

Global Fixed Income Annual Program Review

As of Quarter Ending on June 30th, 2024

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Global Fixed Income

September 16, 2024

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Program Overview



Market Environment



Portfolio Performance and Risk Analysis



Business Updates and Key Initiatives

All performance data is as of June 30, 2024, unless otherwise noted



Program Overview

Role

- Serve as a long-term economic diversifier to equity risk and be a reliable source of income and liquidity

Key Metrics

- Five Global Fixed Income (GFI) Segments in the Total Fund Strategic Asset Allocation (SAA) totaling \$148.9B in AUM as of June 30, 2024
 - Approximately 77.1% internally managed
- CalPERS Short Term Investment Fund (STIF) and the Tactical Fixed Income portfolios totaling \$17.6B in AUM as of June 30, 2024

Investment Beliefs

- A long investment horizon is a responsibility and an advantage (IB 2)
- CalPERS will take risk only where we have a strong belief we will be rewarded for it (IB 7)
- Costs matter and need to be effectively managed (IB 8)
- Strong processes and teamwork and deep resources are needed to achieve CalPERS goals and objectives (IB 10)



Strategy and Portfolio Positioning

Segment/Portfolio	% of Total PERF	Market Value	5-Yr Active Dollar Value Added	Managers	Mandate
Treasury (UST) Segment	7.3%	\$36.6B	---	100% Internally Managed	Passive
Mortgage-Backed Securities (MBS) Segment	5.3%	\$26.7B	\$251.0M	~ 98.5% Internally Managed ~ 1.5% Externally Managed	Active
Investment Grade Credit (IG Credit) Segment	6.4%	\$32.1B	\$240.7M	100% Internally Managed	Active
High Yield (HY) Segment	5.3%	\$26.9B	\$30.6M	~ 90% Externally Managed ~ 10% Internally Managed	Active Passive
Emerging Market Sovereign Bonds (EM Sov) Segment	5.3%	\$26.7B	\$158.5M ¹	~ 64.5% Internally Managed ~ 35.5% Externally Managed	Active
CalPERS-STIF	N/A ²	\$16.8B	---	100% Internally Managed	Active
Tactical Fixed Income	0.2%	\$0.8B	\$840.1M ³	100% Internally Managed	Active

As of June 2024

¹Information is from EM Sov's inception of 01/01/2023

²CalPERS-STIF is a cash management portfolio held across the PERF

³Information is from Tactical Fixed Income's inception of 04/01/2020



Market Environment

Current Concerns

- Can the Fed deliver the soft landing that is priced into markets
- Continue to monitor the Federal Reserve's progress on lowering inflation to its 2% target
- Exercise caution with credit spreads at multi-year tightens and forecasted slower nominal GDP growth
- Monitoring the Magnificent Seven and AI stocks to see if any weakness carries over to the economy and fixed income spread products

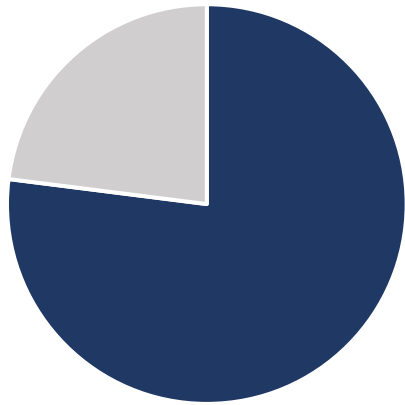
Investment Themes

- Elevated fixed income yields have resulted in increased market allocations to global fixed income assets
- Will Fiscal policy exert upward pressure on longer maturity U.S. debt yields
- Geopolitics – Impact on trade policies and ongoing near-shoring/friend-shoring
- Increased bank regulation will continue to disintermediate lending from bank balance sheets to private and public debt markets
- Continue to monitor the commercial real estate markets especially the office sector



Performance | Treasury Segment

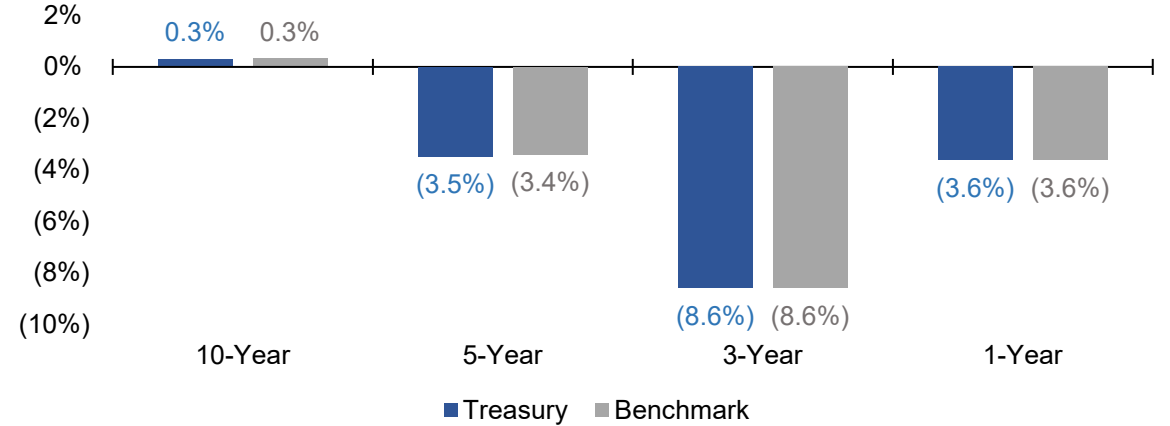
Asset Type Allocation



Total Market Exposure: \$36.6B

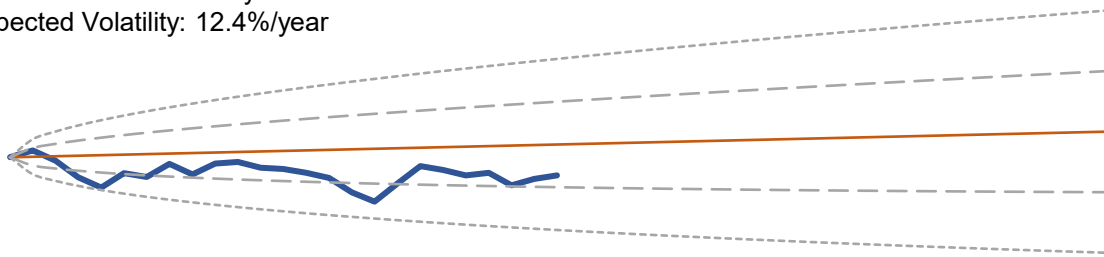
- UST Cash Bonds | 77.0%
- UST Futures | 23.0%

Total Return



Cumulative Total Return vs 2021 SAA Expectations

Expected Return: 2.6%/year
Expected Volatility: 12.4%/year



Jun-22 Dec-22 Jun-23 Dec-23 Jun-24 Dec-24 Jun-25 Dec-25 Jun-26
 — Cumul Realized Return — Cumul Expected Return - - - +/-1 Std Dev - - - +/-2 Std Dev

Key Metrics

Realized
10 Year
Sharpe Ratio
(0.1)

Forecasted
Volatility
10.8%

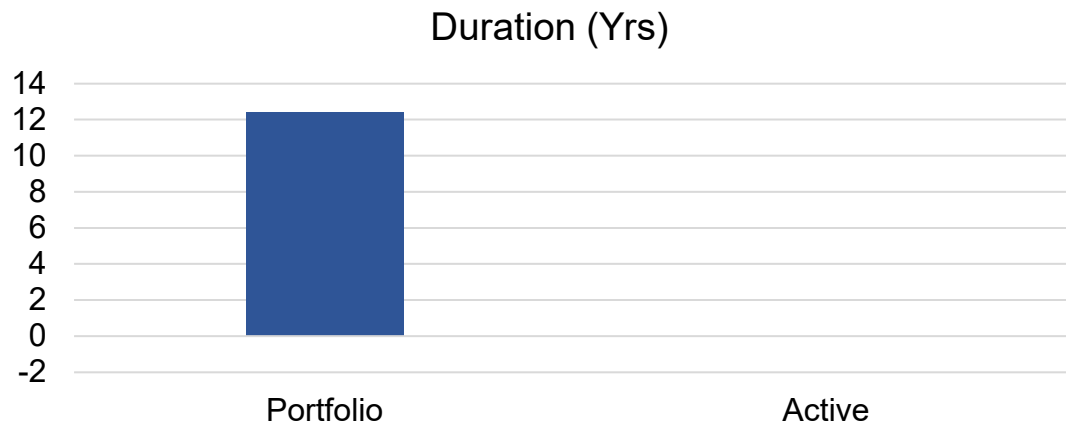
Note: All performance reported net of investment expenses and annualized unless noted otherwise. Risk measures are calculated using monthly returns.

Treasury Segment Risk Summary

Segment Risk Statistics (Forecasted)

Forecasted Volatility	10.8%
Benchmark Volatility	10.8%
Tracking Error	0.09%

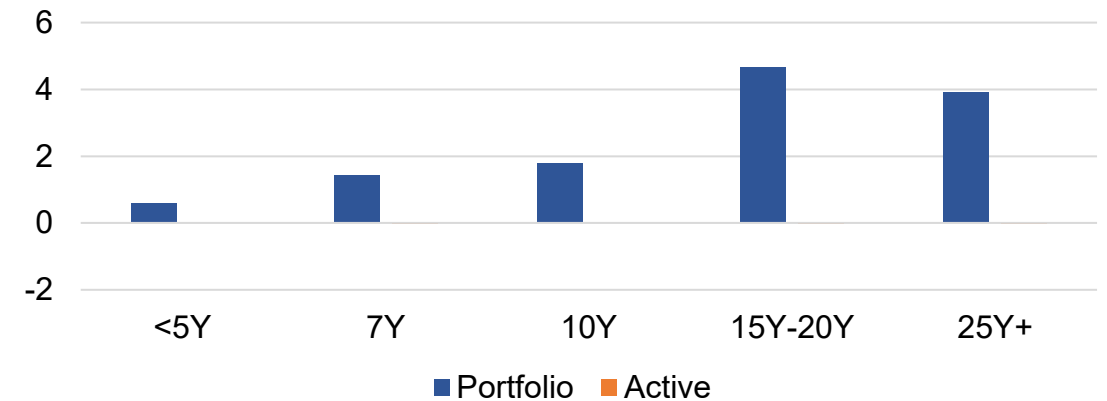
Key Portfolio Characteristics



Risk Decomposition (Forecasted)

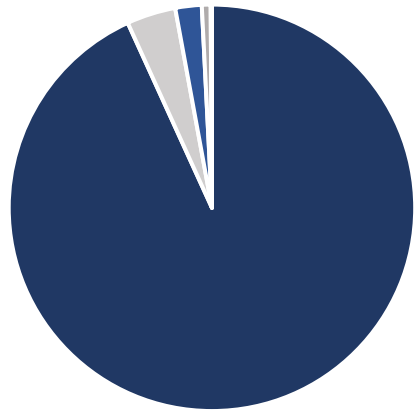
	Portfolio Risk Contribution	% Risk	Active Risk Contribution	% Risk
Total Segment Risk	10.8%	100.0%	0.09%	100.0%
US Interest Rates	10.8%	99.9%	0.00%	2.7%
Money Market Factors	0.0%	0.0%	0.00%	5.3%
Convexity	0.0%	0.0%	0.00%	1.3%
Idiosyncratic	0.0%	0.0%	0.09%	90.6%

Key Interest Rate Durations



Performance | MBS Segment

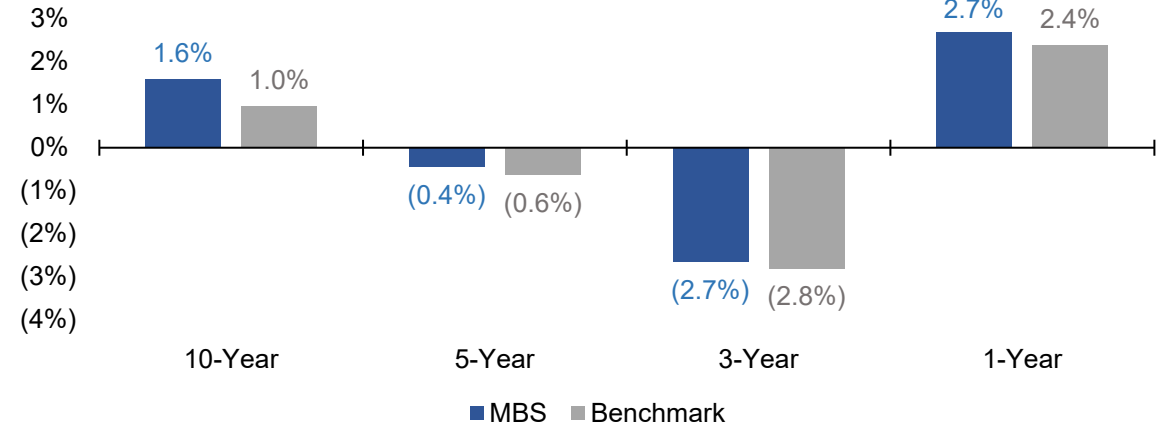
Asset Type Allocation



Total Market Exposure: \$26.7B

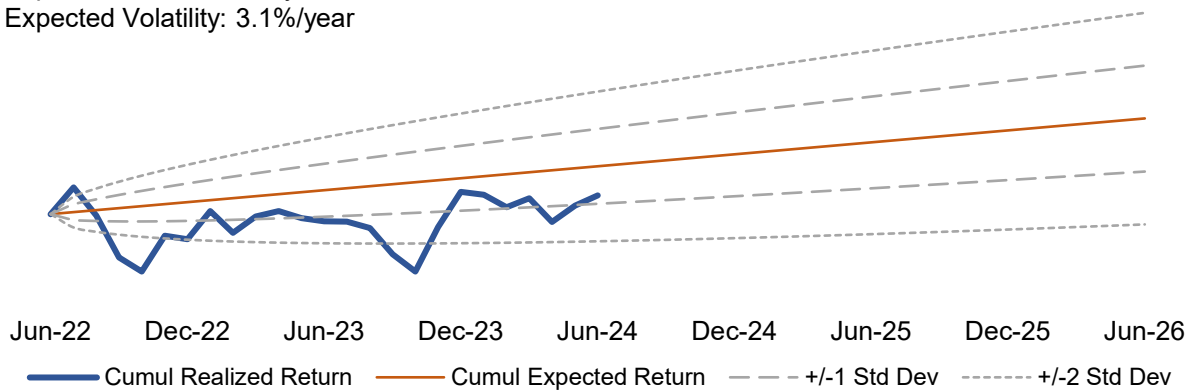
- Agency MBS | 93.2%
- CMBS | 3.9%
- Non-Agency MBS | 2.1%
- ABS | 0.7%
- Cash Securities | 0.1%

Total Return



Cumulative Total Return vs 2021 SAA Expectations

Expected Return: 2.8%/year
Expected Volatility: 3.1%/year



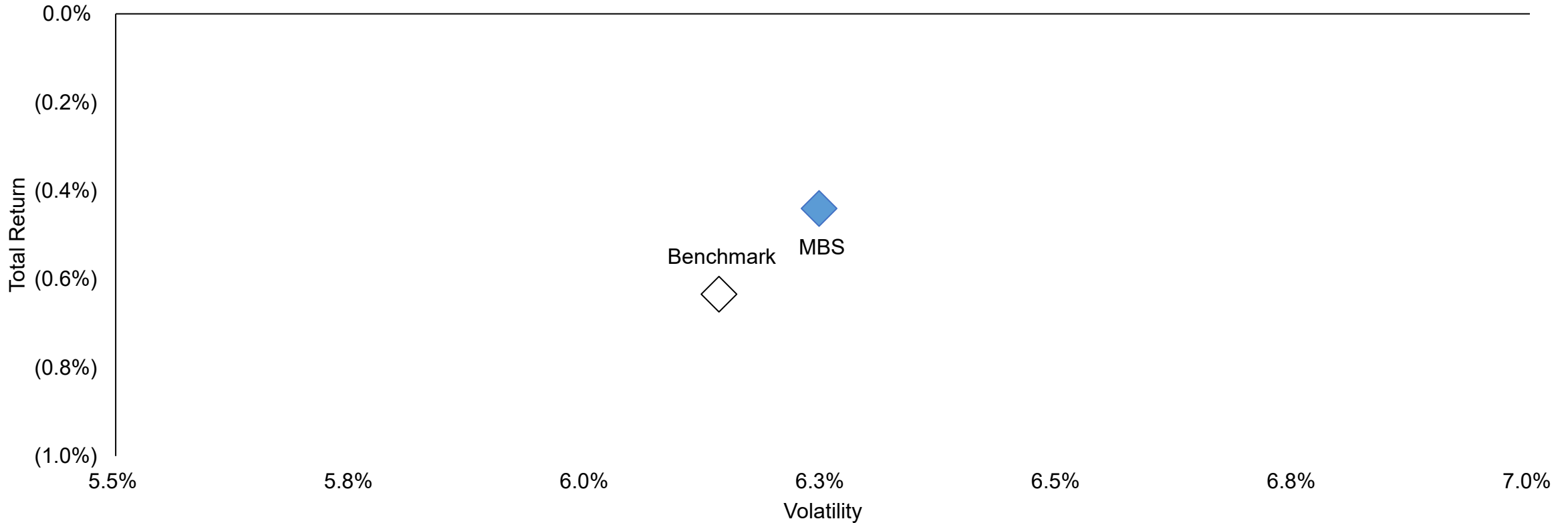
Key Metrics



Note: All performance reported net of investment expenses and annualized unless noted otherwise. Risk measures are calculated using monthly returns.



5 Year MBS Segment Risk-Return



	Return	Volatility	Sharpe Ratio	Tracking Error	Information Ratio
MBS	0.44%	6.30%	(0.42)	33 bps	0.59

Note: All performance reported net of investment expenses and annualized. Risk measures are calculated using monthly returns.

MBS Segment Risk Summary

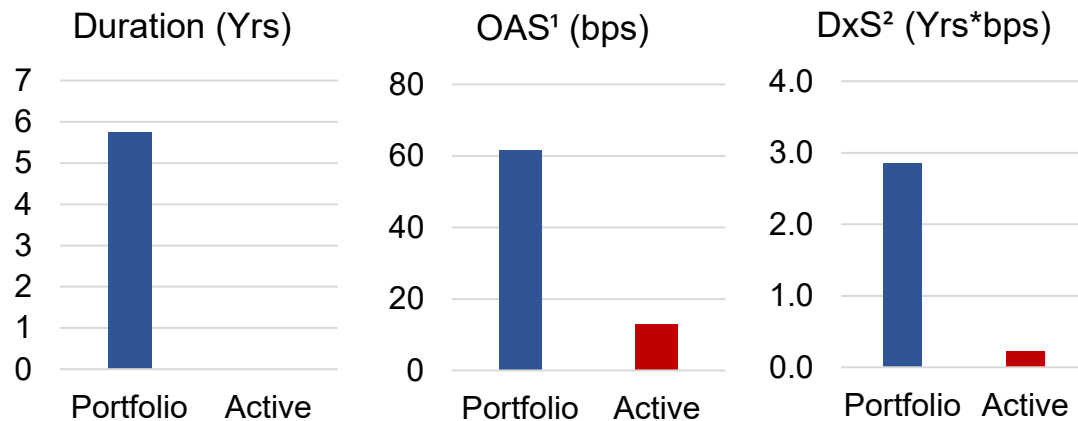
Segment Risk Statistics (Forecasted)

Forecasted Volatility	5.7%
Benchmark Volatility	5.8%
Tracking Error	0.44%

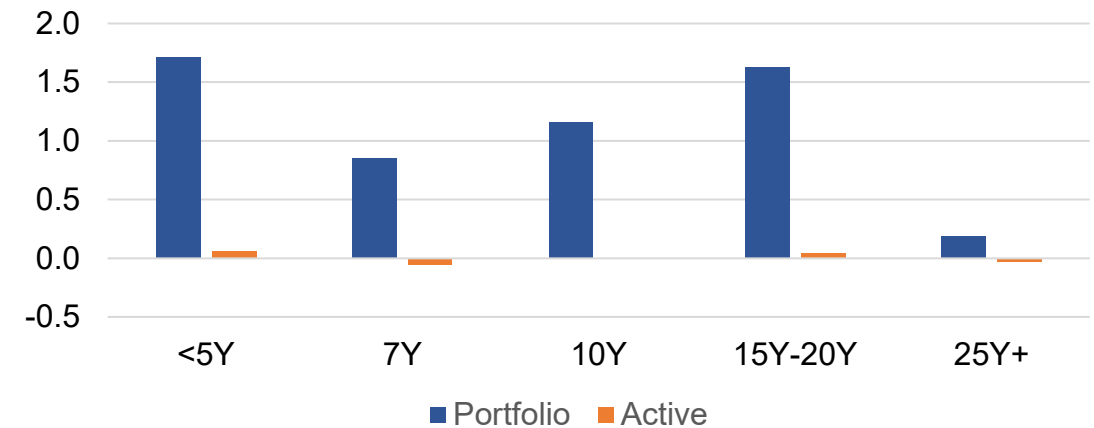
Risk Decomposition (Forecasted)

	Portfolio Risk		Active Risk	
	Contribution	% Risk	Contribution	% Risk
Total Segment Risk	5.7%	100.0%	0.44%	100.0%
US Interest Rates	3.9%	68.6%	0.05%	12.1%
Mortgage	1.4%	25.2%	0.03%	6.7%
CMBS	0.1%	2.1%	0.28%	64.5%
ABS	0.0%	0.1%	0.04%	8.7%
US Credit	0.0%	0.0%	0.00%	0.0%
Idiosyncratic	0.0%	0.0%	0.01%	2.0%
Others	0.2%	4.0%	0.03%	5.9%

Key Portfolio Characteristics



Key Interest Rate Durations

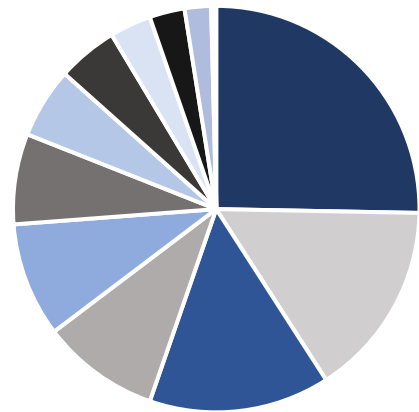


¹OAS: option adjusted spread

²DxS: spread duration multiplied by spread

Performance | IG Credit Segment

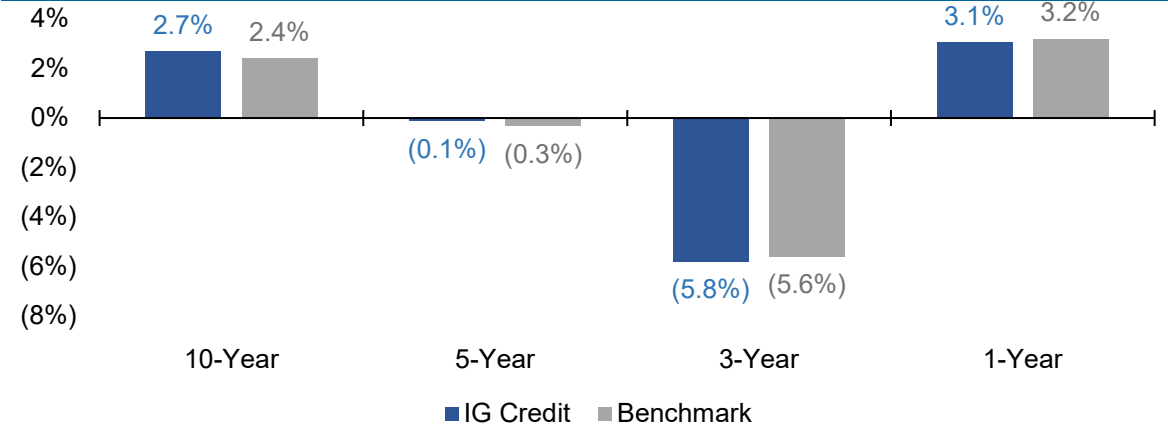
Asset Type Allocation



Total Market Exposure: \$32.1B

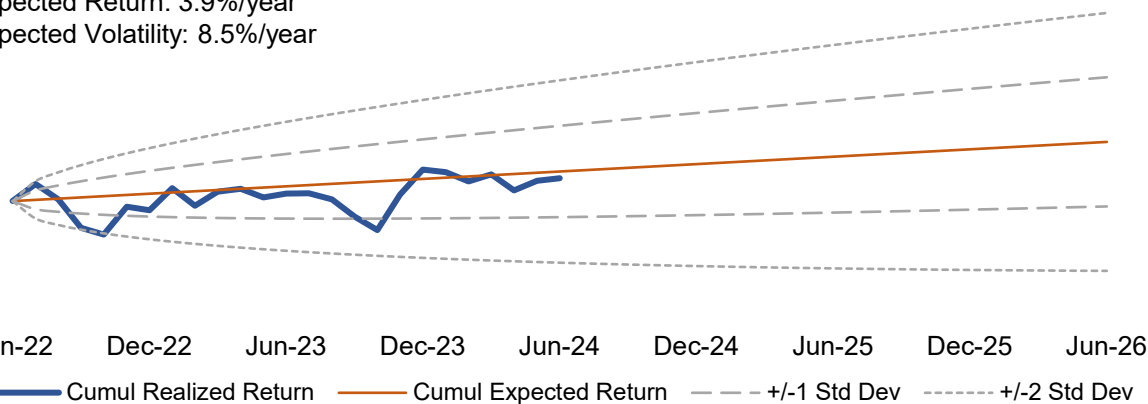
- Financial | 25.3%
- Consumer Non Cyclicals | 15.6%
- Utilities | 14.4%
- Energy | 9.4%
- Communications | 9.1%
- Technology | 7.2%
- Consumer Cyclicals | 5.6%
- Capital Goods | 4.8%
- Cash Securities/UST | 3.3%
- Transportation | 2.8%
- Basic | 2.1%
- Muni | 0.2%
- Other Industrials | 0.2%

Total Return



Cumulative Total Return vs 2021 SAA Expectations

Expected Return: 3.9%/year
 Expected Volatility: 8.5%/year



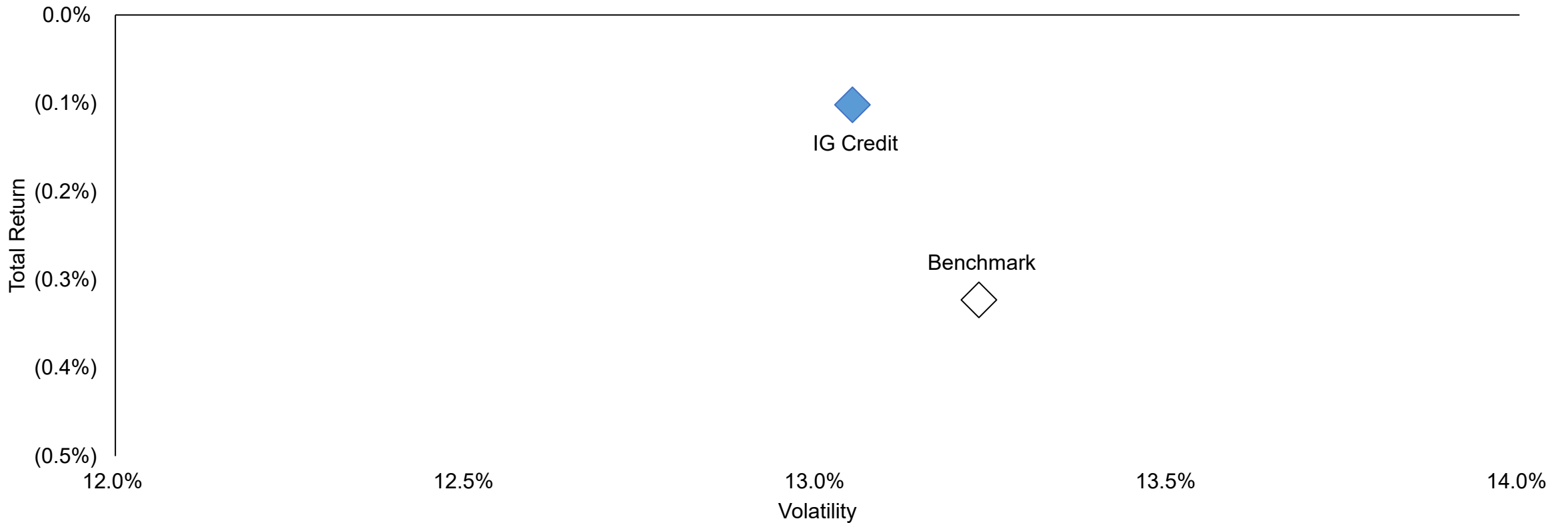
Key Metrics

Realized 10 Year Sharpe Ratio	Realized 5 Year Info Ratio	Forecasted Volatility	Forecasted Tracking Error
0.1	0.5	9.8%	28 bps

Note: All performance reported net of investment expenses and annualized unless noted otherwise. Risk measures are calculated using monthly returns.



5 Year IG Credit Segment Risk-Return



	Return	Volatility	Sharpe Ratio	Tracking Error	Information Ratio
IG Credit	(0.10%)	13.05%	(0.17)	44 bps	0.51

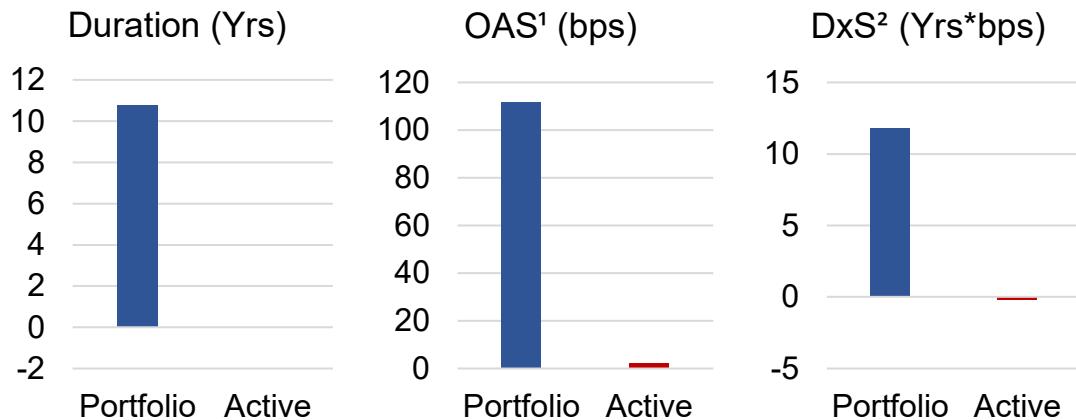
Note: All performance reported net of investment expenses and annualized. Risk measures are calculated using monthly returns.

IG Credit Segment Risk Summary

Segment Risk Statistics (Forecasted)

Forecasted Volatility	9.8%
Benchmark Volatility	9.8%
Tracking Error	0.28%

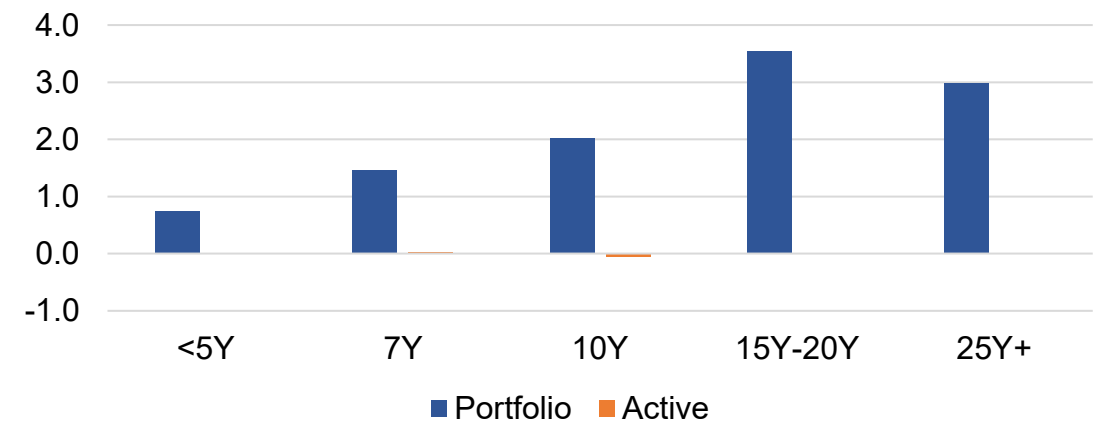
Key Portfolio Characteristics



Risk Decomposition (Forecasted)

	Portfolio Risk Contribution	% Risk	Active Risk Contribution	% Risk
Total Segment Risk	9.8%	100.0%	0.28%	100.0%
US Interest Rates	7.4%	74.9%	0.01%	1.8%
US Credit	2.4%	24.9%	0.14%	50.3%
Idiosyncratic	0.0%	0.1%	0.09%	30.6%
Others	0.0%	0.1%	0.0%	17.4%

Key Interest Rate Durations

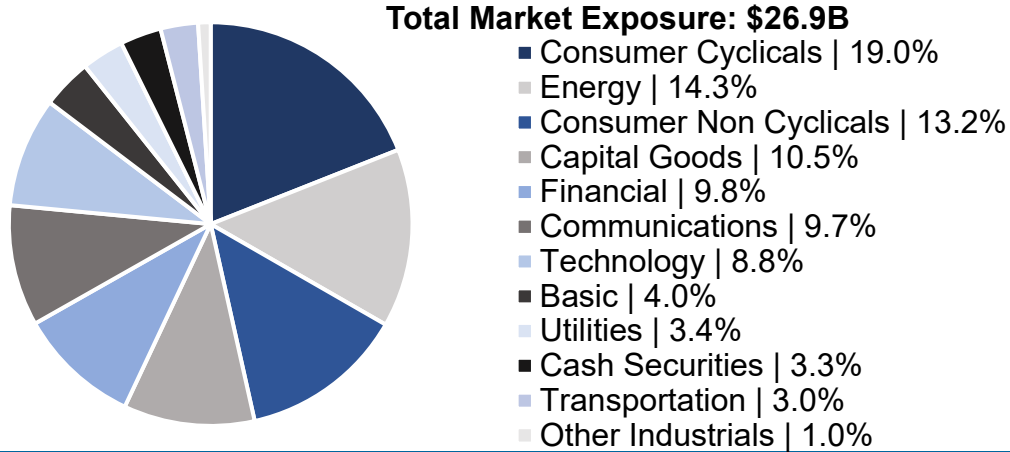


¹OAS: option adjusted spread

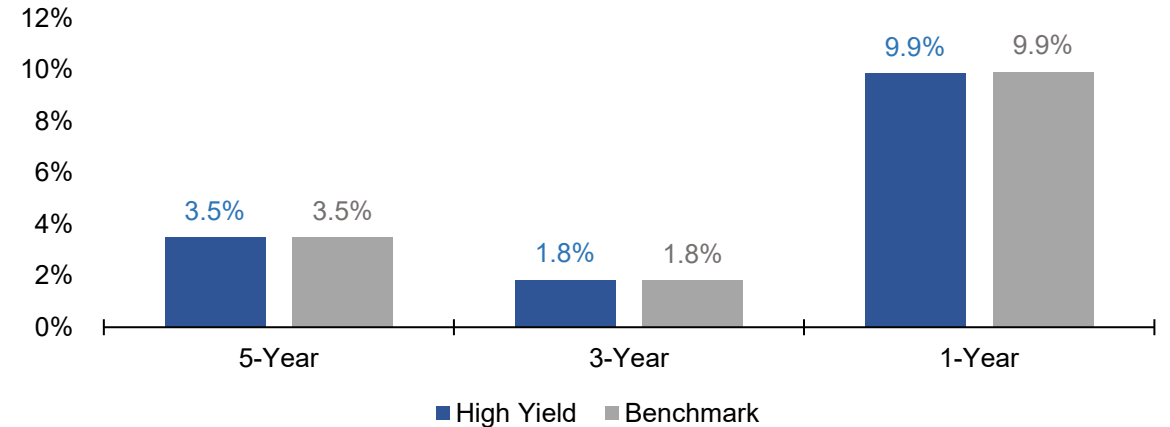
²DxS: spread duration multiplied by spread

Performance | HY Segment

Asset Type Allocation

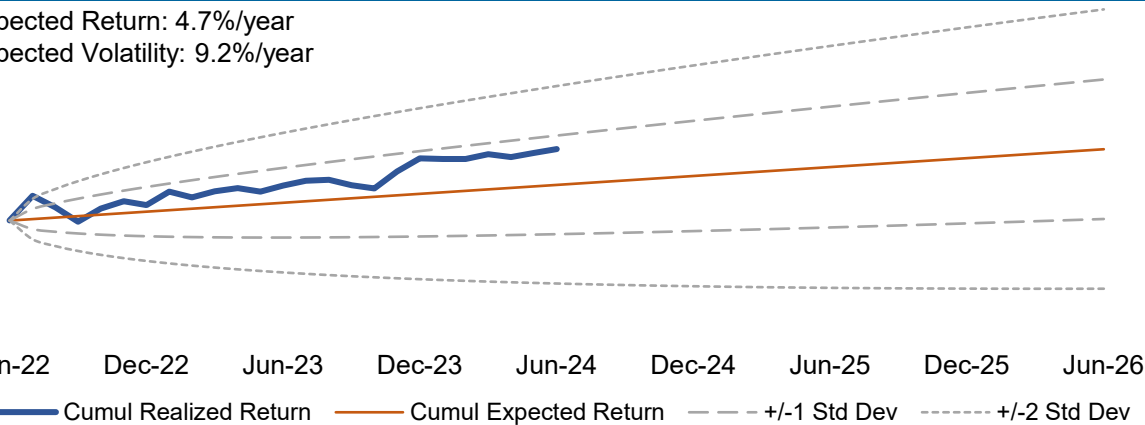


Total Return



Cumulative Total Return vs 2021 SAA Expectations

Expected Return: 4.7%/year
 Expected Volatility: 9.2%/year

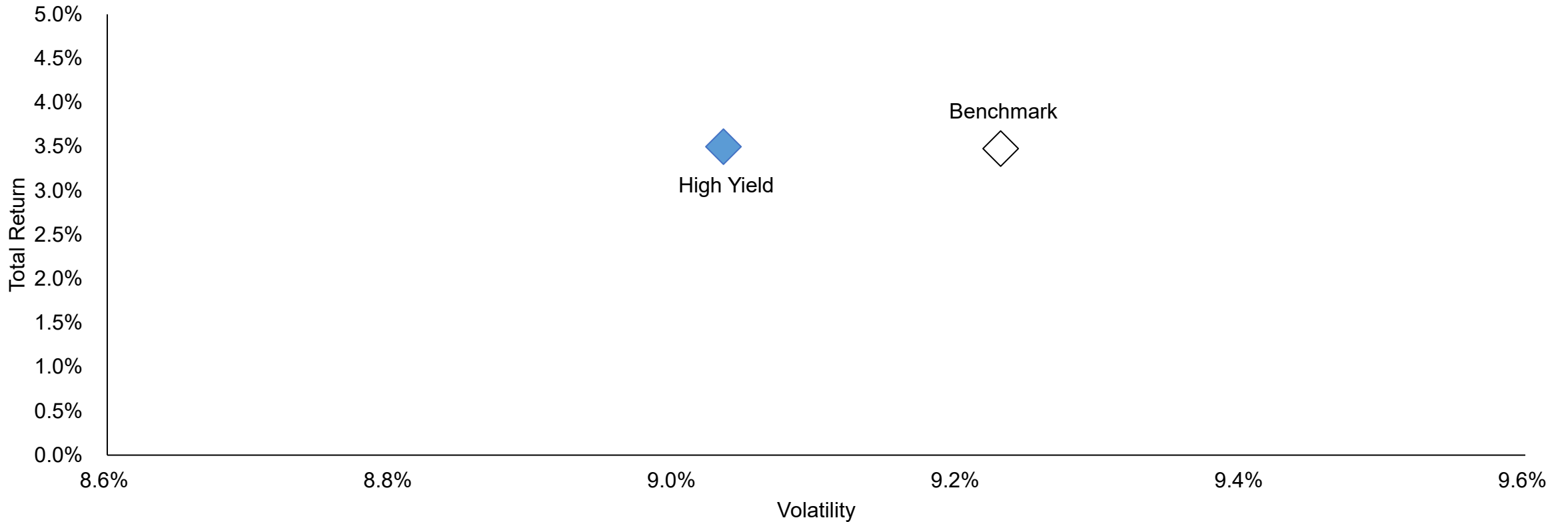


Key Metrics





5 Year HY Segment Risk-Return



	Return	Volatility	Sharpe Ratio	Tracking Error	Information Ratio
High Yield	3.50%	9.03%	0.15	29 bps	0.08

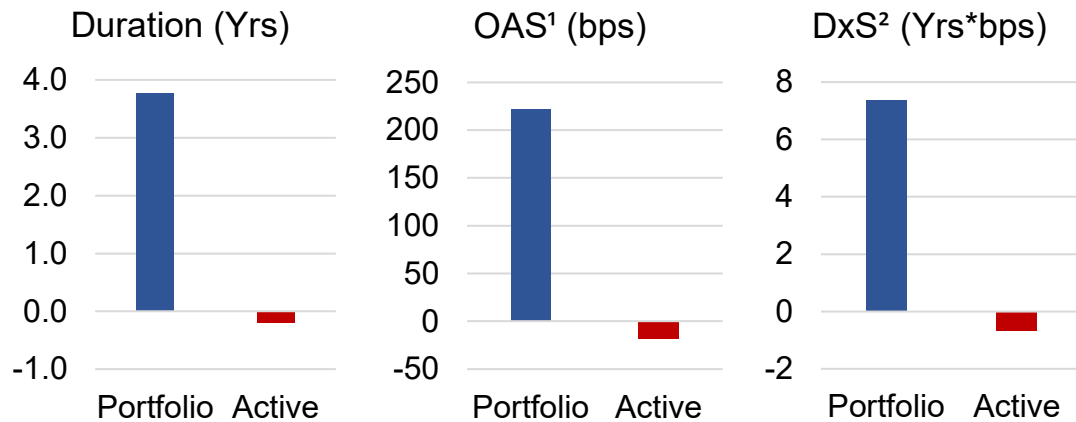
Note: All performance reported net of investment expenses and annualized. Risk measures are calculated using monthly returns.

HY Segment Risk Summary

Segment Risk Statistics (Forecasted)

Forecasted Volatility	5.1%
Benchmark Volatility	5.6%
Tracking Error	0.54%

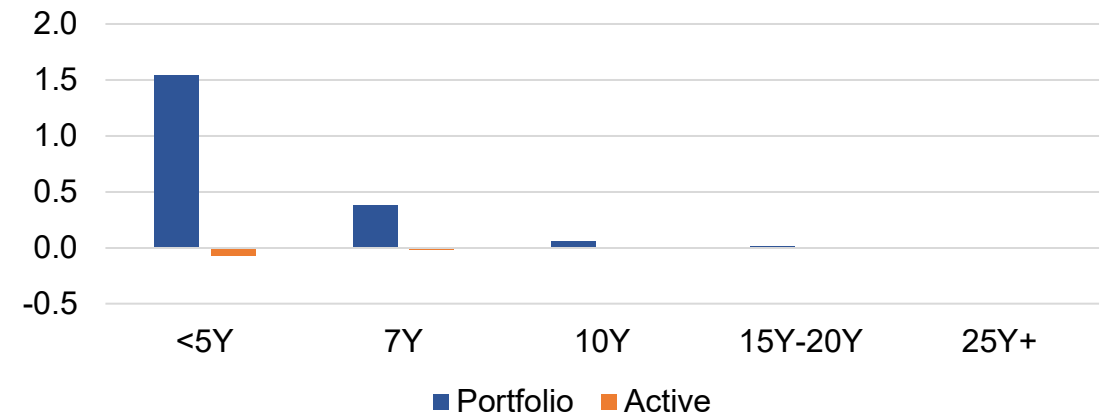
Key Portfolio Characteristics



Risk Decomposition (Forecasted)

	Portfolio Risk Contribution	% Risk	Active Risk Contribution	% Risk
Total Segment Risk	5.1%	100.0%	0.54%	100.0%
US High Yield	4.9%	96.6%	0.54%	99.9%
US Interest Rates	0.1%	1.1%	-0.02%	-4.5%
Idiosyncratic	0.0%	0.7%	0.05%	9.3%
Others	0.1%	1.6%	-0.03%	-4.6%

Key Interest Rate Durations

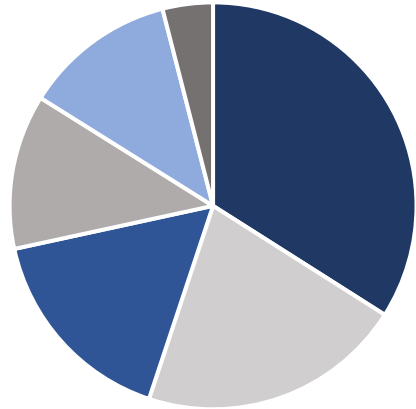


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²DxS: spread duration multiplied by spread

Performance | EM Sov Segment

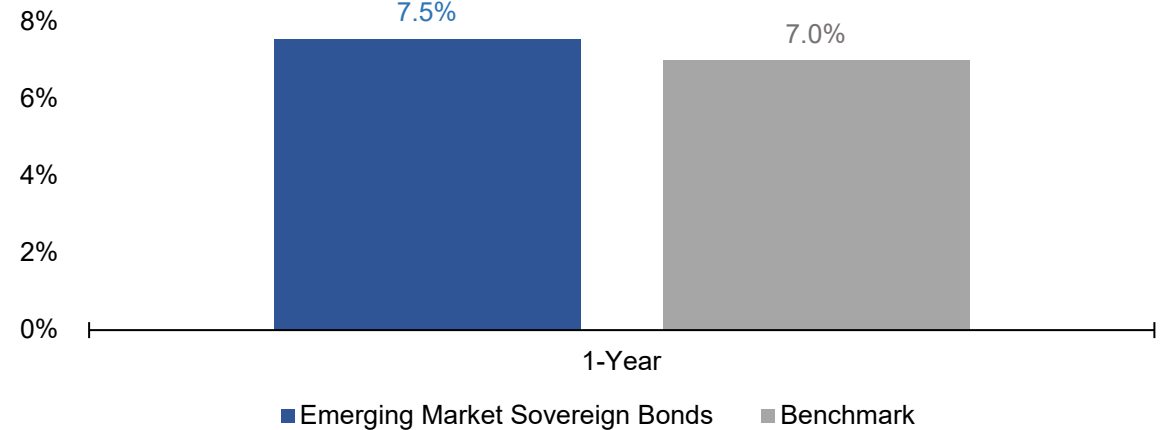
Asset Type Allocation



Total Market Exposure: \$26.7B

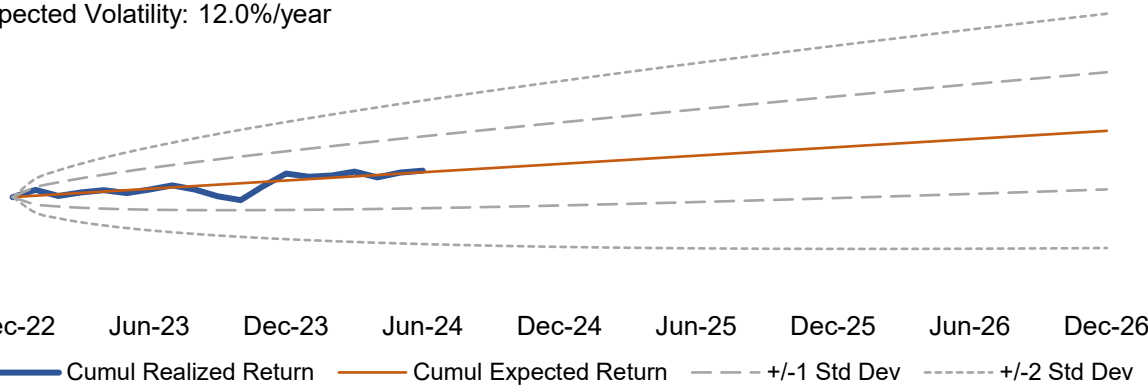
- Latin America | 34.0%
- Middle East | 21.1%
- Europe | 16.5%
- Africa | 12.3%
- Asia | 12.1%
- Cash/Futures/Treasuries/FX | 4.0%

Total Return



Cumulative Total Return vs 2021 SAA Expectations

Expected Return: 6.8%/year
Expected Volatility: 12.0%/year



Key Metrics



EM Sov Segment Risk Summary

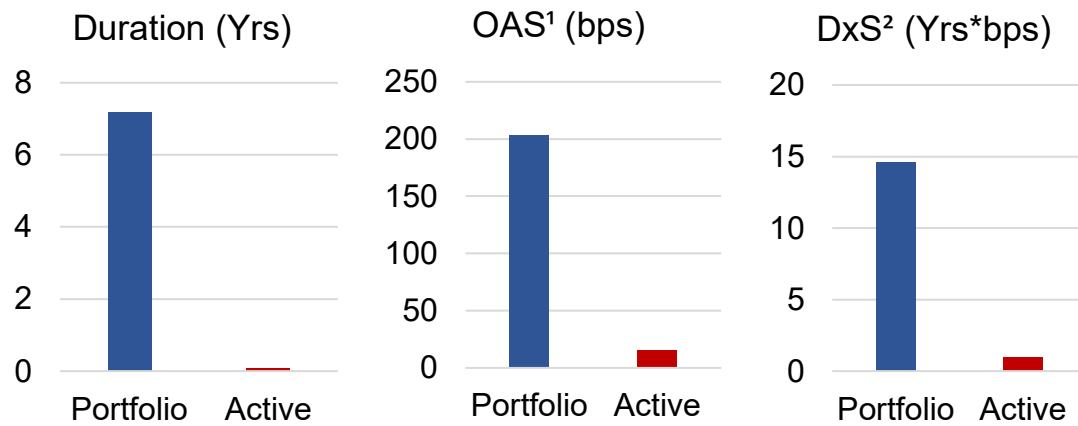
Segment Risk Statistics (Forecasted)

Forecasted Volatility	7.9%
Benchmark Volatility	7.6%
Tracking Error	0.47%

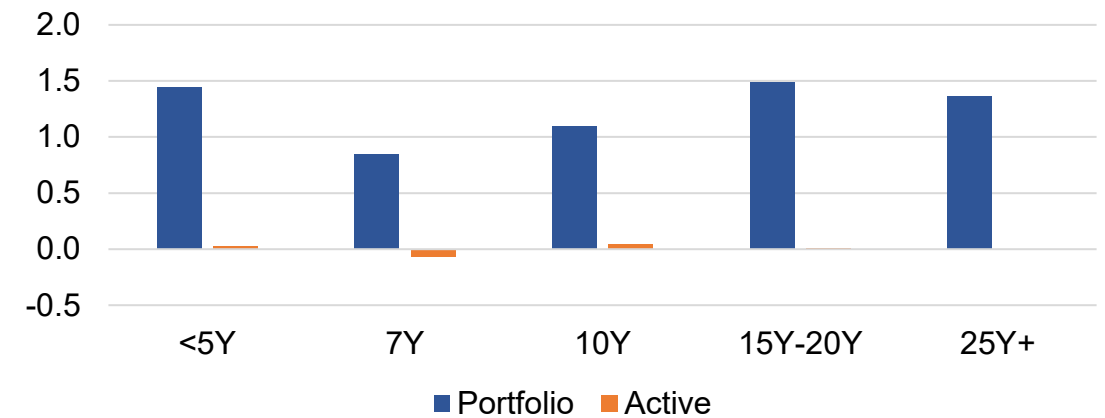
Risk Decomposition (Forecasted)

	Portfolio Risk Contribution	% Risk	Active Risk Contribution	% Risk
Total Segment Risk	7.9%	100.0%	0.47%	100.0%
EM Sovereigns	6.1%	77.2%	0.34%	70.9%
US Interest Rates	1.8%	22.6%	-0.01%	-3.0%
Idiosyncratic	0.0%	0.2%	0.14%	30.1%
Others	0.0%	0.0%	0.0%	2.0%

Key Portfolio Characteristics



Key Interest Rate Durations

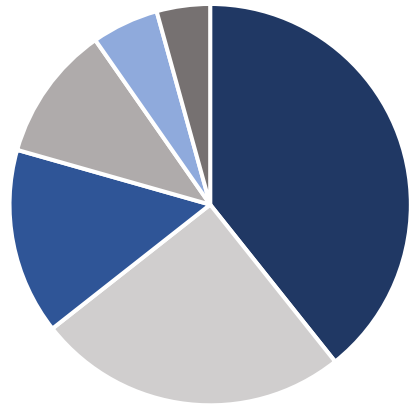


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Performance | CalPERS STIF

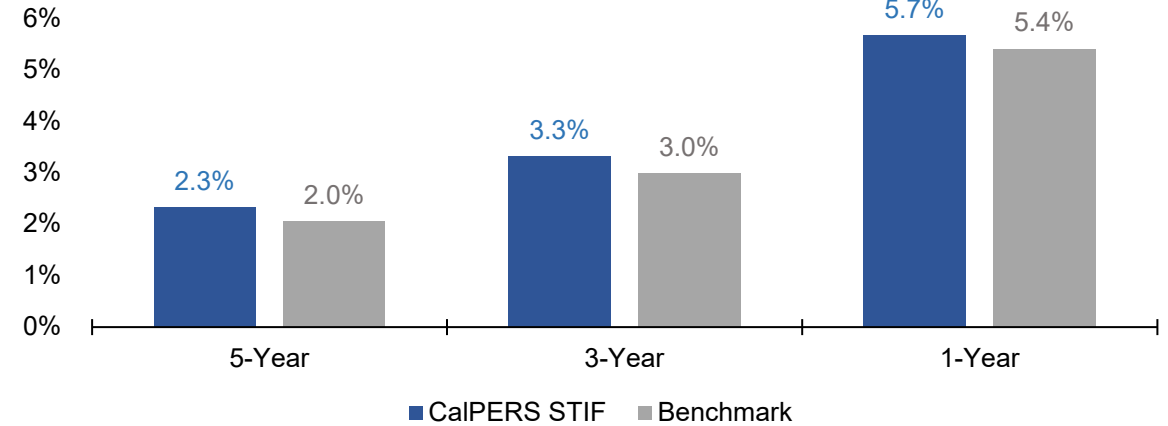
Asset Type Allocation



Total Market Exposure: \$16.8B

- SSgA STIF | 39.3%
- Repo | 25.1%
- Time Deposit | 15.0%
- CD A1/P1 | 10.9%
- CP A1/P1 | 5.4%
- Foreign Bills | 4.3%

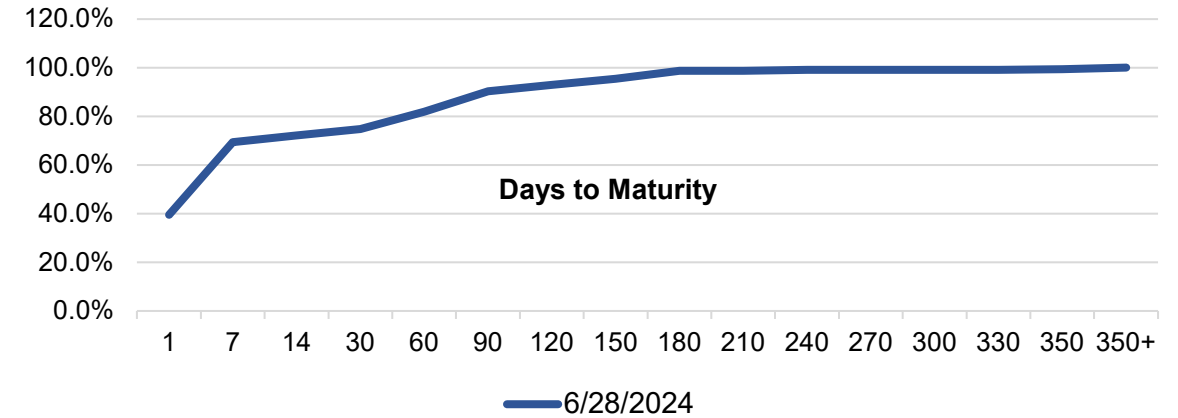
Total Return



Portfolio Characteristics

Weighted Ave Days to Maturity (2A7)	12.25
Weighted Ave Life (2A7)	24.61
Overnight Liquidity	39.4%
7 Day Liquidity	69.2%
30 Day Liquidity	74.5%
Net Yield	5.45%

Maturity Schedule



Note: All performance reported net of investment expenses and annualized unless noted otherwise. Risk measures are calculated using monthly returns.



Business Updates and Key Initiatives | Evaluation

What Worked



- Made an allocation to the Tactical Fixed Income portfolio in Q4 of 2023 which has added ~115 bps of cumulative outperformance resulting in ~\$31 million in active dollar value added since trade inception
- Implemented the Strategic Asset Allocation mid-cycle adjustments that resulted in approximately \$20 billion of allocation changes across the five GFI Segments
- In collaboration with the Liquidity Management Group, re-designed Treasury segment portfolio architecture to increase Total Fund collateral availability, reduce operational risk, enhance transparency, and improve portfolio management efficiency
- Continued the value add efforts by moving 90% of the High Yield Segment from Internally-Managed Passive Mandate to Externally-Managed Active Mandate
- Hired four Investment Managers on the Investment Grade Credit and Structured Products teams

Areas for Refinement



- Continue to explore additional value-add products and mandates in all areas of GFI
- Improve Data and Tech Capabilities
- Continue to collaborate with the Liquidity Management Group to optimize reliability and cost of Total Fund leverage implementation across GFI segment portfolios
- Continue to collaborate with the Sustainable Investments team to assess and evaluate investment opportunities to support the CalPERS Sustainable Investments 2030 goals to provide portfolio resilience and climate-related alpha opportunities



Key Initiatives | Fiscal Year 2024-25

- Conduct due diligence on potential external manager relationships/contracts in the Investment Grade Credit, Mortgage-Backed Securities, and Emerging Markets Sovereign Bonds Segments to improve portfolio allocation options and increase knowledge transfer
- Continue to leverage our existing External Partners to increase alpha potential and knowledge transfer
- Continue ongoing evaluation of opportunistic fixed income allocation options
- Collaborate with other asset class teams in supporting the Capital Markets and Total Fund Technology Modernization
- Collaborate with the Sustainable Investments team to help meet the CalPERS Sustainable Investments 2030 goals to provide portfolio resilience and climate-related alpha opportunities



Key Initiatives | Integration of Governance and Sustainability

Sustainable Investment Activities	Description / Status
EM Sov Segment	<ul style="list-style-type: none"> Participated, when offered, in benchmark sustainable and ESG bond new issuance provided reasonable valuation (Status: Ongoing). Leveraged our relationship with our EM Sov external managers to learn about their ESG and sustainability portfolio framework (Status: Ongoing). Sourced ESG & World Bank Governance Indicator data at country level to determine active ESG contribution on country and portfolio levels. Developed an in-house country-level ESG scoring system model for benchmark countries (Status: Ongoing). Participated on Credit Roundtable ESG committee, training/conferences that address the topics of EM ESG and sustainability investing (Status: As available)
IG Credit & HY Segments	<ul style="list-style-type: none"> Invested in select new issues of green, sustainability and sustainability-linked bonds (Status: Ongoing) Utilized internal ESG risk screen based on rating agency scores (Status: Ongoing) Collaborated with Corporate Governance on engagements in the energy sector (Status: As applicable) Distributed ESG questionnaire to external high yield managers for review (Status: Ongoing) Worked with Sustainable Investments to evaluate several 3rd party ESG analytics services (Status: Ongoing)
MBS Segment	<ul style="list-style-type: none"> Continued collaboration with Sustainable Investments team to highlight developments, trends and opportunities in environmental, social and governance related investment themes across securitized sectors (Status: Ongoing)