MEKETA | 45 YEARS
CELEBRATING A MILESTONE

Maryland State Retirement and Pension System

Performance Report
June 30, 2023

Fund Evaluation Report

Agenda

1. Executive Summary
2. Performance Summary
3. Risk Dashboard
4. Activity Update
5. Economic and Market Update
6. Appendices
   - Corporate Update
   - Disclaimer, Glossary, and Notes

Executive Summary

Market Value & Performance

→ At the end of the second quarter, the System was valued at $65,204 million, an increase of $839.4 million from the end of the first quarter.

- The increase was the result of positive investment performance, despite net cash outflows that totaled $121.5 million for the quarter.

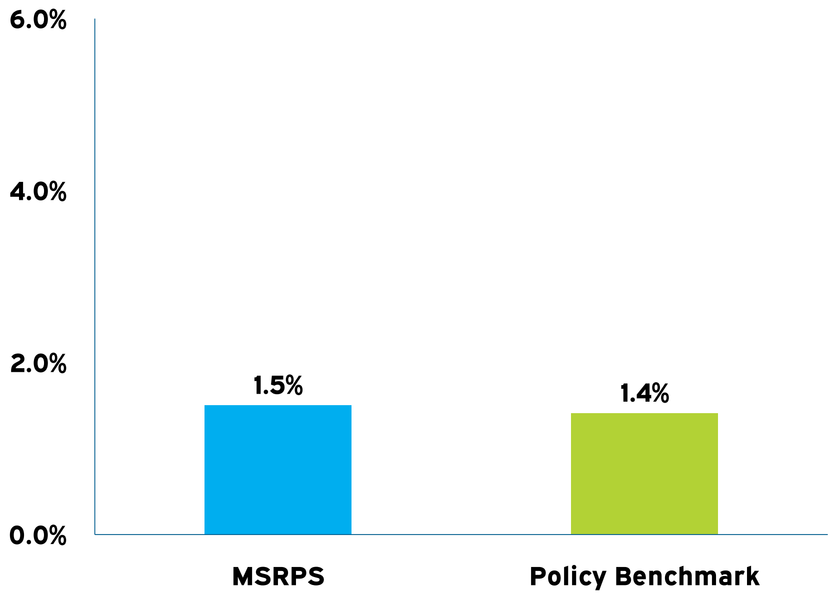
→ The System returned 1.5%, net of fees, during the second quarter of 2023, outperforming the policy benchmark by 0.1%.

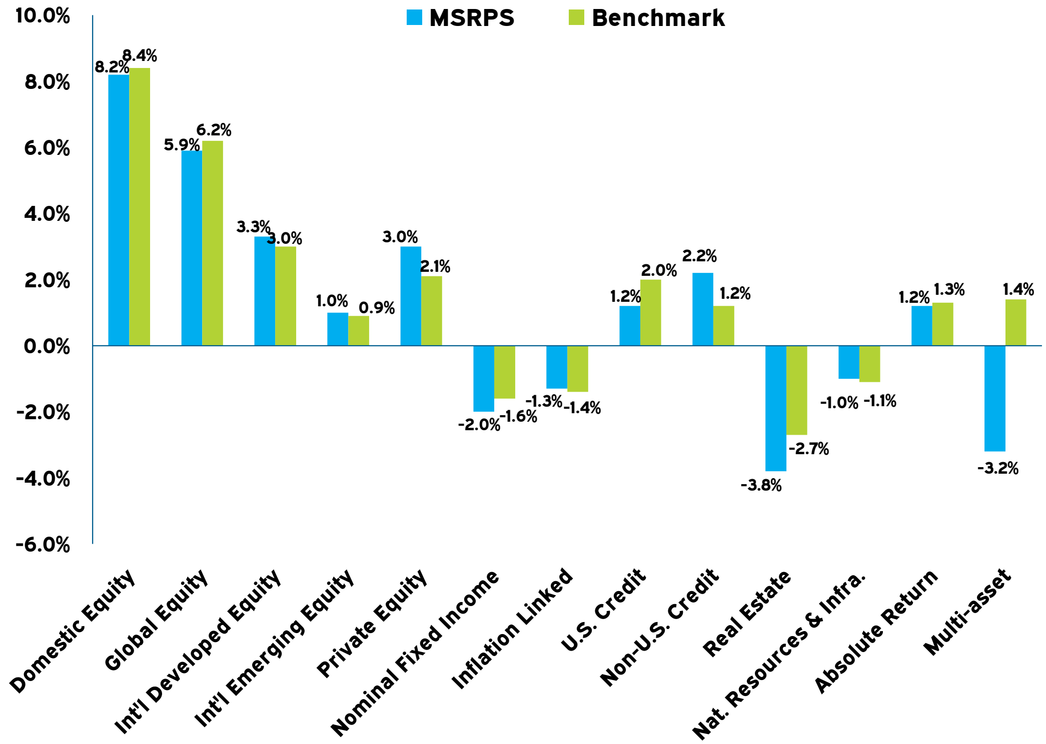
- Most asset class returns were positive for the quarter except for nominal and inflation-linked fixed income, real estate, natural resources and infrastructure and multi-asset.
- Domestic equities had the strongest absolute return, up 8.2% for the quarter, while real estate was the weakest performer in absolute terms, down 3.8%.

→ At quarter end, all asset classes were within their respective target allocation ranges.

Q2 System and Asset Class Performance

→ The System slightly outperformed the Policy Benchmark during the second quarter, returning 1.5%, net of fees.





→ During the quarter, domestic equites delivered the best absolute performance returning 8.2%.

→ On a relative basis, non-US credit was the best performing asset class, outpacing its benchmark by 1.0%.

Note: For some asset classes, there is a lack of publicly available index data which at times can introduce greater tracking error in the short-term (e.g. natural resources & infrastructure) when a market proxy is used.

Total System Q2 Attribution[1]

	Total System			Policy Benchmark			Attribution Analysis			
	Average Weight	Total Return[2]	Contribution to Return	Average Weight[3]	Total Return[2]	Contribution to Return	Allocation Effect	Active Management Effect[4]	Interaction Effect	Total Effect
Public Equity	29.7	4.9	1.5	28.5	5.0	1.4	0.07	0.00	-0.03	0.04
Domestic Equity	11.7	8.1	1.0	13.0	8.4	1.1	-0.07	-0.03	0.00	-0.10
International Developed	7.2	3.2	0.2	8.0	3.0	0.2	-0.02	0.01	0.00	0.00
International Emerging	7.3	1.0	0.1	7.6	0.9	0.1	0.00	0.01	0.00	0.01
Global Equity	3.5	5.4	0.2	0.0	6.2	0.0	0.17	0.00	-0.03	0.14
Private Equity	21.5	3.0	0.7	21.5	2.1	0.5	0.00	0.20	0.00	0.20
Nominal Fixed Income	13.7	-1.2	-0.2	15.3	-1.6	-0.2	0.05	0.06	-0.01	0.10
Inflation Linked	3.9	-1.4	-0.1	4.5	-1.4	-0.1	0.01	0.00	0.00	0.01
US Credit	7.5	1.2	0.1	7.3	2.0	0.1	0.00	-0.07	0.00	-0.07
Non- US Credit	1.0	2.2	0.0	1.0	1.2	0.0	0.00	0.01	0.00	0.01
Real Estate	10.8	-3.8	-0.4	10.8	-2.7	-0.3	0.00	-0.12	0.00	-0.12
Natural Resources & Infrastructure	5.0	-1.0	-0.1	5.0	-1.1	-0.1	0.00	-0.01	0.00	-0.01
Absolute Return	5.9	1.2	0.1	6.0	1.3	0.1	0.00	0.00	0.00	0.00
Multi-Asset	0.4	-3.2	0.0	0.0	1.4	0.0	0.00	0.00	-0.02	-0.02
Cash	0.6	1.7	0.0	0.0	1.3	0.0	0.01	0.00	0.00	0.00
Total (excl. overlay)	-	-	1.58	-	-	1.41	0.14	0.06	-0.05	0.15
Currency Overlay							0.01			
Structural/Tactical Overlay							-0.09			
Total (incl. overlay)	**100.0**	**-**	**1.50**	**100.0**	**-**	**1.41**	**0.06**	**0.06**	**-0.05**	**0.07**

[1] Numbers may not sum due to rounding. Attribution calculated on a monthly basis, using average month end market values and targets. As a result, there can be discrepancies from custodian data due to intra-month transfers.
[2] "Total Return" and "Contribution to Return" reflects asset class and System performance excluding the currency hedging and structural/tactical overlay programs.
[3] Based on the transitional target allocations.
[4] In cases where the policy weight is zero, the active management effect will in turn be zero. The interaction effect will capture any contributions made by active management where the policy weight is zero as it factors in the portfolio weight.

Total System 1-Year Attribution[1]

	Total System			Policy Benchmark			Attribution Analysis			
	Average Weight	Total Return[2]	Contribution to Return	Average Weight[3]	Total Return[2]	Contribution to Return	Allocation Effect	Active Management Effect[4]	Interaction Effect	Total Effect
Public Equity	29.4	10.3	3.0	28.9	14.1	4.1	-0.02	-0.06	-0.10	-0.17
Domestic Equity	11.3	19.5	2.2	12.7	19.0	2.4	-0.27	-0.01	0.00	-0.29
International Developed	6.7	13.4	0.9	7.6	17.4	1.3	-0.15	-0.04	0.01	-0.18
International Emerging	7.9	-7.6	-0.6	8.5	1.7	0.1	-0.07	0.00	0.01	-0.07
Global Equity	3.5	10.5	0.4	0.0	16.5	0.0	0.48	0.00	-0.11	0.37
Private Equity	21.1	-0.3	-0.1	21.1	-2.9	-0.6	0.00	0.67	0.00	0.67
Nominal Fixed Income	13.3	-10.2	-1.3	15.2	-4.2	-0.6	0.09	0.26	-0.03	0.33
Inflation Linked	4.3	-1.9	-0.1	4.7	-1.3	-0.1	0.00	0.01	0.00	0.01
US Credit	7.2	5.2	0.4	7.0	9.5	0.7	0.00	-0.27	0.00	-0.27
Non- US Credit	0.9	2.4	0.0	1.0	5.9	0.1	-0.01	0.02	0.00	0.01
Real Estate	11.0	-3.8	-0.4	11.0	-10.3	-1.1	0.00	0.25	0.00	0.25
Natural Resources & Infrastructure	4.9	9.0	0.4	4.8	2.2	0.1	-0.02	0.25	0.00	0.23
Absolute Return	6.8	-3.3	-0.2	6.3	1.4	0.1	-0.07	-0.16	-0.04	-0.27
Multi-Asset	0.5	-7.0	0.0	0.0	2.2	0.0	0.00	0.00	-0.01	-0.01
Cash	0.7	5.3	0.0	0.0	3.7	0.0	0.01	0.00	0.01	0.01
Total (excl. overlay)	-	-	3.23	-	-	2.20	-0.02	0.97	-0.17	0.78
Currency Overlay							0.01			
Structural/Tactical Overlay							-0.05			
Total (incl. overlay)	**100.0**	**-**	**3.14**	**100.0**	**-**	**2.20**	**-0.06**	**0.97**	**-0.17**	**0.74**

[1] Numbers may not sum due to rounding. Attribution calculated on a monthly basis, using average month end market values and targets. As a result, there can be discrepancies from custodian data due to intra-month transfers.
[2] "Total Return" reflects asset class performance excluding the currency hedging and structural/tactical overlay programs.
[3] Based on the transitional target allocations.
[4] In cases where the policy weight is zero, the active management effect will in turn be zero. The interaction effect will capture any contributions made by active management where the policy weight is zero as it factors in the portfolio weight.

Attribution Commentary

Second Quarter

→ In the second quarter, the System outperformed the policy benchmark by 0.08%.

→ Inclusive of the overlay programs, asset allocation had a positive effect on the relative performance.

→ Active management was additive, and the interaction effect detracted to relative performance.

- Selection within private equity and nominal fixed income were most additive while selection within real estate and US credit detracted from relative performance.

Trailing 1-Year

→ Over the trailing one-year period, the System outperformed the Policy Benchmark by 0.94%.

→ Inclusive of the overlay programs, the asset allocation effect detracted slightly from relative performance.

→ While interaction effects detracted from performance, manager selection (e.g., active management) contributed positively over the trailing year.

- Manager selection within private equity, real estate, natural resources and infrastructure, and nominal fixed income were the most additive while selection within US credit and absolute return detracted.

Attribution Details

Returns Based Attribution Definition:

→ Attribution is an analytical evaluation of a portfolio's performance relative to its benchmark. Attribution can portray where portfolio decisions were additive or detracted from relative performance. The three main attribution effects are the following:

- *Allocation Effect:* how the overweight or underweight of an asset class relative to the benchmark contributes to or detracts from performance.
- *Active Management Effect:* attributes relative performance to managers' stock selection decisions, relative to the benchmark.
- *Interaction Effect:* captures the portion of active management that is responsible for the cross interaction between the allocation and active management effects.
  - For example, if the System is overweight an underperforming asset class, it will have a negative interaction effect.

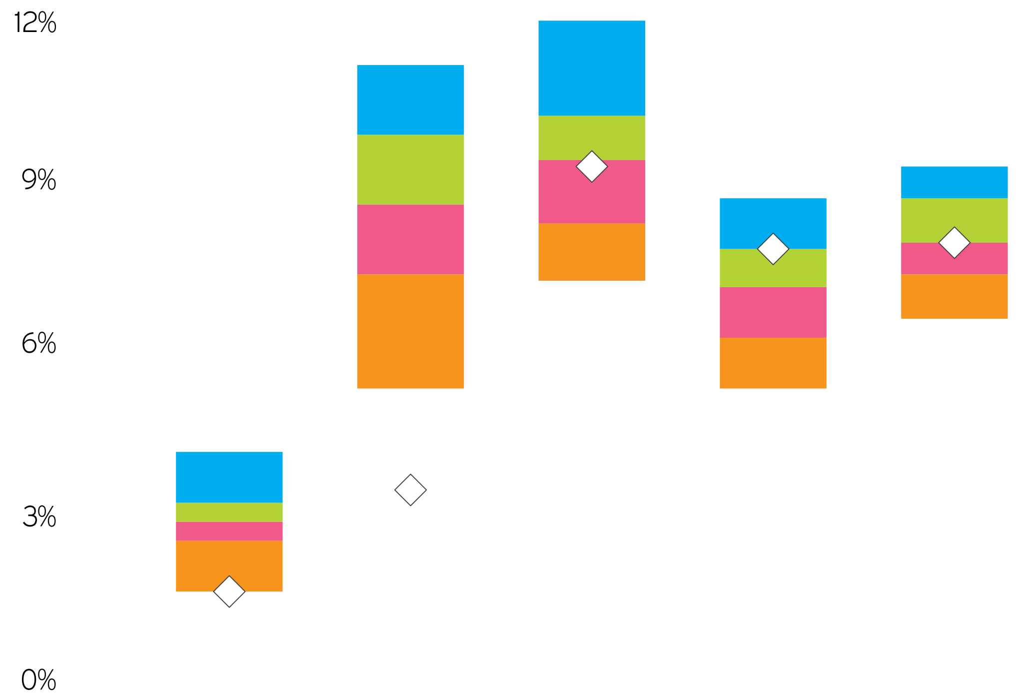
Calculations[1]:

→ The Brinson Fachler attribution methodology is widely accepted within the industry. Using this methodology, the components are calculated as follows:

- *Allocation Effect:* (Rab - Rpb) × (Wp - Wb)
- *Active Management Effect*[2]*:* Wb × (Rp - Rab)
- *Interaction Effect:* (Wp - Wb) x (Rp - Rab)

[1]Rpb= Policy Benchmark
Rab = Asset Class Benchmark
Wp = Portfolio Weight
Wb = Policy Weight
Rp = Asset Class Return
Rb = Policy Benchmark Return
[2] In cases where the policy weight is zero, the active management effect will in turn be zero. The interaction effect will capture any contributions made by active management where the policy weight is zero as it factors in the portfolio weight.

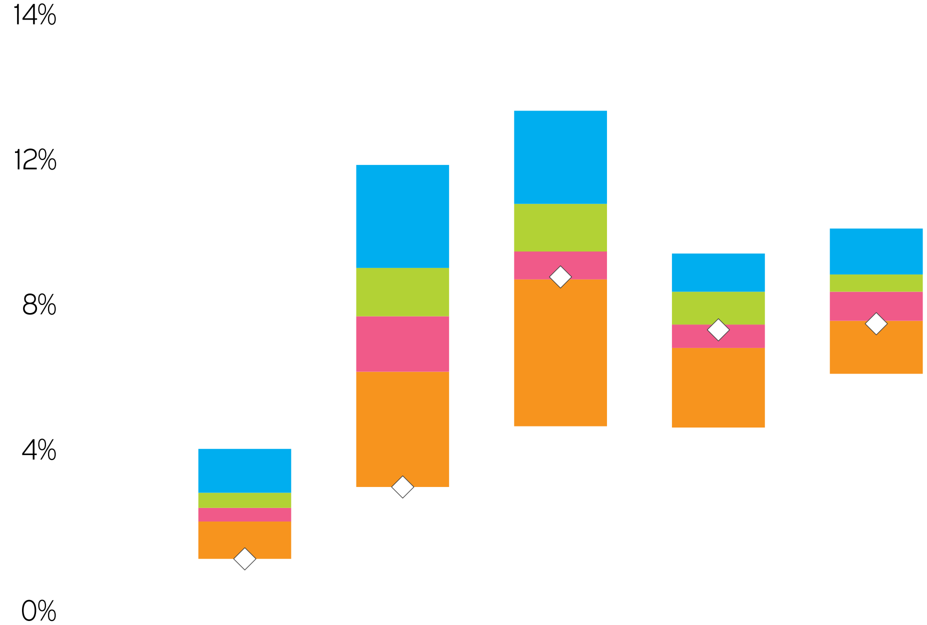
Total System vs. Public Plans >$1 Billion Universe[1]
As of June 30, 2023



	2Q23 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
Total System	1.5	3.1	8.2	6.9	7.0
25th Percentile	2.9	8.8	8.9	6.9	7.6
Median	2.6	7.6	8.3	6.2	7.0
75th Percentile	2.3	6.5	7.3	5.5	6.5
Rank (%)	*96*	*98*	*54*	*26*	*48*

[1] Represents the final release of the InvMetrics Public DB >$1 bn peer group as of June 30, 2023. Total System performance is net of fees. Includes 92 plans.

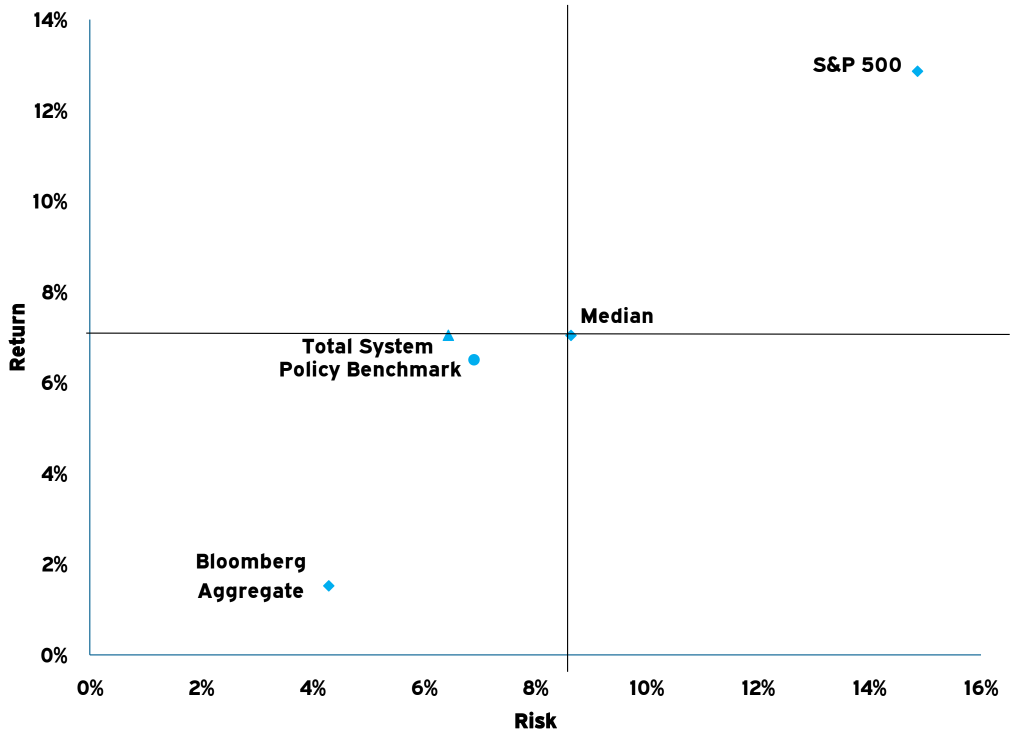
Total System vs. Public Plans >$25 Billion Universe[1]
As of June 30, 2023



	2Q23 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
Total System	1.5	3.3	8.4	7.1	7.3
25th Percentile	3.1	8.6	10.2	8.0	8.5
Median	2.8	7.4	9.0	7.2	8.0
75th Percentile	2.4	6.1	8.3	6.7	7.3
Rank (%)	96	96	71	59	78
Policy Benchmark	*1.4*	*2.2*	*7.1*	*6.3*	*6.5*
Rank (%)	*96*	*96*	*90*	*85*	*92*

[1] Represents the TUCS Public >$25 bn peer group as of June 30, 2023. Total System performance is gross of fees. Includes 34 plans.

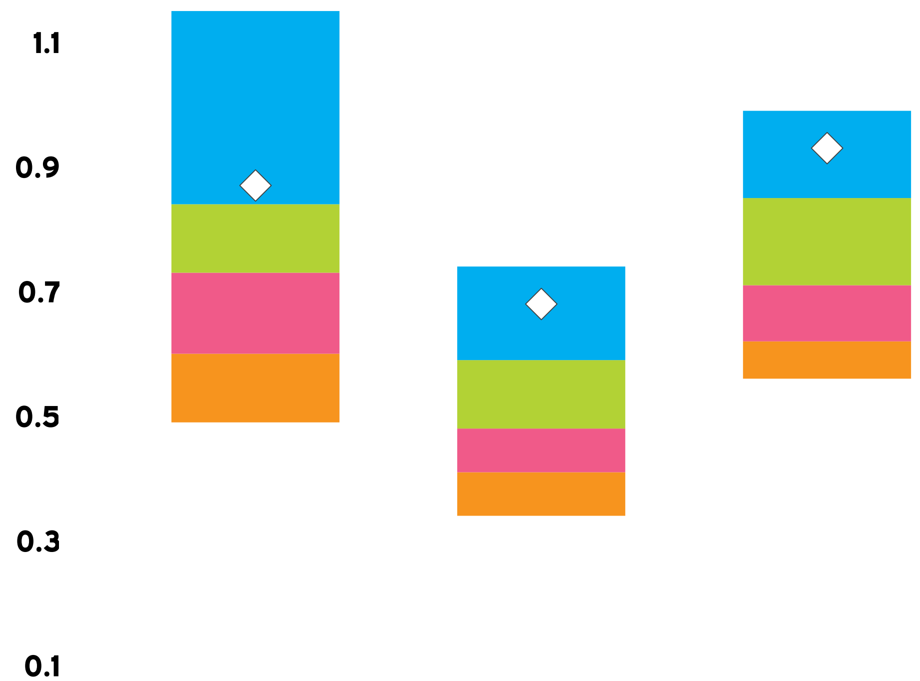
Total System Trailing 10-Year Risk vs Return[1]
As of June 30, 2023



	Risk (%)	Return (%)
Total System	6.4	7.0
Policy Benchmark	6.9	6.5
Median	8.6	7.0

[1] Represents a final cut of InvMetrics Public DB >$1 bn Net peer group as of June 30, 2023. Includes 92 plans.

Total System vs. Public Plans >$1 Billion Universe Sharpe Ratio Comparison[1]
As of June 30, 2023

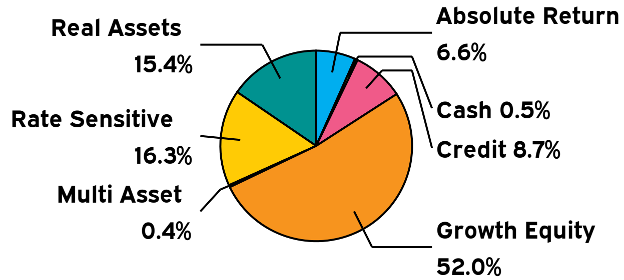


	3 YR	5 YR	10 YR
Total System	0.9	0.7	0.9
S&P 500	0.8	0.6	0.8
25th Percentile	0.8	0.6	0.8
Median	0.7	0.5	0.7
75th Percentile	0.6	0.4	0.6
Rank (%)	*23*	*10*	*9*

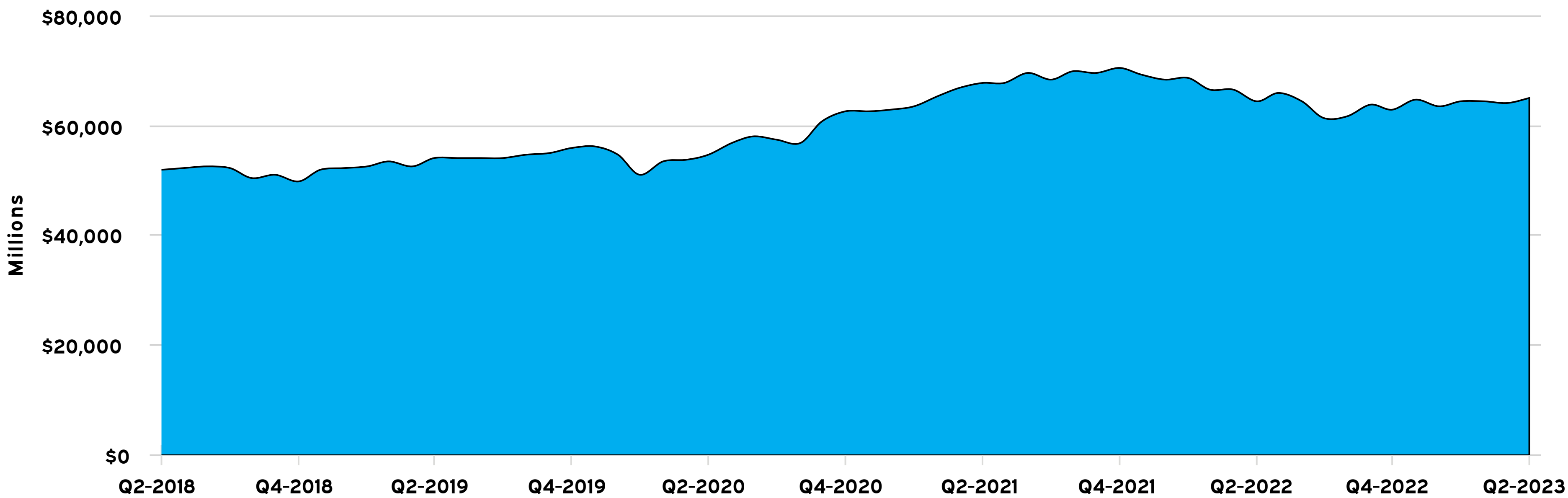
[1] Represents a final cut of Investor Force Public DB >$1 bn Net peer group as of June 30, 2023. Includes 92 plans. The risk-free rate is the 91-day T-bill.

Performance Summary

Actual Allocation



Market Value History
5 Years Ending June 30, 2023



Allocation vs. Targets and Policy					
	Current Balance	Current Allocation	Transitional Targets	Policy	Policy Range
Growth Equity	**$33,952,108,874**	**52%**	**50%**	**50%**	**43% - 57%**
Domestic Equities	$7,979,247,886	12%	13%	16%	--
Global Equity	$2,313,506,899	4%	0%	0%	--
International Developed Market Equity	$4,769,482,164	7%	8%	9%	--
International Emerging Market Equity	$4,625,646,700	7%	7%	9%	--
Private Equity	$14,247,446,422	22%	22%	16%	--
Stock Distributions	$16,778,802	0%	0%	0%	--
Rate Sensitive	**$11,151,836,823**	**17%**	**20%**	**20%**	**15% - 25%**
Nominal Fixed Income	$8,935,038,077	14%	16%	16%	--
Inflation-Linked Bonds	$2,216,798,745	3%	4%	4%	--
Credit	**$5,692,346,094**	**9%**	**9%**	**9%**	**5% - 13%**
U.S. Credit	$5,027,217,654	8%	8%	8%	--
Non-U.S. Credit	$665,128,440	1%	1%	1%	--
Real Assets	**$10,057,134,867**	**15%**	**15%**	**15%**	**11% - 19%**
Real Estate	$6,816,870,571	10%	10%	10%	--
Commodities	$125,702,428	0%	0%	0%	--
Natural Resources and Infrastructure	$3,114,561,868	5%	5%	5%	--
Absolute Return	**$3,821,938,454**	**6%**	**6%**	**6%**	**2% - 10%**
Absolute Return	$3,821,938,454	6%	6%	6%	--
Multi Asset	**$236,252,565**	**0%**	**0%**	**0%**	**0% - 2%**
Multi Asset	$236,252,565	0%	0%	0%	--
Cash	**$292,385,916**	**1%**	**0%**	**0%**	**0% - 2%**
Cash	$292,385,916	1%	0%	0%	--
Total	**65,204,003,593**	**100%**	**100%**	**0%**	

Asset Allocation & Performance | As of June 30, 2023

	Market Value $	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total System	**65,204,003,593**	**100.0**	**1.5**	**4.4**	**3.1**	**8.2**	**6.9**	**7.0**	**7.9**	**Jul-86**
System Policy Benchmark			1.4	4.5	2.2	7.1	6.3	6.5	--	
Over/Under			0.1	-0.1	0.9	1.1	0.6	0.5	--	
System Strategic Policy Benchmark			1.4	4.6	2.3	7.4	6.4	6.7	--	
Over/Under			0.1	-0.2	0.8	0.8	0.5	0.3	--	
Growth Equity	**33,952,108,874**	**52.1**	**4.1**	**8.8**	**7.8**	**14.6**	**10.3**	**10.6**	**6.9**	**Jan-98**
Public Equity	**19,687,883,650**	**30.2**	**5.0**	**12.3**	**13.8**	**9.9**	**7.0**	**8.4**	**8.0**	**Apr-94**
Public Equity Custom Benchmark			4.9	11.7	13.8	9.4	6.6	8.1	--	
Over/Under			0.1	0.6	0.0	0.5	0.4	0.3	--	
Domestic Equity	**7,979,247,886**	**12.2**	**8.2**	**16.7**	**19.2**	**14.0**	**11.0**	**12.0**	**9.4**	**Apr-94**
U.S. Equity Custom Benchmark			8.4	16.2	19.0	13.9	11.4	12.3	--	
Over/Under			-0.2	0.5	0.2	0.1	-0.4	-0.3	--	
Global Equity	**2,313,506,899**	**3.5**	**5.9**	**13.1**	**15.1**	**8.4**	**7.4**	**8.6**	**7.1**	**Oct-05**
Global Equity Custom Benchmark			6.2	13.9	16.5	11.0	8.1	8.8	6.9	
Over/Under			-0.3	-0.8	-1.4	-2.6	-0.7	-0.2	0.2	
International Developed Market Equity	**4,769,482,164**	**7.3**	**3.3**	**11.1**	**16.7**	**9.5**	**5.1**	**5.7**	**6.2**	**Jan-95**
MSRA Custom International Index			3.0	11.3	17.4	9.3	4.6	5.0	5.3	
Over/Under			0.3	-0.2	-0.7	0.2	0.5	0.7	0.9	
International Emerging Markets Equity	**4,625,646,700**	**7.1**	**1.0**	**6.4**	**3.1**	**4.4**	**2.3**	**--**	**5.4**	**Nov-15**
MSCI Emerging Markets (Net)			0.9	4.9	1.7	2.3	0.9	3.0	4.5	
Over/Under			0.1	1.5	1.4	2.1	1.4	--	0.9	

	Market Value $	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Private Equity	**14,247,446,422**	**21.9**	**3.0**	**4.1**	**0.3**	**23.8**	**17.2**	**16.4**	**9.5**	**Mar-94**
State Street Private Equity Index			*2.1*	*3.3*	*-2.9*	*22.6*	*14.9*	*13.4*	--	
Over/Under			0.9	0.8	3.2	1.2	2.3	3.0	--	
Rate Sensitive	**11,151,836,823**	**17.1**	**-1.9**	**3.4**	**-3.7**	**-7.4**	**0.5**	**1.7**	**6.0**	**Jul-86**
Custom Rate Sensitive Benchmark			*-1.5*	*3.0*	*-3.5*	*-7.2*	*0.6*	*1.6*	--	
Over/Under			-0.4	0.4	-0.2	-0.2	-0.1	0.1	--	
Nominal Fixed Income	**8,935,038,077**	**13.7**	**-2.0**	**3.7**	**-4.6**	**-9.5**	**-0.2**	**1.3**	**5.9**	**Jul-86**
Custom Nominal Fixed Income Benchmark			*-1.6*	*3.3*	*-4.2*	*-9.0*	*0.0*	*1.2*	--	
Over/Under			-0.4	0.4	-0.4	-0.5	-0.2	0.1	--	
Inflation-Linked Bonds	**2,216,798,745**	**3.4**	**-1.3**	**2.3**	**-1.0**	**-0.1**	**2.6**	**2.5**	**3.3**	**Jul-08**
Custom Inflation Sensitive Benchmark			*-1.4*	*2.0*	*-1.3*	*-0.3*	*2.5*	*2.4*	*3.1*	
Over/Under			0.1	0.3	0.3	0.2	0.1	0.1	0.2	
Credit	**5,692,346,094**	**8.7**	**1.3**	**3.8**	**6.0**	**5.0**	**4.2**	**4.6**	**7.4**	**Mar-09**
U.S. Credit	**5,027,217,654**	**7.7**	**1.2**	**3.8**	**5.8**	**6.4**	**4.9**	**5.6**	**7.8**	**Mar-09**
U.S. Credit Custom Benchmark			*2.0*	*5.6*	*9.4*	*3.8*	*3.5*	*4.4*	*6.9*	
Over/Under			-0.8	-1.8	-3.6	2.6	1.4	1.2	0.9	
Non-U.S. Credit	**665,128,440**	**1.0**	**2.2**	**3.7**	**7.8**	**-1.9**	**0.6**	**-0.8**	**-0.2**	**Oct-10**
Non-U.S. Credit Custom Benchmark			*1.2*	*3.3*	*5.9*	*-3.7*	*-0.3*	*-0.7*	*-0.1*	
Over/Under			1.0	0.4	1.9	1.8	0.9	-0.1	-0.1	
Real Assets	**10,057,134,867**	**15.4**	**-2.9**	**-5.8**	**-3.5**	**11.7**	**6.8**	**4.6**	**4.9**	**Feb-06**
Custom Real Assets Benchmark			*-2.2*	*-3.8*	*-6.7*	*9.2*	*6.2*	*4.5*	*4.2*	
Over/Under			-0.7	-2.0	3.2	2.5	0.6	0.1	0.7	

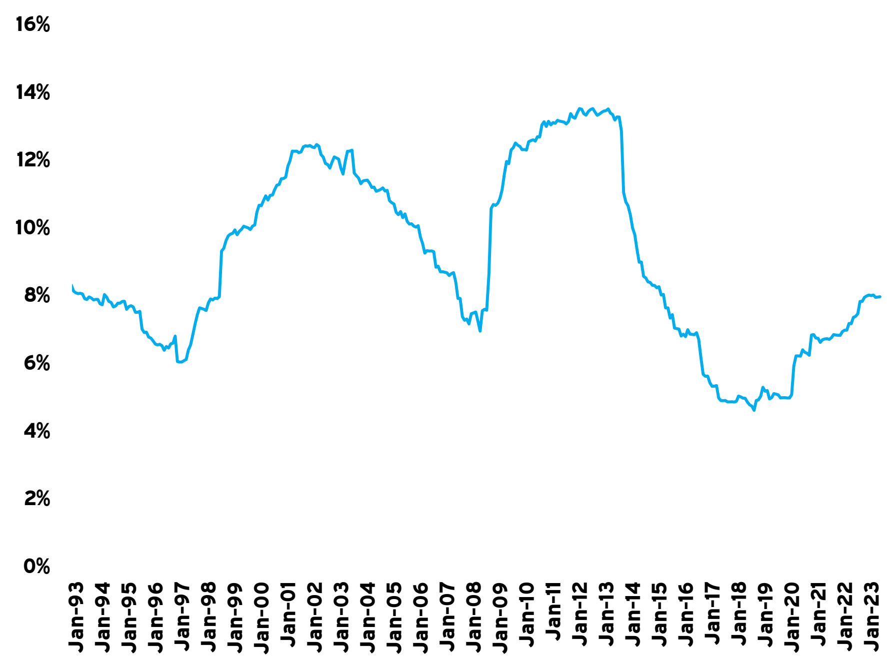
	Market Value $	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Real Estate	**6,816,870,467**	**10.5**	**-3.8**	**-9.1**	**-8.4**	**9.2**	**6.9**	**8.8**	**6.9**	**Jul-87**
Real Estate Custom Benchmark			*-2.7*	*-5.9*	*-10.3*	*7.5*	*6.6*	*8.5*	*8.0*	
Over/Under			-1.1	-3.2	1.9	1.7	0.3	0.3	-1.1	
Commodities	**125,702,428**	**0.2**								
Natural Resources and Infrastructure	**3,114,561,868**	**4.8**	**-1.0**	**2.2**	**8.7**	**16.3**	**5.7**	**4.5**	**8.5**	**Aug-09**
Natural Resources and Infrastructure Benchmark			*-1.1*	*1.4*	*2.2*	*12.7*	*4.6*	*6.9*	*6.9*	
Over/Under			0.1	0.8	6.5	3.6	1.1	-2.4	1.6	
Absolute Return	**3,821,938,454**	**5.9**	**1.2**	**0.4**	**-1.4**	**4.9**	**3.0**	**2.7**	**3.2**	**Apr-08**
Absolute Return Custom Benchmark			*1.3*	*1.2*	*1.4*	*6.6*	*4.7*	*4.2*	*2.6*	
Over/Under			-0.1	-0.8	-2.8	-1.7	-1.7	-1.5	0.6	
Multi Asset	**236,252,565**	**0.4**	**-3.2**	**4.5**	**-1.6**	**-0.4**	**1.2**	**--**	**1.2**	**Jul-18**
System Policy Benchmark			*1.4*	*4.5*	*2.2*	*7.1*	*6.3*	*6.5*	*6.3*	
Over/Under			-4.6	0.0	-3.8	-7.5	-5.1	--	-5.1	
Cash	**292,385,916**	**0.4**	**1.7**	**2.7**	**5.3**	**2.3**	**3.5**	**3.7**	**3.5**	**Jul-08**
FTSE 3 Month T-Bill			*1.3*	*2.4*	*3.7*	*1.3*	*1.6*	*1.0*	*0.7*	
Over/Under			0.4	0.3	1.6	1.0	1.9	2.7	2.8	

Risk Dashboard

Total System Risk

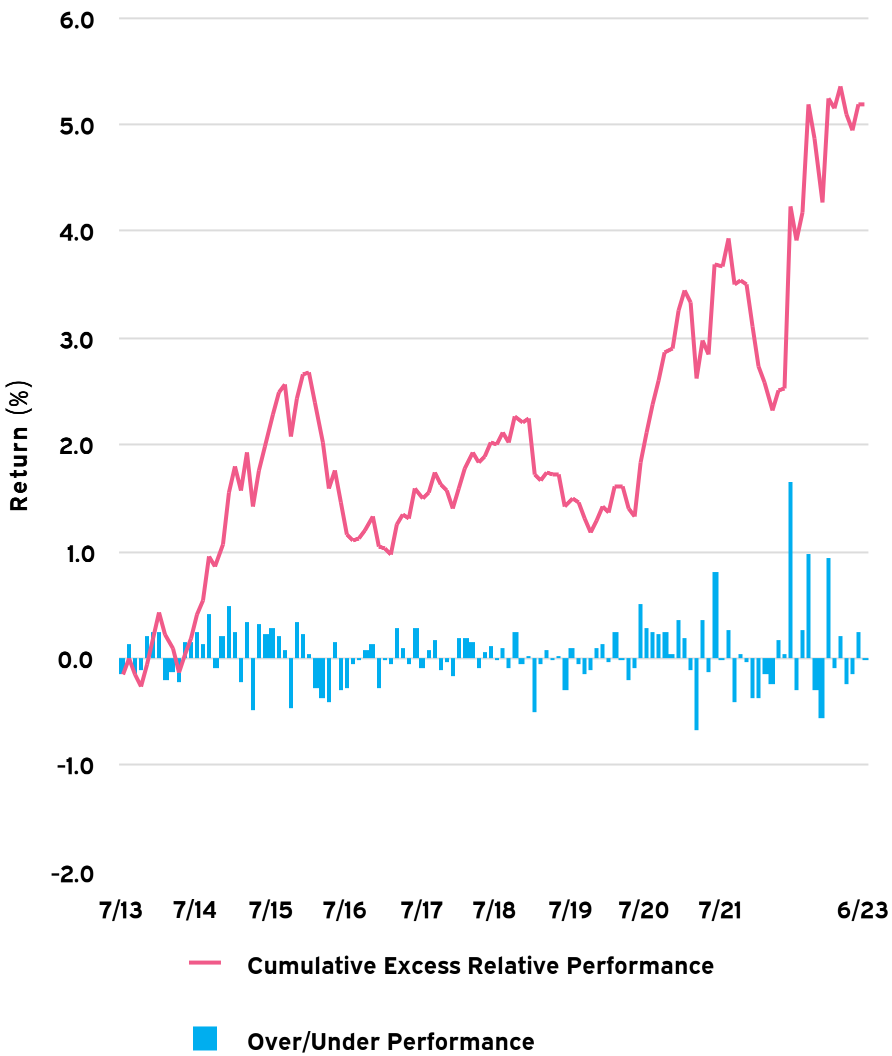
Risk: (sixty months)	Total System 6/30/2023	Policy Benchmark 6/30/2023
Annualized Return (%)	6.9	6.3
Standard Deviation (%)	7.9	8.4
Best Monthly Return (%)	6.9	6.9
Worst Monthly Return (%)	-6.4	-6.4
Beta	0.93	1.00
Correlation (R^2) to Index	0.98	NA
Sharpe Measure	0.68	0.58
Information Ratio	0.45	NA
Excess Return (%)	0.65	NA
Tracking Error (%)	1.27	NA

Rolling 5-Year Standard Deviation

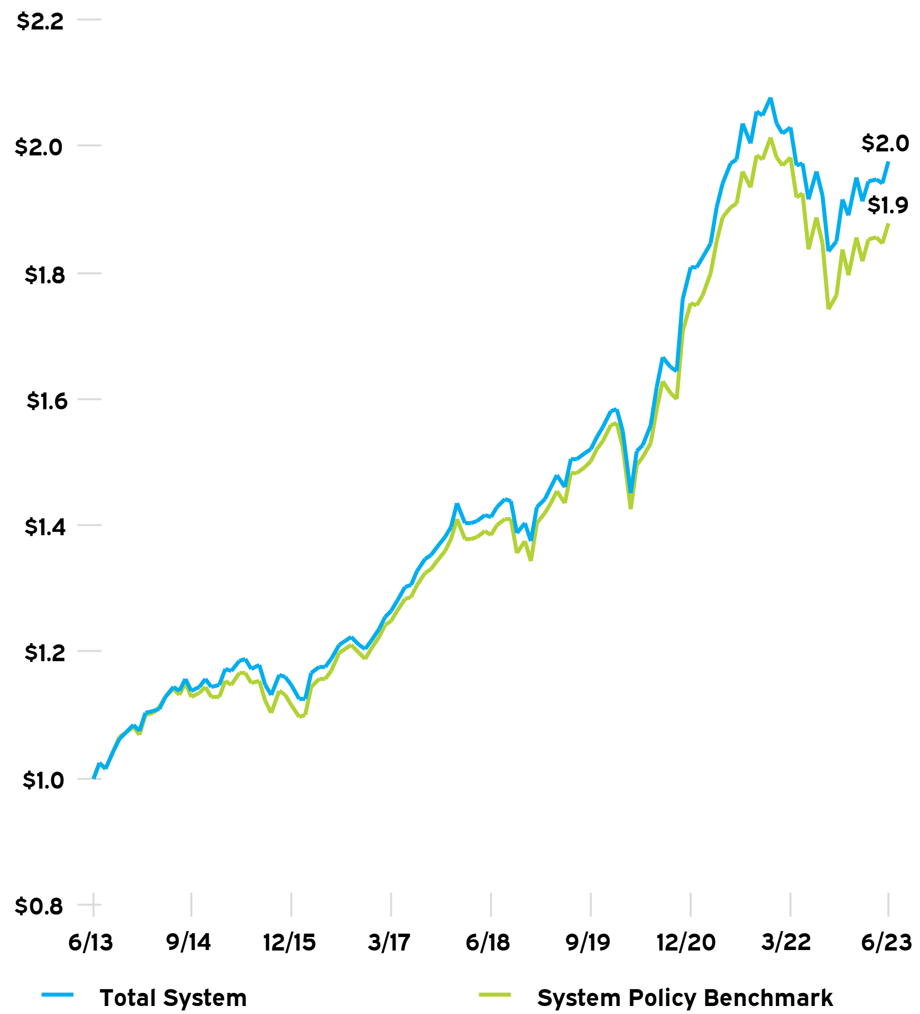


→ Over the trailing 5-years, the System has exhibited lower risk, as measured by standard deviation, than its Policy Benchmark while achieving slightly higher annualized returns.

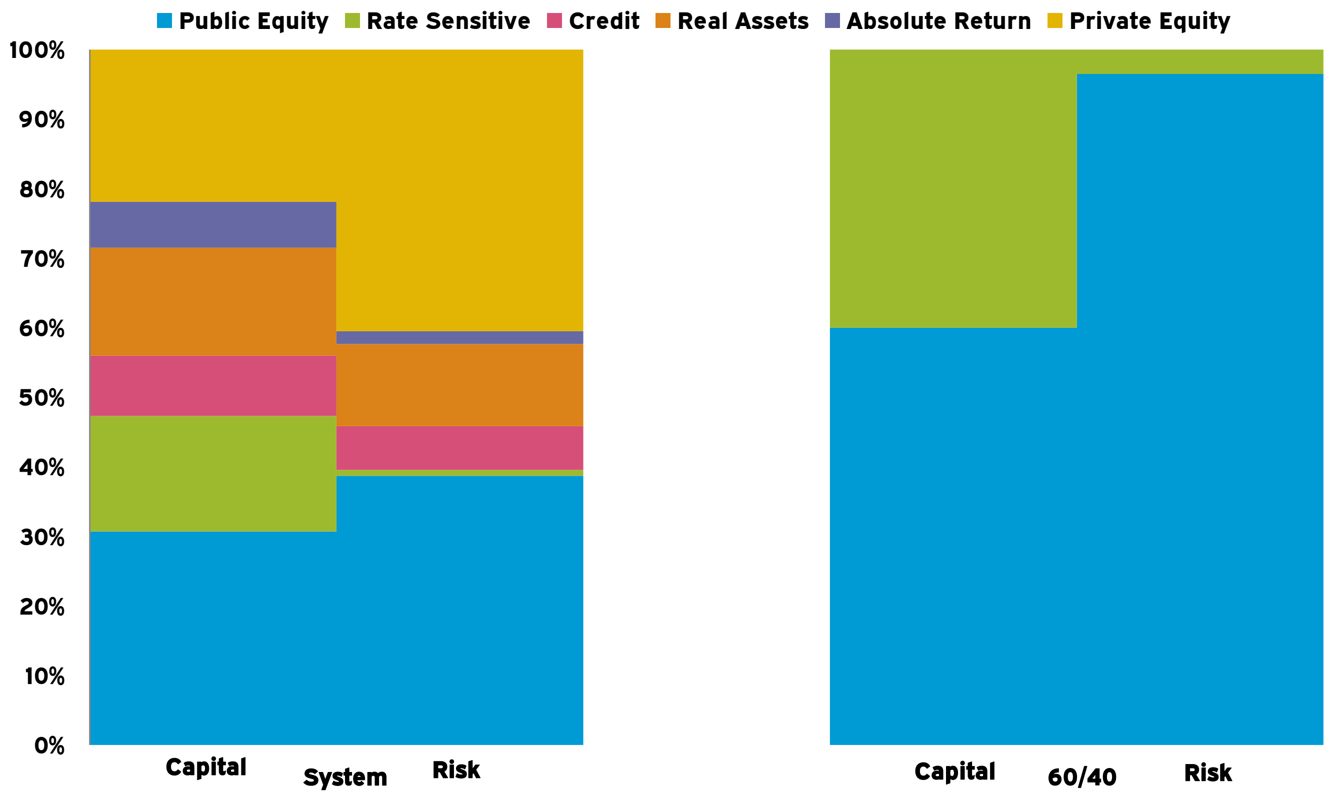
Quarterly and Cumulative Excess Performance



Growth of a Dollar
10 Years Ending June 30, 2023

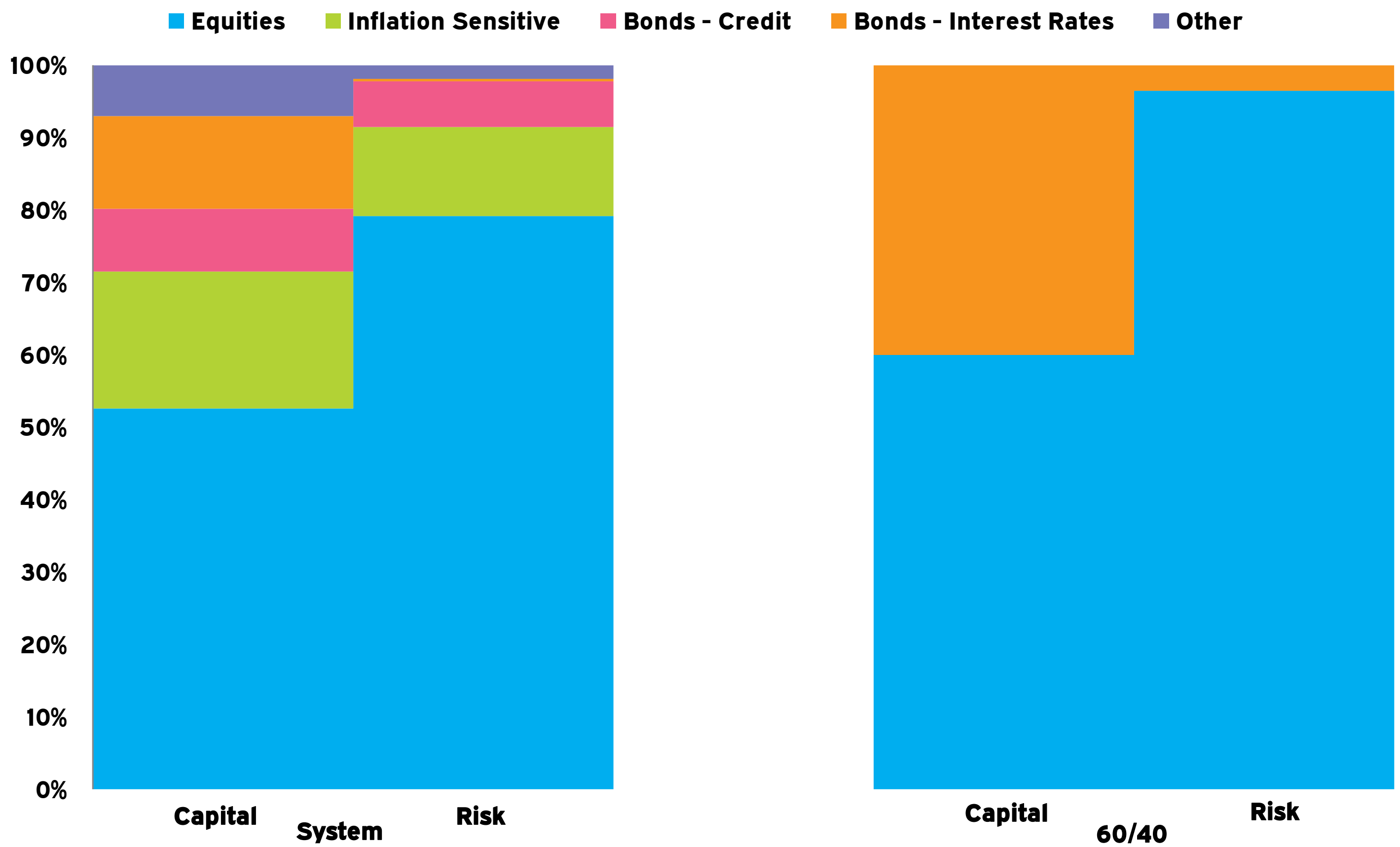


Capital Allocation vs. Risk Allocation
By Asset Class



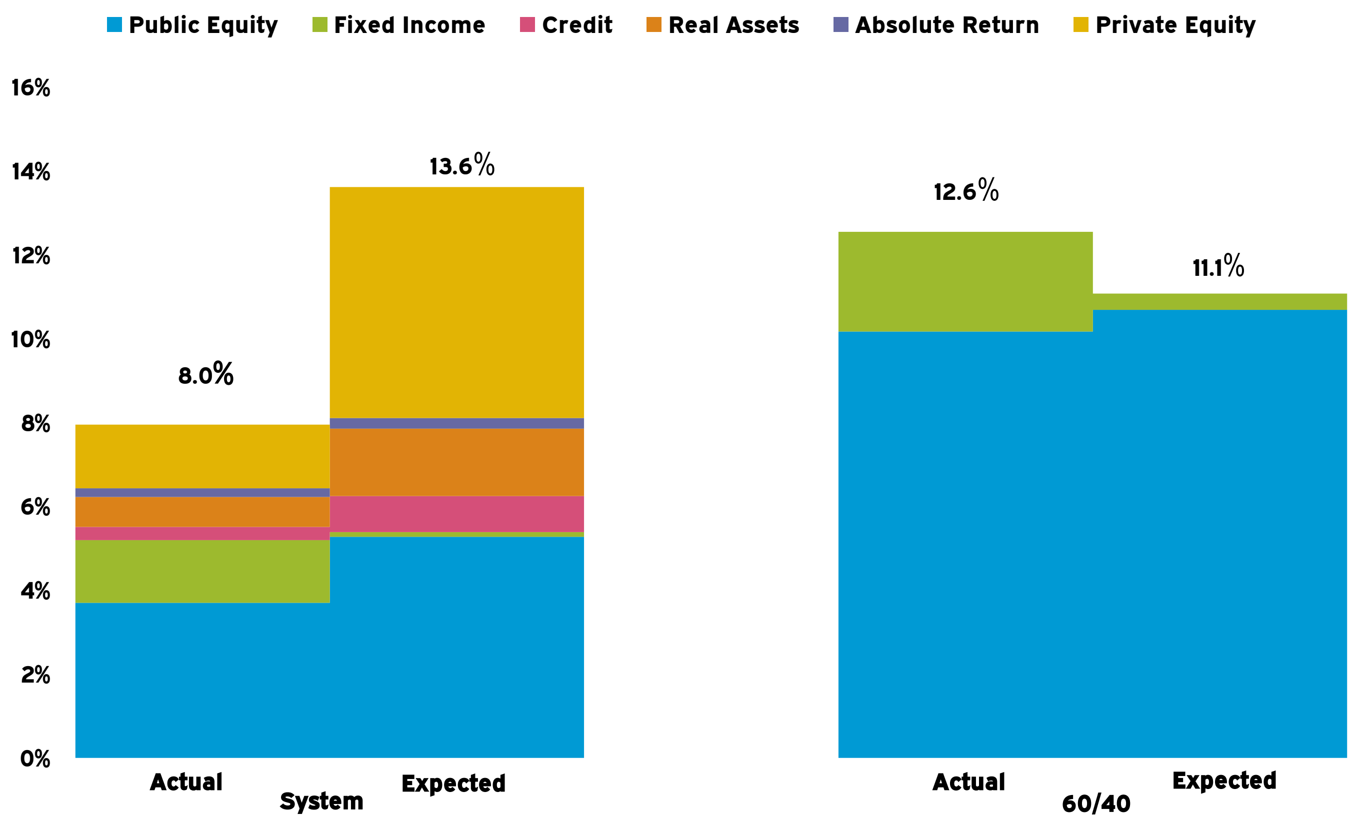
- → Public equity makes up close to 31% of the current asset allocation; however, it comprises about 39% of the risk allocation.
- → By contrast, in a 60/40 portfolio equity comprises 60% of the capital allocation but nearly 97% of the risk.

Capital Allocation vs. Risk Allocation
By Factor Exposure



→ Based on five broad risk exposures, equity (i.e. growth) risk dominates the risk composition of the System.

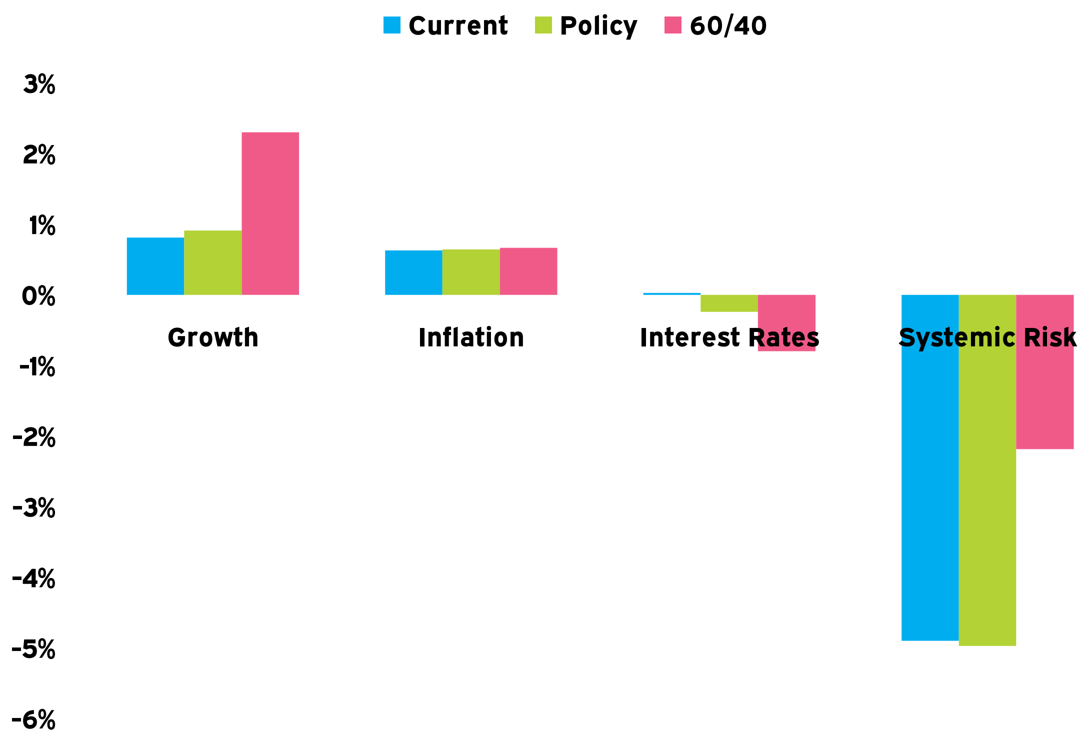
Risk Decomposition
Actual vs. Expected



→ The System's trailing 3-year standard deviation, as a measure of risk, has been lower than expected.

- Public equities, which make up over 39% of the expected risk composition, have made up over 46% of the actual risk over the last three years.

Portfolio Sensitivity Comparison



→ The chart above shows the resulting change in portfolio return given a one standard deviation event in the respective risk factor.

→ There is more concentration in Growth and Systematic Risk because these sources of risk tend to pay better (have higher expected returns) than the other risk factors.

Look Through Analysis Matrix[1,2]

	Manager Allocation	Public Equity	Fixed Income	Credit	Cash	Hedge Funds	Risk Parity/Multi -Asset	Closed-End Private Markets	Real Estate (Private)
Growth Equity	52%	30%				<1%		22%	
Rate Sensitive	17%		17%			<1%			
Credit	9%			5%				4%	
Real Assets	15%	3%						2%	10%
Absolute Return	6%					6%			
Multi Asset	0%						<1%		
Cash	1%				<1%				
Look Through Allocation	100%	33%	17%	5%	<1%	7%	<1%	28%	10%

[1] Numbers may not sum to 100% due to rounding.
[2] Numbers do not reflect the impact of overlay investing.

Asset Allocation Target Range Compliance

Asset Class	Target Range (%)	In Compliance?
Growth Equity	+/- 7	Yes
Rate Sensitive	+/- 5	Yes
Credit	+/- 4	Yes
Real Assets	+/- 4	Yes
Absolute Return	+/- 4	Yes

Sub-Asset Class Allocation Target Range Compliance

Asset Class	Sub-Asset Class	Target Range (%)	In Compliance?
Public Equity	Hedge Funds	0-20	Yes
Private Equity	Buyout	60-90	Yes
	Venture/Growth	10-25	Yes
	Special Situations	10-30	Yes
Rate Sensitive	L-T Government	30-70	Yes
	Securitized Corp	10-50	Yes
	Inflation Linked	0-40	Yes
Credit	Hedge Funds	0-30	Yes
	Private Credit	0-80	Yes
Real Assets	Real Estate- Core	50-100	Yes
	Real Estate – Value Added	0-25	Yes
	Real Estate- Opportunistic	0-25	Yes
	REITS	0-30	Yes
	Commodities	0-25	Yes

Activity Update

Summary of Work to Date

Ongoing Work on Current Roster

→ Completed and submitted comprehensive quarterly reporting for the System.

- Collect and reconcile data from State Street Bank and investment managers, run holdings analysis and performance calculations.
  - Completed quarterly since second quarter 2014.

→ Completed numerous System-related reporting requirements.

- Iran/Sudan divestment analysis (semi-annually in January and July).
  - Attribution and cost analysis of identified companies and potential impact on performance resulting from divestment.

→ Annually, meet and review all public market managers (video conference calls) and make recommendations to staff on potential changes. Initial review of all managers have been completed.

- Annually, over 40 meetings completed via conference call or in person.
- Manager analyses written on all public market managers.

Summary of Work to Date

Investment Topics

→ Discussed general investment topics with Staff, and in some instances the Board.

→ The topics listed are covered through sharing white papers, holding conference calls, or in person meetings:

- Role of leverage in the System
- Public manager peer ranking
- Total fund fee analysis
- Survey & presentation of asset allocation best practices
- Emerging market sensitivity
- Inflation risk
- Benchmarking for private markets and hedge funds
- Fund Governance survey of best practices
- Annual risk reporting
- TUCS peer analysis
- Real estate and emerging market debt benchmarking
- Asset allocation and the impact of the inability to rebalance private markets on long-term returns
- Investing in a Low Interest Rate Environment
- Chinese Restricted List Divestment Impact Analysis
- Researching and drafting a responsible contractor policy
- Involvement with the ad hoc committee in the assumed rate of return
- Asset allocation including more detailed liability analysis and climate scenario analysis
- Implementation of Asset Allocation Changes and Benchmark Changes
- Absolute Return Program Overview
- System Exposure to China

Current Agenda Topics

→ Performance Review

Economic and Market Update

Data as of July 31, 2023

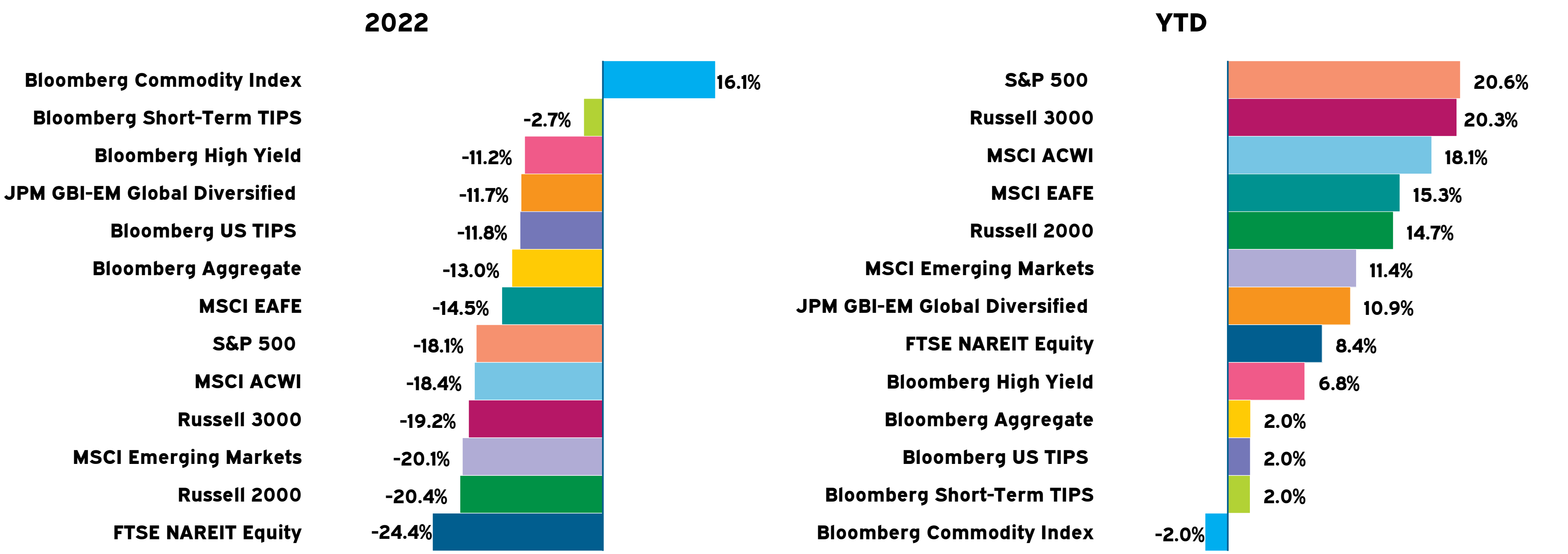
Commentary

→ Riskier assets continued to gain in July as economic data remained resilient while inflation receded. Except for commodities, most public market asset classes remained positive for the year, with US equities leading the way.

- After a pause in June, the Federal Reserve increased interest rates in July by 0.25% to a range of 5.25% - 5.5%, the highest level in over two decades. Markets are largely expecting that this will be the Fed's final rate increase.
- US equity markets (Russell 3000 index) continued to rise in July (+3.6%), bringing the year-to-date gains to 20.3%. The technology sector remains the key driver of results this year, helped by artificial intelligence optimism.
- Non-US developed equity markets also rose in July (MSCI EAFE +3.2%), but they continue to trail US markets year-to-date (15.3% versus 20.3%).
- Emerging market equities had the strongest results in July, gaining 6.2%, driven by optimism over additional policy support in China. They continue to trail developed market equities year-to-date though, returning 11.4%, due partly to China's weak results for the period.
- Generally, corporate bonds outperformed government bonds for the month on continued risk appetite. Overall, interest rates increased slightly in July, leading to a small decline in the broad US bond market (-0.1%). The index remains positive (+2.0%) year-to-date on declining inflation and expectations for the Fed to end their rate hikes soon.

→ This year, the paths of inflation and monetary policy, slowing global growth, and the war in Ukraine will all be key.

Index Returns[1]



→ After a particularly difficult 2022, most public market assets are up thus far in 2023, led by developed market equities.

→ Risk sentiment has been supported by expectations that policy tightening could be ending soon, as inflation continues to fall, while growth has remained relatively resilient.

[1] Source: Bloomberg. Data is as of July 31, 2023.

Domestic Equity Returns[1]

Domestic Equity	July (%)	Q2 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	3.2	8.7	20.6	13.0	13.7	12.2	12.7
Russell 3000	3.6	8.4	20.3	12.6	13.1	11.4	12.1
Russell 1000	3.4	8.6	20.7	12.9	13.2	11.9	12.4
Russell 1000 Growth	3.4	12.8	33.4	17.3	12.2	15.2	15.5
Russell 1000 Value	3.5	4.1	8.8	8.3	14.1	8.0	9.0
Russell MidCap	4.0	4.8	13.3	8.7	11.8	8.8	10.1
Russell MidCap Growth	3.0	6.2	19.4	13.0	6.0	9.9	11.2
Russell MidCap Value	4.4	3.9	9.8	6.2	14.9	7.2	8.9
Russell 2000	6.1	5.2	14.7	7.9	12.0	5.1	8.2
Russell 2000 Growth	4.7	7.1	18.9	11.6	6.5	4.8	8.5
Russell 2000 Value	7.5	3.2	10.2	3.9	17.5	4.7	7.4

US Equities: Russell 3000 Index rose 3.6% in July and 20.3% YTD.

→ Equity investors continue to express optimism that the Federal Reserve’s monetary tightening will not have serious impacts on earnings. Though corporate profits were down compared to a year ago, approximately 80% of S&P 500 companies that reported second quarter results in July exceeded earnings expectations.

→ In contrast to the year-to-date trend, value stocks outperformed growth stocks in July, particularly in small cap, driven by outperformance in financials and energy. So far in 2023, growth has significantly outperformed value driven by optimism over artificial intelligence.

→ Small cap stocks outperformed large cap stocks in July, but trail for the full year, again due to the strength of the technology sector. The July dynamic was driven partially by the outperformance of small cap banks after regulators announced higher capital requirements for larger banks.

[1] Source: Bloomberg. Data is as of July 31, 2023.

Foreign Equity Returns[1]

Foreign Equity	July (%)	Q2 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	4.1	2.4	13.9	13.4	7.1	3.9	4.7
MSCI EAFE	3.2	3.0	15.3	16.8	9.3	4.5	5.2
MSCI EAFE (Local Currency)	1.7	4.3	14.0	13.6	13.0	6.2	7.4
MSCI EAFE Small Cap	4.4	0.6	10.2	7.9	6.1	2.1	6.0
MSCI Emerging Markets	6.2	0.9	11.4	8.3	1.5	1.7	3.5
MSCI Emerging Markets (Local Currency)	5.3	1.7	11.1	8.6	3.0	3.7	6.1
MSCI China	10.8	-9.7	4.7	1.8	-9.9	-2.8	3.7

Foreign Equity: Developed international equities (MSCI EAFE) rose 3.2% in July bringing the YTD gains to 15.3%. Emerging market equities (MSCI EM) rose 6.2% in July, rising 11.4% YTD.

→ International equities also had strong results in July, led by China and emerging markets more broadly.

→ Japanese equities continued their steady rise, especially in the mid- and small-cap sectors. Eurozone and UK equities were broadly supported by falling inflation and solid corporate fundamentals.

→ After a disappointing reopening of the economy, China's government announced additional support to stimulate consumption and bolster the real estate sector, leading to double-digit gains for the month (10.8%). India underperformed as higher food costs kept inflation elevated.

1 Source: Bloomberg. Data is as of July 31, 2023.

Fixed Income Returns[1]

Fixed Income	July (%)	Q2 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	0.1	-0.6	2.4	-2.4	-4.0	1.0	1.8	5.2	6.2
Bloomberg Aggregate	-0.1	-0.8	2.0	-3.4	-4.5	0.7	1.5	4.9	6.5
Bloomberg US TIPS	0.1	-1.4	2.0	-5.4	-0.8	2.6	2.0	4.6	6.9
Bloomberg Short-term TIPS	0.5	-0.7	2.0	-1.2	2.3	2.9	1.7	5.3	2.7
Bloomberg High Yield	1.4	1.7	6.8	4.4	2.0	3.4	4.4	8.3	4.0
JPM GBI-EM Global Diversified (USD)	2.9	2.5	10.9	14.3	-1.5	0.5	-0.2	6.5	5.0

Fixed Income: The Bloomberg Universal rose 0.1% in July remaining positive YTD (+2.4%), as inflation continues to decline, and yields remain high.

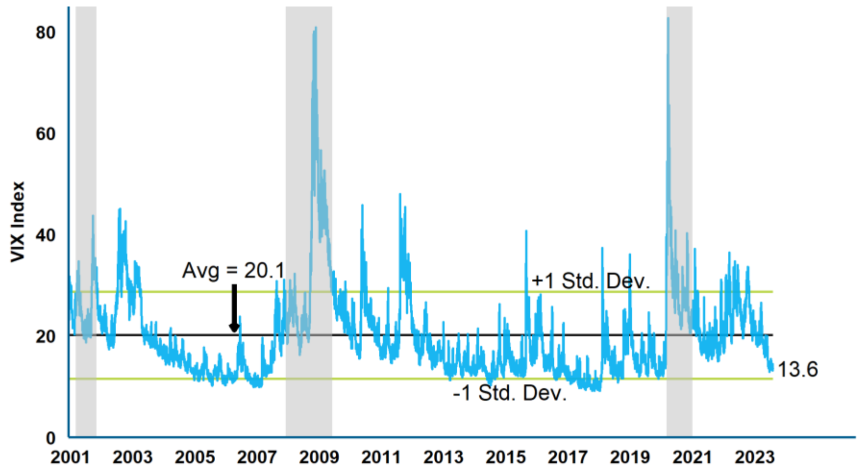
→ In July, riskier bonds continued to outperform government bonds on optimism over a potential soft landing of the economy.

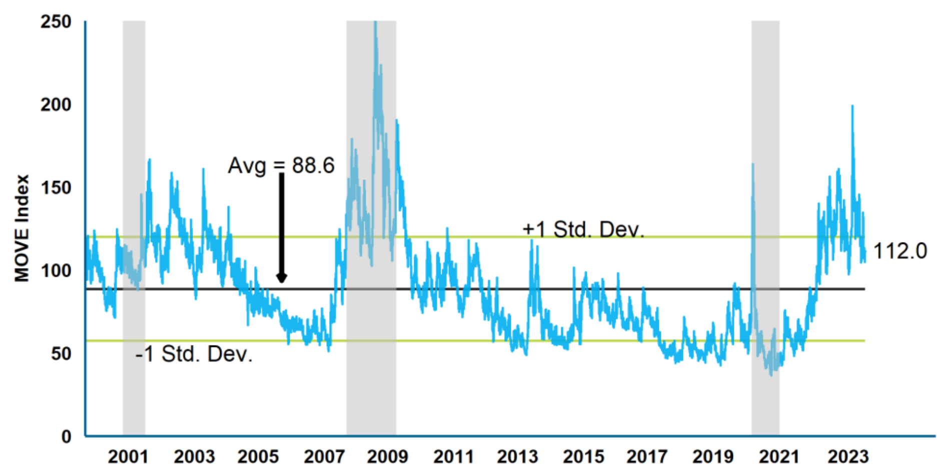
→ The broad US bond market (Bloomberg Aggregate) declined slightly for the month (-0.1%) while the TIPS index, and the short-term TIPS index both posted small gains. All three indexes now have the same results so far in 2023.

→ In the risk-on environment, high yield bonds rose 1.4% for the month, while emerging market bonds were the top performer, up 2.9%. The two asset classes remain the top performers for the year.

[1] Source: Bloomberg. JPM GBI-EM data is from InvestorForce. Data is as of July 31, 2023. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration respectively.

Equity and Fixed Income Volatility[1]



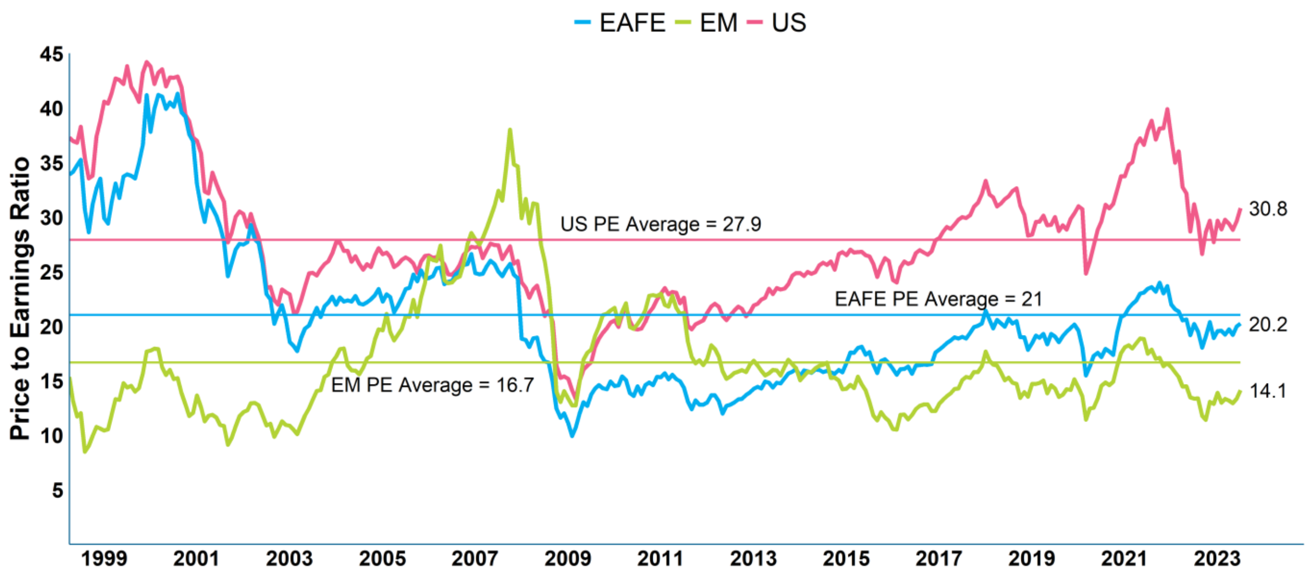


→ Volatility in equities (VIX) remains well below the historical average as investors continue to anticipate the end of the Fed's policy tightening.

→ The bond market continues to be volatile after last year's historic losses and due to policy uncertainty and previous issues in the banking sector. The MOVE (fixed income volatility) remains well above (112.0) its long-run average (88.6), but off its recent peak during the heart of the banking crisis.

[1] Equity and Fixed Income Volatility – Source: Bloomberg. Implied volatility as measured using VIX Index for equity markets and the MOVE Index to measure interest rate volatility for fixed income markets. Data is as of July 2023. The average line indicated is the average of the VIX and MOVE values between January 2000 and July 2023.

Equity Cyclically Adjusted P/E Ratios[1]

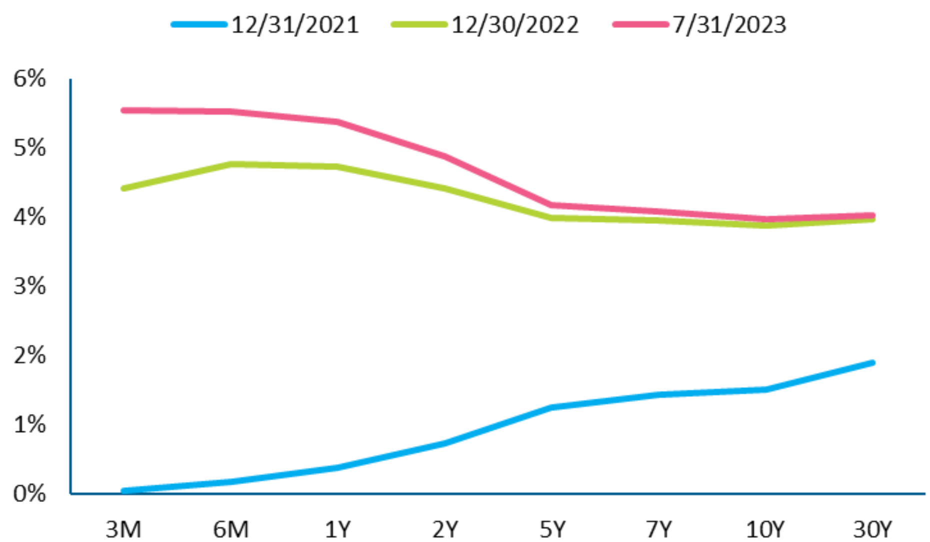


→ Given the strong technology-driven rally this year, the US equity price-to-earnings ratio increased above its long-run (21st century) average.

→ International developed market valuations are below their own long-term average, with those for emerging markets the lowest and well under the long-term average.

[1] US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years. Data is as of July 2023. The average line is the long-term average of the US, EM, and EAFE PE values from December 1999 to the recent month-end respectively.

US Yield Curve[1]

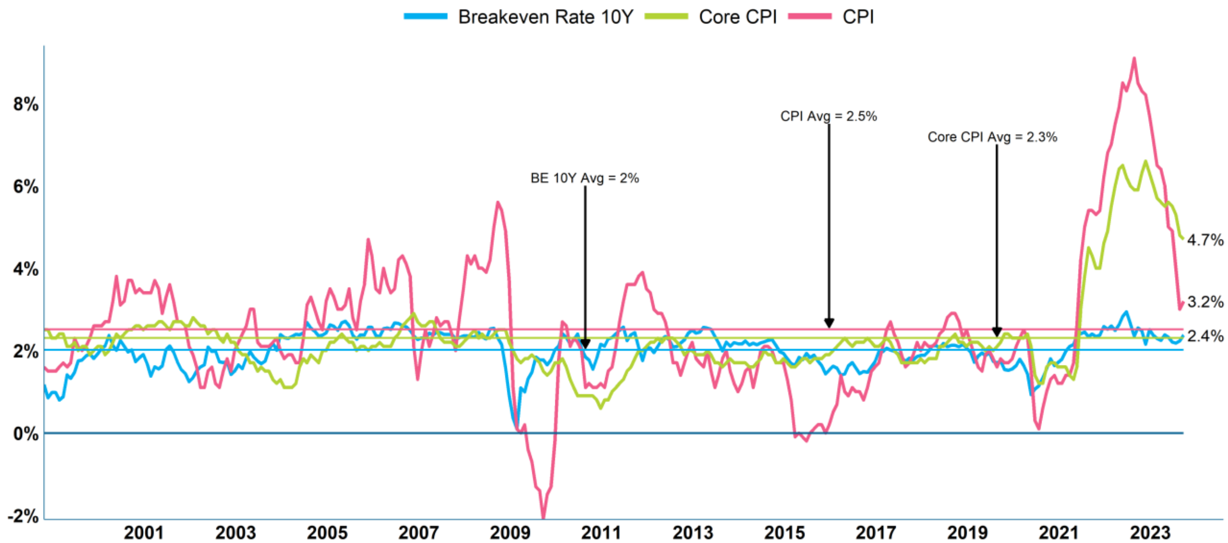


→ In July, very short-term interest rates (6-months or less) fell as it appears interest rate hikes might be coming to an end. Longer dated maturities continued to drift higher, as economic data remains resilient. So far in 2023, rates overall remain higher, particularly the policy sensitive front-end of the yield curve.

→ The yield curve remains inverted with the spread between two-year and ten-year Treasuries finishing the month at -0.91%. The more closely watched measure (by the Fed) of the three-month and ten-year Treasuries spread also remained inverted at -1.60%. Inversions in the yield curve have often preceded recessions.

[1] Source: Bloomberg. Data is as of July 31, 2023.

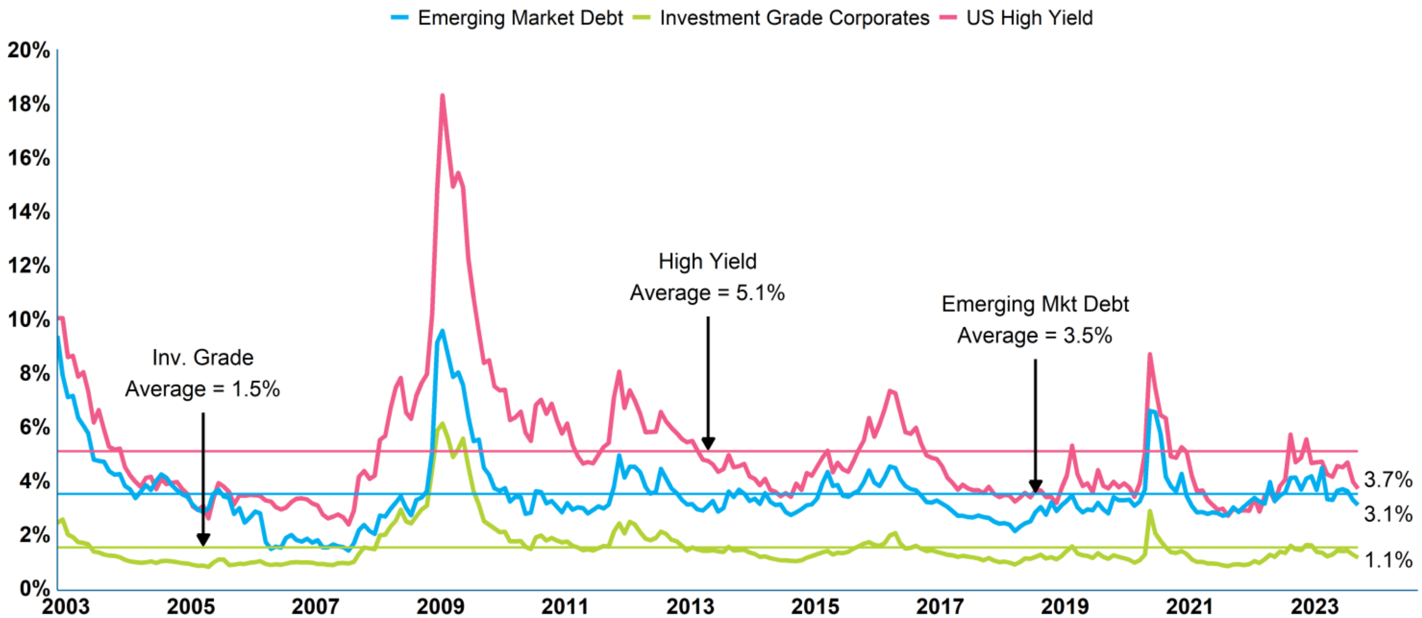
Ten-Year Breakeven Inflation and CPI[1]



- → Declines in inflation while other economic data remains strong has led to optimism over the Federal Reserve potentially achieving a rarely observed soft landing for the economy.
- → Year-over-year headline inflation rose slightly in July (3.0% to 3.2%) but came in below expectations. The trend of lower month-over-month price increases continued with the rate staying steady at 0.2%.
- → Core inflation – excluding food and energy - fell (4.8% to 4.7%) year-over-year. It remains stubbornly high though driven by shelter costs (+7.7%), particularly owners equivalent rent, and transportation services (+9.0%).
- → Inflation expectations (breakevens) remain well below current inflation as investors continue to expect inflation to track back toward the Fed's 2% average target.

[1] Source: Bloomberg. Data is as July 31, 2023. The CPI and 10 Year Breakeven average lines denote the average values from August 1998 to the present month-end, respectively. Breakeven values represent month-end values for comparative purposes.

Credit Spreads vs. US Treasury Bonds[1]

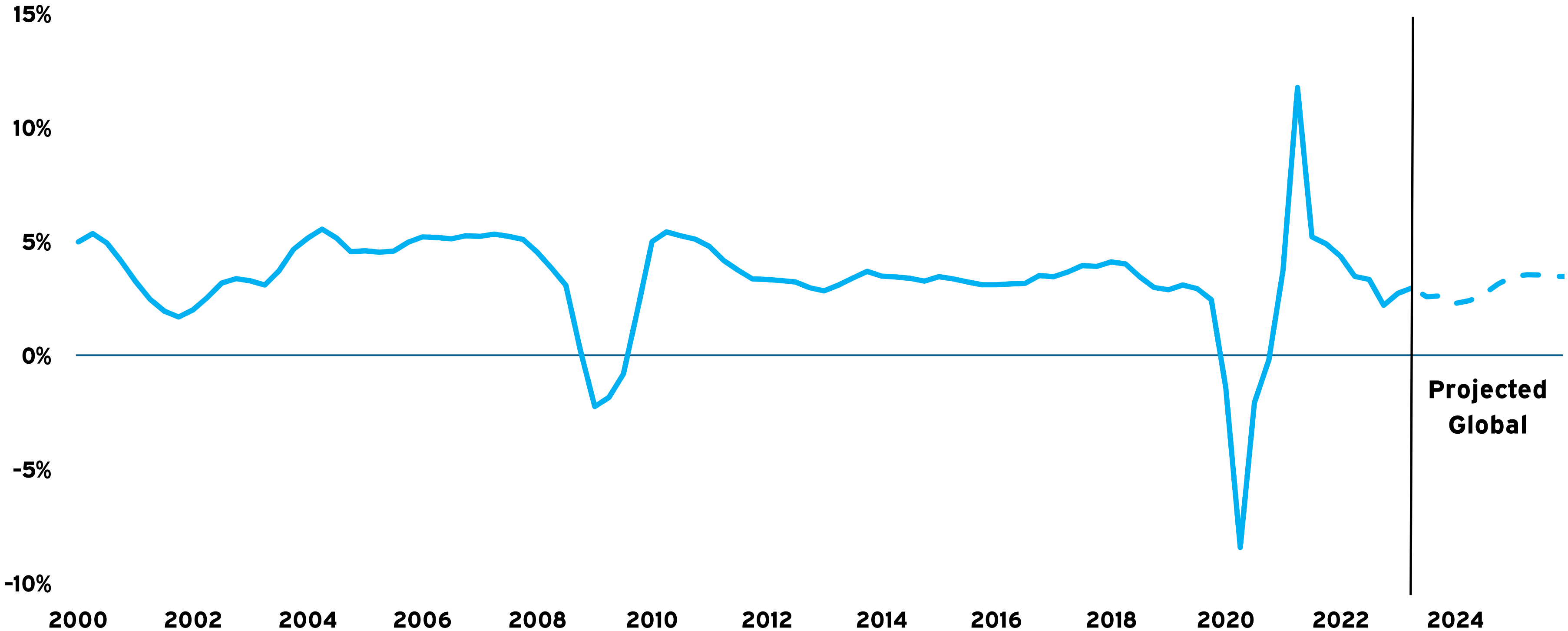


→ Credit markets outperformed government bonds for the month with spreads (the added yield above a comparable maturity Treasury) declining. Risk appetite was strong as growth remains resilient, while inflation continues to decline.

→ High yield spreads remain well below the long-term average. Investment grade and emerging market spreads are also below their respective long-term averages, but by smaller margins.

[1] Sources: Bloomberg. Data is as of July 31, 2023. Average lines denote the average of the investment grade, high yield, and emerging market spread values from August 2000 to the recent month-end, respectively.

Global Real Gross Domestic Product (GDP) Growth[1]

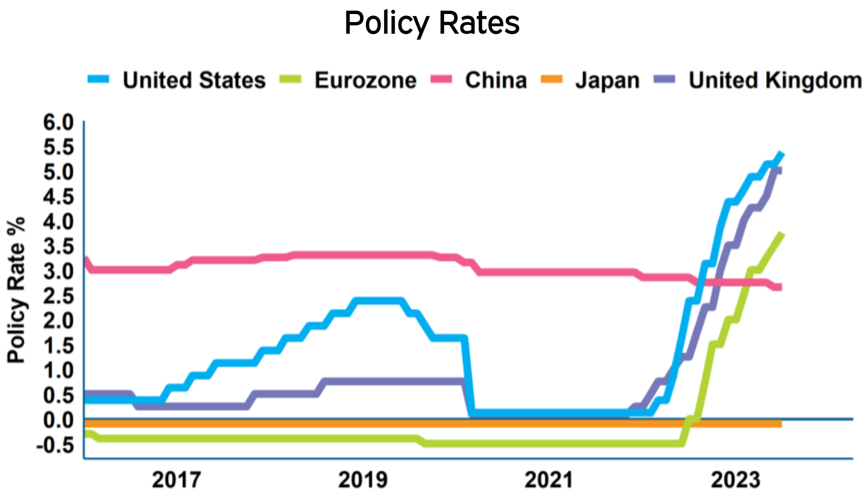


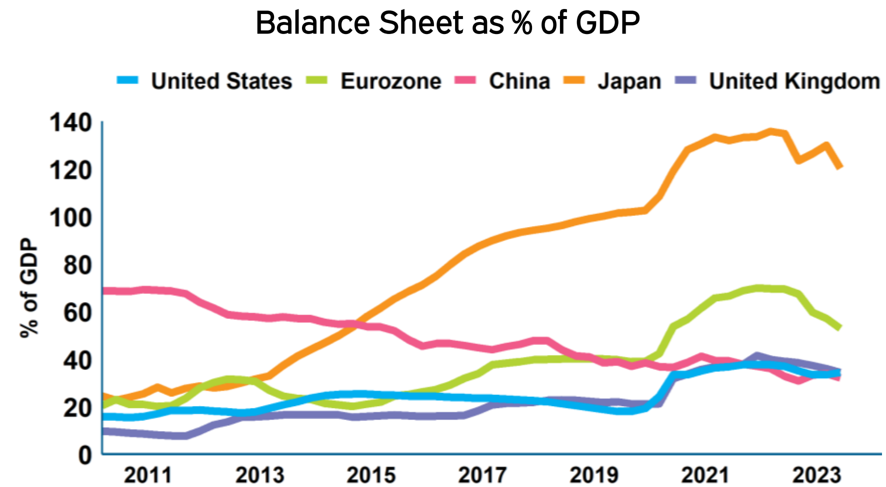
→ Global economies are expected to slow this year compared to 2022. The risk of recession remains given policymakers' aggressive tightening, but optimism has started to grow over some central banks potentially navigating a soft landing.

→ The delicate balancing act of central banks trying to reduce inflation without dramatically depressing growth will remain key.

[1] Source: Oxford Economics (World GDP, US$ prices & PPP exchange rate, real, % change YoY). Updated July 2023.

Central Bank Response[1]

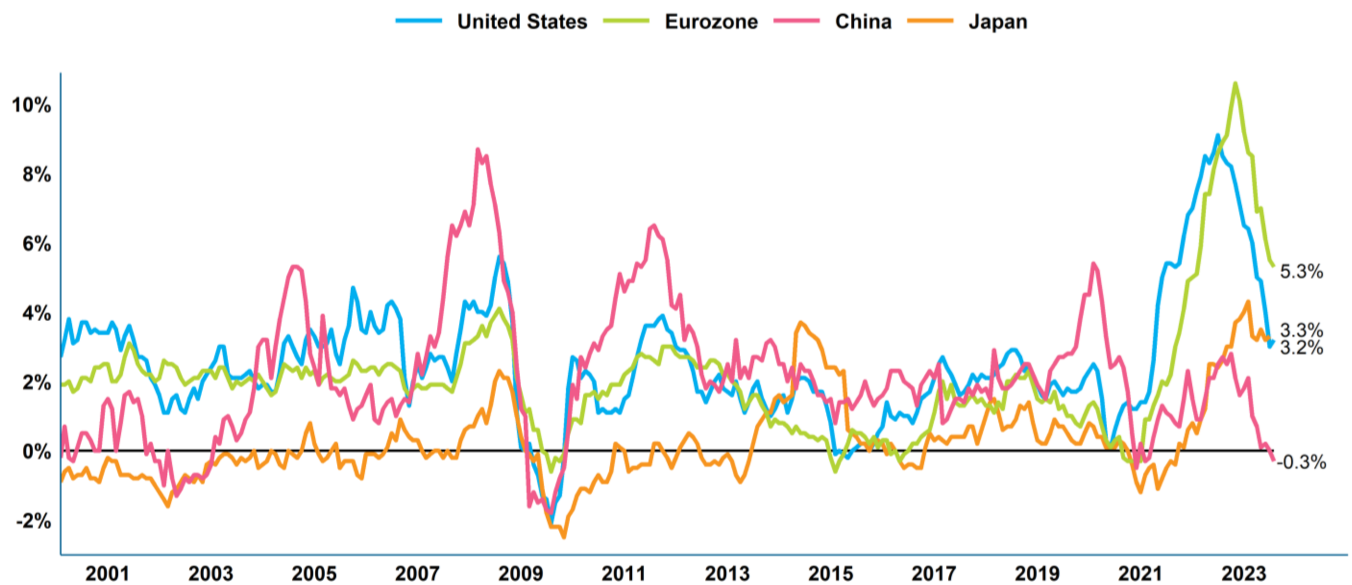




- → Slowing inflation and growth have led to expectations for a reduction in the pace of aggressive policy tightening.
- → In July the Fed raised rates another 25 basis points to a range of 5.25% to 5.50% with markets largely expecting this to be the last rate increase. After month-end, the FOMC paused its tightening campaign.
- → The European Central Bank also increased rates in July, but they remain lower than in the US. In Japan the BOJ surprised markets by announcing they would be more flexible on their 10-year interest rate target.
- → The central bank in China has continued to cut interest rates and inject liquidity into the banking system, as weaker than expected economic data appears to indicate a widespread slowdown.
- → Looking ahead, risks remain for a policy error as central banks attempt to balance multiple goals, bringing down inflation, maintaining financial stability, and supporting growth.

[1] Source: Bloomberg. Policy rate data is as of July 31, 2023. China policy rate is defined as the medium-term lending facility 1 year interest rate. Balance sheet as % of GDP is based on quarterly data and is as of June 30, 2023.

Inflation (CPI Trailing Twelve Months)[1]



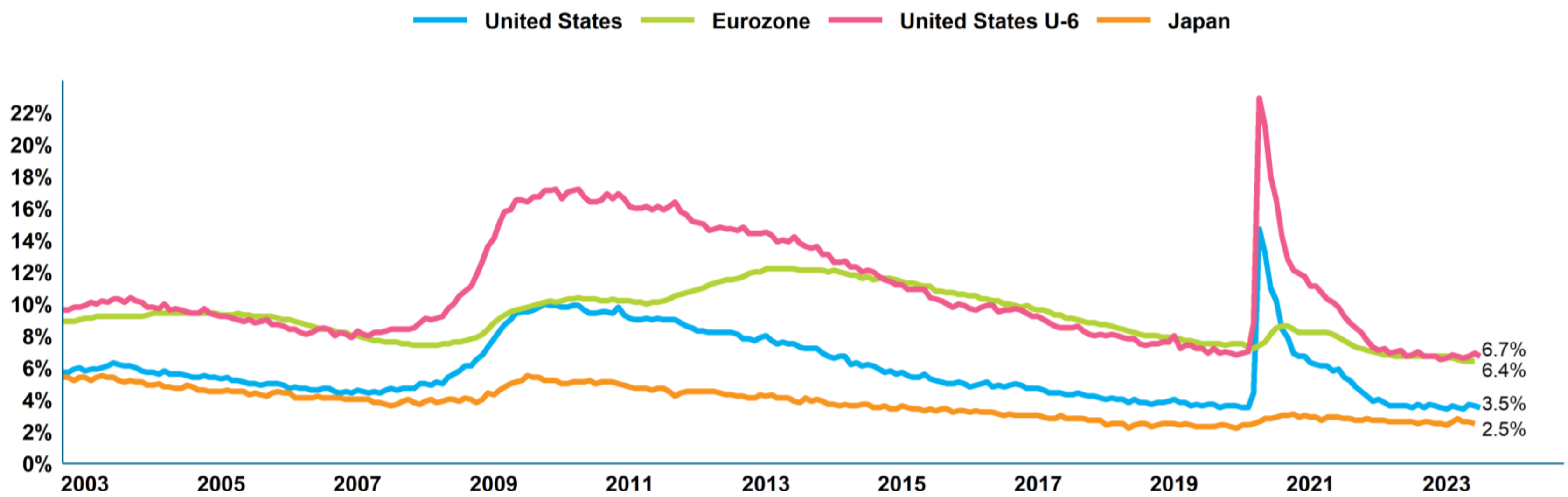
→ The inflation picture remains mixed across the major economies.

→ In the US, inflation rose slightly in July (3.0% to 3.2%), while eurozone inflation continued to fall (5.5% to 5.3%) a level well off its peak. Despite 2023's significant declines in the US and Europe, inflation levels remain elevated compared to central bank targets.

→ Inflation in Japan remains elevated at levels not seen in almost a decade largely driven by food and home related items. In China, deflationary pressures emerged in July due to falling food prices, but this is expected to be temporary as high base effects from last year work their way through.

[1] Source: Bloomberg. Data is as July 31, 2023. The most recent Japanese inflation data is as of June 2023.

Unemployment[1]



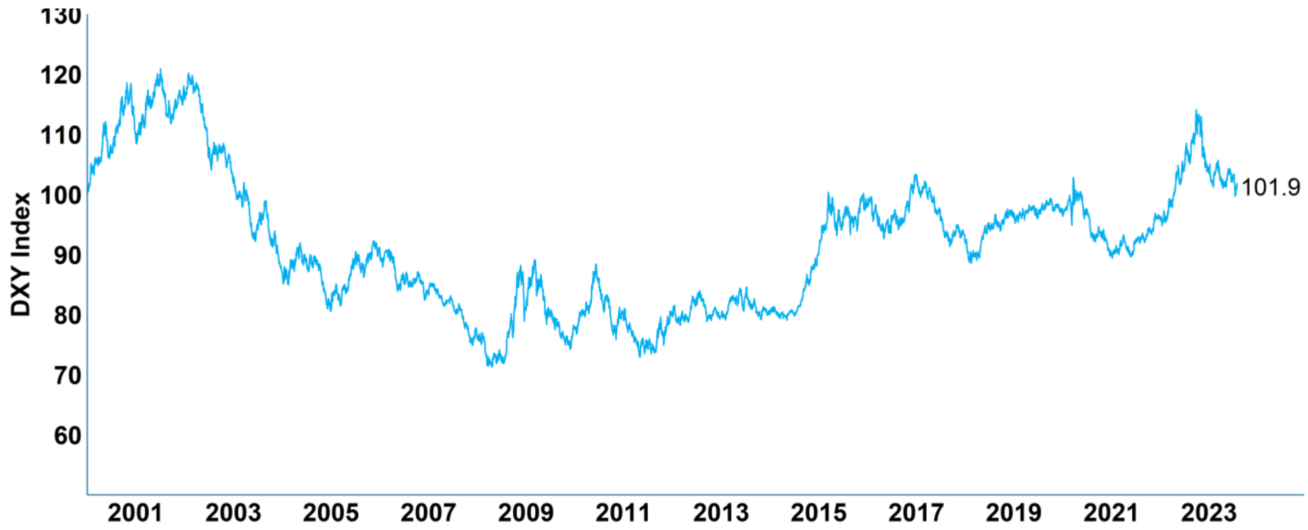
→ Despite slowing growth and relatively high inflation, the US labor market continues to show signs of resilience (3.5%). Unemployment in the US, which experienced the steepest rise, recently returned to pre-pandemic levels. Broader measures of unemployment (U-6) remain higher at 6.7% but also declined dramatically from their peak.

→ The strong labor market and higher wages, although beneficial for workers, motivates the Fed's efforts to fight inflation, potentially leading to higher unemployment.

→ Unemployment in Europe has also declined but remains higher than the US, while levels in Japan have been flat through the pandemic given less layoffs.

[1] Source: Bloomberg. Data is as July 31, 2023, for the US. The most recent data for Eurozone and Japanese unemployment is as of June 2023.

US Dollar versus Broad Currencies[1]



→ The dollar finished 2022 much higher than it started, due to the increased pace of policy tightening, stronger relative growth, and safe-haven flows.

→ Late last year and into early this year, the dollar declined, as weaker economic data and lower inflation led to investors anticipating the end of Fed tightening. Since then, the dollar has largely been range-bound due to competing forces of safe-haven flows and monetary policy expectations.

→ For the rest of this year, the track of inflation across economies and the corresponding monetary policies will be key drivers of currency moves.

[1] Source: Bloomberg. Data as of July 31, 2023.

Summary

Key Trends:

→ The impact of inflation still above policy targets will remain key, with bond market volatility likely to stay high.

→ Global monetary policies could diverge in 2023. The risk of policy errors remains elevated as central banks try to reduce persistent inflation while not tipping their economies into recession.

→ Growth is expected to slow globally this year, with many economies forecasted to tip into recession. Optimism has been building though that some economies could experience a soft landing. Inflation, monetary policy, and the war will all be key.

→ In the US, consumers could feel pressure as certain components of inflation remain high (e.g., shelter), borrowing cost are elevated, and the job market may weaken.

→ The key for US equities going forward will be whether earnings can remain resilient if growth continues to slow. Also, the future path of the large technology companies that have driven market gains will be important.

→ Equity valuations remain lower in emerging and developed markets, but risks remain, including potential for renewed strength in the US dollar, higher inflation weighing particularly on Europe, and China's sluggish economic reopening and on-going weakness in the real estate sector. Japan's recent hint at potentially tightening monetary policy along with changes in corporate governance in the country could influence relative results.

Appendices

Corporate Update

7
Offices

245+
Employees

240+
Clients

$1.7T
Assets Under Advisement

$200B
Assets in Alternative Investments

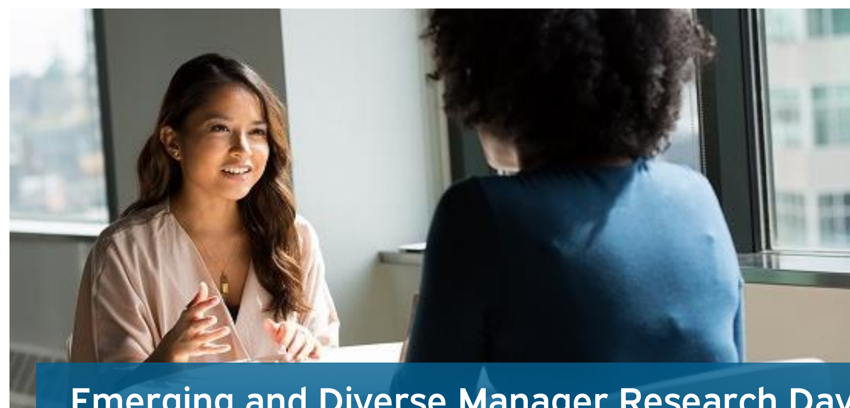
99%
Client Retention Rate

5:1
Client | Consultant Ratio

Meketa Investment Group is proud to work for over 15 million American families everyday!

UPCOMING EVENTS

Q3 Investment Perspectives Webcast
October 2023



Emerging and Diverse Manager Research Day
October 2023

Client and employee counts as of June 30, 2023; assets as of March 31, 2023.
Client retention rate is one minus the number of clients lost divided by the number of clients at prior year-end.

MEKETA IN THE NEWS

Pensions&Investments

Evolution of 60/40 allocation continues amid high inflation

Portfolio managers divided over future of model after historically bad '22 returns

By Palash Ghosh | May 8, 2023

Stephen McCourt and Rafi Zaman, San Diego-based executives at consultant Meketa Investment Group, said in a joint email that if the outlook is for elevated inflation levels and higher volatility, then an allocation of 20% or more to alternatives may be appropriate. "Many of the largest and most successful pension funds today are already well beyond the 20% level," they added.

Mr. McCourt is managing principal and co-CEO at Meketa, while Mr. Zaman is CIO of Meketa Fiduciary Management, a subsidiary of Meketa that provides OCIO services. Meketa had about $1.6 trillion in client assets under advisement as of Sept. 30.

Messrs. McCourt and Zaman noted that some institutional investors began moving away from a 60/40 portfolio many years ago, while others are just now starting to recognize that a 60/40 allocation may not provide adequate diversification.

"As a result, they're seeking a broader set of assets that are reasonably uncorrelated," they said. "In addition, investors are focusing more and more on their own specific liabilities, not just volatility, as measures of risk. This change has been somewhat gradual but consistent over time. We expect these trends to continue."

Messrs. McCourt and Zaman contend that institutional investors need to allocate assets based on striking the right balance between their return expectations and risks they can safely bear. "These risks include volatility, liquidity, drawdown risk, etc.," they said. "Second, risk management shouldn't be a mechanical process driven by some model output — rather, it is a deliberate and iterative process where various forward-looking scenarios are considered, and their impact measured. Allocations to alternatives should be determined within this framework, based on their impact in mitigating overall risks while providing adequate returns."

FUNDfire

Natural Resource Fund Returns Ride High, But Will Investors Bite?

Natural resource funds benefitting from high inflation have outperformed other asset classes.

By Shayla Colon | May 17, 2023

Another critical feature of natural resources funds is their exposure to underlying commodities, which can be "highly volatile and subject to cyclical environments," said **Gerald Chew**, a private markets consultant at **Meketa**. That was a main reason many strategies underperformed much of the past decade as inflation was low and commodity prices were trending downward, he explained.

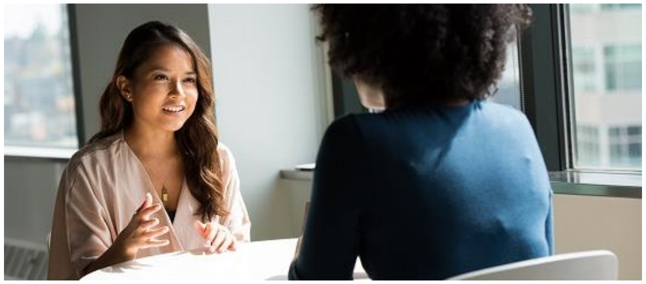
CELEBRATING THIS QUARTER | Meketa's 2022 Corporate Responsibility Report

Meketa is pleased to present the 2022 Corporate Responsibility Report. The purpose of this report is to provide an overview of the firm and our commitment to diversity, the work experience of our employees, Meketa's role in the community, and how we can assist our clients as they approach environmental, social, and governance ("ESG") issues at their institutions and within their portfolios.

We believe that our own corporate responsibility is critical in reflecting the firm's belief in a sustainable future that promotes social and environmental well-being for our clients, employees, communities, and business operations.

View our full report here:
https://meketa.com/news/meketas-2022-corporate-responsibility-report/

THOUGHT LEADERSHIP



Watch our recent Emerging & Diverse Manager Day Roundtable Discussion on RMS

We hosted a one-hour roundtable discussion with a panel of managers focused on fundraising in non-traditional markets and implementing investment solutions within Risk Mitigating Strategies ("RMS"). RMS is a strategic investment framework designed to provide investors diversification relative to the single largest risk factor in most portfolios: equity risk. Roundtable topics included initial challenges to fundraising, and educating Trustees on a non-traditional asset class as well as reflections on launching a firm. Roundtable participants included Vineer Bhansali of LongTail Alpha, DeWayne Louis of Versor Investments, and Rosie Reynolds of Aspect Capital.

Watch the webinar here:
https://meketa.com/leadership/april-2023-emerging-and-diverse-manager-roundtable-discussion/

Read our May 2023 Meketa Connectives on "US Core Inflation Higher for Longer?"

In 2023 Meketa launched a new series in our Thought Leadership library called "Meketa Connectives." This series started in February with our first issue "Understanding China Series Update: US China Diplomatic Relations Fray." Since then we have released four more issues aimed at connecting various items in our Thought Leadership library including white papers, global macroeconomic newsletters, and webinars. In our May issue we cover how persistent inflation can weigh on investment returns for a variety of reasons, but a diversified basket of inflation-hedging assets and a functional approach to asset allocation could provide ballasts and clarity for investors when price of goods and interest rates are elevated.

Read more here:
https://meketa.com/news/meketa-connectives-us-core-inflation-higher-for-longer/

Read our recent white paper on General Partner Stakes Investing

Private market investment strategies continue to expand while providing differentiated risk/return profiles. Capital investments into private market management companies, known as "GP stakes", are an example of this expansion. GP stakes provide a differentiated way to participate in the potentially attractive economics of private market firms ("GPs" or "managers"). The primary focus of a typical GP stakes transaction is to purchase a minority ownership position of a private market manager, commonly around 20%, and participate in a combination of the management fees, pro rata share of the proceeds of GP commitments to funds, and/or performance fees (i.e., carried interest).

Read more here:
https://meketa.com/leadership/gp-stakes-investing/

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PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

Credit Risk: Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security.)

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

Information Ratio: This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

Jensen's Alpha: A measure of the average return of a portfolio or investment in excess of what is predicted by its beta or "market" risk. Portfolio Return- [Risk Free Rate+Beta*(market return-Risk Free Rate)].

Market Capitalization: For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

Market Weighted: Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

Maturity: The date on which a loan, bond, mortgage, or other debt/security becomes due and is to be paid off.

Prepayment Risk: The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

Price-Book Value (P/B) Ratio: The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.

Price-Earnings (P/E) Ratio: A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about is future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

Quality Rating: The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

Sharpe Ratio: A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.

STIF Account: Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

Standard Deviation: A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

Style: The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

Tracking Error: A divergence between the price behavior of a position or a portfolio and the price behavior of a benchmark, as defined by the difference in standard deviation.

Yield to Maturity: The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a "basis book." For example, a 5% bond pays $5 a year interest on each $100 par value. To figure its current yield, divide $5 by $95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay $100 for the bond that can be bought now for $95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

$$\frac{\text{5\% (discount)}}{\text{5 (yrs. to maturity)}} = \begin{array}{l}\text{1\% pro rata, plus}\\ \text{5.26\% (current yield)}\end{array} = \text{6.26\% (yield to maturity)}$$

Yield to Worst: The lowest potential yield that can be received on a bond without the issuer actually defaulting. The yield to worst is calculated by making worst-case scenario assumptions on the issue by calculating the returns that would be received if provisions, including prepayment, call, or sinking fund, are used by the issuer.

NCREIF Property Index (NPI): Measures unleveraged investment performance of a very large pool of individual commercial real estate properties acquired in the private market by tax-exempt institutional investors for investment purposes only. The NPI index is capitalization-weighted for a quarterly time series composite total rate of return.

NCREIF Fund Index - Open End Diversified Core Equity (NFI-ODCE): Measures the investment performance of 28 open-end commingled funds pursuing a core investment strategy that reflects funds' leverage and cash positions. The NFI-ODCE index is equal-weighted and is reported gross and net of fees for a quarterly time series composite total rate of return.

Sources: Investment Terminology, International Foundation of Employee Benefit Plans, 1999.
The Handbook of Fixed Income Securities, Fabozzi, Frank J., 1991

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Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.