



COMPTROLLER'S INVESTMENT ADVISORY BOARD

ENDOWMENT PORTFOLIO REVIEW

Q⁴
2023



MEETING DATE: APRIL 16, 2024

Presented by Anca Ion, CIO

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Asset Allocation Summary¹

As of December 31, 2023

Asset Class	Strategy	Number of Funds ^{2,3}	Number of Managers ^{2,3}	Current Market Value	Weight	Long-Term Target	Policy Range
Fixed Income		79	46	\$1,721,289,856	31.3%	34.0%	20-50%
	Global Fixed Income (ex-cash)	5	3	503,931,393	9.2%	9.0%	
	Alternative Fixed Income	14	14	707,334,259	12.9%	15.0%	
	Private Debt	60	31	510,024,205	9.3%	10.0%	
Equity		134	58	\$2,770,522,099	50.5%	50.0%	35-65%
	Global Public Equity	8	8	1,010,398,537	18.4%	20.0%	
	Hedged Equity	10	9	776,858,167	14.1%	15.0%	
	Private Equity	116	43	983,265,395	17.9%	15.0%	
Real Assets		69	29	\$897,909,829	16.4%	15.0%	5-25%
	Stable Value Real Estate	23	12	534,310,651	9.7%	7.5%	
	Enhanced Real Estate	46	19	363,599,178	6.6%	7.5%	
Strategic All Asset & Overlays		12	12	\$348,555,144	6.3%	0.0%	0-15%
	All Asset Strategies	4	4	57,041,684	1.0%	0.0%	
	Overlays	8	8	291,513,460	5.3%	0.0%	
Subtotal (ex-Offset, ex-Cash)		294	135	\$5,738,276,929	104.5%	99.0%	
	Cash	2	2	440,406,286	8.0%	1.0%	
	Overlay Offset	-	-	-687,814,635	-12.5%	0.0%	
Total Portfolio		296	135	\$5,490,868,580	100.0%	100.0%	

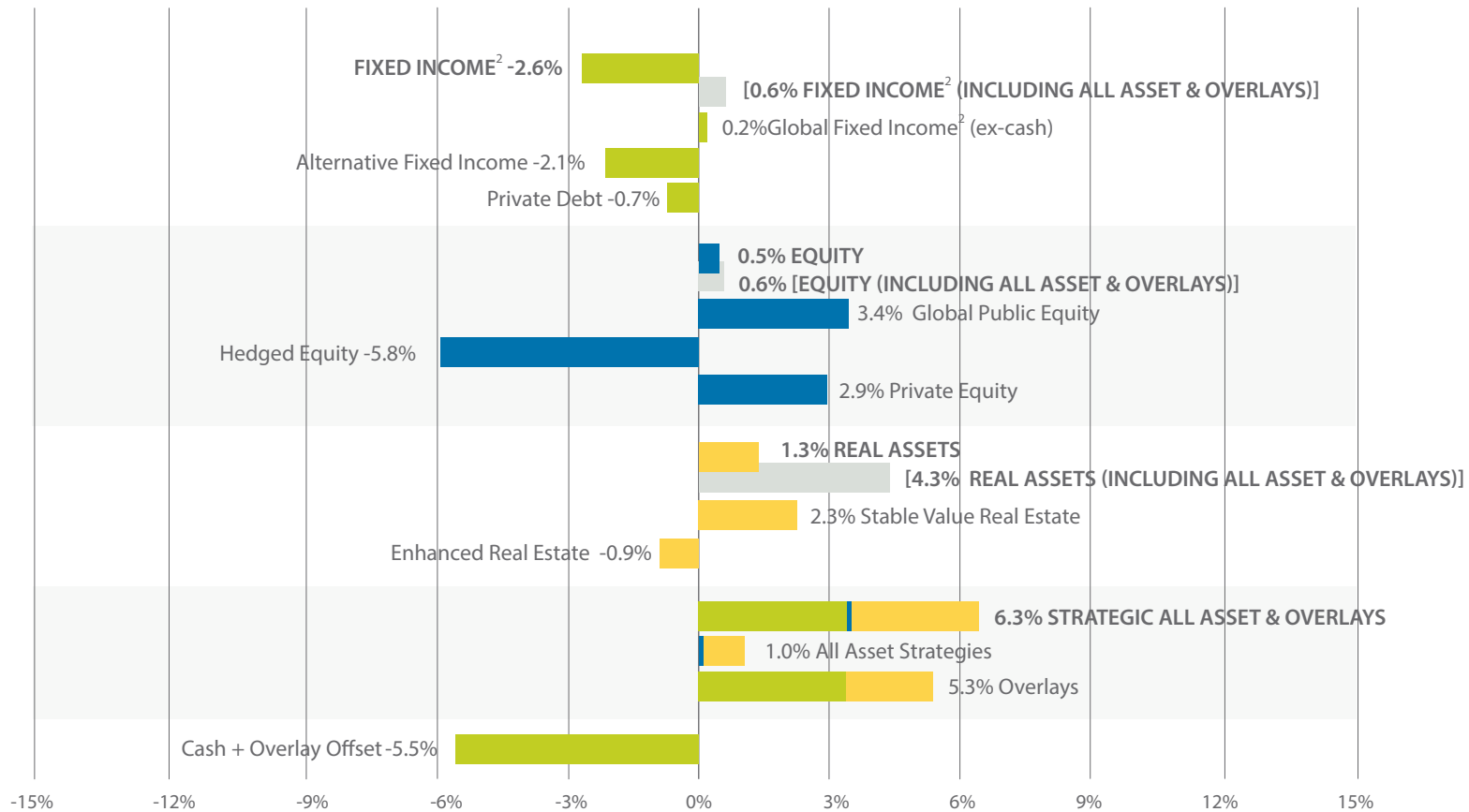
¹ Derivative exposures are reported at notional value in the global equity and global fixed portfolios. This requires an equal-sized offset, which is reported as a negative market value.

² Does not include funds in wind down or redemption.

³ Manager count for aggregates are less than sum of components due to managers with multiple strategy allocations.

Actual vs. Target Allocations¹

As of December 31, 2023

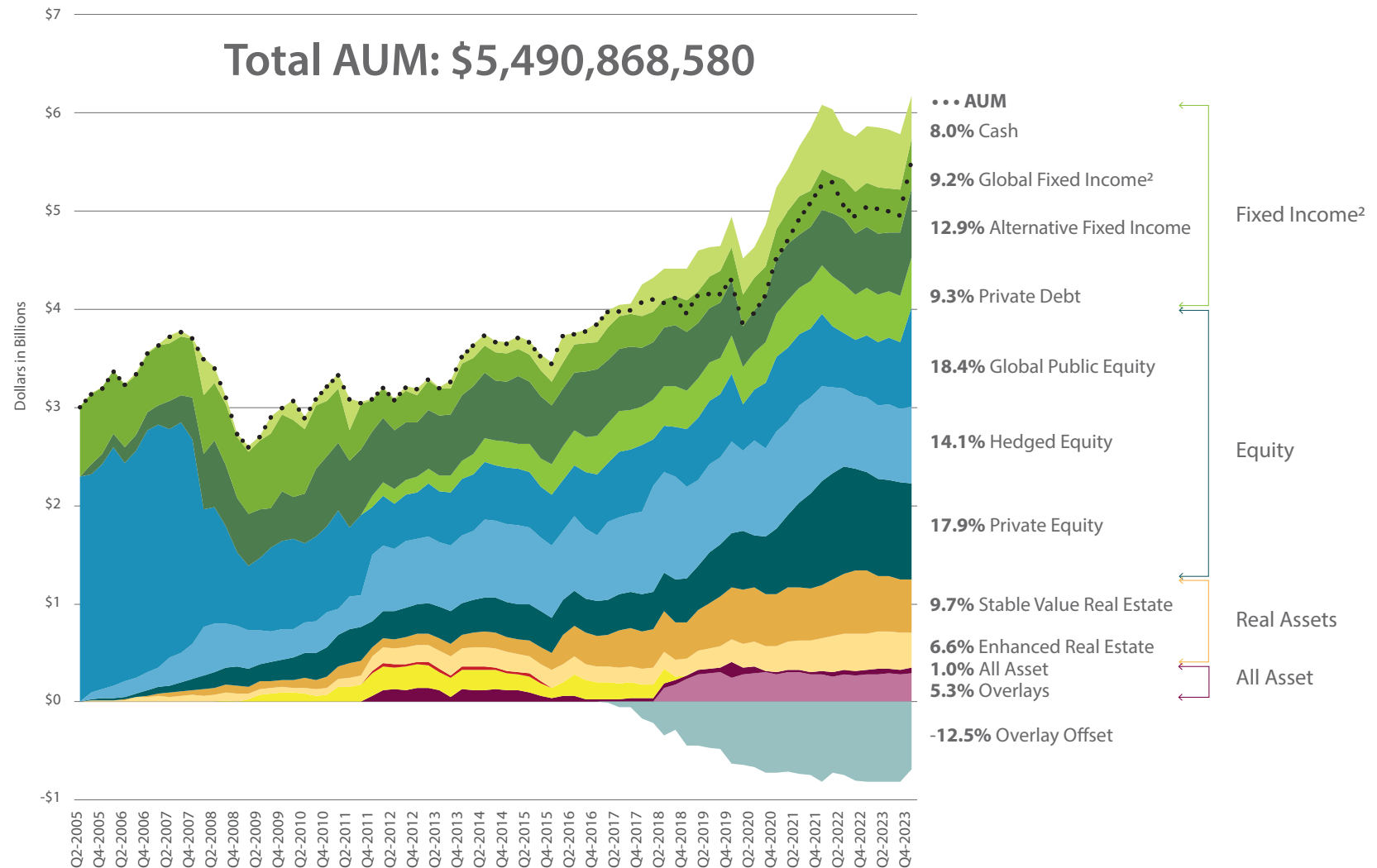


¹ Derivative exposures are reported at notional value in the global equity and global fixed portfolios. This requires an equal-sized offset, which is reported as a negative market value. Cash + Overlay Offset is comprised of the sum of physical cash balance and this derivatives offset.

² Reported excluding Cash and Overlay Offset.

Asset Allocation Evolution¹

As of December 31, 2023

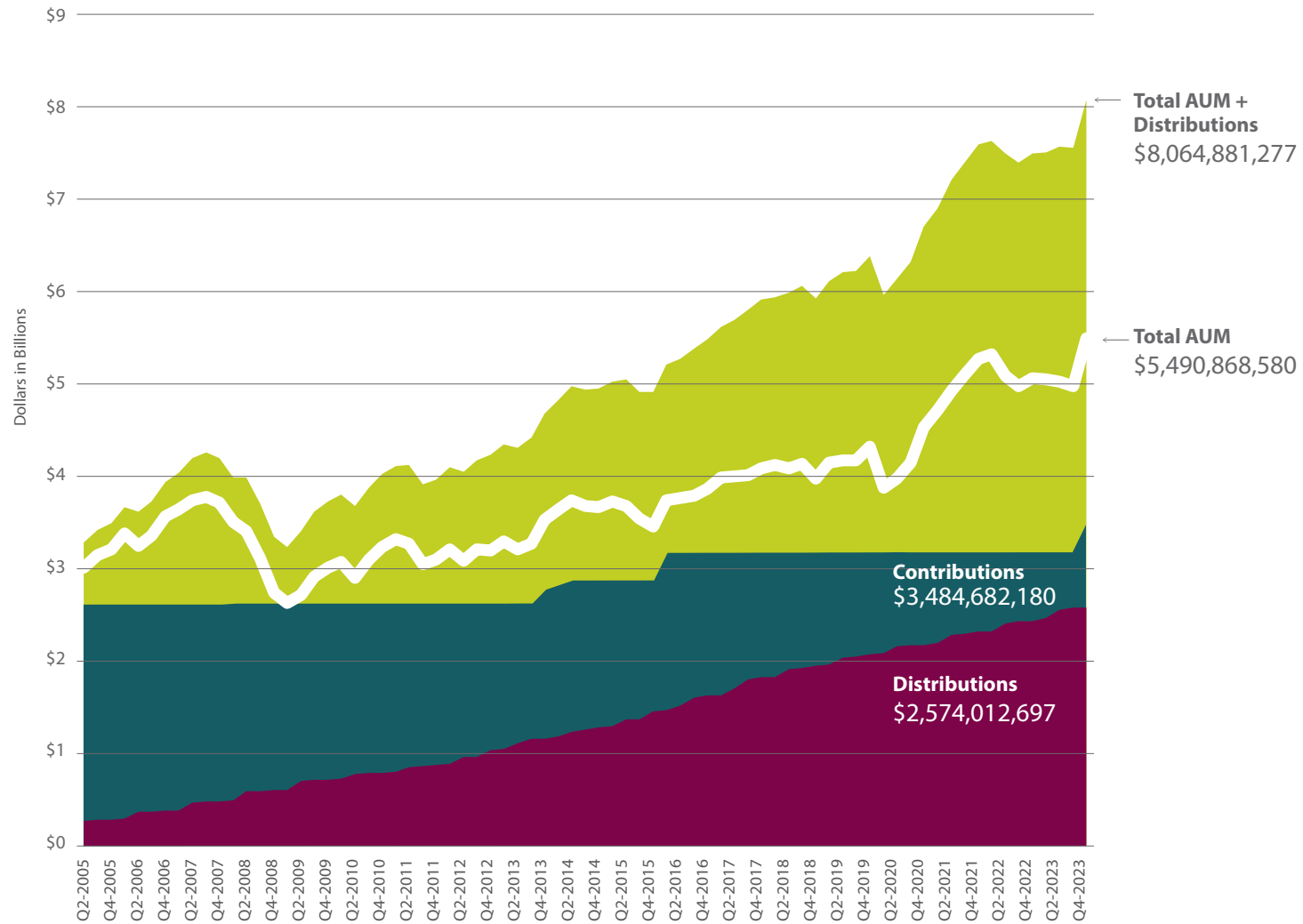


¹ Derivative exposures are reported at notional value in the global public equity and global fixed income portfolios. This requires an equal-sized offset, which is reported as a negative market value. Cash allocations are included in the sum of exposures, but are excluded in leverage calculations, as they have no economic exposure.

² Excludes Derivatives Offset.

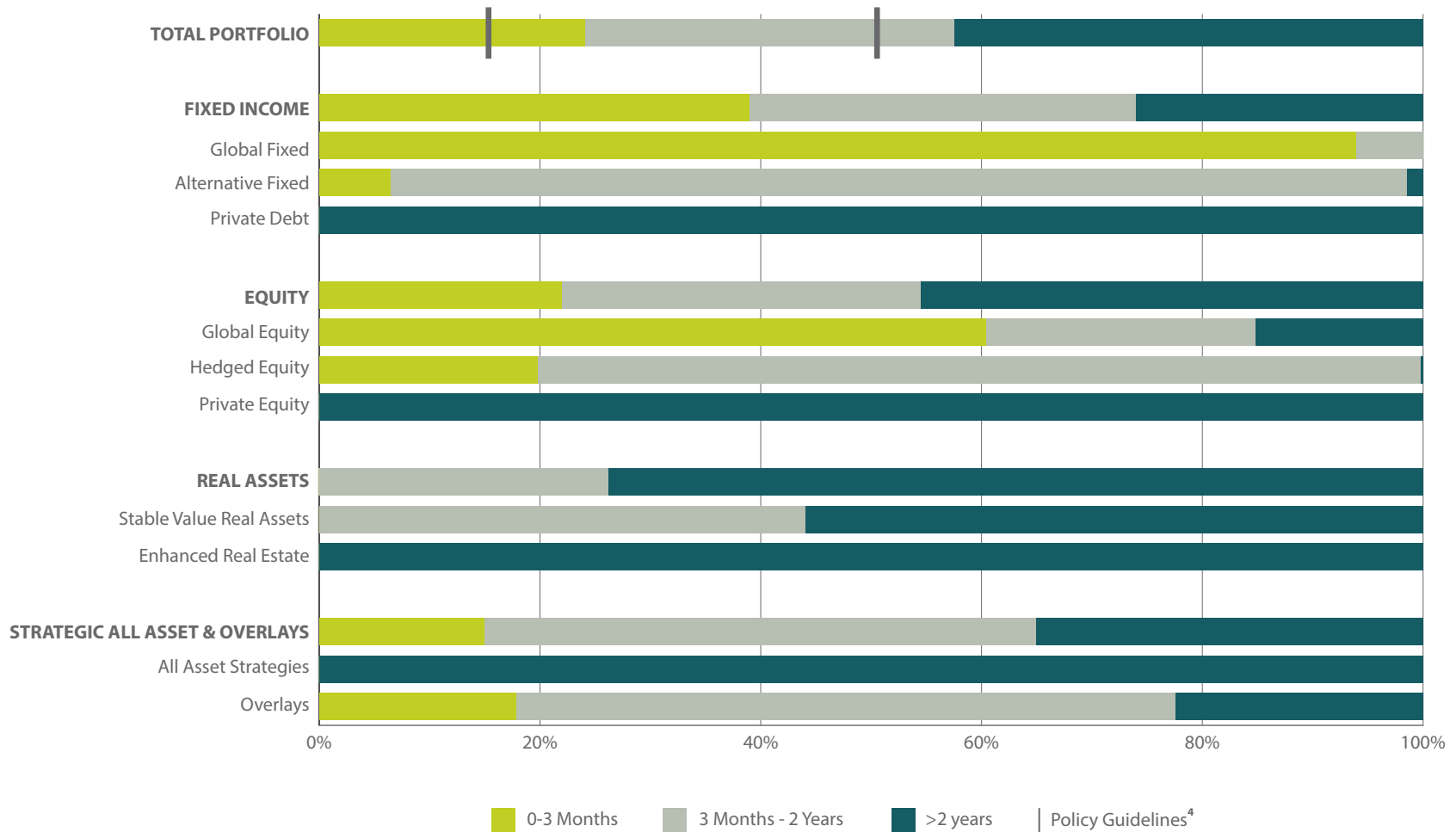
Contributions & Distributions

As of December 31, 2023



Portfolio Liquidity^{1,2,3,4}

As of December 31, 2023



¹ Projected liquidity takes hard lock, notice and payout periods into consideration.

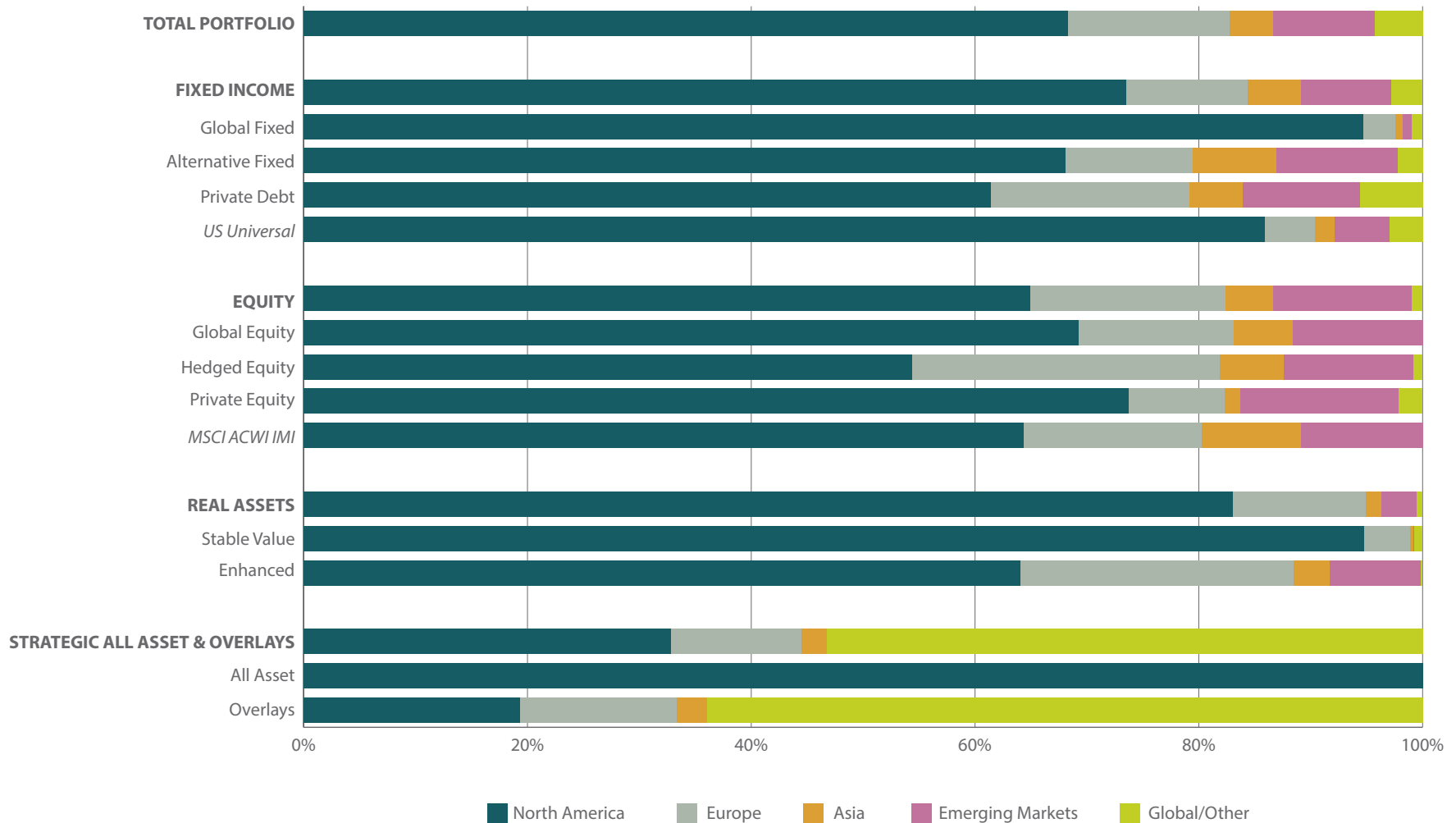
² Physical cash is included in the global fixed bucket. Notional derivative exposures are not included.

³ Liquidity data as provided by managers.

⁴ Policy Guidelines: Minimum of 15% in 0-3 months and minimum of 50% in less than 2 years.

Portfolio Geographic Allocation^{1,2,3}

As of December 31, 2023



¹ Calculated using gross exposures.

² Excludes State Street Money Market Fund, margin cash, and cash held by managers.

³ Geographic allocation reflects the domicile of the issuer and does not indicate the currency of the instrument.

Fixed Income Summary

As of December 31, 2023

Strategy	Market Value	Portfolio Weight	Standard Deviation ¹	Sharpe Ratio ¹	% Positive Months ¹	US Universal		HFRI Conservative		MSCI ACWI IMI	
						Beta ¹	Correlation ¹	Beta ¹	Correlation ¹	Beta ¹	Correlation ¹
Global Fixed Income (ex-cash)	\$503,931,393	9.2%	6.7%	-0.7	41.7%	0.9	1.0	0.9	0.3	0.3	0.8
Global Fixed Managers	271,361,573	4.9%	6.0%	0.7	63.9%	0.5	0.7	1.8	0.7	0.3	0.8
Global Fixed Derivatives	232,569,820	4.2%	7.2%	-0.8	36.1%	1.0	1.0	0.8	0.2	0.3	0.7
<i>US Universal</i>			7.2%	-0.7	38.9%	-	-	0.9	0.3	0.3	0.8
Alternative Fixed Income	\$707,334,259	12.9%	6.2%	1.1	72.2%	-0.2	-0.2	1.4	0.5	0.0	0.1
Event Driven	260,840,527	4.8%	7.9%	0.4	61.1%	0.5	0.4	2.8	0.8	0.3	0.6
<i>HFRI Event Driven (Total) Index</i>			6.6%	0.5	61.1%	0.5	0.5	2.4	0.9	0.3	0.8
Relative Value	295,908,118	5.4%	13.0%	1.2	77.8%	-0.4	-0.2	1.1	0.2	0.0	0.1
<i>HFRI Relative Value (Total) Index</i>			2.8%	0.9	77.8%	0.2	0.5	1.0	0.8	0.1	0.7
Tactical Trading	150,252,652	2.7%	10.4%	0.4	61.1%	-1.0	-0.7	-0.1	0.0	-0.3	-0.5
<i>HFRI Macro (Total) Index</i>			5.1%	0.6	63.9%	-0.3	-0.5	1.0	0.5	0.0	-0.1
Fund of Funds	332,962	0.0%	-	-	-	-	-	-	-	-	-
<i>HFRI FoF: Conservative</i>			2.3%	1.0	72.2%	0.1	0.3	-	-	0.1	0.6
Private Debt	\$510,024,205	9.3%	-	-	-	-	-	-	-	-	-
Cash + Overlay Offset	-\$247,408,349	-4.5%	-	-	-	-	-	-	-	-	-
Cash (Physical)	440,406,286	8.0%	-	-	-	-	-	-	-	-	-
Overlay Offset	-687,814,635	-12.5%	-	-	-	-	-	-	-	-	-
Total Fixed Income	\$1,473,881,507	26.8%	3.6%	1.4	77.8%	0.2	0.5	1.1	0.7	0.1	0.6

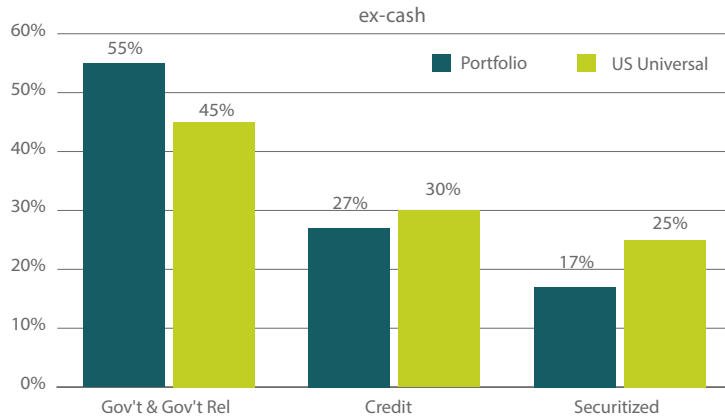
¹Trailing 36 months.

Fixed Income Detail

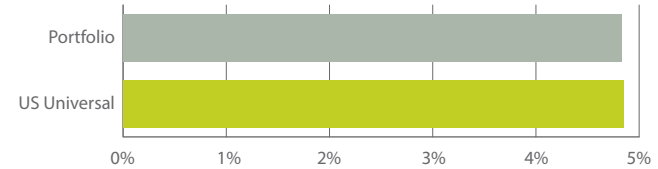
As of December 31, 2023

Global Fixed

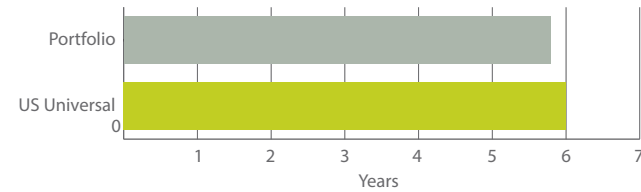
Sector Allocation¹



Yield

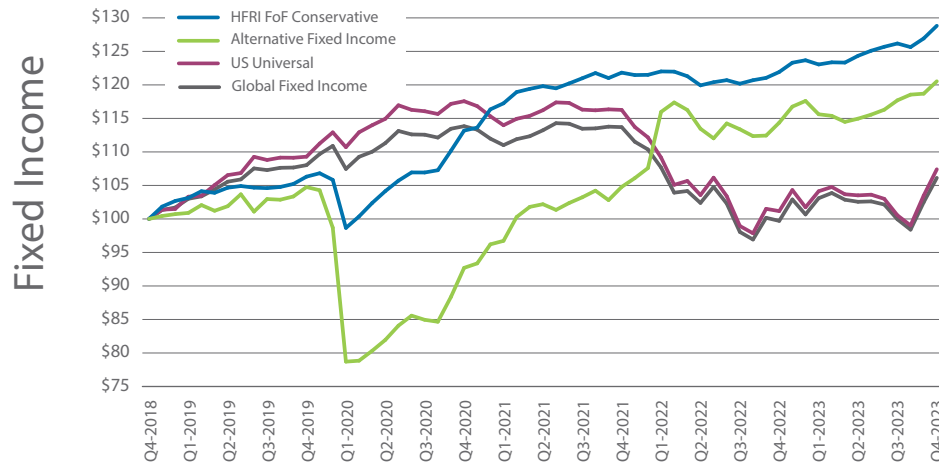


Duration



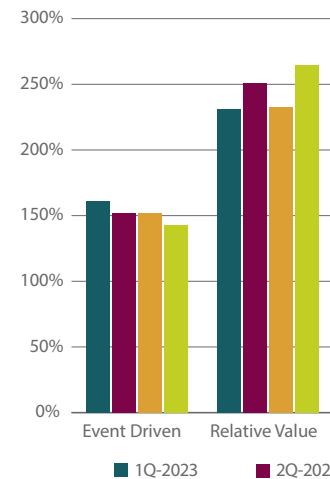
¹ Calculated using gross exposures.

Growth of \$100¹

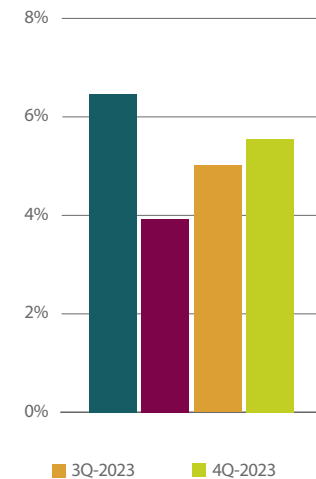


¹ Trailing 5 year.

Gross Exposure by Strategy



VaR of Tactical Trading Strategy¹



¹ One month 95% confidence extrapolated ex-ante VaR provided by the managers.

Private Debt Detail

As of December 31, 2023

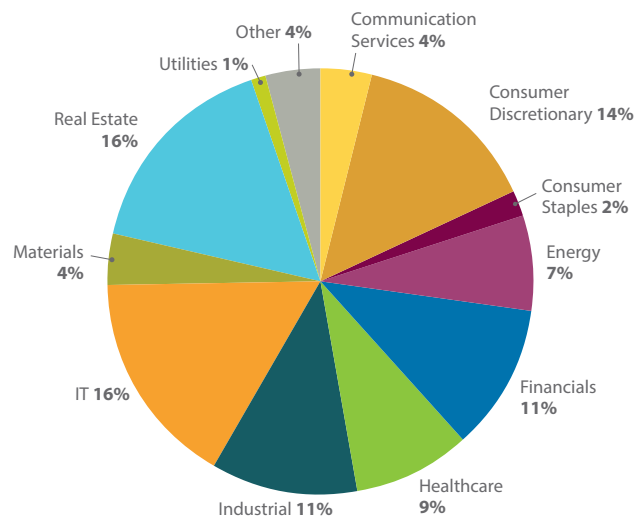
Strategy	Number of Current Fund Commitments	Portfolio Weight	Commitments	Unfunded Commitments	Total Contributions ¹	Distributions	Remaining Value ²	Total Value
Performing	26	4.8%	\$665,175,715	\$215,276,823	\$653,296,364	\$523,454,728	\$263,036,421	\$786,491,149
Distressed	34	4.5%	808,494,870	231,990,342	731,280,478	704,392,594	246,987,783	951,380,377
Total Private Debt	60	9.3%	\$1,473,670,585	\$447,267,165	\$1,384,576,842	\$1,227,847,322	\$510,024,205	\$1,737,871,527

¹Total Contributions include fees and expenses that may not reduce or lower unfunded commitment.

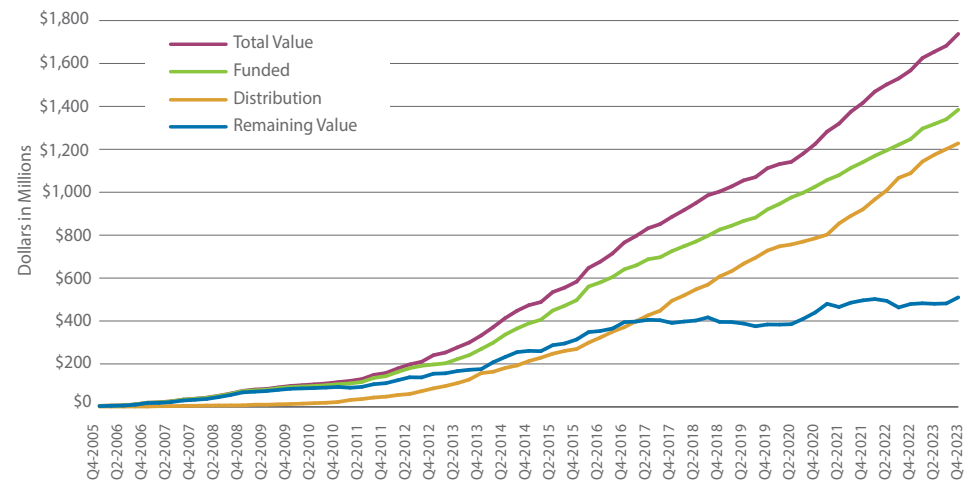
²Remaining Value is equal to the last actual reported capital account value plus subsequent capital calls less subsequent distributions through the indicated date, with no valuation changes.

Strategy	Distributed/Paid In (DPI)	Total Value/Paid In (TVPI)	1 Year IRR	ITD IRR	Time Weighted Returns		
					1 Year	3 Year	5 Year
Performing	0.80	1.20	6.4%	8.5%	6.4%	8.4%	8.3%
Distressed	0.96	1.30	7.3%	7.7%	7.3%	13.4%	7.2%
Total Private Debt	0.89	1.26	6.8%	8.0%	6.8%	11.1%	7.5%
<i>Private Debt Blend</i>					9.9%	14.3%	10.3%

Sector Allocation



Cash Flow & Valuation History



Equity Summary

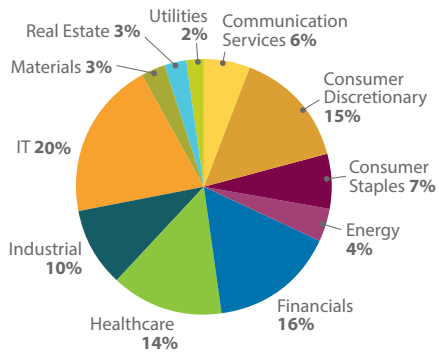
As of December 31, 2023

Strategy	Market Value	Portfolio Weight	Standard Deviation ¹	Sharpe Ratio ¹	% Positive Months ¹	MSCI ACWI IMI		HFRI Strategic	
						Beta ¹	Correlation ¹	Beta ¹	Correlation ¹
Global Equity	\$1,010,398,537	18.4%	15.7%	0.1	55.6%	0.9	1.0	1.9	0.9
Global Equity Managers	512,629,007	9.3%	16.6%	-0.2	47.2%	0.8	0.8	1.8	0.8
Global Equity Derivatives	497,769,529	9.1%	16.6%	0.2	58.3%	1.0	1.0	1.9	0.8
<i>MSCI ACWI IMI</i>			16.6%	0.2	58.3%	-	-	1.9	0.8
Hedged Equity	\$776,858,167	14.1%	9.4%	0.0	55.6%	0.5	0.8	1.2	0.9
<i>HFRI FoF: Strategic</i>			7.2%	-0.2	50.0%	0.4	0.8	-	-
Private Equity	\$983,265,395	17.9%	-	-	-	-	-	-	-
Total Equity	\$2,770,522,099	50.5%	7.8%	0.6	58.3%	0.4	0.9	1.0	0.9

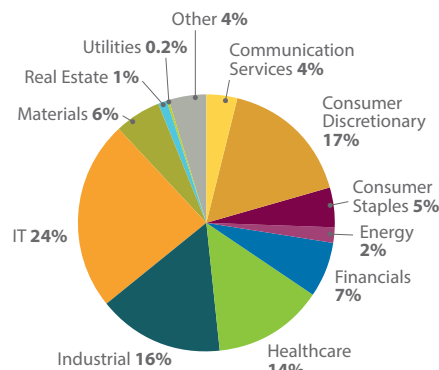
¹ Trailing 36 months.

Sector Allocation¹

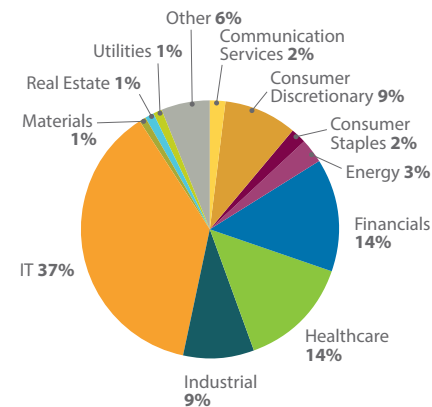
Global Equity



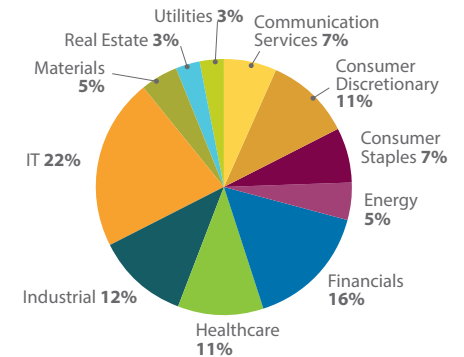
Hedged Equity



Private Equity



MSCI ACWI IMI

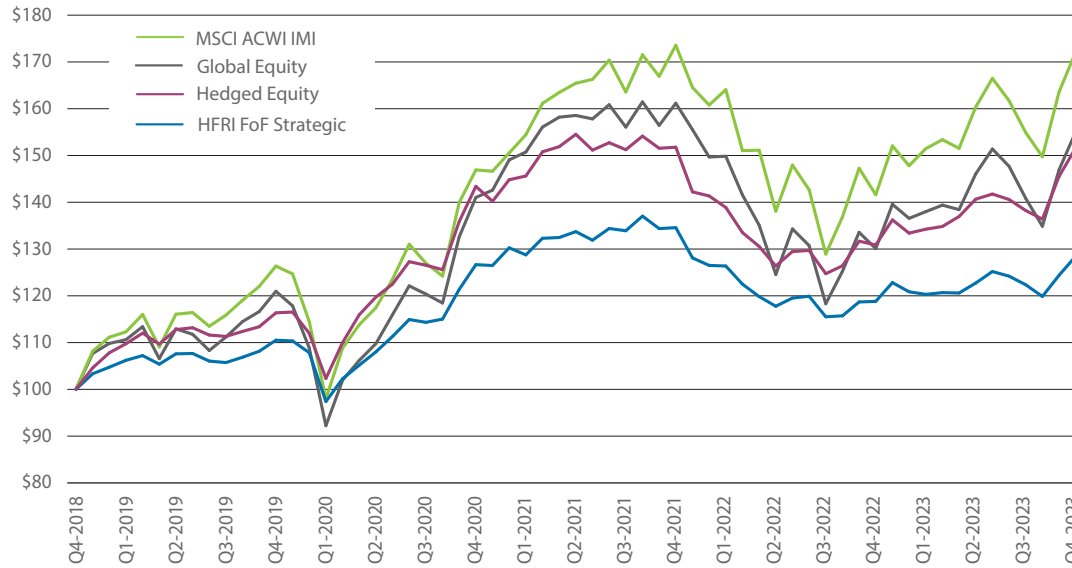


¹ Calculated using gross exposures.

Public Equity Detail

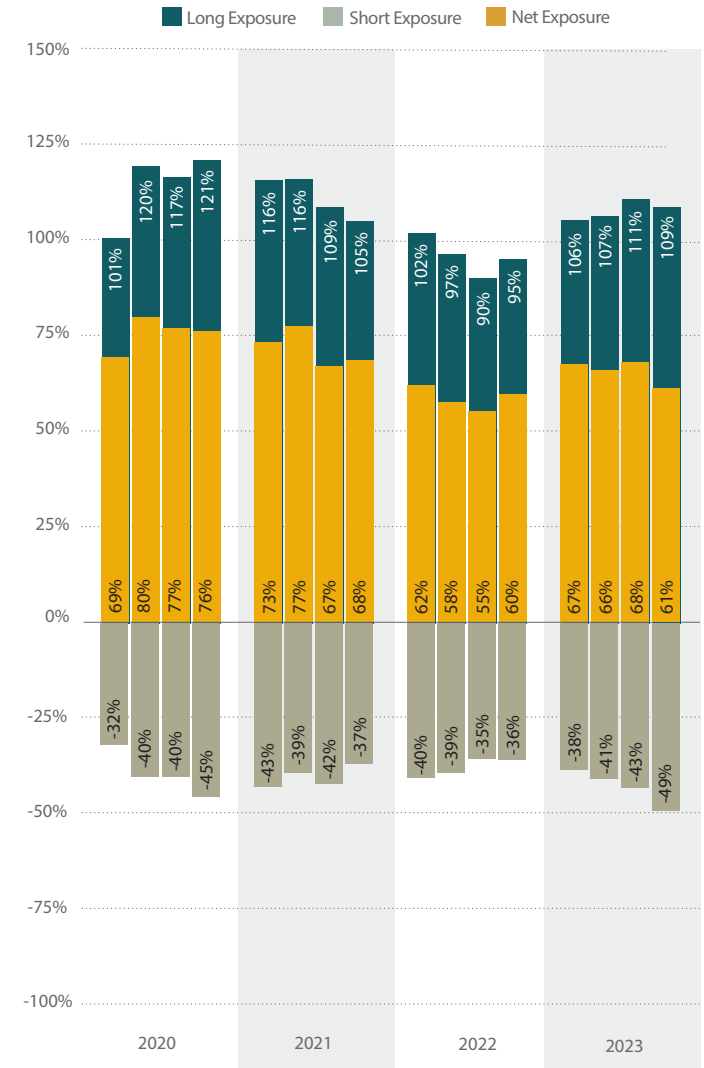
As of December 31, 2023

Growth of \$100¹

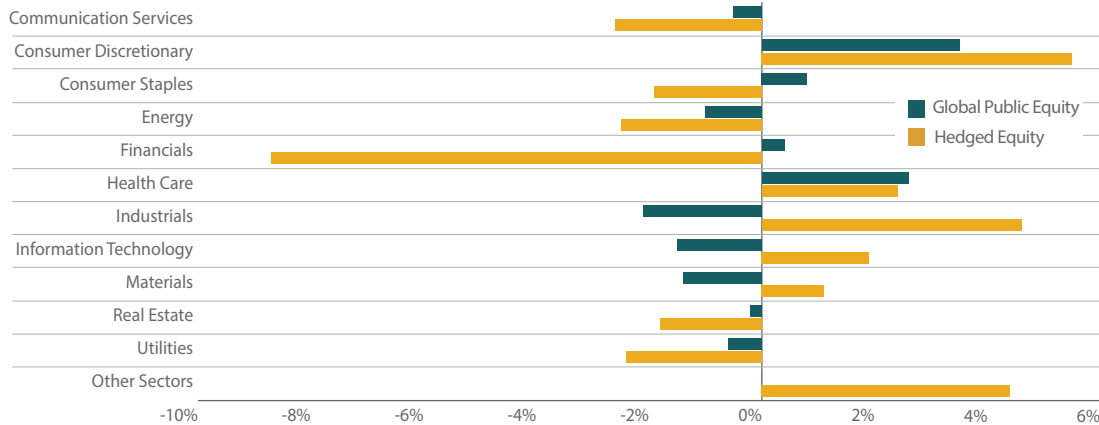


¹Trailing 5 year.

Exposure by Quarter - Hedged Equity



Sector Under/Over Allocation¹



¹Relative to MSCI ACWI IMI.

Private Equity Detail

As of December 31, 2023

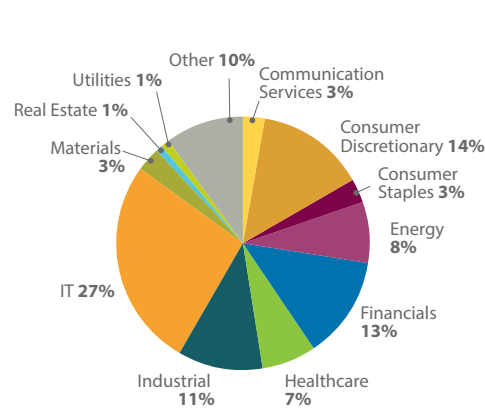
Strategy	Number of Current Fund Commitments	Portfolio Weight	Commitments	Unfunded Commitments	Total Contributions ¹	Distributions	Remaining Value ²	Total Value
Buyout	67	8.2%	\$928,248,085	\$145,255,360	\$872,381,720	\$924,390,439	\$449,598,786	\$1,373,989,225
Venture Capital	49	9.7%	706,552,069	173,905,966	537,206,104	293,216,703	533,666,609	826,883,312
Total Private Equity	116	17.9%	\$1,634,800,154	\$319,161,326	\$1,409,587,823	\$1,217,607,142	\$983,265,395	\$2,200,872,537

¹Total Contributions include fees and expenses that may not reduce or lower unfunded commitment.

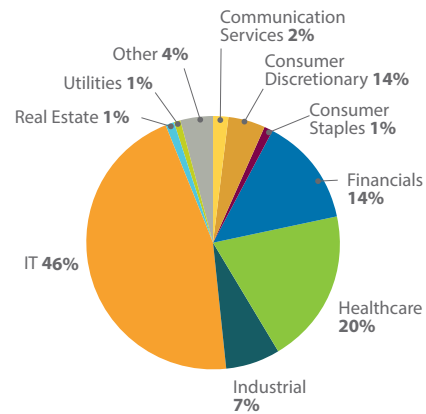
²Adjusted Reported Value is equal to the last actual reported capital account value plus subsequent capital calls less subsequent distributions through the indicated date, with no valuation changes.

Strategy	Distributed/Paid In (DPI)	Total Value/Paid In (TVPI)	1 Year IRR	ITD IRR	Time Weighted Returns		
					1 Year	3 Year	5 Year
Buyout	1.06	1.57	3.4%	10.4%	3.4%	15.8%	12.4%
Venture	0.55	1.54	-7.9%	9.6%	-7.9%	14.2%	17.4%
Total Private Equity	0.86	1.56	-2.8%	10.1%	-2.7%	14.6%	13.6%
<i>Private Equity Blend</i>					3.2%	14.4%	12.8%

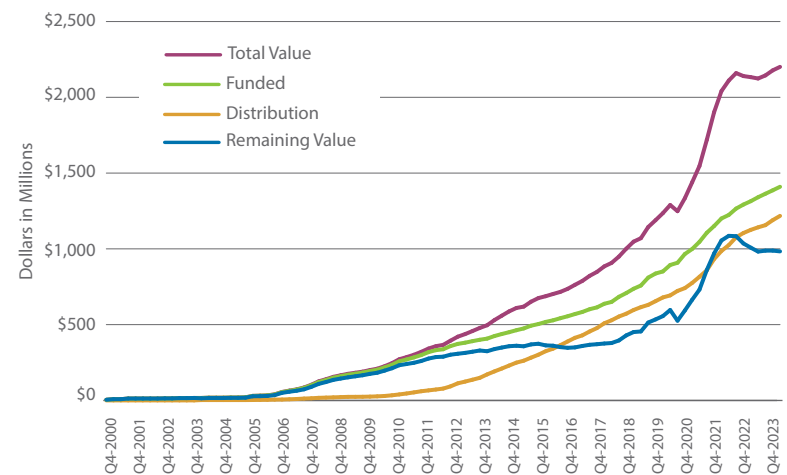
Buyout Sector Allocation



Venture Sector Allocation



Cash Flow & Valuation History



Real Estate Detail

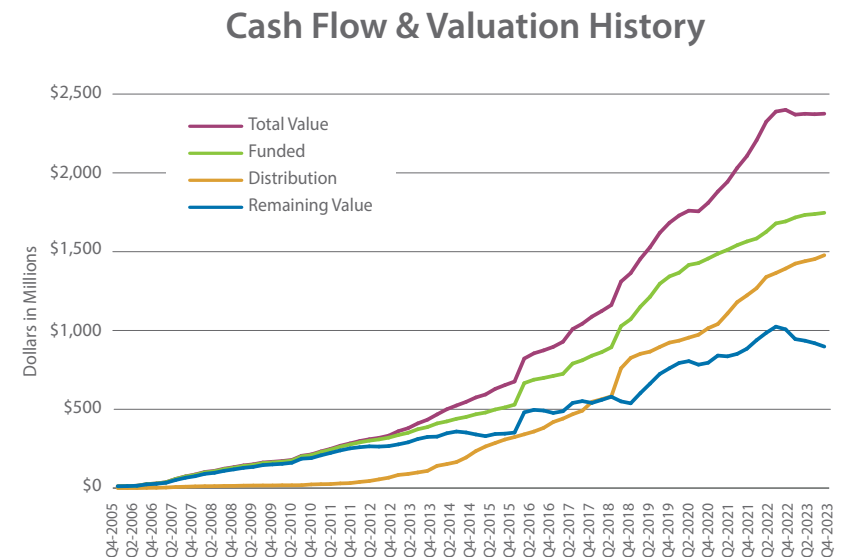
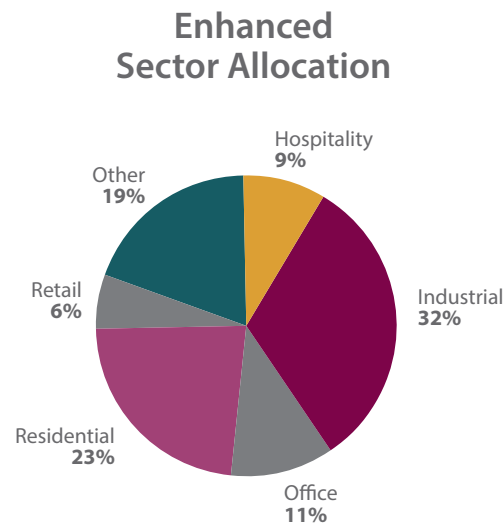
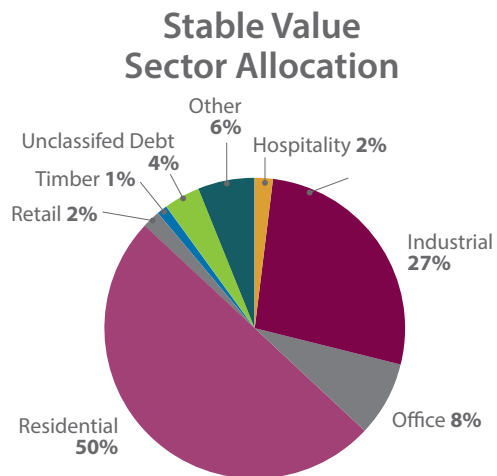
As of December 31, 2023

Strategy	Number of Current Fund Commitments	Portfolio Weight	Commitments	Unfunded Commitments	Total Contributions ¹	Distributions	Remaining Value ²	Total Value
Stable Value	23	9.7%	\$861,501,071	\$116,745,934	\$998,196,112	\$883,695,523	\$534,310,651	\$1,418,006,174
Enhanced Return	46	6.6%	809,233,134	147,134,675	748,550,673	593,805,921	363,599,178	957,405,099
Total Real Estate	69	16.4%	\$1,670,734,205	\$263,880,608	\$1,746,746,785	\$1,477,501,445	\$897,909,829	\$2,375,411,273

¹Total Contributions include fees and expenses that may not reduce or lower unfunded commitment.

²Remaining Value is equal to the last actual reported capital account value plus subsequent capital calls less subsequent distributions through the indicated date, with no valuation changes.

Strategy	Distributed/Paid In (DPI)	Total Value/Paid In (TVPI)	1 Year IRR	ITD IRR	Time Weighted Returns		
					1 Year	3 Year	5 Year
Stable Value	0.89	1.42	-9.0%	9.4%	-6.5%	13.7%	10.2%
<i>Stable Value RE Blend</i>					-12.9%	6.2%	4.7%
Enhanced Return	0.79	1.28	-6.4%	6.5%	-6.3%	8.5%	6.2%
<i>Enhanced RE Blend</i>					-2.4%	9.6%	7.3%
Total Real Estate	0.85	1.36	-8.0%	8.1%	-6.5%	11.7%	8.8%
<i>Real Estate Blend</i>					-8.9%	7.5%	5.7%



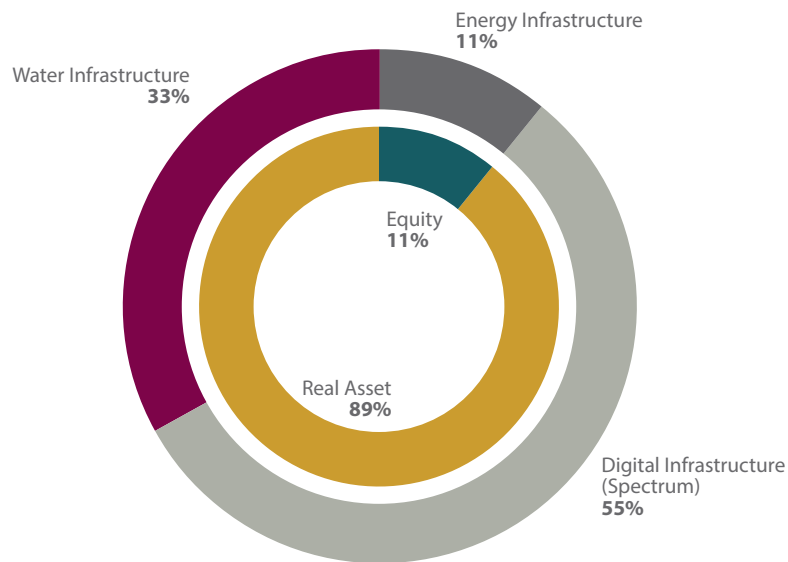
Strategic All Asset & Overlays

As of December 31, 2023

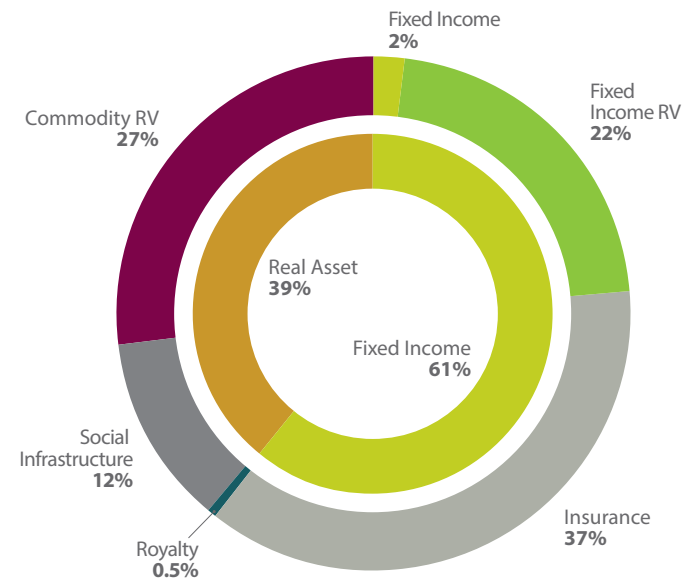
Strategy	Market Value	Portfolio Weight	Standard Deviation ¹	Sharpe Ratio ¹	% Positive Months ¹	Total Policy Benchmark	
						Beta ¹	Correlation ¹
All Asset Strategies	\$57,041,684	1.0%	8.4%	1.2	50.0%	-0.1	-0.1
Opportunistic	57,041,684	1.0%	8.4%	1.2	50.0%	-0.1	-0.1
Overlays	\$291,513,460	5.3%	3.8%	0.5	72.2%	0.2	0.3
Strategic All Asset & Overlays	\$348,555,144	6.3%	3.6%	0.8	72.2%	0.1	0.2
<i>TTSTC Blended Endowment</i>			5.6%	0.7	55.6%	-	-

¹ Trailing 36 months.

Opportunistic Breakdown



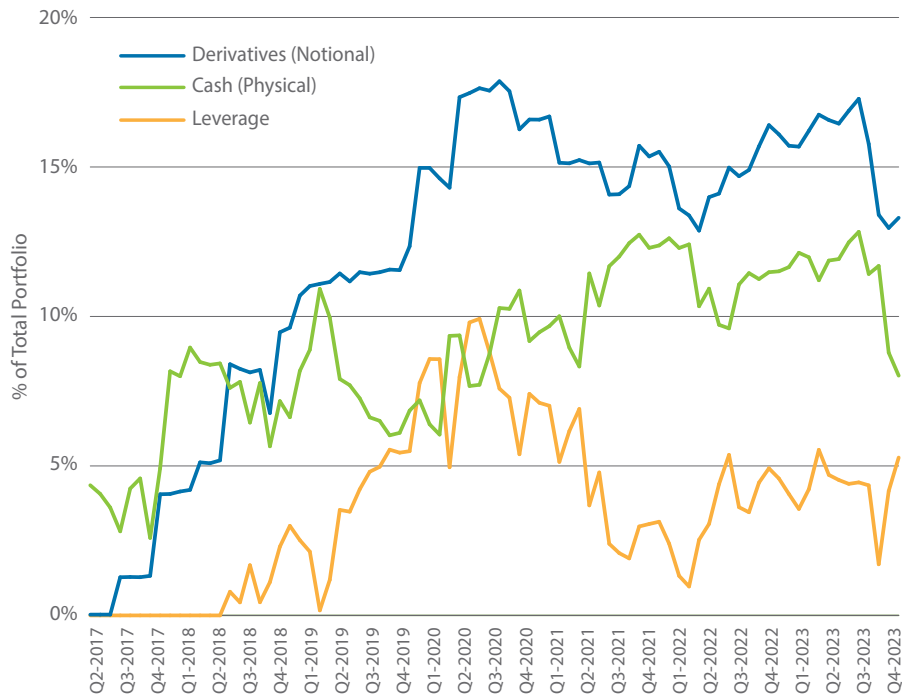
Overlays Breakdown



Strategic All Asset & Overlays Detail

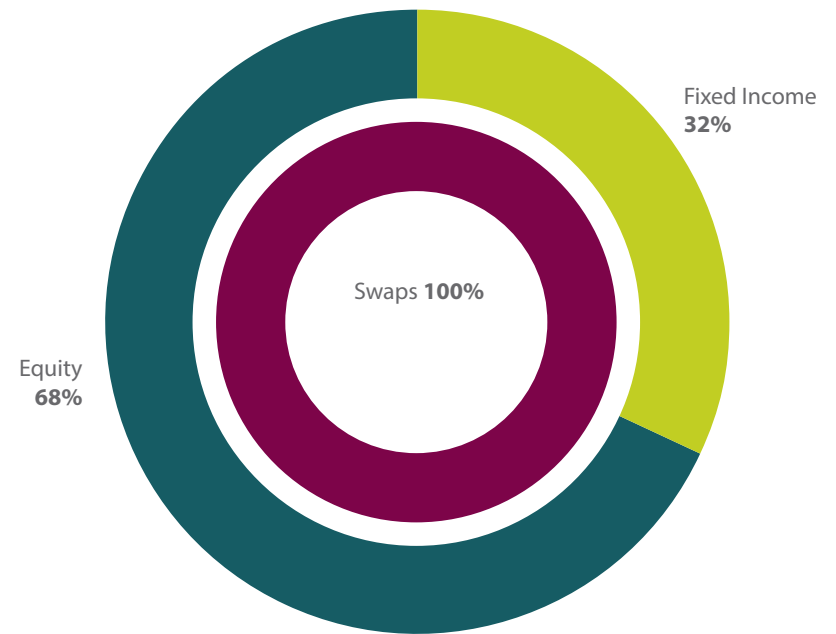
As of December 31, 2023

Smart Leverage Summary¹



¹ In time periods where measured leverage isn't present, we display leverage as 0%.

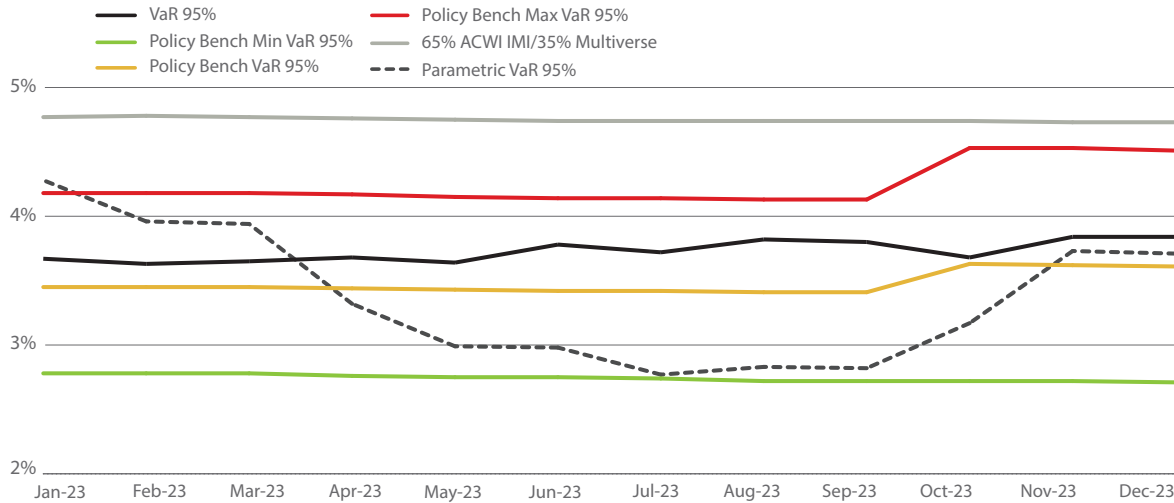
Derivatives Allocation



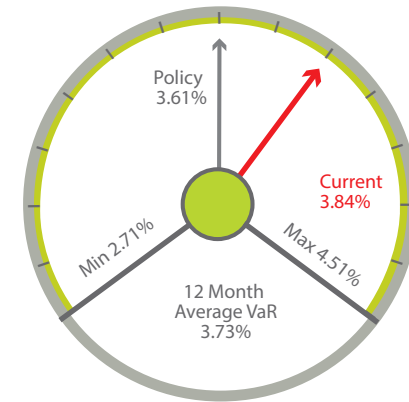
Value at Risk (VaR) Analysis

As of December 31, 2023

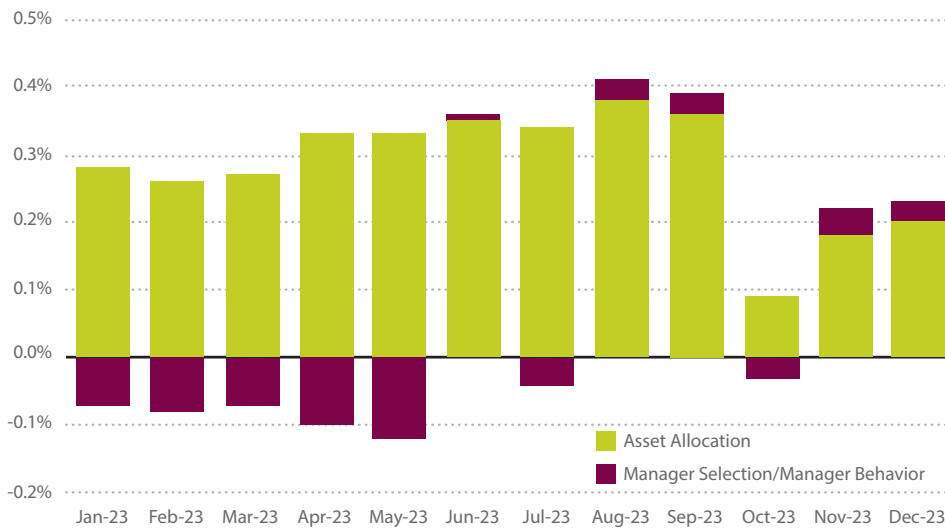
Twelve Month History



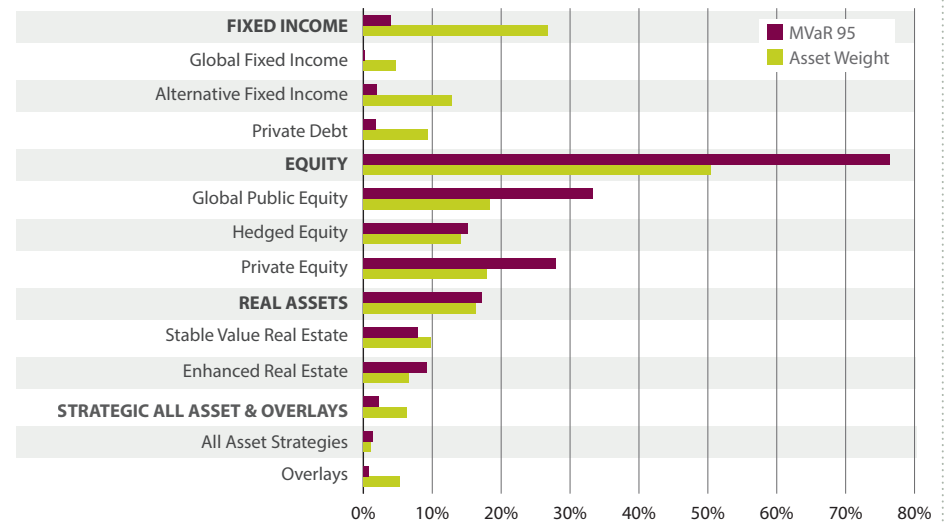
VaR as a Percent of Market Value (One Month, 95% Confidence)



Differential from Policy VaR



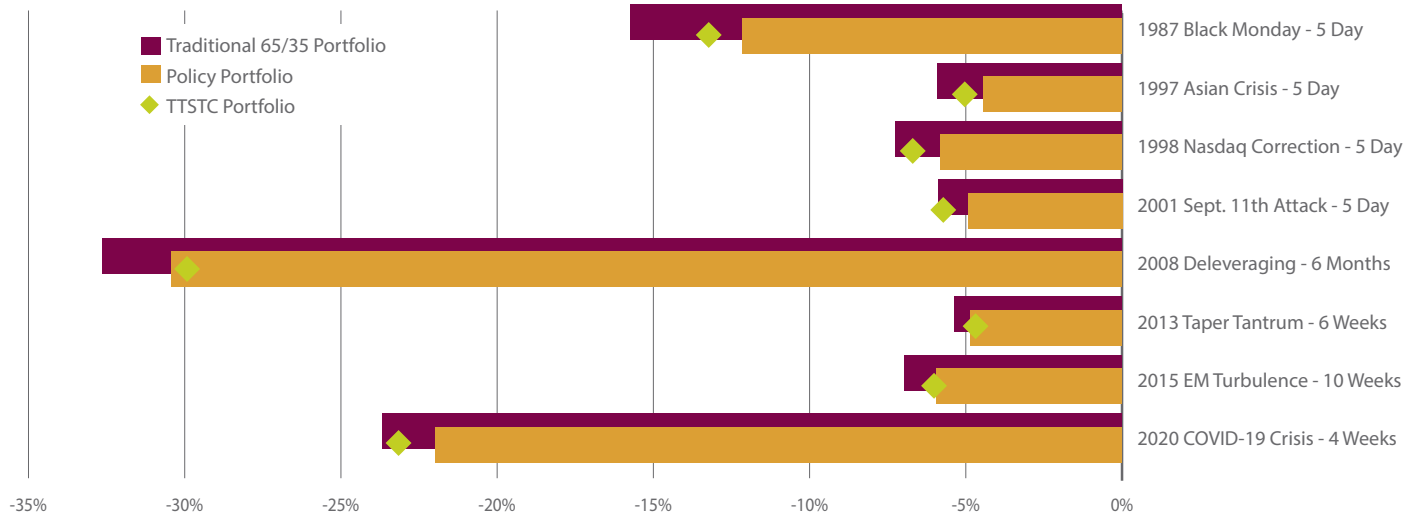
VaR Contribution



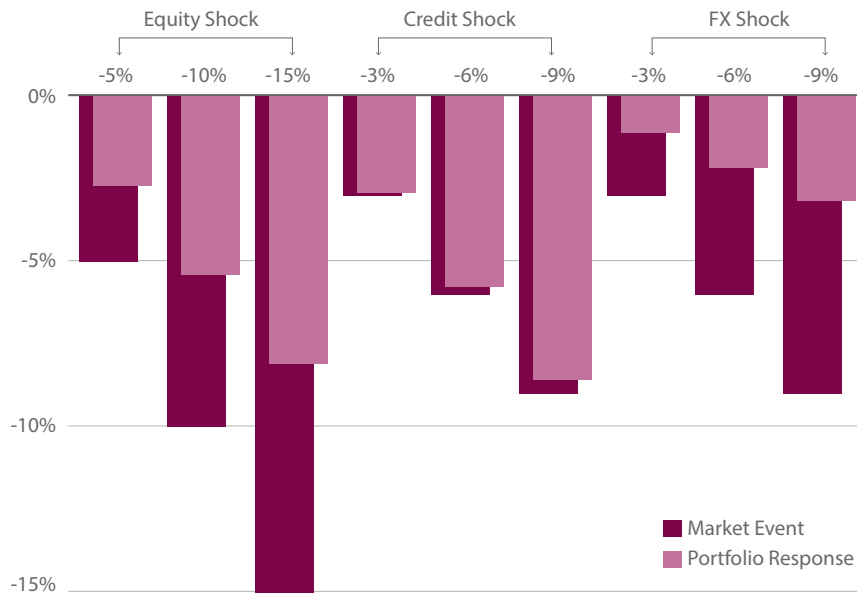
Portfolio Risk Summary

As of December 31, 2023

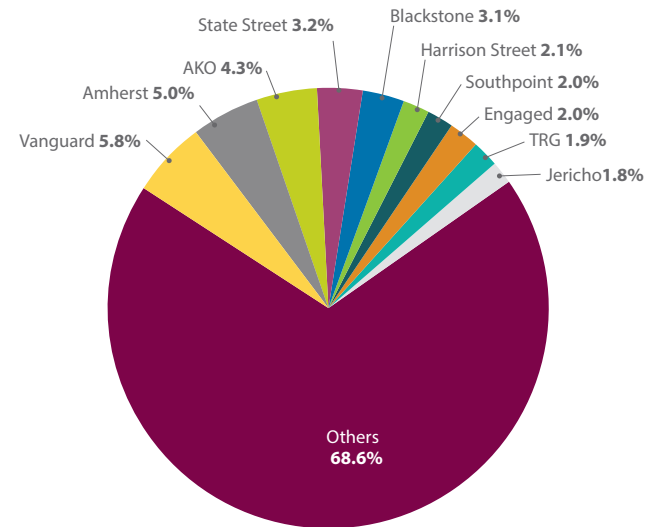
Scenario Analysis



Monthly Portfolio Tail Risk Profile



Manager Concentration



TTSTC Performance Table

As of December 31, 2023

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
2002	-0.8%	-0.1%	1.9%	-1.8%	-0.5%	-4.5%	-4.7%	0.7%	-6.0%	3.7%	4.0%	-2.8%	-10.9%
2003	-1.6%	-0.9%	0.4%	5.9%	4.8%	1.3%	1.4%	2.1%	0.3%	4.4%	1.6%	3.6%	25.8%
2004	2.0%	1.4%	0.1%	-2.4%	0.8%	2.1%	-2.8%	0.6%	2.2%	1.6%	4.1%	2.9%	13.1%
2005	-1.7%	2.0%	-1.6%	-2.1%	2.9%	1.3%	3.2%	0.2%	1.2%	-1.9%	2.8%	1.4%	7.8%
2006	3.8%	0.0%	1.8%	1.5%	-2.5%	-0.2%	0.2%	1.8%	1.2%	2.8%	2.2%	1.3%	14.7%
2007	1.2%	-0.1%	1.4%	3.0%	2.7%	-0.7%	-1.7%	0.3%	3.0%	2.0%	-3.2%	-0.2%	7.7%
2008	-4.2%	-0.5%	-1.1%	2.3%	1.3%	-3.4%	-1.2%	-0.8%	-6.6%	-9.6%	-2.9%	0.6%	-23.8%
2009	-2.0%	-3.6%	1.9%	3.2%	3.1%	0.6%	4.0%	1.3%	2.5%	0.1%	2.2%	1.1%	15.0%
2010	-1.0%	1.0%	2.6%	1.0%	-3.9%	-1.1%	3.4%	-0.7%	4.1%	2.1%	-0.4%	3.0%	10.3%
2011	0.7%	1.6%	0.6%	2.2%	-0.5%	-1.1%	0.1%	-2.2%	-4.4%	3.1%	-0.8%	-0.5%	-1.6%
2012	2.3%	2.0%	0.0%	0.2%	-2.8%	1.1%	1.3%	1.6%	1.4%	0.1%	0.9%	0.9%	9.3%
2013	2.1%	0.2%	1.1%	1.0%	0.1%	-2.1%	1.9%	0.0%	1.8%	1.9%	0.8%	0.6%	9.8%
2014	-0.1%	2.5%	0.2%	0.6%	1.3%	1.1%	-0.3%	0.9%	-1.5%	0.0%	1.0%	-0.8%	4.9%
2015	0.2%	2.1%	-0.2%	1.4%	0.4%	-1.1%	0.1%	-2.1%	-1.7%	1.7%	-0.3%	-1.0%	-0.6%
2016	-1.7%	-0.5%	1.9%	1.2%	0.6%	0.1%	1.7%	0.7%	0.7%	0.6%	0.8%	1.2%	7.5%
2017	1.5%	1.1%	0.8%	1.0%	1.0%	0.1%	1.3%	0.7%	0.8%	1.3%	0.7%	0.7%	11.5%
2018	1.9%	-0.9%	-0.1%	0.8%	0.3%	0.2%	1.3%	0.3%	0.2%	-1.7%	0.1%	-1.5%	0.8%
2019	2.4%	1.1%	1.2%	1.5%	-1.0%	1.9%	0.7%	-0.8%	0.4%	2.1%	0.8%	1.2%	11.9%
2020	0.0%	-2.7%	-7.3%	1.1%	2.0%	1.3%	2.9%	1.9%	-0.1%	0.8%	5.0%	3.2%	7.8%
2021	0.8%	2.5%	1.2%	3.5%	2.0%	0.8%	1.2%	1.7%	0.9%	2.7%	0.1%	1.0%	20.1%
2022	-0.7%	0.2%	1.5%	-0.5%	-0.3%	-1.9%	1.4%	-1.0%	-2.3%	0.0%	2.2%	-0.3%	-1.7%
2023	1.7%	-0.7%	-0.5%	0.0%	0.0%	1.3%	0.9%	-0.3%	-1.0%	-0.8%	2.8%	2.1%	5.6%



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