%	1.08%	2.01%	3.39%	2.87%
Strategic Core Real Estate (Q4)*	4.95%	1.10%	2.08%	2.19%	2.08%	-2.18%	-2.38%	3.57%	6.62%
Real Estate Benchmark (1)		0.32%	0.96%	0.32%	0.96%	-2.27%	-3.14%	1.99%	5.00%
Excess Return		0.78%	1.12%	1.87%	1.12%	0.09%	0.76%	1.58%	1.62%
Tactical Non-Core Real Estate (Q4)*	3.79%	0.27%	0.56%	0.40%	0.56%	0.39%	1.05%	8.52%	10.09%
Real Estate Benchmark (1)		0.32%	0.96%	0.32%	0.96%	-2.27%	-3.14%	1.99%	5.00%
Excess Return		-0.05%	-0.40%	0.08%	-0.40%	2.66%	4.19%	6.53%	5.09%
Total Alternative Assets (Q4)*	18.30%	0.78%	0.75%	2.32%	0.75%	5.13%	4.13%	10.69%	9.11%
Alternative Assets Benchmark (2)		-1.86%	2.66%	11.89%	2.66%	20.34%	9.61%	13.11%	11.35%
Excess Return		2.63%	-1.91%	-9.57%	-1.91%	-15.21%	-5.48%	-2.42%	-2.24%
Total Private Equity (Q4)*	13.29%	0.55%	0.51%	2.02%	0.51%	4.80%	3.59%	12.73%	12.09%
Private Equity Benchmark (3)		-2.83%	3.14%	14.09%	3.14%	25.96%	10.79%	17.11%	16.09%
Excess Return		3.38%	-2.63%	-12.07%	-2.63%	-21.16%	-7.20%	-4.38%	-4.00%
Total Private Debt (Q4)*	5.00%	1.38%	1.38%	3.14%	1.38%	6.05%	5.73%	6.09%	6.08%
Private Debt Benchmark (4)		0.08%	1.56%	7.36%	1.56%	9.46%	6.71%	5.29%	4.75%
Excess Return		1.30%	-0.18%	-4.21%	-0.18%	-3.41%	-0.98%	0.81%	1.33%

(1) The Real Estate Benchmark is the NCREIF NFI-ODCE Value Weight Net Index lagged 1 quarter as of 7/1/2015.

(2) The Alternative Assets Benchmark is 66.7% Russell 3000 Index + 2% lagged 1 quarter and 33.3% ((50% S&P LSTA Leveraged Loan 100 Index + 50% Bloomberg High Yield Index) + 1%) lagged 1 quarter as of 7/1/2022.

(3) The Private Equity Benchmark is the Russell 3000 Index + 2% lagged 1 quarter as of 7/1/2022.

(4) The Private Debt Benchmark is (50% MStar LSTA Leveraged Loan 100 Index / 50% Bloomberg High Yield Index) + 1% lagged 1 quarter as of 7/1/2022.

(5) Total Real Estate returns includes Townsend discretionary fee as of 7/1/2022.

*Real Estate and Alternatives market values reflect current custodian valuations, which are typically lagged approximately 1 quarter.

Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of March 31, 2025, with the distribution as of February 28, 2025. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

Asset Distribution Across Investment Managers

	March 31, 2025				February 28, 2025	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
Global Equity	\$6,251,400,856	49.69%	\$(6,833)	\$(266,757,115)	\$6,518,164,804	50.78%
Total Domestic Equity	\$3,809,980,330	30.28%	\$0	\$(225,217,725)	\$4,035,198,055	31.44%
Large Cap Domestic Equity	\$2,300,443,493	18.28%	\$0	\$(137,310,109)	\$2,437,753,602	18.99%
Blackrock S&P 500	2,300,443,493	18.28%	0	(137,310,109)	2,437,753,602	18.99%
SMid Cap Domestic Equity	\$722,684,825	5.74%	\$0	\$(43,325,419)	\$766,010,244	5.97%
AllianceBernstein	443,570,728	3.53%	0	(34,298,437)	477,869,166	3.72%
TSW	279,114,097	2.22%	0	(9,026,981)	288,141,078	2.24%
Small Cap Domestic Equity	\$786,852,012	6.25%	\$0	\$(44,582,197)	\$831,434,209	6.48%
Boston Trust	254,417,346	2.02%	0	(8,411,052)	262,828,398	2.05%
Segall Bryant & Hamill	254,555,738	2.02%	0	(18,605,953)	273,161,691	2.13%
Wellington	277,878,929	2.21%	0	(17,565,191)	295,444,120	2.30%
Total Non US Equity	\$2,441,420,526	19.41%	\$(6,833)	\$(41,539,390)	\$2,482,966,749	19.35%
Core Non US Equity (1)	\$1,526,742,603	12.14%	\$(6,833)	\$(12,151,145)	\$1,538,900,580	11.99%
Aristotle	190,965,098	1.52%	0	(963,372)	191,928,470	1.50%
Artisan Partners	456,556,818	3.63%	(6,833)	(2,067,069)	458,630,720	3.57%
BlackRock Superfund	209,795,044	1.67%	0	(126,745)	209,921,789	1.64%
Causeway Capital	497,098,181	3.95%	0	(6,401,170)	503,499,352	3.92%
Lazard	171,818,104	1.37%	0	(2,611,738)	174,429,842	1.36%
Emerging Markets	\$188,244,497	1.50%	\$0	\$3,162,764	\$185,081,733	1.44%
Wellington Emerging Markets	188,244,497	1.50%	0	3,162,764	185,081,733	1.44%
Non US Small Cap	\$143,585,079	1.14%	\$0	\$999,171	\$142,585,908	1.11%
Wellington Int'l Small Cap Research	143,585,079	1.14%	0	999,171	142,585,908	1.11%
World Equity	\$582,848,347	4.63%	\$0	\$(33,550,180)	\$616,398,527	4.80%
Walter Scott Global Equity	582,848,347	4.63%	0	(33,550,180)	616,398,527	4.80%
Total Fixed Income	\$2,755,999,694	21.91%	\$0	\$451,460	\$2,755,548,235	21.47%
BlackRock SIO Bond Fund	285,661,589	2.27%	0	(634,116)	286,295,705	2.23%
Brandywine Asset Mgmt	228,654,286	1.82%	0	3,272,349	225,381,936	1.76%
FIAM (Fidelity) Tactical Bond	395,205,485	3.14%	0	(751,818)	395,957,302	3.09%
Income Research & Management	822,624,095	6.54%	0	(543,674)	823,167,769	6.41%
Loomis Sayles	309,309,694	2.46%	0	(404,956)	309,714,650	2.41%
Manulife Strategic Fixed Income	225,642,610	1.79%	0	(681,185)	226,323,796	1.76%
Mellon US Agg Bond Index	488,901,935	3.89%	0	194,859	488,707,076	3.81%
Total Cash	\$173,044,296	1.38%	\$2,839,098	\$677,699	\$169,527,499	1.32%
Total Marketable Assets	\$9,180,444,846	72.97%	\$2,832,265	\$(265,627,956)	\$9,443,240,538	73.57%
Total Real Estate	\$1,098,858,666	8.73%	\$(6,676,156)	\$11,219,191	\$1,094,315,630	8.53%
Strategic Core Real Estate	622,617,474	4.95%	508,479	7,255,309	614,853,686	4.79%
Tactical Non-Core Real Estate	476,241,191	3.79%	(6,354,491)	3,133,739	479,461,943	3.74%
Total Alternative Assets	\$2,301,747,910	18.30%	\$(18,143,183)	\$22,541,021	\$2,297,350,073	17.90%
Private Equity	1,672,148,369	13.29%	(9,717,936)	11,229,085	1,670,637,220	13.02%
Private Debt	629,599,541	5.00%	(8,425,247)	11,311,936	626,712,852	4.88%
Total Fund Composite	\$12,581,051,422	100.0%	\$(21,987,075)	\$(231,867,744)	\$12,834,906,241	100.0%

-Alternatives market values reflect current custodian valuations, which may not be up to date.

(1) Includes \$509,356 in legacy assets that are not actively managed and in liquidation following the termination of Fisher Investments.

New Hampshire Retirement System Target History

30-Jun-2024 - 31-Mar-2025		
Domestic Fixed	Bloomberg Universal	25.00%
Real Estate	NCREIF NFI-ODCE Value Weight Net	10.00%
Other Alternatives	Russell 3000 Index+2.00%	10.00%
Other Alternatives	Bloomberg HY Corporate+1.00%	2.50%
Other Alternatives	Morningstar LSTA Leveraged Loan 100+1.00%	2.50%
Global Equity		
Broad	MSCI ACWI IMI (Net)	50.00%
		100.00%
30-Jun-2022 - 30-Jun-2024		
Domestic Broad		
Eq	Russell 3000 Index	30.00%
Domestic Fixed	Bloomberg Universal	25.00%
Real Estate	NCREIF NFI-ODCE Value Weight Net	10.00%
Intl Equity	MSCI ACWI xUS (Net)	20.00%
Other Alternatives	Russell 3000 Index+2.00%	10.00%
Other Alternatives	Bloomberg HY Corporate+1.00%	2.50%
Other Alternatives	Morningstar LSTA Leveraged Loan 100+1.00%	2.50%
		100.00%
30-Jun-2021 - 30-Jun-2022		
Domestic Broad		
Eq	Russell 3000 Index	30.00%
Domestic Fixed	Bloomberg Universal	25.00%
Real Estate	NCREIF NFI-ODCE Value Weight Net	10.00%
Intl Equity	MSCI ACWI xUS (Net)	20.00%
Other Alternatives	S&P 500 Index+3.00%	10.00%
Other Alternatives	Morningstar LSTA Leveraged Loan 100	5.00%
		100.00%
30-Sep-2020 - 30-Jun-2021		
Domestic Broad		
Eq	S&P 500 Index	30.00%
Domestic Fixed	Bloomberg Universal	25.00%
Real Estate	NCREIF NFI-ODCE Value Weight Net	10.00%
Intl Equity	MSCI ACWI xUS (Net)	20.00%
Other Alternatives	S&P 500 Index+3.00%	10.00%
Other Alternatives	Morningstar LSTA Leveraged Loan 100	5.00%
		100.00%
30-Jun-2015 - 30-Sep-2020		
Domestic Broad		
Eq	S&P 500 Index	30.00%
Domestic Fixed	Bloomberg Universal	25.00%
Real Estate	NCREIF NFI-ODCE Value Weight Net	10.00%
Intl Equity	MSCI ACWI xUS (Net)	20.00%
Other Alternatives	Alternative Asset Benchmark	15.00%
		100.00%
31-Mar-2015 - 30-Jun-2015		
Domestic Broad		
Eq	Russell 3000 Index	37.30%
Domestic Fixed	Bloomberg Universal	25.00%
Real Estate	NCREIF Property Index+0.50%	8.70%
Intl Equity	MSCI ACWI xUS (Net)	20.00%
Other Alternatives	S&P 500 Index+5.00%	9.00%
		100.00%
31-Dec-2014 - 31-Mar-2015		
Domestic Broad		
Eq	Russell 3000 Index	37.70%
Domestic Fixed	Bloomberg Universal	25.00%
Real Estate	NCREIF Property Index+0.50%	8.80%
Intl Equity	MSCI ACWI xUS (Net)	20.00%
Other Alternatives	S&P 500 Index+5.00%	8.50%
		100.00%
30-Sep-2014 - 31-Dec-2014		
Domestic Broad		
Eq	Russell 3000 Index	39.00%
Domestic Fixed	Bloomberg Universal	25.00%
Real Estate	NCREIF Property Index+0.50%	8.60%
Intl Equity	MSCI ACWI xUS (Net)	20.00%
Other Alternatives	S&P 500 Index+5.00%	7.40%
		100.00%
30-Jun-2014 - 30-Sep-2014		
Domestic Broad		
Eq	Russell 3000 Index	39.60%
Domestic Fixed	Bloomberg Universal	25.00%
Real Estate	NCREIF Property Index+0.50%	8.90%
Intl Equity	MSCI ACWI xUS (Net)	20.00%
Other Alternatives	S&P 500 Index+5.00%	6.50%
		100.00%
31-Mar-2014 - 30-Jun-2014		
Domestic Broad		
Eq	Russell 3000 Index	42.20%
Domestic Fixed	Bloomberg Universal	25.00%
Real Estate	NCREIF Property Index+0.50%	8.60%
Intl Equity	MSCI ACWI xUS (Net)	20.00%
Other Alternatives	S&P 500 Index+5.00%	4.20%
		100.00%
31-Dec-2013 - 31-Mar-2014		
Domestic Broad		
Eq	Russell 3000 Index	41.80%
Domestic Fixed	Bloomberg Universal	25.00%
Real Estate	NCREIF Property Index+0.50%	9.10%
Intl Equity	MSCI ACWI xUS (Net)	20.00%
Other Alternatives	S&P 500 Index+5.00%	4.10%
		100.00%
30-Sep-2013 - 31-Dec-2013		
Domestic Broad		
Eq	Russell 3000 Index	42.90%
Domestic Fixed	Bloomberg Universal	25.00%
Real Estate	NCREIF Property Index+0.50%	8.60%
Intl Equity	MSCI ACWI xUS (Net)	20.00%
Other Alternatives	S&P 500 Index+5.00%	3.50%
		100.00%
30-Jun-2013 - 30-Sep-2013		
Domestic Broad		
Eq	Russell 3000 Index	42.50%
Domestic Fixed	Bloomberg Universal	25.00%
Real Estate	NCREIF Property Index+0.50%	9.00%
Intl Equity	MSCI ACWI xUS (Net)	20.00%
Other Alternatives	S&P 500 Index+5.00%	3.50%
		100.00%
31-Mar-2013 - 30-Jun-2013		
Domestic Broad		
Eq	Russell 3000 Index	43.00%
Domestic Fixed	Bloomberg Universal	25.00%
Real Estate	NCREIF Property Index+0.50%	8.60%
Intl Equity	MSCI ACWI xUS (Net)	20.00%
Other Alternatives	Alternative Asset Benchmark	3.40%
		100.00%

Alternatives Benchmark represents from 7/1/2022 to present: 66.7% Russell 3000 Idx + 2% (1 qtr lag) and 33.3% ((50% S&P LSTA Leveraged Loan 100 Idx + 50% Bloomberg HY Idx) + 1%) (1 qtr lag).

From 7/1/2019 to 7/1/2022: 66.7% S&P 500 +3% (1 qtr lag) + 33.3% S&P LSTA Leverage Loan 100 Index (1 qtr lag). From 7/1/2016 to 7/1/2019: 33.3% S&P 500 +3% (1 qtr lag) + 33.3% S&P LSTA Leverage Loan 100 Index (1 qtr lag) + 33.3% of Cash (6-mo USD LIBOR) + 5%. From 7/1/2015 to 7/1/2016: 33.3% S&P 500 +3% (1qtr lag) + 33.3% S&P LSTA Leverage Loan 100 Idx(1 qtr lag) + 33.3% of Cash (1 month USD LIBID) +5%. From 7/1/2013 to 7/1/2015: S&P 500 plus 5% (1 qtr lag). From 7/1/2011 to 7/1/2013: Qtr ending weight of Private Equity x S&P 500 plus 5% + Qtr ending weight Absolute Return x CPI + 5%. Prior to 7/1/2011: CPI + 5%.

New Hampshire Retirement System Target History

31-Dec-2012 - 31-Mar-2013			31-Mar-2011 - 30-Jun-2011		
Domestic Broad			Domestic Broad		
Eq	Russell 3000 Index	43.60%	Eq	Russell 3000 Index	43.00%
Domestic Fixed	Bloomberg Universal	25.00%	Domestic Fixed	Bloomberg Universal	30.00%
Real Estate	NCREIF Property Index+0.50%	8.80%	Real Estate	NCREIF Property Index+0.50%	5.30%
Intl Equity	MSCI ACWI xUS (Net)	20.00%	Intl Equity	MSCI ACWI xUS (Net)	15.00%
Other Alternatives	Alternative Asset Benchmark	2.60%	Other Alternatives	Alternative Asset Benchmark	1.70%
		100.00%	Global Equity		
			Broad	MSCI ACWI (Net)	5.00%
					100.00%
30-Sep-2012 - 31-Dec-2012			31-Dec-2010 - 31-Mar-2011		
Domestic Broad			Domestic Broad		
Eq	Russell 3000 Index	43.90%	Eq	Russell 3000 Index	43.00%
Domestic Fixed	Bloomberg Universal	25.00%	Domestic Fixed	Bloomberg Universal	30.00%
Real Estate	NCREIF Property Index+0.50%	8.70%	Real Estate	NCREIF Property Index+0.50%	5.20%
Intl Equity	MSCI ACWI xUS (Net)	20.00%	Intl Equity	MSCI ACWI xUS (Net)	15.00%
Other Alternatives	Alternative Asset Benchmark	2.40%	Other Alternatives	Alternative Asset Benchmark	1.80%
		100.00%	Global Equity		
			Broad	MSCI ACWI (Net)	5.00%
					100.00%
30-Jun-2012 - 30-Sep-2012			30-Sep-2010 - 31-Dec-2010		
Domestic Broad			Domestic Broad		
Eq	Russell 3000 Index	43.50%	Eq	Russell 3000 Index	42.80%
Domestic Fixed	Bloomberg Universal	25.00%	Domestic Fixed	Bloomberg Universal	30.00%
Real Estate	NCREIF Property Index+0.50%	9.00%	Real Estate	NCREIF Property Index+0.50%	5.40%
Intl Equity	MSCI ACWI xUS (Net)	20.00%	Intl Equity	MSCI ACWI xUS (Net)	15.00%
Other Alternatives	Alternative Asset Benchmark	2.50%	Other Alternatives	Alternative Asset Benchmark	1.80%
		100.00%	Global Equity		
			Broad	MSCI ACWI (Net)	5.00%
					100.00%
31-Mar-2012 - 30-Jun-2012			30-Jun-2010 - 30-Sep-2010		
Domestic Broad			Domestic Broad		
Eq	Russell 3000 Index	40.10%	Eq	Russell 3000 Index	42.90%
Domestic Fixed	Bloomberg Universal	30.00%	Domestic Fixed	Bloomberg Universal	30.00%
Real Estate	NCREIF Property Index+0.50%	7.60%	Real Estate	NCREIF Property Index+0.50%	5.00%
Intl Equity	MSCI ACWI xUS (Net)	20.00%	Intl Equity	MSCI ACWI xUS (Net)	15.00%
Other Alternatives	Alternative Asset Benchmark	2.30%	Other Alternatives	Alternative Asset Benchmark	2.10%
		100.00%	Global Equity		
			Broad	MSCI ACWI (Net)	5.00%
					100.00%
31-Dec-2011 - 31-Mar-2012			31-Dec-2009 - 30-Jun-2010		
Domestic Broad			Domestic Broad		
Eq	Russell 3000 Index	39.70%	Eq	Russell 3000 Index	43.30%
Domestic Fixed	Bloomberg Universal	30.00%	Domestic Fixed	Bloomberg Universal	30.00%
Real Estate	NCREIF Property Index+0.50%	8.00%	Real Estate	NCREIF Property Index+0.50%	4.70%
Intl Equity	MSCI ACWI xUS (Net)	20.00%	Intl Equity	MSCI ACWI xUS (Net)	15.00%
Other Alternatives	Alternative Asset Benchmark	2.30%	Other Alternatives	Alternative Asset Benchmark	2.00%
		100.00%	Global Equity		
			Broad	MSCI ACWI (Net)	5.00%
					100.00%
30-Sep-2011 - 31-Dec-2011			30-Sep-2009 - 31-Dec-2009		
Domestic Broad			Domestic Broad		
Eq	Russell 3000 Index	40.20%	Eq	Russell 3000 Index	42.30%
Domestic Fixed	Bloomberg Universal	30.00%	Domestic Fixed	Bloomberg Universal	30.00%
Real Estate	NCREIF Property Index+0.50%	7.40%	Real Estate	NCREIF Property Index+0.50%	5.50%
Intl Equity	MSCI ACWI xUS (Net)	20.00%	Intl Equity	MSCI ACWI xUS (Net)	15.00%
Other Alternatives	Alternative Asset Benchmark	2.40%	Other Alternatives	Alternative Asset Benchmark	2.20%
		100.00%	Global Equity		
			Broad	MSCI ACWI (Net)	5.00%
					100.00%
30-Jun-2011 - 30-Sep-2011					
Domestic Broad					
Eq	Russell 3000 Index	42.50%			
Domestic Fixed	Bloomberg Universal	30.00%			
Real Estate	NCREIF Property Index+0.50%	5.40%			
Intl Equity	MSCI ACWI xUS (Net)	20.00%			
Other Alternatives	Alternative Asset Benchmark	2.10%			
		100.00%			

Alternatives Benchmark represents from 7/1/2022 to present: 66.7% Russell 3000 Idx + 2% (1 qtr lag) and 33.3% ((50% S&P LSTA Leveraged Loan 100 Idx + 50% Bloomberg HY Idx) + 1%) (1 qtr lag).

From 7/1/2019 to 7/1/2022: 66.7% S&P 500 +3% (1 qtr lag) + 33.3% S&P LSTA Leverage Loan 100 Index (1 qtr lag). From 7/1/2016 to 7/1/2019: 33.3% S&P 500 +3% (1 qtr lag) + 33.3% S&P LSTA Leverage Loan 100 Index (1 qtr lag) + 33.3% of Cash (6-mo USD LIBOR) + 5%. From 7/1/2015 to 7/1/2016: 33.3% S&P 500 +3% (1qtr lag) + 33.3% S&P LSTA Leverage Loan 100 Idx(1 qtr lag) + 33.3% of Cash (1 month USD LIBID) +5%. From 7/1/2013 to 7/1/2015: S&P 500 plus 5% (1 qtr lag). From 7/1/2011 to 7/1/2013: Qtr ending weight of Private Equity x S&P 500 plus 5% + Qtr ending weight Absolute Return x CPI + 5%. Prior to 7/1/2011: CPI + 5%.

New Hampshire Retirement System Target History

30-Jun-2009 - 30-Sep-2009			30-Nov-2006 - 30-Jun-2007		
Domestic Broad			Domestic Broad		
Eq	Russell 3000 Index	41.50%	Eq	Russell 3000 Index	44.00%
Domestic Fixed	Bloomberg Universal	30.00%	Domestic Fixed	Bloomberg Universal	26.00%
Real Estate	NCREIF Property Index+0.50%	6.20%	Real Estate	NCREIF Property Index	5.00%
Intl Equity	MSCI ACWI xUS (Net)	15.00%	Intl Equity	MSCI ACWI xUS (Net)	16.00%
Other Alternatives	Alternative Asset Benchmark	2.30%	Other Alternatives	Consumer Price Index (W) + 5%	5.00%
Global Equity			Global Fixed-Inc	Brandywine Blended Benchmark	4.00%
Broad	MSCI ACWI (Net)	5.00%			100.00%
		100.00%			
31-Mar-2009 - 30-Jun-2009			30-Jun-2003 - 30-Nov-2006		
Domestic Broad			Domestic Broad		
Eq	Russell 3000 Index	38.00%	Eq	Russell 3000 Index	47.00%
Domestic Fixed	Bloomberg Universal	30.00%	Domestic Fixed	Bloomberg Universal	18.00%
Real Estate	NCREIF Property Index+0.50%	9.30%	Real Estate	NCREIF Property Index	10.00%
Intl Equity	MSCI ACWI xUS (Net)	15.00%	Intl Equity	MSCI ACWI xUS (Net)	12.00%
Other Alternatives	Alternative Asset Benchmark	2.70%	Other Alternatives	Consumer Price Index (W) + 5%	10.00%
Global Equity			Global Fixed-Inc	Brandywine Blended Benchmark	3.00%
Broad	MSCI ACWI (Net)	5.00%			100.00%
		100.00%			
31-Dec-2008 - 31-Mar-2009			31-Oct-1997 - 30-Jun-2003		
Domestic Broad			Domestic Broad		
Eq	Russell 3000 Index	37.20%	Eq	S&P 500 Index	50.00%
Domestic Fixed	Bloomberg Universal	30.00%	Domestic Fixed	Bloomberg Universal	18.00%
Real Estate	NCREIF Property Index+0.50%	9.70%	Real Estate	NCREIF Property Index	10.00%
Intl Equity	MSCI ACWI xUS (Net)	15.00%	Intl Equity	MSCI EAFE (Net)	9.00%
Other Alternatives	Alternative Asset Benchmark	3.10%	Other Alternatives	Consumer Price Index (W) + 5%	10.00%
Global Equity			Global Fixed-Inc	Brandywine Blended Benchmark	3.00%
Broad	MSCI ACWI (Net)	5.00%			100.00%
		100.00%			
30-Sep-2008 - 31-Dec-2008			31-Mar-1990 - 31-Oct-1997		
Domestic Broad			Domestic Broad		
Eq	Russell 3000 Index	38.90%	Eq	S&P 500 Index	50.00%
Domestic Fixed	Bloomberg Universal	30.00%	Domestic Fixed	Bloomberg Universal	18.00%
Real Estate	NCREIF Property Index	8.20%	Real Estate	NCREIF Property Index	10.00%
Intl Equity	MSCI ACWI xUS (Net)	15.00%	Intl Equity	MSCI EAFE (Net)	9.00%
Other Alternatives	Consumer Price Index (W) + 5%	2.90%	Other Alternatives	Consumer Price Index (W) + 5%	10.00%
Global Equity			Global Fixed-Inc	JPM GBI Global Unhedged USD	3.00%
Broad	MSCI ACWI (Net)	5.00%			100.00%
		100.00%			
30-Jun-2008 - 30-Sep-2008			30-Jun-1975 - 31-Mar-1990		
Domestic Broad			Domestic Broad		
Eq	Russell 3000 Index	40.00%	Eq	S&P 500 Index	50.00%
Domestic Fixed	Bloomberg Universal	30.00%	Real Estate	NCREIF Property Index	10.00%
Real Estate	NCREIF Property Index	7.30%	Intl Equity	MSCI EAFE (Net)	9.00%
Intl Equity	MSCI ACWI xUS (Net)	15.00%	Other Alternatives	Consumer Price Index (W) + 5%	10.00%
Other Alternatives	Consumer Price Index (W) + 5%	2.70%	Global Fixed-Inc	JPM GBI Global Unhedged USD	3.00%
Global Equity					82.00%
Broad	MSCI ACWI (Net)	5.00%			
		100.00%			
30-Jun-2007 - 30-Jun-2008					
Domestic Broad					
Eq	Russell 3000 Index	44.00%			
Domestic Fixed	Bloomberg Universal	30.00%			
Real Estate	NCREIF Property Index	5.00%			
Intl Equity	MSCI ACWI xUS (Net)	16.00%			
Other Alternatives	Consumer Price Index (W) + 5%	5.00%			
		100.00%			

Alternatives Benchmark represents from 7/1/2022 to present: 66.7% Russell 3000 Idx + 2% (1 qtr lag) and 33.3% ((50% S&P LSTA Leveraged Loan 100 Idx + 50% Bloomberg HY Idx) + 1%) (1 qtr lag).

From 7/1/2019 to 7/1/2022: 66.7% S&P 500 +3% (1 qtr lag) + 33.3% S&P LSTA Leverage Loan 100 Index (1 qtr lag). From 7/1/2016 to 7/1/2019: 33.3% S&P 500 +3% (1 qtr lag) + 33.3% S&P LSTA Leverage Loan 100 Index (1 qtr lag) + 33.3% of Cash (6-mo USD LIBOR) + 5%. From 7/1/2015 to 7/1/2016: 33.3% S&P 500 +3% (1qtr lag) + 33.3% S&P LSTA Leverage Loan 100 Idx(1 qtr lag) + 33.3% of Cash (1 month USD LIBID) +5%. From 7/1/2013 to 7/1/2015: S&P 500 plus 5% (1 qtr lag). From 7/1/2011 to 7/1/2013: Qtr ending weight of Private Equity x S&P 500 plus 5% + Qtr ending weight Absolute Return x CPI + 5%. Prior to 7/1/2011: CPI + 5%.

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Past performance is no guarantee of future results.

NHRS Asset Allocation Update

NHRS Investment Team
Independent Investment Committee Meeting

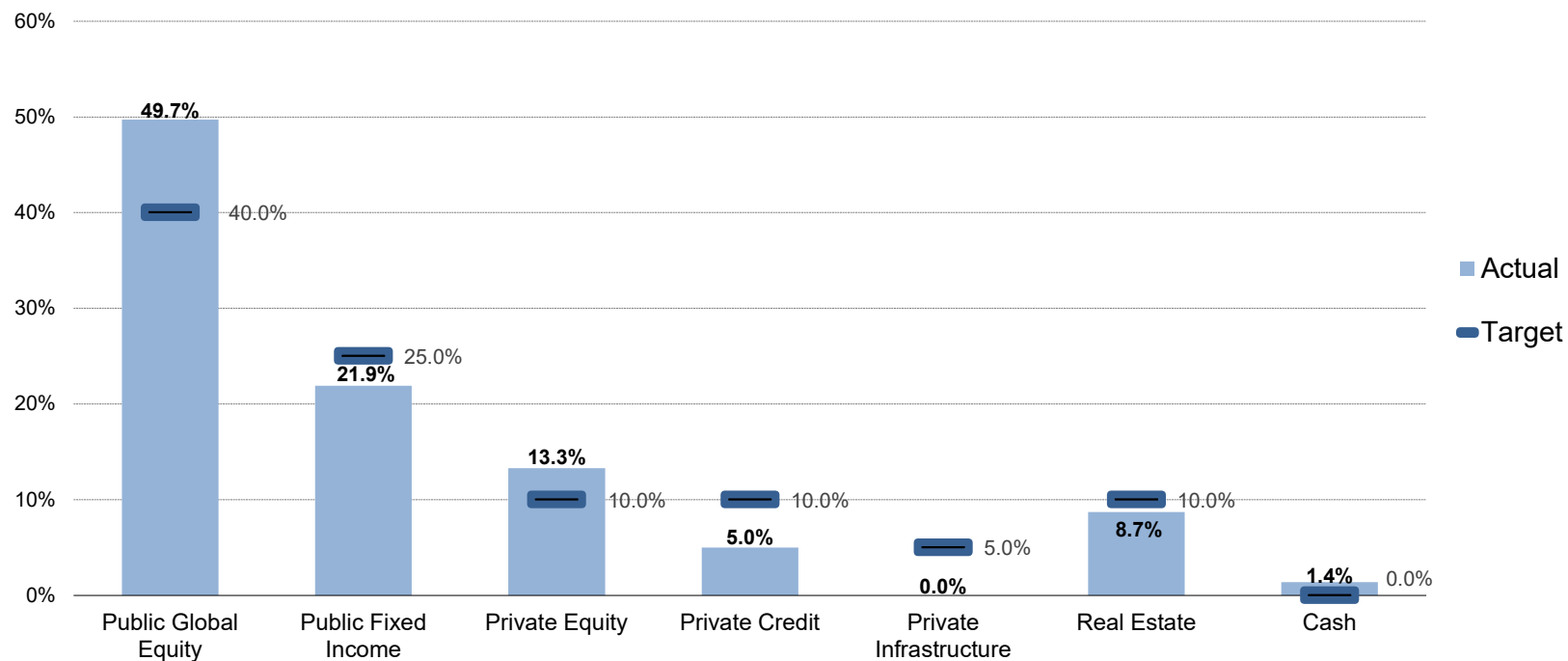
May 13, 2025

Summary

- On March 31, 2025, the preliminary Total Fund value was approximately \$12.6 billion.
- Current asset allocation targets were approved by the Board of Trustees on December 12, 2023 (targets) and December 10, 2024 (ranges), respectively.
 - The new Target Asset Allocation, approved by the Board in December 2023, took effect at the start of the new fiscal year on July 1, 2024. Implementation will occur over a multi-year timeframe, with interim targets to be determined in subsequent meetings by the Investment Committee.
- Allocations are managed within approved allocation ranges. All asset classes are continually monitored and the Investment Team takes action to prudently rebalance as a range limit is approached. A portfolio rebalance was completed on December 5, 2024, bringing Public Fixed Income within its target range and reducing Public Global Equity. This was followed by an additional transfer from Public Global Equity to Public Fixed Income on April 2, 2025.
- Current status of Targets vs. Actual is illustrated on page 2.
- All asset classes are within approved allocation ranges (page 3) as of March 31, 2025.
- Total Fund allocation is slightly above and below the target of 70% Equity-like and 30% Fixed Income investments, respectively as of March 31, 2025 (page 4).

Current Status

Class Targets vs. Actual Allocation as of March 31, 2025 (Preliminary)



Figures in **bold** represent actual allocation amount.

Source: NHRS

Asset Class Allocations Relative to Policy Targets and Ranges



As of March 31, 2025 (preliminary)

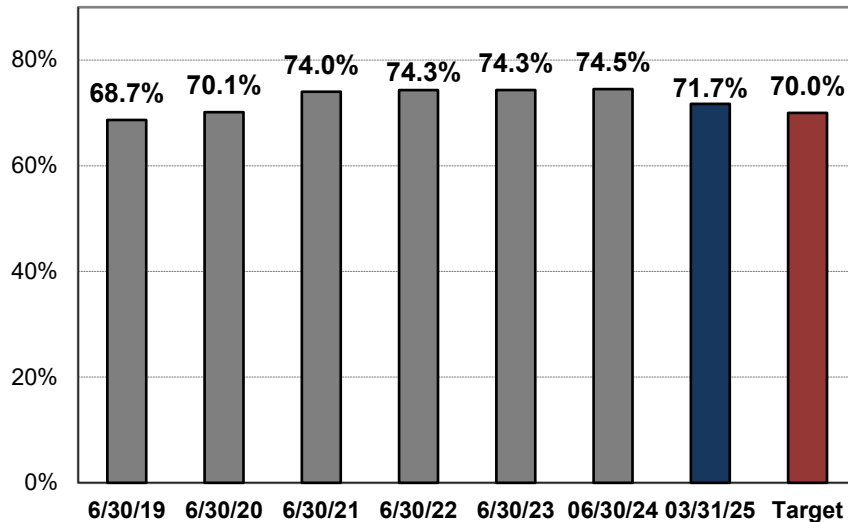
Asset Class	Allocation				Objective	Comments
	Range ¹	Target	Actual	Variance		
Public Markets						
Global Equity	30 - 50%	40.0%	49.7%	9.7%	Action	Actual allocation to be reduced over subsequent periods to fund new infrastructure allocation and increase to private credit. A rebalance from Global Equity to Fixed Income was completed on 4/2/25.
Fixed Income	18 - 32%	25.0%	21.9%	-3.1%	Monitor	Variance being addressed in ongoing FI SAA discussions.
Private Markets						
Equity ¹	5 - 15%	10.0%	13.3%	3.3%	Monitor	No immediate action needed.
Credit ¹	0 - 15%	10.0%	5.0%	-5.0%	Action	To be scaled up incrementally over subsequent periods as part of SAA implementation.
Infrastructure	0 - 15%	5.0%	0.0%	-5.0%	Action	To be scaled up incrementally over subsequent periods as part of SAA implementation.
Real Estate (RE)	5 - 20%	10.0%	8.7%	-1.3%	Monitor	No immediate action needed.
Cash Equivalents	0 - 5%	0.0%	1.4%	1.4%	No Action	Minimal cash balance to provide liquidity, as needed, for annuities, capital calls and other plan needs.
		100.0%	100.0%	0.0%		

¹As reported on the March 31, 2025 Callan Monthly Review.

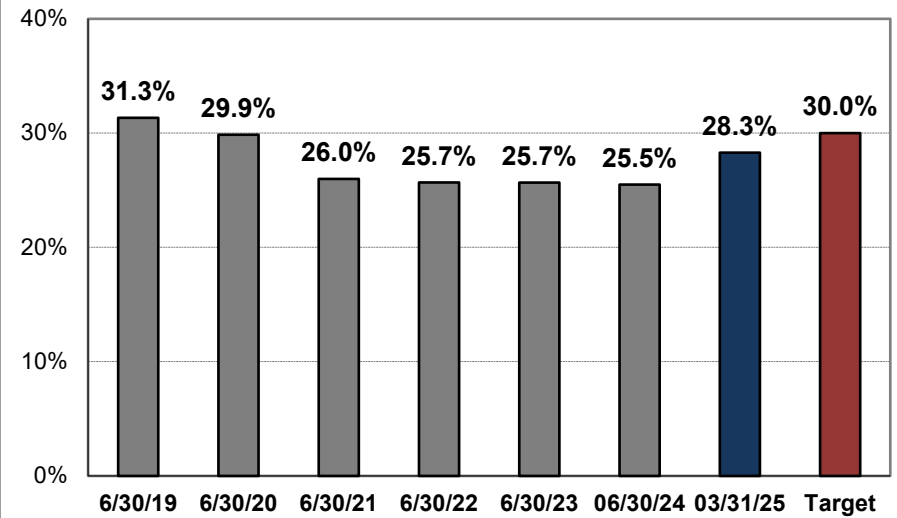
Source: NHRS

- The Total Fund allocation is slightly above and below the target of 70% Equity-like and 30% Fixed Income investments, respectively.

Equity-like Investments



Fixed Income



Source: NHRS

Private Debt & Equity Summary: As of April 30, 2025

<u>IIC Approval</u>	<u>Investment Name</u>	<u>Amount</u>	<u>Strategy</u>
June 2009	Lexington Capital Partners VII	\$ 20,000,000	Secondaries
March 2011	Siguler Guff Distressed Opportunities IV *	\$ 20,000,000	Distressed
April 2011	Avenue Special Situations Fund VI	\$ 20,000,000	Distressed
April 2011	Lexington Capital Partners VII	\$ 20,000,000	Secondaries
May 2011	Industry Ventures Fund VI *	\$ 20,000,000	Secondaries
August 2011	RFE Investment Partners VIII *	\$ 20,000,000	Buyout
August 2011	Tennenbaum Opportunities Fund VI	\$ 20,000,000	Distressed
September 2011	Edgewater Growth Capital Partners Fund III *	\$ 20,000,000	Buyout
November 2011	SL Capital European Smaller Funds I *	\$ 20,000,000 **	Buyout
July 2012	Ironwood Mezzanine Fund III *	\$ 20,000,000	Mezzanine
July 2012	Coller International Partners VI	\$ 20,000,000	Secondaries
December 2012	Paul Capital Partners X *	\$ 12,500,000	Secondaries
February 2013	HarbourVest Dover Street VIII *	\$ 50,000,000	Secondaries
May 2013	Gramercy Distressed Opportunity Fund II *	\$ 50,000,000	Distressed
July 2013	Monroe Capital Senior Secured Direct Loan Fund *	\$ 50,000,000	Direct Lending
September 2013	Industry Ventures Fund VII *	\$ 20,000,000	Secondaries
September 2013	Industry Ventures Partnership Holdings Fund III *	\$ 20,000,000	Venture Capital
October 2013	Pine Brook Capital Partners II	\$ 50,000,000	Growth
February 2014	CCMP Capital Investors III	\$ 50,000,000	Buyout
February 2014	Carlyle Group *	\$ 150,000,000	Growth
March 2014	Crescent Direct Lending Levered Fund *	\$ 50,000,000	Direct Lending
April 2014	Lexington Capital Partners VIII *	\$ 50,000,000	Secondaries
August 2014	Alcentra European Direct Lending Fund	\$ 50,000,000	Direct Lending
August 2014	HarbourVest HIPEP VII *	\$ 50,000,000	Buyout
September 2014	Top Tier Venture Velocity Fund *	\$ 20,000,000	Secondaries
October 2014	BlackRock Private Opportunities Fund - 2014 Series	\$ 150,000,000	Co-Investments
November 2014	NGP Natural Resources XI *	\$ 75,000,000	Energy
January 2015	Comvest Capital III *	\$ 40,000,000	Direct Lending
January 2015	CarVal Investors Credit Value Fund III *	\$ 50,000,000	Multi-sector
April 2015	Coller International Partners VII	\$ 50,000,000	Secondaries
August 2015	Gramercy Distressed Opportunity Fund III *	\$ 50,000,000	Distressed
August 2015	Monroe Capital Private Credit Fund II *	\$ 50,000,000	Direct Lending
August 2015	BlueBay Direct Lending Fund II *	\$ 50,000,000 **	Direct Lending
September 2015	Industry Ventures Partnership Holdings Fund IV *	\$ 20,000,000	Venture Capital
September 2015	Warburg Pincus XII	\$ 64,000,000 ***	Growth
November 2015	HarbourVest Dover Street IX *	\$ 50,000,000	Secondaries
November 2015	Kayne Anderson Energy Fund VII *	\$ 50,000,000	Energy
February 2016	Alcentra European Direct Lending Fund II *	\$ 50,000,000	Direct Lending
February 2016	Riverstone Credit Partners *	\$ 50,000,000	Energy
March 2016	Thoma Bravo Fund XII	\$ 46,000,000 ***	Buyout
October 2016	Comvest Capital IV *	\$ 50,000,000	Direct Lending
December 2016	HarbourVest HIPEP VIII *	\$ 50,000,000	Buyout
January 2017	Actis Energy 4	\$ 50,000,000	Energy
February 2017	Edgewater Growth Capital Partners Fund IV *	\$ 50,000,000	Buyout
February 2017	Top Tier Venture Velocity Fund 2 *	\$ 25,000,000	Secondaries
April 2017	Apollo Investment Fund IX	\$ 40,000,000 ***	Buyout
June 2017	Crescent Direct Lending Levered Fund II *	\$ 50,000,000	Direct Lending
September 2017	Carlyle Asia V *	\$ 50,000,000	Growth
September 2017	CarVal Investors Credit Value Fund IV *	\$ 50,000,000	Multi-sector
October 2017	BlackRock Private Opportunities Fund - 2018 Series	\$ 150,000,000	Co-Investments
November 2017	Riverstone Credit Partners II *	\$ 50,000,000	Energy
February 2018	Industry Ventures Partnership Holdings Fund V *	\$ 25,000,000	Venture Capital
March 2018	BlueBay Direct Lending Fund III *	\$ 50,000,000	Direct Lending
April 2018	Monroe Capital Private Credit Fund III *	\$ 50,000,000	Direct Lending
September 2018	Alcentra European Direct Lending Fund III *	\$ 50,000,000	Direct Lending
September 2018	Thoma Bravo Fund XIII	\$ 50,000,000	Buyout
September 2018	Warburg Pincus Global Growth	\$ 50,000,000	Growth
April 2019	HarbourVest Dover Street X *	\$ 50,000,000	Secondaries
April 2019	Top Tier Venture Velocity Fund 3 *	\$ 25,000,000	Secondaries

Private Debt & Equity Summary: As of April 30, 2025

<u>IIC Approval</u>	<u>Investment Name</u>	<u>Amount</u>	<u>Strategy</u>
March 2020	Collier International Partners VIII	\$ 75,000,000	Secondaries
March 2020	HarbourVest HIPEP IX *	\$ 75,000,000	Buyout
April 2020	Comvest Capital V *	\$ 50,000,000	Direct Lending
September 2020	Thoma Bravo Fund XIV	\$ 50,000,000 ***	Buyout
October 2020	CarVal Investors Credit Value Fund V *	\$ 50,000,000	Multi-sector
October 2020	Industry Ventures Fund IX *	\$ 50,000,000	Secondaries
November 2020	BlackRock Private Opportunities Fund - 2021 Series	\$ 150,000,000	Co-Investments
December 2020	Monroe Capital Private Credit Fund IV *	\$ 50,000,000	Direct Lending
February 2021	Crescent Direct Lending Levered Fund III *	\$ 50,000,000	Direct Lending
June 2021	Industry Ventures Partnership Holdings Fund VI *	\$ 25,000,000	Venture Capital
September 2021	Top Tier Venture Velocity Fund 4 *	\$ 25,000,000	Secondaries
November 2021	Atalaya Special Opportunities Fund VIII	\$ 50,000,000	Specialty Finance
February 2022	Clearlake Capital Partners VII	\$ 50,000,000	Buyout
February 2022	Thoma Bravo Fund XV	\$ 50,000,000	Buyout
March 2022	Comvest Capital VI *	\$ 50,000,000	Direct Lending
March 2022	Warburg Pincus 14	\$ 50,000,000	Growth
May 2022	HarbourVest Dover Street XI *	\$ 50,000,000	Secondaries
May 2023	American Industrial Partners VIII	\$ 50,000,000	Buyout
May 2023	Apollo X	\$ 40,000,000	Buyout
May 2023	Apollo X Co-Investment	\$ 40,000,000	Buyout
Aug / Sept 2023	Ares Pathfinder II	\$ 75,000,000	Specialty Finance
October 2023	Strategic Value Partners Capital Solutions II	\$ 50,000,000	Multi-sector
December 2023	Sixth Street Partners TAO Global	\$ 75,000,000	Multi-sector
February 2024	H.I.G. Capital Advantage Buyout Fund II	\$ 50,000,000	Buyout
February 2024	H.I.G. Capital Advantage Buyout Fund II Co-Investment	\$ 50,000,000	Buyout
June 2024	Ares Senior Direct Lending Fund III	\$ 100,000,000	Direct Lending
August 2024	HarbourVest HIPEP X	\$ 75,000,000	Buyout
August 2024	Oak Hill Advisors Senior Private Lending Fund (OLEND)	\$ 100,000,000	Direct Lending
December 2024	Top Tier Venture Velocity Fund 5 *	\$ 25,000,000	Secondaries
December 2024	Blackstone Multi Asset Credit Fund (BMAC)	\$ 75,000,000	Multi-sector
April 2025	Comvest Credit Partners VII *	\$ 50,000,000	Direct Lending
		\$ 4,507,500,000	

Red indicates Private Equity (\$2,712.5m or 60% of commitments)

Green indicates Private Debt (\$1,795.0m or 40% of commitments)

Investments that are bolded and shaded represent re-ups

* Advisory Board Member (includes observer seats)

** Commitment made in Euros

*** Amount reduced due to oversubscription