

Arizona State Retirement System

Independent ASRS Investment Program Oversight for the Period Ending June 30, 2014

August 18, 2014

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ASRS Investment Objectives/Performance

Note: All of the data shown on the following pages is as of June 30, 2014 and reflects the deduction of investment manager fees, unless otherwise noted.



Macro

- Objective #1: Achieve a twenty-year rolling annual total fund net rate of return equal to or greater than the actuarial assumed interest rate.
- Objective #2: Achieve one- and three-year rolling annual total fund net rates of return equal to or greater than the return of the ASRS Strategic Asset Allocation Policy (SAAP) Benchmark.
- Objective #3: Achieve one- and three-year rolling annual net rates of return for ASRS strategic asset classes that are equal to or greater than their respective strategic asset class benchmarks.
- Objective #4: Ensure sufficient monies are available to meet pension benefits, health insurance, member refunds, administrative payments, and other cash flow requirements.

Micro

Source: ASRS Strategic Plan, March 2013

- Objective #1: Achieve a twenty-year rolling annual total fund net rate of return equal to or greater than the actuarial assumed interest rate.

	<u>20 Year Annualized Return</u>
Total Fund	8.9%
Constant 8%	<u>8.0%</u>
Excess Return	0.9%

Goal Met: Yes

Total Fund Performance

- Objective #2: Achieve one- and three-year rolling annual total fund net rates of return equal to or greater than the return of the ASRS Strategic Asset Allocation Policy (SAAP) Benchmark.

	Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception (6/30/75)
Total Fund	3.9%	18.6%	10.8%	14.2%	7.5%	10.1%
Interim SAA Policy¹	3.5%	17.8%	10.4%	13.6%	7.2%	9.8%
Excess Return	0.4%	0.8%	0.4%	0.6%	0.3%	0.3%

1 Year Goal Met: Yes
3 Year Goal Met: Yes

¹Composition of SAA Policy can be found in the appendix.

Arizona State Retirement System
Total Fund Attribution Analysis

Total Plan	1 Year	3 Years	5 Years
Allocation Effect ¹	0.85%	0.39%	0.37%
Manager Selection Effect ²	-0.37%	0.02%	0.08%
Interaction Effect ³	0.31%	0.09%	0.29%
Residual ⁴	0.00%	-0.09%	-0.11%
Excess Return	0.79%	0.41%	0.63%

The Brinson-Fachler Attribution model explains excess return by identifying the size of contributors or detractors from excess return based on the three effects defined below:

1. Allocation Effect: Measures the impact of the decision to over/under weight assets classes relative to Interim SAAP weights. (Return Asset Class Index – Total Interim Policy Index Return) × (Weight Asset Class Portfolio – Weight Asset Class Interim Policy Index)

2. Manager Selection Effect: Measures the impact of over/under performance of asset classes in the portfolio relative to the asset class benchmarks in the Interim SAAP benchmark. [Weight Asset Class Benchmark × (Return Portfolio Asset Class – Return Asset Class in Interim Policy Index)]

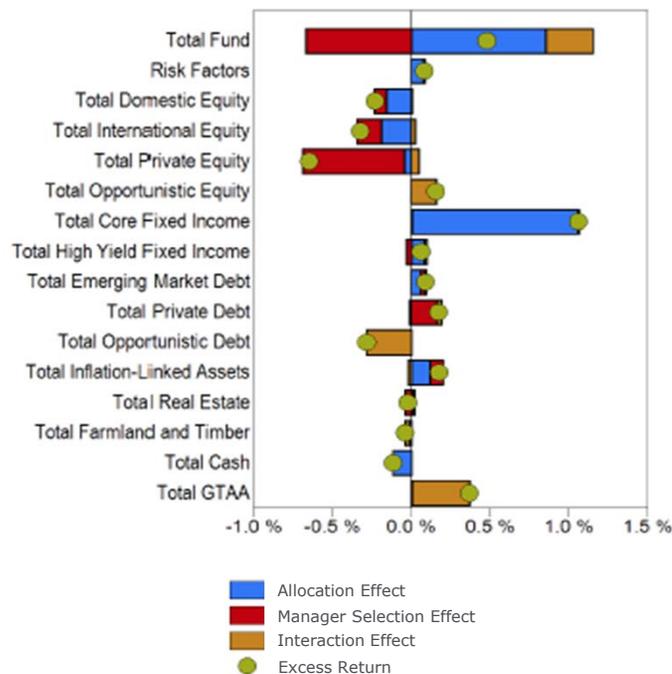
3. Interaction Effect: Measures the impact of over/under weighting decisions and over/under performance. (Return Asset Class Portfolio (Weight Asset Class Portfolio – Weight Asset Class Policy Index)) – (Return Asset Class Index (Weight Asset Class Portfolio – Weight Asset Class Index))

4. Residual: Contribution to excess return not captured in Allocation Effect, Manager Selection Effect and Interaction Effect.

Arizona State Retirement System

Total Fund Attribution Detail

Attribution Effects
1 Year Ending June 30, 2014



1 Year Excess Return: +0.79%

- Allocation Effect: +0.85%
 - Public Markets Fixed Income tactical underweight (+1.20%)
 - Commodities tactical underweight (+0.12%)
 - International Equity tactical underweight (-0.19%)
 - Domestic Equity tactical underweight (-0.16%)
- Manager Selection Effect: -0.37%
 - Private Equity underperformed due to various managers (-0.46%)
 - International Equity underperformed due to small cap managers (-0.15%)
 - Private Debt outperformed due to various managers (+0.18%)
- Interaction Effect: +0.31%
 - GTAA outperformed due to Bridgewater (+0.36%)
 - Opportunistic Equity outperformed due to various managers (+0.15%)
 - Opportunistic Debt underperformed due to various managers (-0.25%)
- Residual: 0.00%

The Brinson-Fachler Attribution model explains excess return by identifying the size of contributors or detractors from excess return based on the three effects defined below:

Allocation Effect: Measures the impact of the decision to over/under weight assets classes relative to Interim SAAP benchmark weights. $(\text{Return Asset Class Index} - \text{Total Interim Policy Index Return}) \times (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Interim Policy Index})$

Manager Selection Effect: Measures the impact of over/under performance of asset classes in the portfolio relative to the asset class benchmarks in the Interim SAAP benchmark. $[\text{Weight Asset Class Benchmark} \times (\text{Return Portfolio Asset Class} - \text{Return Asset Class in Interim Policy Index})]$

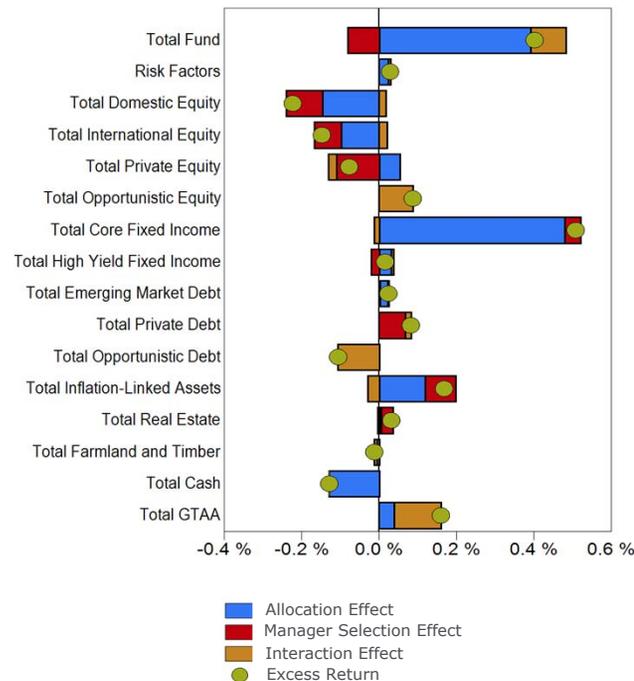
Interaction Effect: Measures the impact of over/under weighting decisions and over/under performance. $(\text{Return Asset Class Portfolio} (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Policy Index})) - (\text{Return Asset Class Index} (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Index}))$

Residual: Contribution to excess return not captured in Allocation Effect, Manager Selection Effect and Interaction Effect.

Arizona State Retirement System

Total Fund Attribution Detail

Attribution Effects
3 Years Ending June 30, 2014



3 Year Excess Return: +0.41%

- Allocation Effect: +0.39%
 - Public Markets Fixed Income tactical underweight (+0.53%)
 - Commodities tactical underweight (+0.12%)
 - Domestic Equity tactical underweight (-0.15%)
- Manager Selection Effect: +0.02%
 - Domestic Equity underperformed due to various managers (-0.09%)
 - International Equity underperformed due to various managers (-0.07%)
 - Commodities outperformed due to Gresham (+0.08%)
- Interaction Effect: +0.09%
 - GTAA outperformed due to Bridgewater (+0.12%)
 - Opportunistic Equity outperformed due to various managers (+0.09%)
 - Opportunistic Debt underperformed due to various managers (-0.09%)
- Residual: -0.09%

The Brinson-Fachler Attribution model explains excess return by identifying the size of contributors or detractors from excess return based on the three effects defined below:

Allocation Effect: Measures the impact of the decision to over/under weight assets classes relative to Interim SAAP benchmark weights. $(\text{Return Asset Class Index} - \text{Total Interim Policy Index Return}) \times (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Interim Policy Index})$

Manager Selection Effect: Measures the impact of over/under performance of asset classes in the portfolio relative to the asset class benchmarks in the Interim SAAP benchmark. $[\text{Weight Asset Class Benchmark} \times (\text{Return Portfolio Asset Class} - \text{Return Asset Class in Interim Policy Index})]$

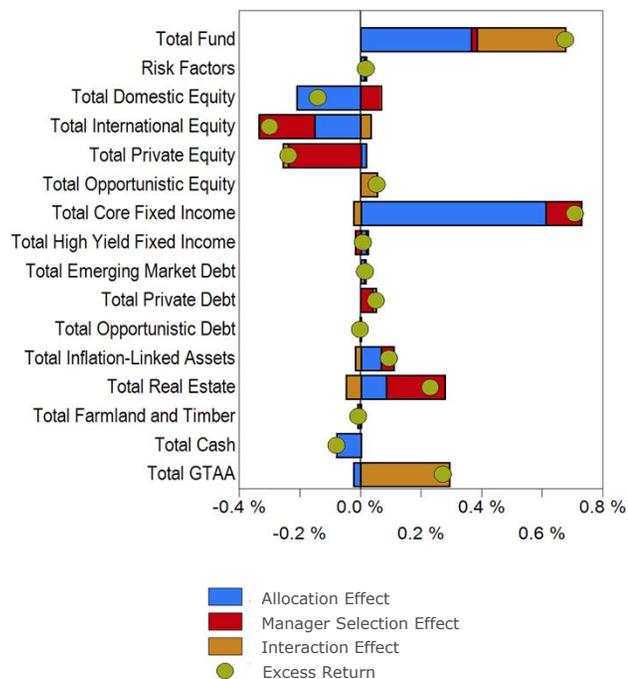
Interaction Effect: Measures the impact of over/under weighting decisions and over/under performance. $(\text{Return Asset Class Portfolio} (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Policy Index})) - (\text{Return Asset Class Index} (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Index}))$

Residual: Contribution to excess return not captured in Allocation Effect, Manager Selection Effect and Interaction Effect.

Arizona State Retirement System

Total Fund Attribution Detail

Attribution Effects
5 Years Ending June 30, 2014



5 Year Excess Return: +0.63%

- Allocation Effect: +0.37%
 - Public Markets Fixed Income tactical underweight (+0.64%)
 - Real Estate underweight (+0.09%)
 - Domestic Equity tactical underweight (-0.21%)
 - International Equity tactical underweight (-0.15%)
- Manager Selection Effect: +0.08%
 - Real Estate outperformed due to various managers (+0.21%)
 - Public Markets Fixed Income outperformed due to various managers (+0.10%)
 - Private Equity underperformed due to various managers (-0.20%)
 - International Equity underperformed due to various managers (-0.18%)
- Interaction Effect: +0.29%
 - GTAA outperformed due to Bridgewater (+0.29%)
- Residual: -0.11%

The Brinson-Fachler Attribution model explains excess return by identifying the size of contributors or detractors from excess return based on the three effects defined below:

Allocation Effect: Measures the impact of the decision to over/under weight assets classes relative to Interim SAAP benchmark weights. $(\text{Return Asset Class Index} - \text{Total Interim Policy Index Return}) \times (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Interim Policy Index})$

Manager Selection Effect: Measures the impact of over/under performance of asset classes in the portfolio relative to the asset class benchmarks in the Interim SAAP benchmark. $[\text{Weight Asset Class Benchmark} \times (\text{Return Portfolio Asset Class} - \text{Return Asset Class in Interim Policy Index})]$

Interaction Effect: Measures the impact of over/under weighting decisions and over/under performance. $(\text{Return Asset Class Portfolio} (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Policy Index})) - (\text{Return Asset Class Index} (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Index}))$

Residual: Contribution to excess return not captured in Allocation Effect, Manager Selection Effect and Interaction Effect.

Asset Class Performance vs. Benchmark – Public Markets

- Objective #3: Achieve one- and three-year rolling annual net rates of return for ASRS strategic asset classes that are equal to or greater than their respective strategic asset class benchmarks.

	1 Year Return	3 Year Return
ASRS Total Domestic and Int'l Equity ¹	23.3%	12.8%
ASRS Custom Total Equity Benchmark	23.7%	13.0%
Excess Return	-0.4%	-0.2%
ASRS Domestic Equity	24.7%	16.1%
ASRS Custom Domestic Equity Benchmark	24.9%	16.5%
Excess Return	-0.2%	-0.4%
ASRS International Equity	21.3%	6.4%
ASRS Custom Int'l Equity Benchmark	22.0%	6.6%
Excess Return	-0.7%	-0.2%
ASRS Public Markets Fixed Income	6.0%	4.5%
ASRS Custom Fixed Income Benchmark	6.0%	4.4%
Excess Return	0.0%	0.1%
ASRS Inflation-Linked	10.1%	-3.3%
ASRS Custom Inflation-Linked Benchmark	8.2%	-5.2%
Excess Return	1.9%	1.9%
ASRS GTAA	21.2%	11.8%
ASRS Custom GTAA Benchmark	17.9%	10.7%
Excess Return	3.3%	1.1%

¹Performance of ASRS Total Domestic and Int'l Equity includes the performance of the ASRS Domestic Equity and ASRS International Equity asset classes and the Equity Risk Factor Portfolio with an inception date of 6/1/2013.

Note: Composition of ASRS Custom Asset Class Benchmarks can be found in the appendix.

**Goal Met:
Partially**

Asset Class Performance vs. Benchmark – Private Markets¹

- Objective #3: Achieve one- and three-year rolling annual net rates of return for ASRS strategic asset classes that are equal to or greater than their respective strategic asset class benchmarks.

	1 Year Return	3 Year Return	IRR Since Inception	Inception Date
ASRS Private Equity	17.8%	15.3%	12.9%	Oct-07
Russell 2000	24.9%	13.2%	16.3%	
Excess Return	-7.1%	2.1%	-3.4%	
ASRS Opportunistic Equity ²	37.9%	24.7%	37.3%	Apr-11
ASRS Private Debt	15.0%	--	15.7%	Jul-12
S&P/LSTA Levered Loan Index + 250 bps	6.9%	--	8.2%	
Excess Return	8.1%	--	7.5%	
ASRS Opportunistic Debt ²	9.6%	8.2%	12.2%	Jan-08
ASRS Real Estate	13.7%	12.9%	5.8%	Oct-05
NFI - ODCE Index	12.7%	12.0%	5.0%	
Excess Return	1.0%	0.9%	0.8%	
ASRS Farmland and Timber	--	--	1.3%	Jul-13
CPI ex-Food and Energy + 350 bps	--	--	2.7%	
Excess Return	--	--	-1.4%	

¹Performance of private markets portfolios and corresponding benchmarks is reported on a one quarter lag. Performance shown as of March 31, 2014.

²Net absolute rate of return expectations range from 10-14% per annum.

Note: Time-weighted performance of private markets portfolios shown for the one- and three-year periods to reconcile Total Fund performance as it is reported on a time-weighted basis. Due to the drawdown nature of private markets portfolios in which the investment managers call capital over time, dollar-weighted performance, or internal rate of return (IRR) is a more appropriate measure of the performance of ASRS private markets portfolios.

**Goal Met:
Partially**

Cash Management

- Objective #4: Ensure sufficient monies are available to meet pension benefits, health insurance, member refunds, administrative payments, and other cash flow requirements.

Month	Cash In	Cash Out	Balance as of 1st Business Day
Jul-13	\$490,407,958	(\$185,679,872)	\$307,287,872
Aug-13	\$364,853,179	(\$188,310,189)	\$205,962,942
Sep-13	\$303,470,007	(\$189,505,809)	\$95,194,585
Oct-13	\$404,897,845	(\$190,046,089)	\$200,202,122
Nov-13	\$213,012,636	(\$190,661,495)	\$126,730,318
Dec-13	\$560,544,992	(\$190,590,864)	\$317,630,570
Jan-14	\$386,764,591	(\$190,949,369)	\$352,809,530
Feb-14	\$210,787,413	(\$191,680,149)	\$189,010,112
Mar-14	\$679,587,225	(\$192,454,469)	\$486,243,101
Apr-14	\$455,478,123	(\$192,789,720)	\$246,095,874
May-14	\$328,489,975	(\$193,063,809)	\$162,815,927
Jun-14	\$143,781,061	(\$193,481,152)	\$90,885,762

All Pension Obligations, Capital Calls and Other Requirements Met with Available Cash

Goal Met: Yes

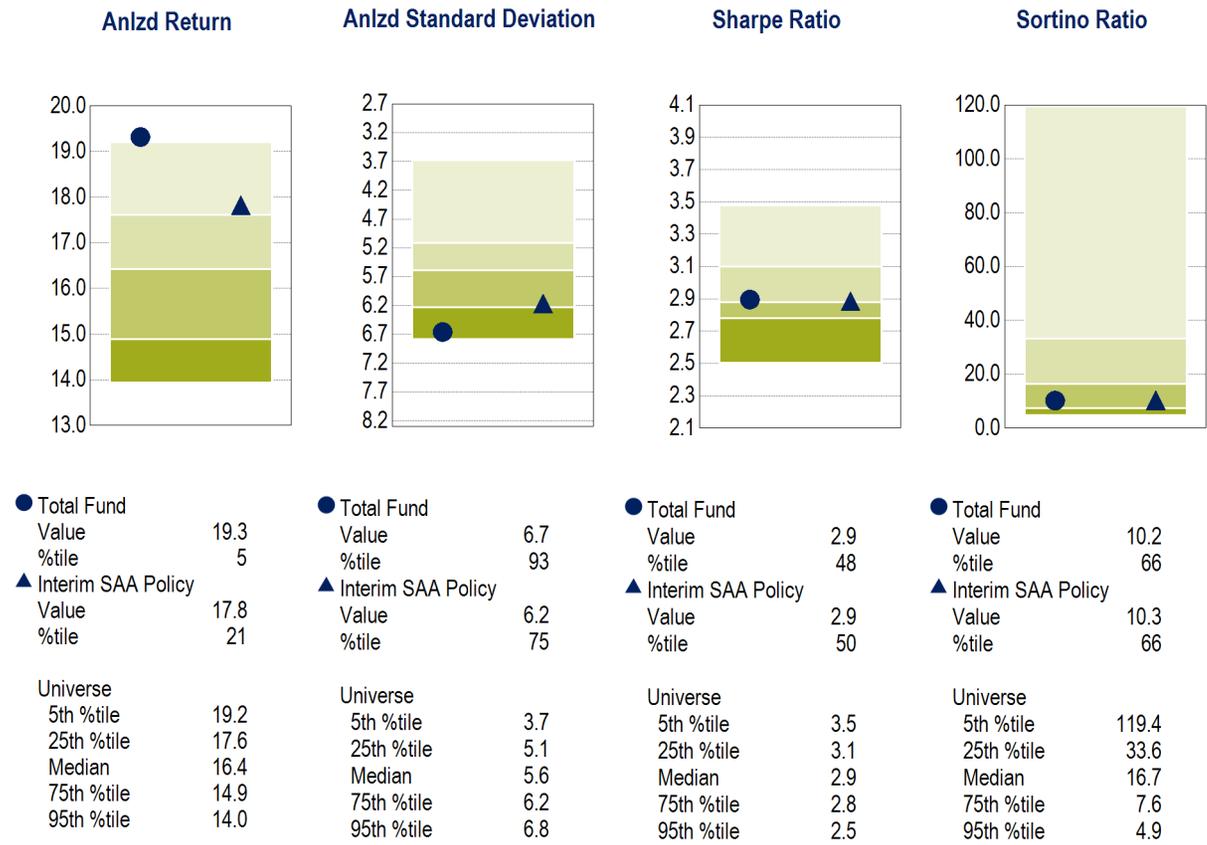
Note:

Cash In - The balance as of the business day prior to the monthly pension run payment, comprised of month-to-date contributions and excess cash held to fund manager(s) or as a tactical allocation.

Cash Out - The monthly pension run payment.

Total Fund Risk Statistics vs. Peer Universe

Total Fund vs. IFx Public DB > \$1B Gross(USD)(peer)
1 Year



Note: The information contained herein is for comparison purposes only and is not a Total Fund benchmark. Peer universe comparisons are subject to several limitations, including: peer groups are not comprehensive; several funds are included in multiple peer groups; peer groups are constructed using gross of fee returns; and survivorship bias in that poorly performing funds may not longer report results.

Universes are constructed using gross of fee returns; therefore, ASRS rank is based on gross of fee returns.

Rankings are from highest (1) to lowest (100) in the InvestorForce Public Funds > \$1 Billion Universe.

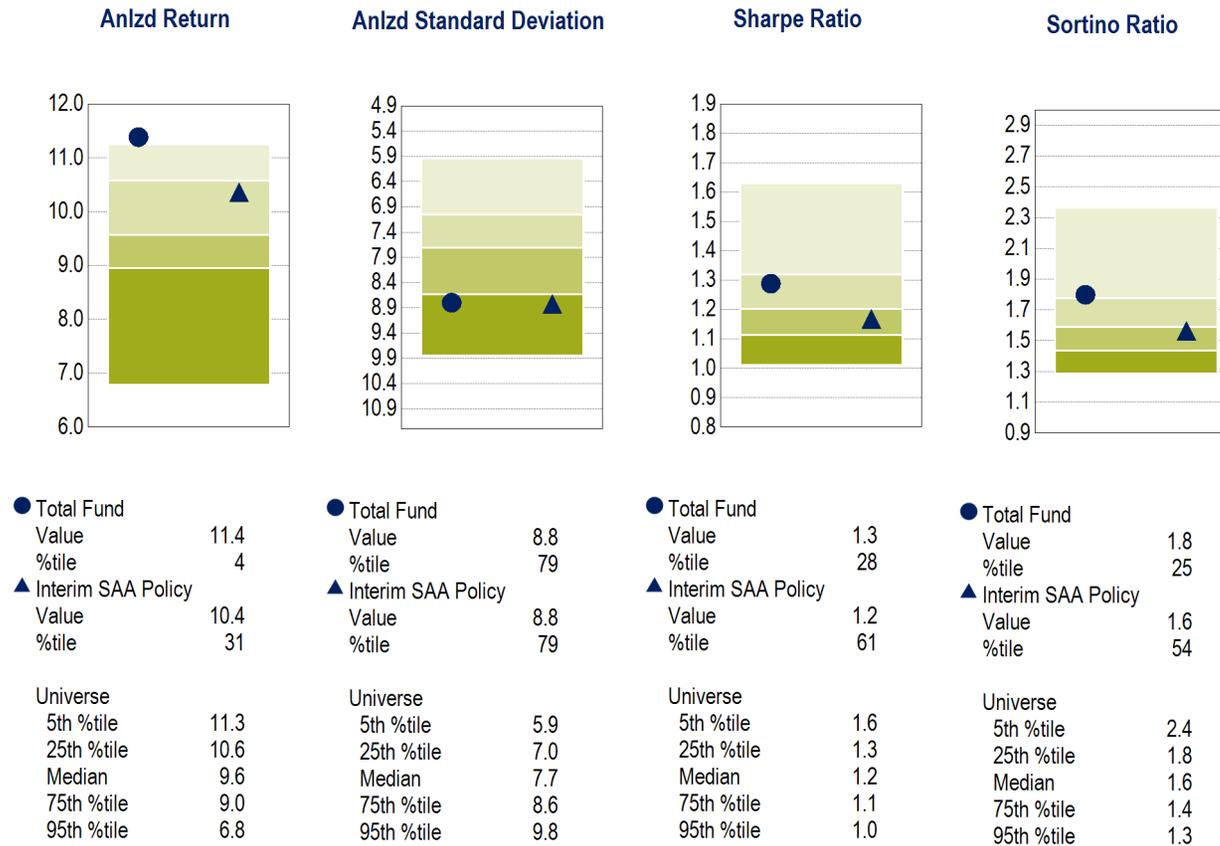
The InvestorForce Public Funds > \$1 Billion Universe contains 53 observations for the period ending June 30, 2014, with total assets of \$503.2 billion.

Composition of Interim SAA Policy can be found in the appendix.

Total Fund Risk Statistics vs. Peer Universe

Total Fund vs. IFx Public DB > \$1B Gross(USD)(peer)

3 Year



Note: The information contained herein is for comparison purposes only and is not a Total Fund benchmark. Peer universe comparisons are subject to several limitations, including: peer groups are not comprehensive; several funds are included in multiple peer groups; peer groups are constructed using gross of fee returns; and survivorship bias in that poorly performing funds may not longer report results.

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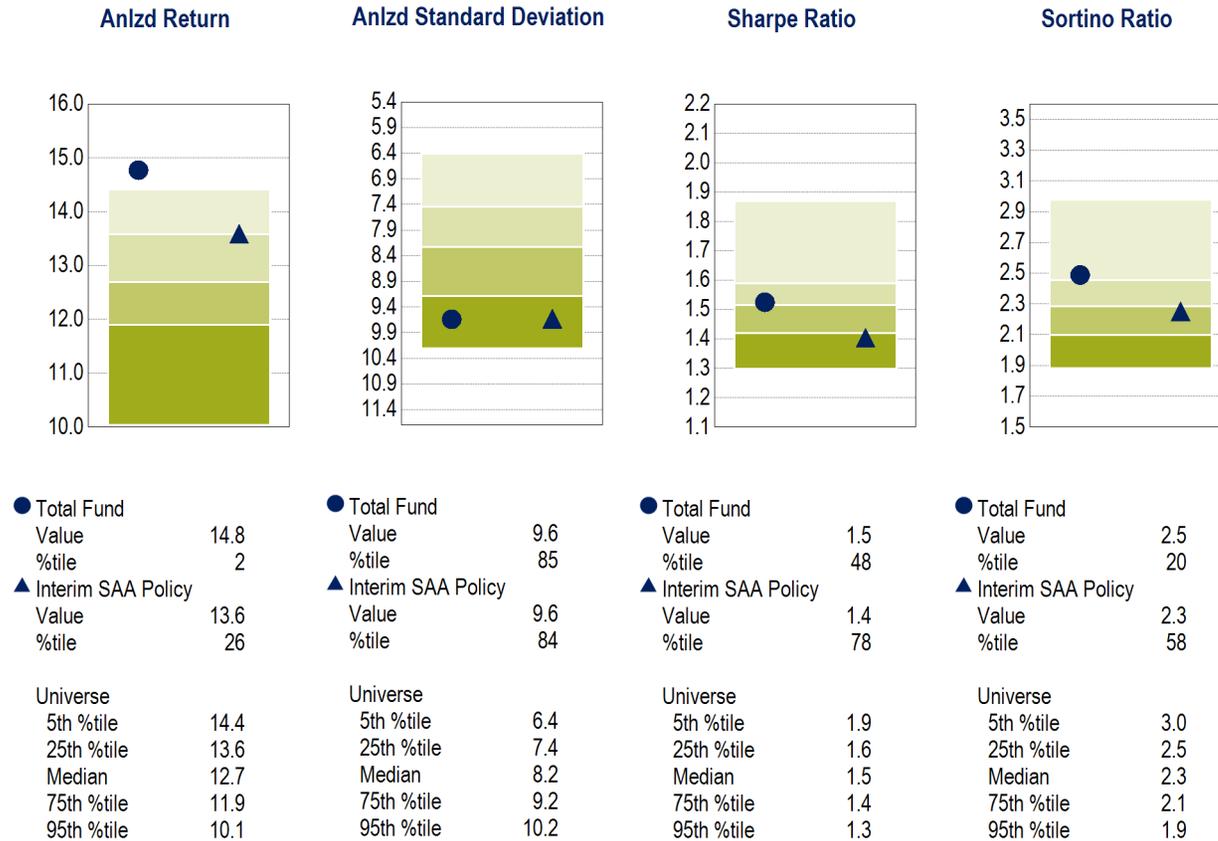
The InvestorForce Public Funds > \$1 Billion Universe contains 53 observations for the period ending June 30, 2014, with total assets of \$503.2 billion.

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Total Fund Risk Statistics vs. Peer Universe

Total Fund vs. IFx Public DB > \$1B Gross(USD)(peer)

5 Year



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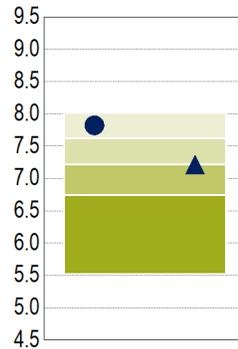
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Total Fund Risk Statistics vs. Peer Universe

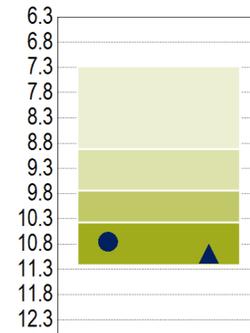
Total Fund vs. IFx Public DB > \$1B Gross(USD)(peer)

10 Year

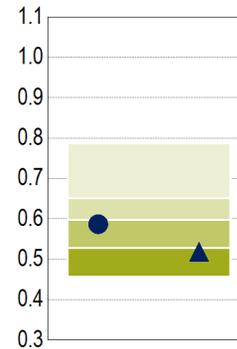
Anlzd Return



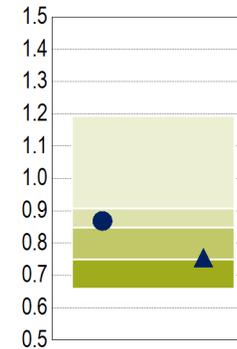
Anlzd Standard Deviation



Sharpe Ratio



Sortino Ratio



● Total Fund

Value 7.8
%tile 14

▲ Interim SAA Policy

Value 7.2
%tile 51

Universe

5th %tile 8.0
25th %tile 7.6
Median 7.2
75th %tile 6.8
95th %tile 5.5

● Total Fund

Value 10.8
%tile 84

▲ Interim SAA Policy

Value 11.0
%tile 88

Universe

5th %tile 7.3
25th %tile 8.9
Median 9.7
75th %tile 10.4
95th %tile 11.2

● Total Fund

Value 0.6
%tile 53

▲ Interim SAA Policy

Value 0.5
%tile 84

Universe

5th %tile 0.8
25th %tile 0.7
Median 0.6
75th %tile 0.5
95th %tile 0.5

● Total Fund

Value 0.9
%tile 46

▲ Interim SAA Policy

Value 0.8
%tile 73

Universe

5th %tile 1.2
25th %tile 0.9
Median 0.9
75th %tile 0.8
95th %tile 0.7

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The InvestorForce Public Funds > \$1 Billion Universe contains 53 observations for the period ending June 30, 2014, with total assets of \$503.2 billion.

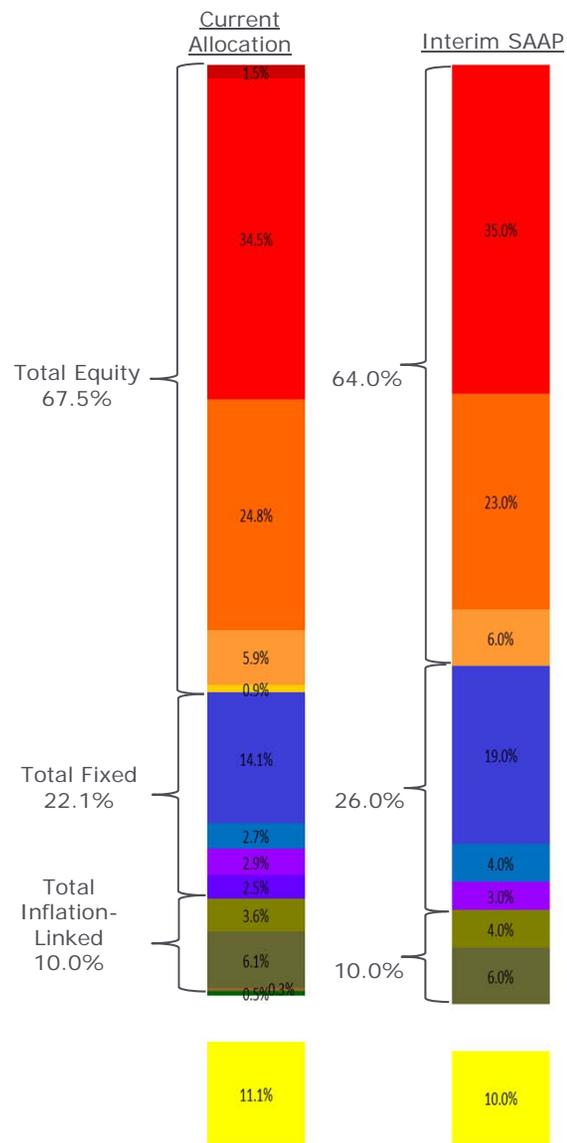
Composition of Interim SAA Policy can be found in the appendix.

Independent Oversight/Compliance

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SAA Policy Compliance

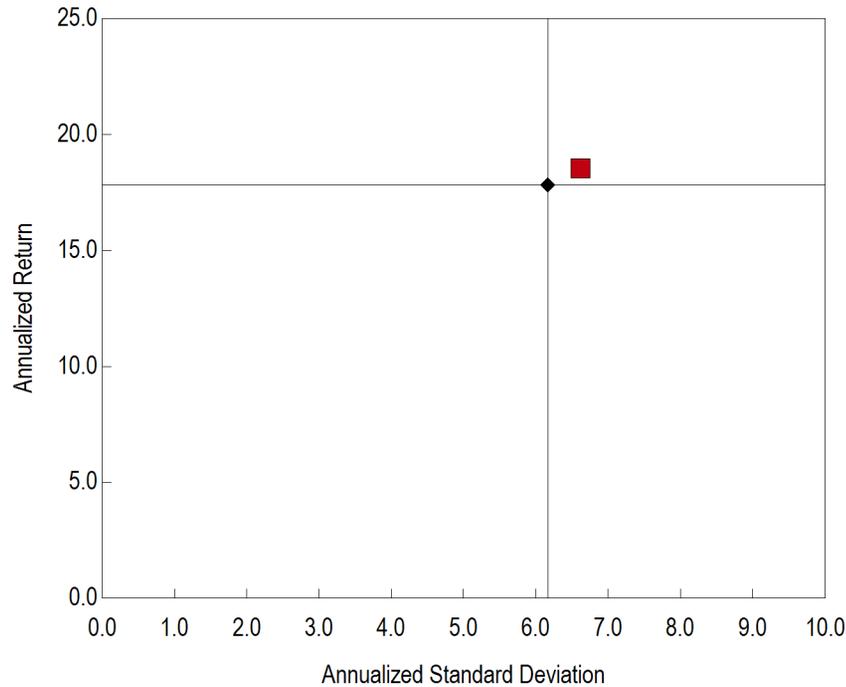


	Current Mkt Value	Current Allocation	Interim SAAP	Difference	Policy Range	Within Range
Total Domestic and International Equity¹	\$21,002,624,404	60.7%	58.0%	2.7%		
Domestic Equity³	\$11,932,907,793	34.5%	35.0%	-0.5%	26% - 38%	Yes
U.S. Large Cap ²	\$8,798,213,296	25.4%	25.0%	0.4%		
U.S. Mid Cap	\$1,617,021,411	4.7%	5.0%	-0.3%		
U.S. Small Cap	\$1,517,673,087	4.4%	5.0%	-0.6%		
International Equity³	\$8,559,773,331	24.8%	23.0%	1.8%	16% - 28%	Yes
Developed Large Cap ²	\$5,238,391,811	15.1%	14.0%	1.1%		
Developed Small Cap	\$1,316,336,952	3.8%	3.0%	0.8%		
Emerging Markets	\$2,005,044,567	5.8%	6.0%	-0.2%		
Private Equity⁴	\$2,024,799,846	5.9%	6.0%	-0.1%	5% - 9%	Yes
Opportunistic Equity^{4,6}	\$303,016,570	0.9%	0.0%	0.9%	0% - 3%	Yes
Total Equity	\$23,330,440,820	67.5%	64.0%	3.5%	53% - 70%	Yes
U.S. Fixed Income	\$4,868,615,355	14.1%	19.0%	-4.9%	8% - 28%	Yes
Core ²	\$3,788,122,267	11.0%	14.0%	-3.0%		
High Yield	\$1,080,493,088	3.1%	5.0%	-1.9%		
Emerging Market Debt	\$919,071,262	2.7%	4.0%	-1.3%		
Private Debt⁴	\$995,628,704	2.9%	3.0%	-0.1%		
Opportunistic Debt^{4,6}	\$866,602,999	2.5%	0.0%	2.5%	0% - 10%	Yes
Total Fixed Income	\$7,649,918,320	22.1%	26.0%	-3.9%	15% - 35%	Yes
Commodities²	\$1,242,441,935	3.6%	4.0%	-0.4%	1% - 7%	Yes
Real Estate^{2,4}	\$2,097,648,141	6.1%	6.0%	0.1%	6% - 10%	Yes
Infrastructure	\$0	0.0%	0.0%	0.0%	0% - 3%	Yes
Farmland and Timber⁴	\$105,648,160	0.3%	0.0%	0.3%	0% - 3%	Yes
Opportunistic Inflation-Linked⁶	\$0	0.0%	0.0%	0.0%	0% - 3%	Yes
Total Inflation-Linked	\$3,445,738,236	10.0%	10.0%	0.0%	8% - 16%	Yes
Cash⁵	\$158,399,573	0.5%	0.0%	0.5%		
Total	\$34,584,496,949	100.0%	100.0%	0.0%		

Global Tactical Asset Allocation (GTAA)²	\$3,825,309,338	11.1%	10.0%	1.1%	5% - 15%	Yes
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¹Total Domestic and International Equity includes Equity Risk Factor Portfolio with assets of \$509.9 million.
²GTAA allocation distributed into U.S. Large Cap Equity, Int'l Developed Large Cap Equity, Core Fixed Income, Commodities and Real Estate.
³Domestic and International Equity market values include residual values remaining in terminated manager accounts.
⁴Values shown for private markets portfolios include cash flows that occurred during 2Q2014.
⁵Cash includes money for the upcoming monthly pension distribution. Value shown also includes assets in liquidating GTAA account.
⁶Aggregate Opportunistic asset classes not to exceed 10%.
 Note: Interim SAA Policy includes proration of 1% Private Equity and 2% Real Estate, which are unfunded.
 Policy Ranges shown are relative to the long-term SAAP, causing some asset classes to be out of range while implementation of the long-term SAAP is in process.
 Market values include manager held cash.

1 Year Ending June 30, 2014

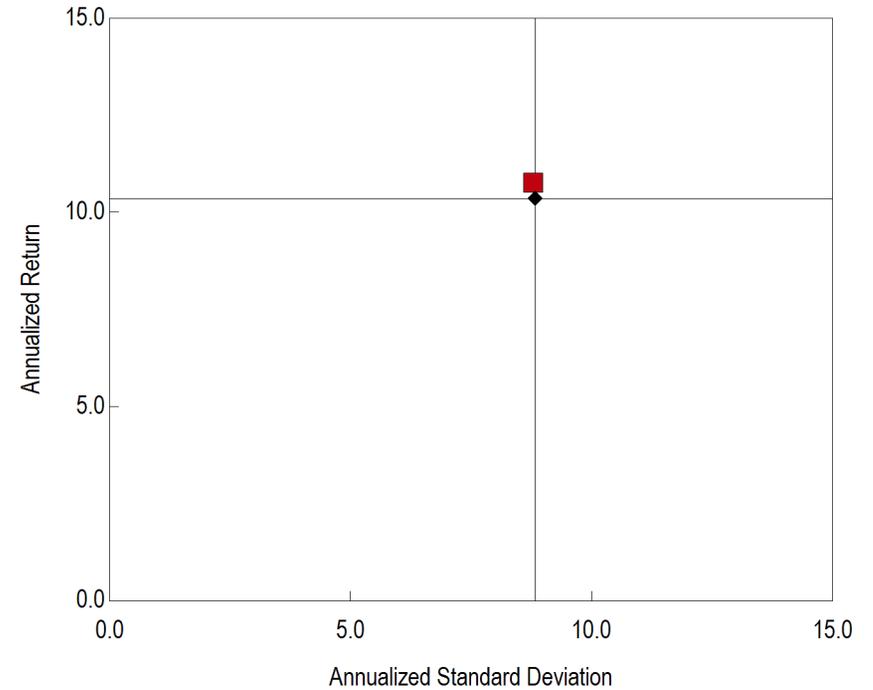


■ Total Fund
◆ Interim SAA Policy

1 Year Ending June 30, 2014

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Sortino Ratio
Total Fund	18.6%	6.6%	2.8	9.4
Interim SAA Policy	17.8%	6.2%	2.9	10.3

3 Years Ending June 30, 2014



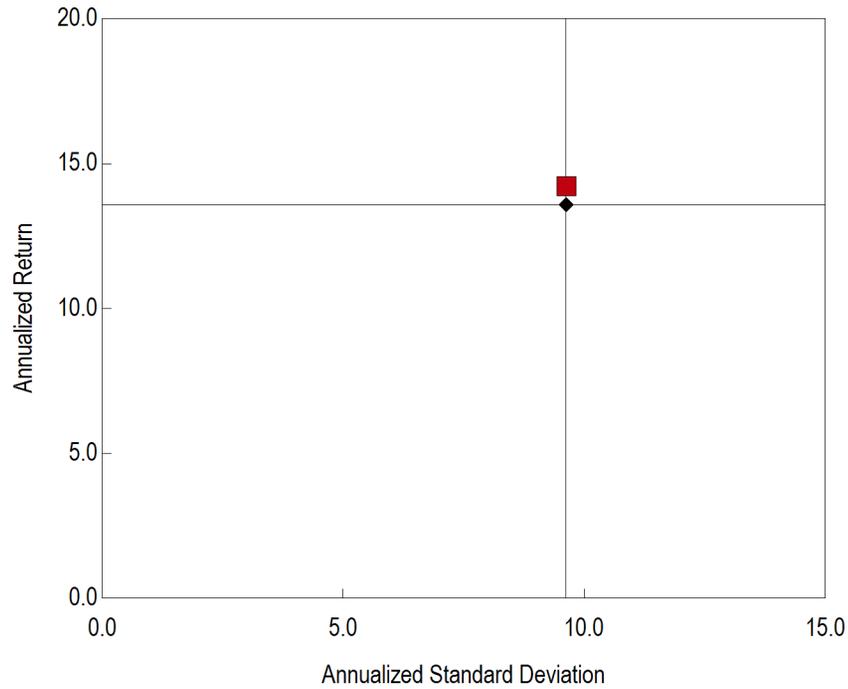
■ Total Fund
◆ Interim SAA Policy

3 Years Ending June 30, 2014

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Sortino Ratio
Total Fund	10.8%	8.8%	1.2	1.7
Interim SAA Policy	10.4%	8.8%	1.2	1.6

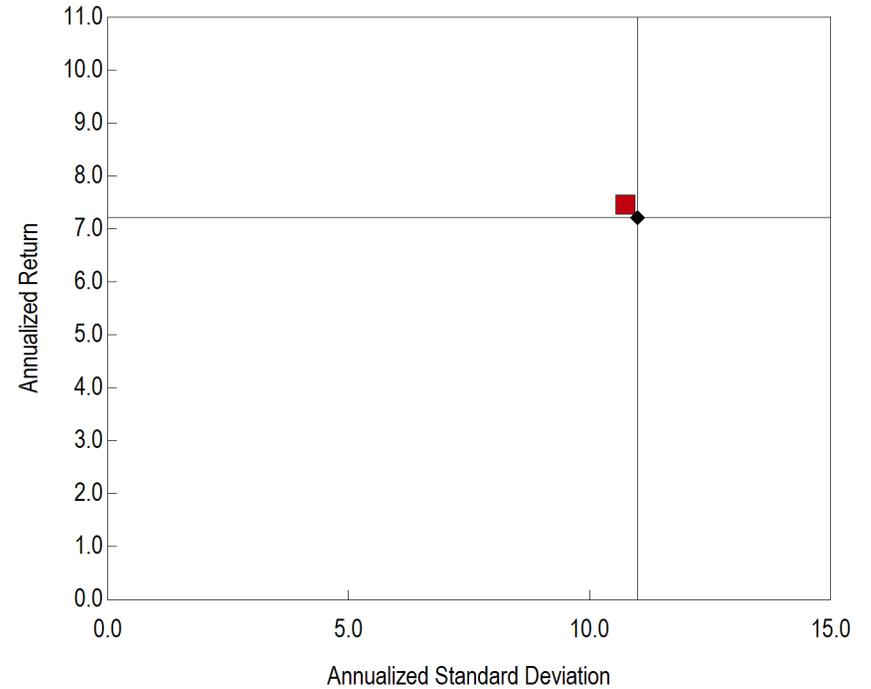
Total Fund Analysis

5 Years Ending June 30, 2014



■ Total Fund
◆ Interim SAA Policy

10 Years Ending June 30, 2014



■ Total Fund
◆ Interim SAA Policy

5 Years Ending June 30, 2014

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Sortino Ratio
Total Fund	14.2%	9.6%	1.5	2.4
Interim SAA Policy	13.6%	9.6%	1.4	2.3

10 Years Ending June 30, 2014

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Sortino Ratio
Total Fund	7.5%	10.7%	0.6	0.8
Interim SAA Policy	7.2%	11.0%	0.5	0.8

Arizona State Retirement System

Asset Class Performance Summary - Public Markets

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	6 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Since
Total Fund	34,584,496,949	100	3.9	--	6.4	--	18.6	--	10.8	--	14.2	--	7.5	--	10.1	Jul-75
<i>Interim SAA Policy</i>			<u>3.5</u>	--	<u>6.0</u>	--	<u>17.8</u>	--	<u>10.4</u>	--	<u>13.6</u>	--	<u>7.2</u>	--	<u>9.8</u>	<i>Jul-75</i>
Over/Under			0.4		0.4		0.8		0.4		0.6		0.3		0.3	
<i>Actual Benchmark</i>			3.6	--	6.2	--	18.5	--	10.7	--	13.4	--	7.2	--	--	<i>Jul-75</i>
Total Domestic and International Equity¹	18,684,824,880	54.0	4.6	--	6.1	--	23.3	--	12.8	--	17.0	--	7.9	--	7.1	Jan-98
<i>ASRS Custom Total Equity Benchmark</i>			<u>4.6</u>	--	<u>6.1</u>	--	<u>23.7</u>	--	<u>13.0</u>	--	<u>17.0</u>	--	<u>7.9</u>	--	<u>6.4</u>	<i>Jan-98</i>
Over/Under			0.0		0.0		-0.4		-0.2		0.0		0.0		0.7	
Total Domestic Equity	10,754,644,989	31.1	4.7	32	6.6	36	24.7	51	16.1	36	19.8	42	8.7	57	11.4	Jul-75
<i>ASRS Custom Domestic Equity Benchmark</i>			<u>4.6</u>	35	<u>6.6</u>	36	<u>24.9</u>	49	<u>16.5</u>	31	<u>19.7</u>	46	<u>8.3</u>	67	<u>11.5</u>	<i>Jul-75</i>
Over/Under			0.1		0.0		-0.2		-0.4		0.1		0.4		-0.1	
<i>eA All US Equity Net Median</i>			3.9		5.6		24.8		15.1		19.4		8.9		12.6	<i>Jul-75</i>
Total International Equity	7,420,236,611	21.5	4.3	47	5.4	43	21.3	57	6.4	65	11.1	78	6.7	87	6.6	Apr-87
<i>ASRS Custom Int'l Equity Benchmark</i>			<u>4.5</u>	39	<u>5.3</u>	48	<u>22.0</u>	53	<u>6.6</u>	63	<u>11.9</u>	70	<u>8.0</u>	68	<u>6.3</u>	<i>Apr-87</i>
Over/Under			-0.2		0.1		-0.7		-0.2		-0.8		-1.3		0.3	
<i>eA All ACWI ex-US Equity Net Median</i>			4.1		4.9		22.4		7.1		12.8		8.6		8.0	<i>Apr-87</i>
Total Public Markets Fixed Income	4,715,412,922	13.6	2.5	26	4.4	38	6.0	35	4.5	46	5.9	47	5.4	38	8.6	Jul-75
<i>ASRS Custom Fixed Income Benchmark</i>			<u>2.5</u>	26	<u>4.7</u>	34	<u>6.0</u>	35	<u>4.4</u>	48	<u>5.3</u>	56	<u>5.2</u>	44	--	<i>Jul-75</i>
Over/Under			0.0		-0.3		0.0		0.1		0.6		0.2		--	
<i>eA All US Fixed Inc Net Median</i>			1.9		3.8		4.7		4.2		5.7		4.9		8.3	<i>Jul-75</i>
Total Inflation-Linked Assets	862,286,560	2.5	1.9	--	7.1	--	10.1	--	-3.3	--	--	--	--	--	1.9	Feb-10
<i>ASRS Custom Inflation-Linked Benchmark</i>			<u>0.1</u>	--	<u>7.1</u>	--	<u>8.2</u>	--	<u>-5.2</u>	--	<u>1.3</u>	--	<u>3.1</u>	--	<u>0.0</u>	<i>Feb-10</i>
Over/Under			1.8		0.0		1.9		1.9						1.9	
Total GTAA	3,825,309,338	11.1	5.2	10	7.4	8	21.2	2	11.8	1	16.2	1	8.8	32	8.5	Jan-04
<i>ASRS Custom GTAA Benchmark</i>			<u>3.8</u>	38	<u>5.7</u>	23	<u>17.9</u>	9	<u>10.7</u>	8	<u>13.3</u>	8	<u>6.9</u>	65	<u>6.9</u>	<i>Jan-04</i>
Over/Under			1.4		1.7		3.3		1.1		2.9		1.9		1.6	
<i>eA Global TAA Net Median</i>			3.4		4.5		10.4		5.5		7.5		7.9		7.8	<i>Jan-04</i>

¹Performance of ASRS Total Domestic and International Equity includes the performance of the ASRS Domestic and International Equity asset classes and the Equity Risk Factor Portfolio with an inception date of 6/1/2013. NEPC began calculating Total Domestic and International Equity performance in January 2009. Monthly performance data from January 1998 - December 2008 was provided by State Street.

Note: Performance, ranks and medians are based on net of fee performance data. Rankings are from highest (1) to lowest (100) in the eVestment Alliance Universe.

Composition of Interim SAA Policy and ASRS Custom Asset Class Benchmarks can be found in the appendix.

Arizona State Retirement System

Asset Class Performance Summary - Private Markets

	Market Value (\$)	% of Portfolio	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	IRR (%)	Since
Total Fund	34,584,496,949	100	3.9	18.6	10.8	14.2	10.1	--	Jul-75
<i>Interim SAA Policy</i>			<u>3.5</u>	<u>17.8</u>	<u>10.4</u>	<u>13.6</u>	<u>9.8</u>	--	<i>Jul-75</i>
Over/Under			0.4	0.8	0.4	0.6	0.3	--	
<i>Actual Benchmark</i>			3.6	18.5	10.7	13.4	--	--	<i>Jul-75</i>
Total Private Equity	2,025,652,373	5.9	2.8	17.8	15.3	16.2	4.6	12.9	Oct-07
<i>Russell 2000 1 QTR Lagged</i>			<u>1.1</u>	<u>24.9</u>	<u>13.2</u>	<u>24.3</u>	<u>7.3</u>	<u>16.3</u>	<i>Oct-07</i>
Over/Under			1.7	-7.1	2.1	-8.1	-2.7	-3.4	
Total Opportunistic Equity¹	303,016,570	0.9	4.8	37.9	24.7	--	24.7	37.3	Apr-11
Total Private Debt	938,621,983	2.7	2.7	15.0	--	--	16.4	15.7	Jul-12
<i>S&P/LSTA Leveraged Loan Index + 250 bps 1 QTR Lagged</i>			<u>1.8</u>	<u>6.9</u>	<u>--</u>	<u>--</u>	<u>9.1</u>	<u>8.2</u>	<i>Jul-12</i>
Over/Under			0.9	8.1	--	--	7.3	7.5	
Total Opportunistic Debt¹	866,602,999	2.5	3.2	9.6	8.2	--	9.0	12.2	Jan-08
Total Real Estate	2,052,350,985	5.9	2.4	13.7	12.9	11.2	3.7	5.8	Oct-05
<i>NCREIF ODCE 1 QTR Lagged</i>			<u>2.3</u>	<u>12.7</u>	<u>12.0</u>	<u>6.3</u>	<u>4.9</u>	<u>5.0</u>	<i>Oct-05</i>
Over/Under			0.1	1.0	0.9	4.9	-1.2	0.8	
Total Farmland and Timber	95,555,137	0.3	0.3	--	--	--	-46.4	1.3	Jul-13
<i>CPI ex-Food and Energy + 350 bps 1 QTR Lagged</i>			<u>1.3</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>3.9</u>	<u>2.7</u>	<i>Jul-13</i>
Over/Under			-1.0	--	--	--	-50.3	-1.4	

¹Net absolute rate of return expectations range from 10-14% per annum.

Note: Performance is based on net of fee performance data.

Performance data for Total Private Equity, Total Opportunistic Equity, Total Private Debt, Total Opportunistic Debt, Total Real Estate, and Total Farmland and Timber and corresponding benchmarks is lagged by one quarter. Performance data and market values provided by Credit Suisse Fund Group.

Prior to 3Q 2012, the performance of the Total Private Debt and Total Opportunistic Debt asset classes was reported in aggregate. Effective 6/30/2012, the Fund's allocations to Private Debt and Opportunistic Debt were separated and will be reported separately going forward.

Time-weighted performance of private markets portfolios shown to reconcile Total Fund performance as it is reported on a time-weighted basis. Due to the drawdown nature of private markets portfolios in which the investment managers call capital over time, dollar-weighted performance, or internal rate of return (IRR) is a more appropriate measure of ASRS private markets portfolios.

Composition of Interim SAA Policy can be found in the appendix.

Arizona State Retirement System

Public Market Asset Class Analysis

3 Years Ending June 30, 2014

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta	Sharpe Ratio
Total Fund	100.0%	10.8%	--	8.8%	--	0.5%	--	1.1%	--	0.4	--	1.0	1.2
Interim SAA Policy	--	10.4%	--	8.8%	--	--	--	--	--	--	--	--	1.2
Total Domestic and International Equity	54.0%	12.8%	--	13.6%	--	0.0%	--	0.6%	--	-0.3	--	1.0	0.9
ASRS Custom Total Equity Benchmark	--	13.0%	--	13.7%	--	--	--	--	--	--	--	--	0.9
Total Domestic Equity	31.1%	16.1%	36	13.2%	30	-0.4%	32	0.6%	1	-0.6	74	1.0	1.2
ASRS Custom Domestic Equity Benchmark	--	16.5%	31	13.1%	29	--	28	--	--	--	--	--	1.3
Total International Equity	21.5%	6.4%	65	16.0%	36	0.0%	62	0.7%	1	-0.2	80	1.0	0.4
ASRS Custom Int'l Equity Benchmark	--	6.6%	63	16.5%	49	--	62	--	--	--	--	--	0.4
Total Public Markets Fixed Income	13.6%	4.5%	46	3.6%	66	-0.2%	96	0.5%	1	0.3	38	1.1	1.2
ASRS Custom Public Markets Fixed Income Benchmark	--	4.4%	48	3.3%	62	--	91	--	--	--	--	--	1.3
Total Inflation-Linked Assets	2.5%	-3.3%	--	14.3%	--	1.6%	--	2.3%	--	0.8	--	1.0	-0.2
ASRS Custom Inflation-Linked Benchmark	--	-5.2%	--	14.7%	--	--	--	--	--	--	--	--	-0.4
Total GTAA	11.1%	11.8%	1	9.2%	67	1.1%	18	1.6%	1	0.7	1	1.0	1.3
ASRS Custom GTAA Benchmark	--	10.7%	8	9.1%	63	--	28	--	--	--	--	--	1.2

Note: Performance is reported net of fees.

Note: Underlying composites do not add up to 100% because the chart excludes private market composites.

Ranks for statistics shown above are based on the respective universe against which the portfolio is ranked on the asset class performance summary that precedes this section of the analysis.

Rankings are from highest (1) to lowest (100) in the eVestment Alliance Universe.

Composition of Interim SAA Policy and ASRS Custom Benchmarks can be found in the appendix.

Arizona State Retirement System

Public Market Asset Class Analysis

5 Years Ending June 30, 2014

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta	Sharpe Ratio
Total Fund	100.0%	14.2%	--	9.6%	--	0.7%	--	1.0%	--	0.6	--	1.0	1.5
Interim SAA Policy	--	13.6%	--	9.6%	--	--	--	--	--	--	--	--	1.4
Total Domestic and International Equity	54.0%	17.0%	--	14.5%	--	0.2%	--	0.7%	--	0.0	--	1.0	1.2
ASRS Custom Total Equity Benchmark	--	17.0%	--	14.6%	--	--	--	--	--	--	--	--	1.2
Total Domestic Equity	31.1%	19.8%	42	14.2%	32	0.0%	34	0.5%	1	0.3	20	1.0	1.4
ASRS Custom Domestic Equity Benchmark	--	19.7%	46	14.1%	30	--	35	--	--	--	--	--	1.4
Total International Equity	21.5%	11.1%	78	16.5%	34	-0.5%	72	1.2%	1	-0.7	99	1.0	0.7
ASRS Custom Int'l Equity Benchmark	--	11.9%	70	16.8%	49	--	66	--	--	--	--	--	0.7
Total Public Markets Fixed Income	13.6%	5.9%	47	3.3%	60	0.4%	77	0.7%	1	0.8	34	1.0	1.8
ASRS Custom Public Markets Fixed Income Benchmark	--	5.3%	56	3.1%	56	--	89	--	--	--	--	--	1.7
Total Inflation-Linked Assets	2.5%	--	--	--	--	--	--	--	--	--	--	--	--
ASRS Custom Inflation-Linked Benchmark	--	1.3%	--	12.9%	--	--	--	--	--	--	--	--	0.1
Total GTAA	11.1%	16.2%	1	10.2%	90	2.6%	10	1.9%	6	1.5	1	1.0	1.6
ASRS Custom GTAA Benchmark	--	13.3%	8	9.9%	83	--	51	--	--	--	--	--	1.3

Note: Performance is reported net of fees.

Note: Underlying composites do not add up to 100% because the chart excludes private market composites.

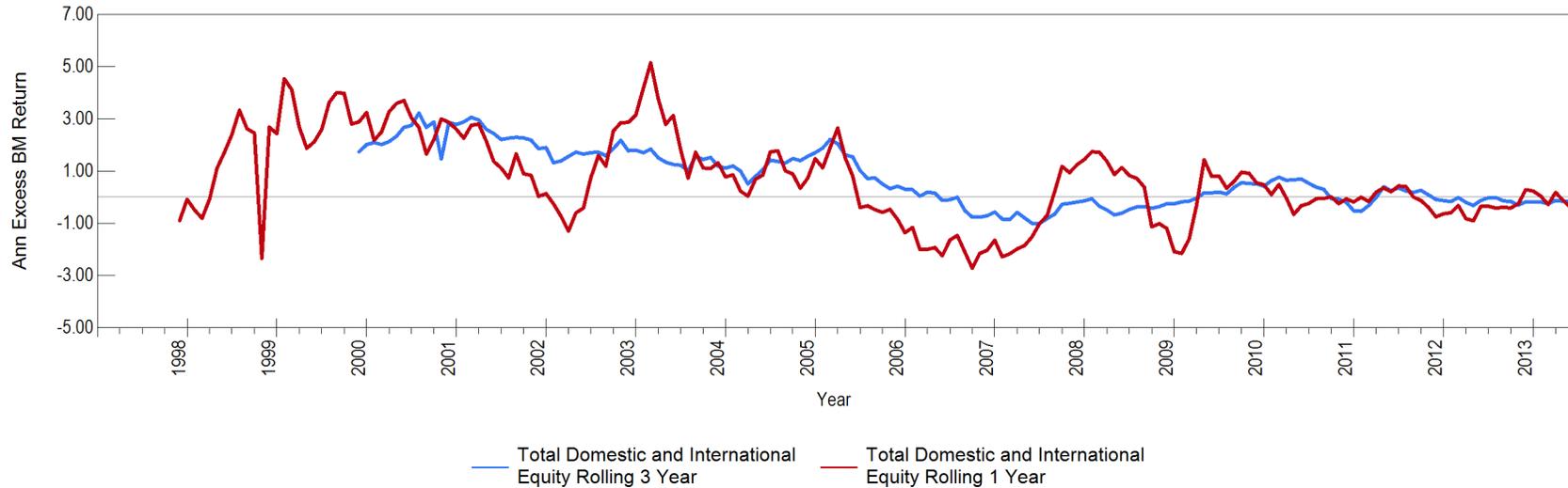
Ranks for statistics shown above are based on the respective universe against which the portfolio is ranked on the asset class performance summary that precedes this section of the analysis.

Rankings are from highest (1) to lowest (100) in the eVestment Alliance Universe.

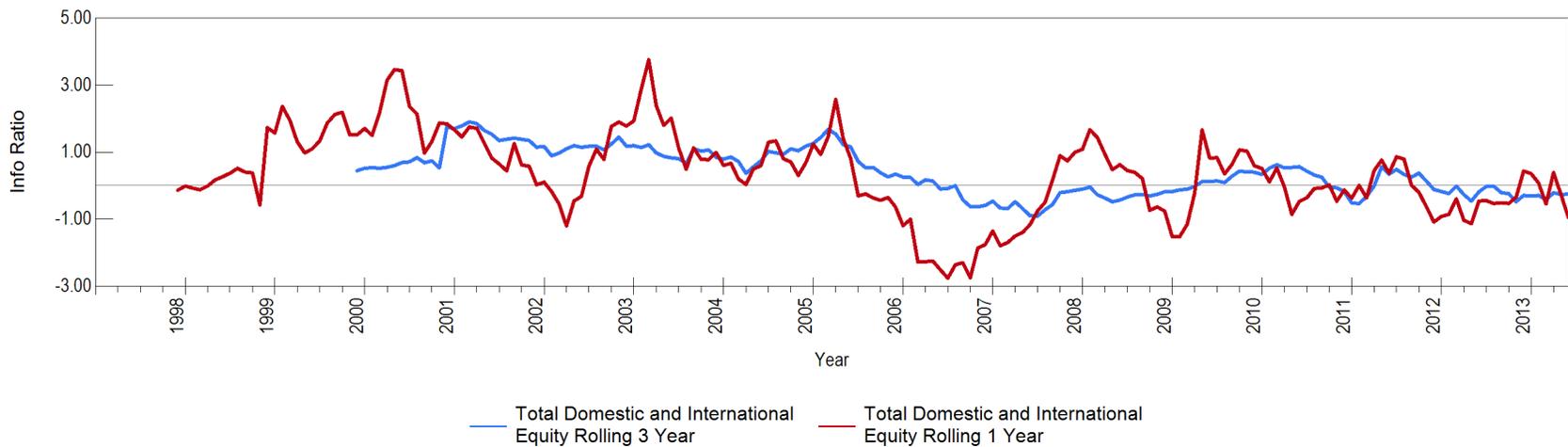
Composition of Interim SAA Policy and ASRS Custom Benchmarks can be found in the appendix.

Asset Class Analysis - Total Domestic and International Equity

Rolling Annual Excess Benchmark Return

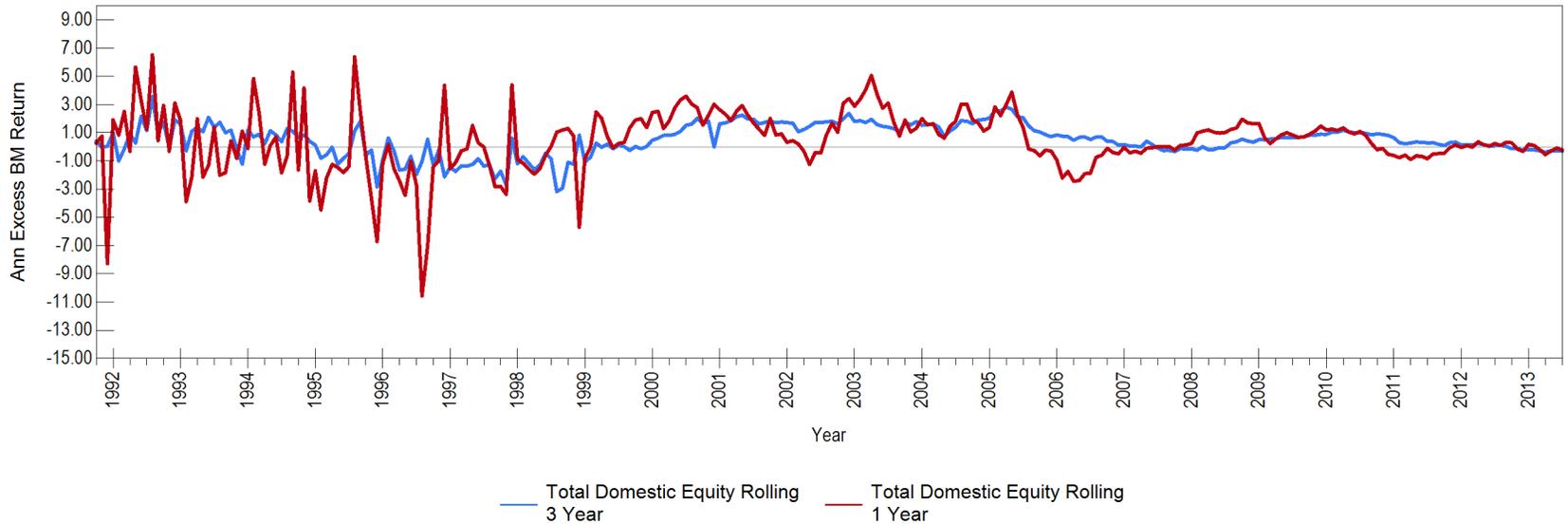


Rolling Information Ratio



Asset Class Analysis - Total Domestic Equity

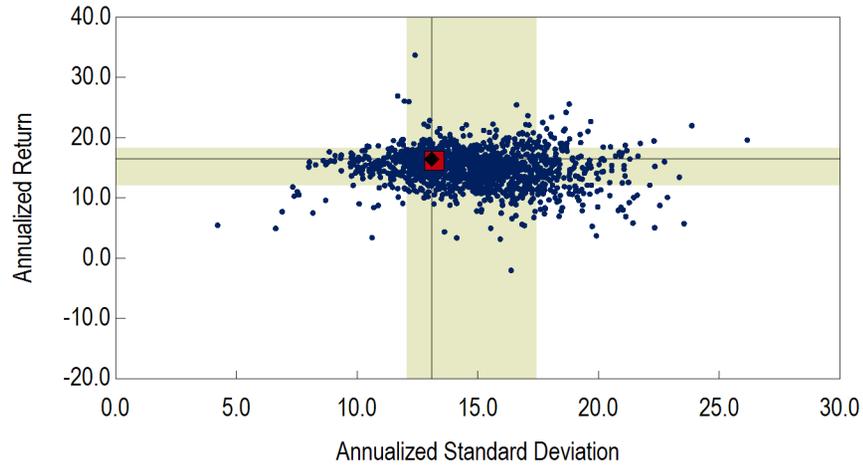
Rolling Annual Excess Benchmark Return



eA All US Equity Net Accounts

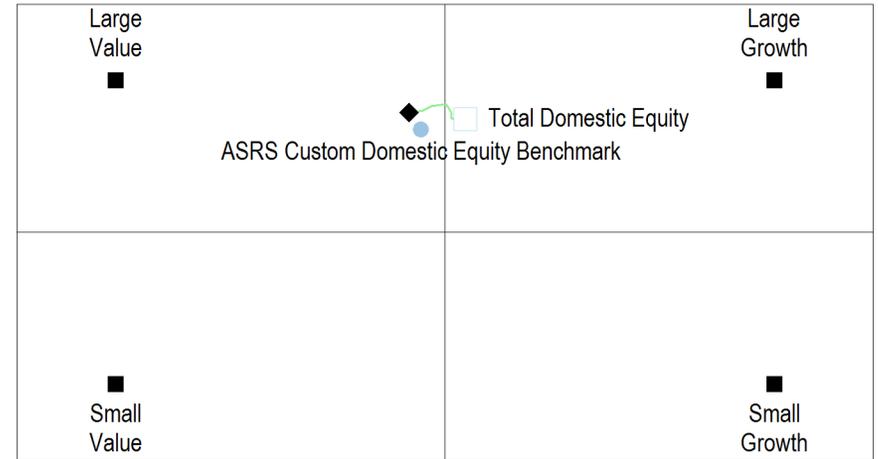


3 Year Risk Return



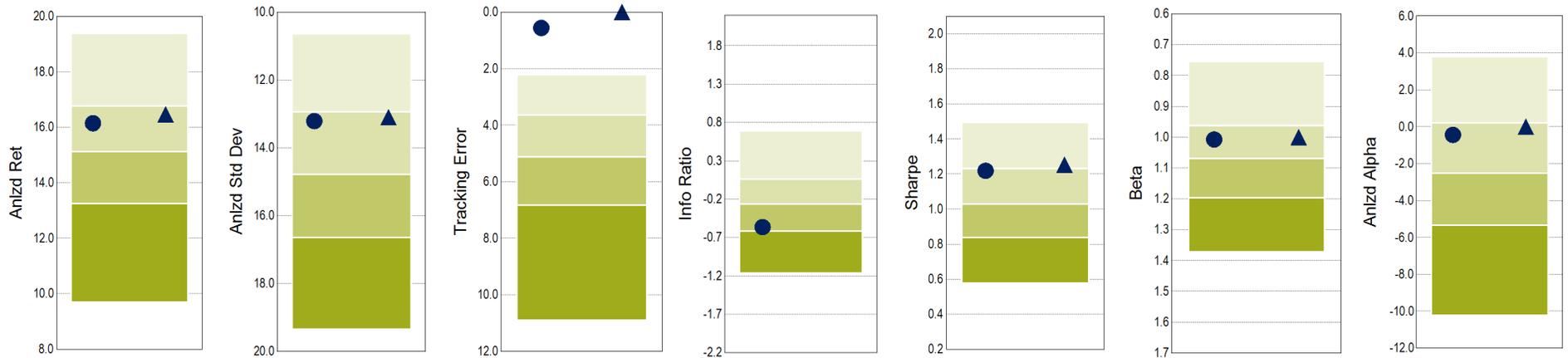
- Total Domestic Equity
- ◆ ASRS Custom Domestic Equity Benchmark
- 68% Confidence Interval
- eA All US Equity Net

3 Year Style Map



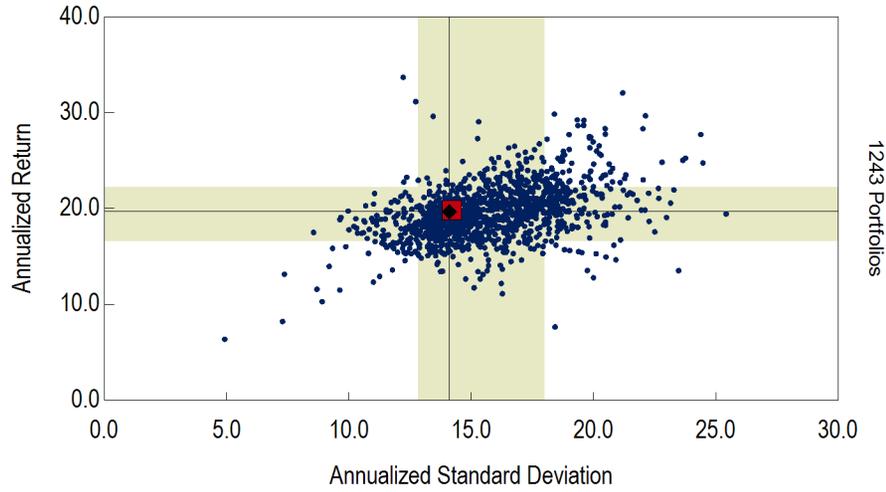
- First Rolling Period
- ◆ Last Rolling Period

*Style map is returns based.



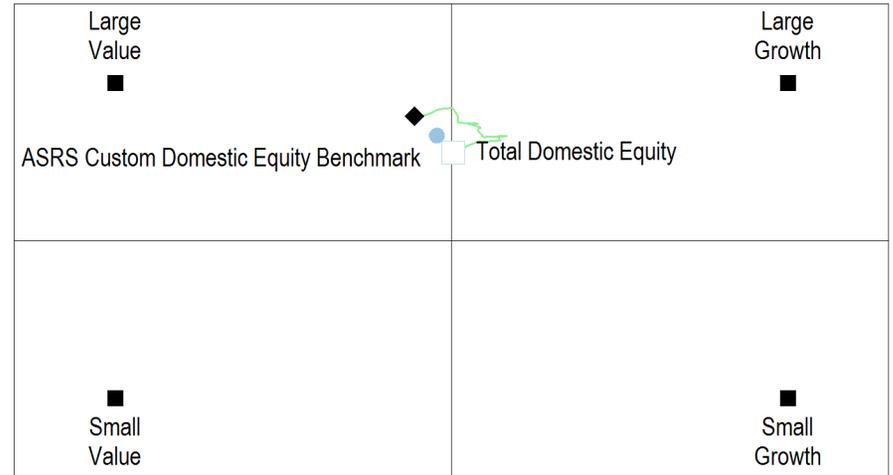
- Total Domestic Equity
- ▲ ASRS Custom Domestic Equity Benchmark
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile

5 Year Risk Return



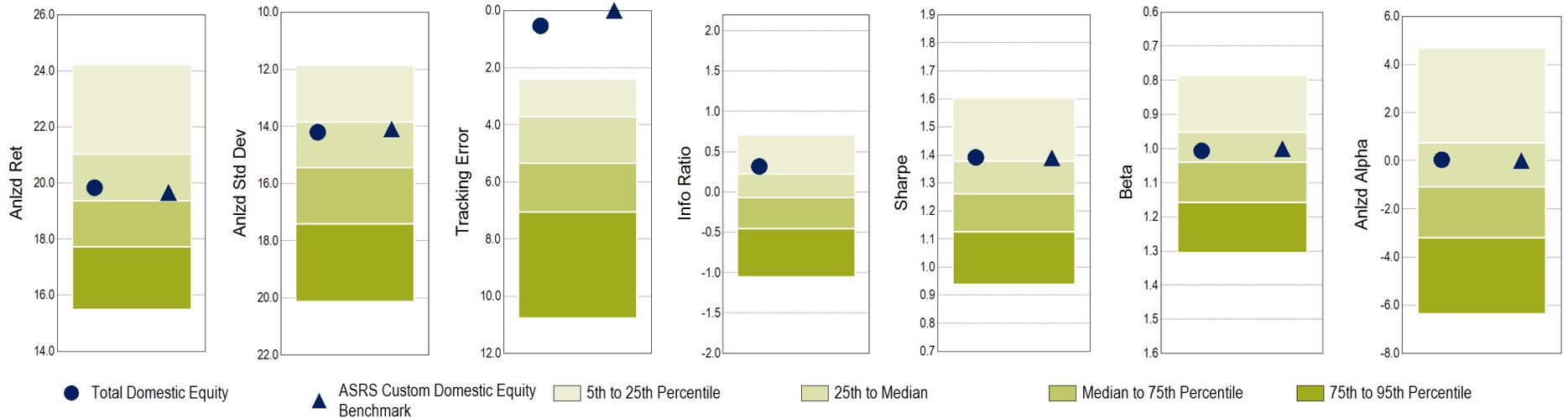
- Total Domestic Equity
- ◆ ASRS Custom Domestic Equity Benchmark
- 68% Confidence Interval
- eA All US Equity Net

5 Year Style Map



- First Rolling Period
- ◆ Last Rolling Period

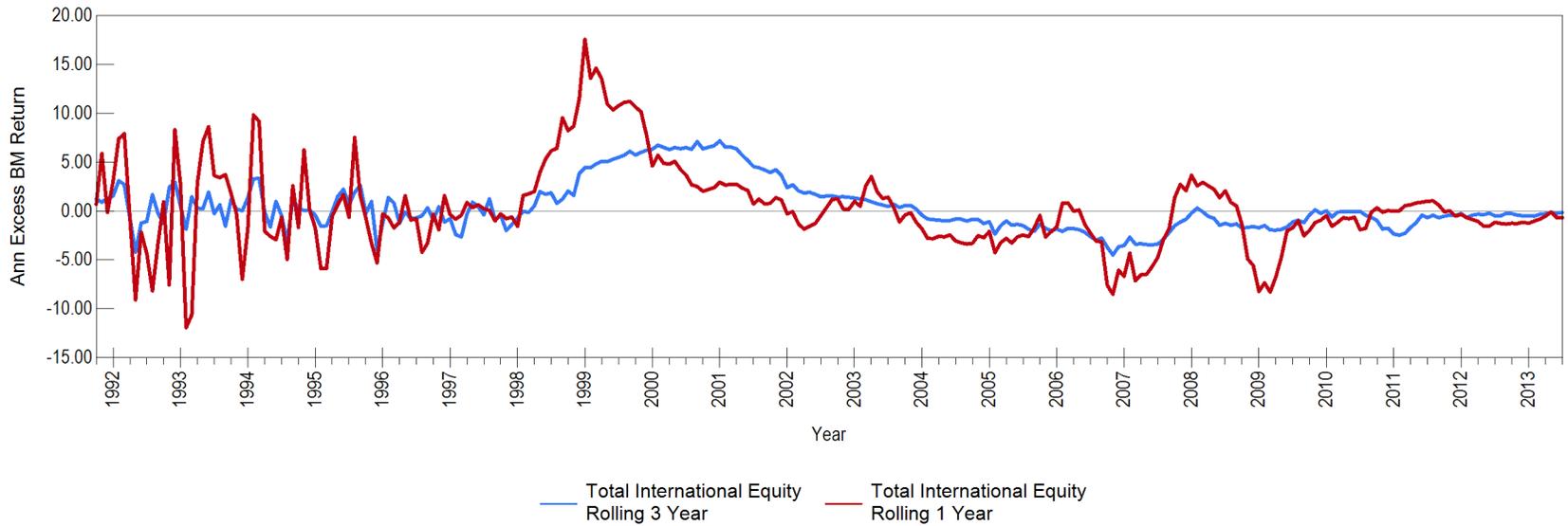
*Style map is returns based.



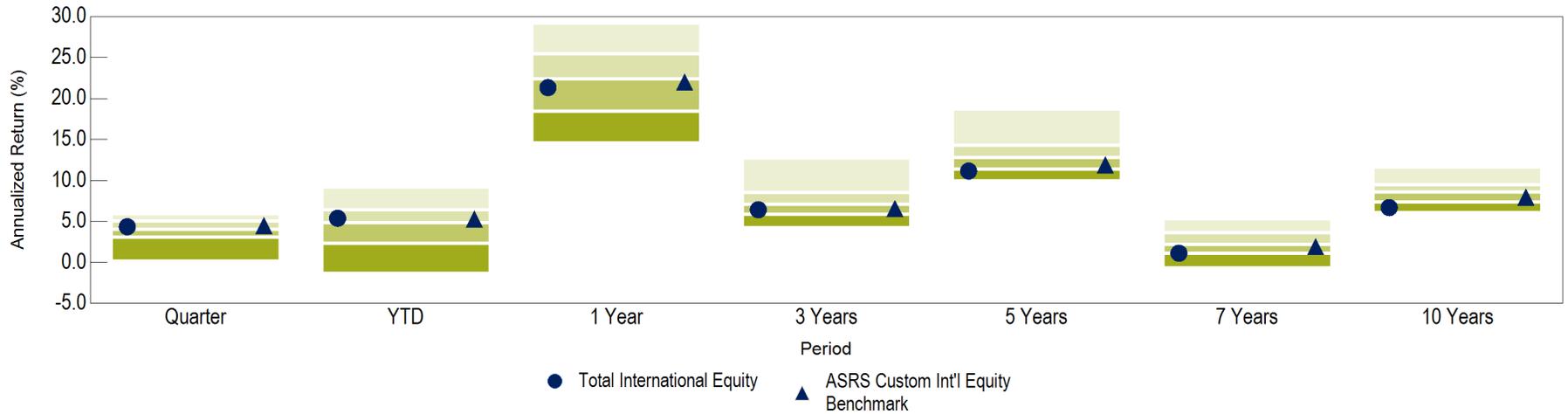
- Total Domestic Equity
- ▲ ASRS Custom Domestic Equity Benchmark
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile

Asset Class Analysis - Total International Equity

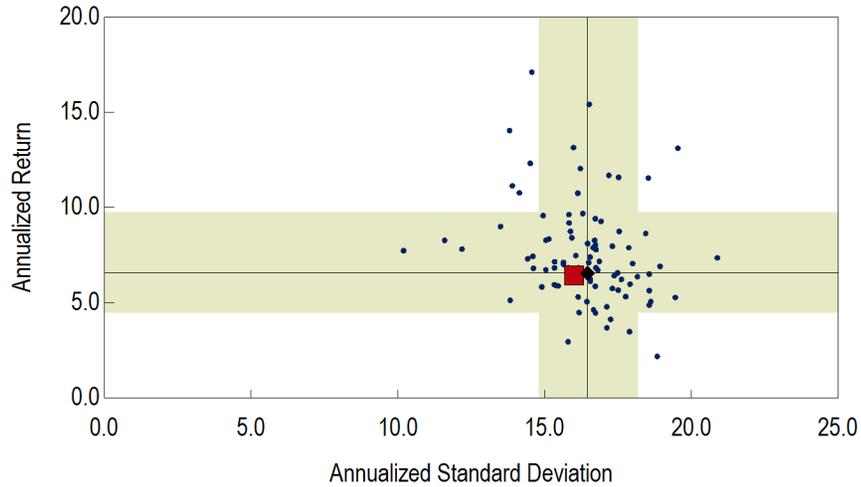
Rolling Annual Excess Benchmark Return



eA All ACWI ex-US Equity Net Accounts

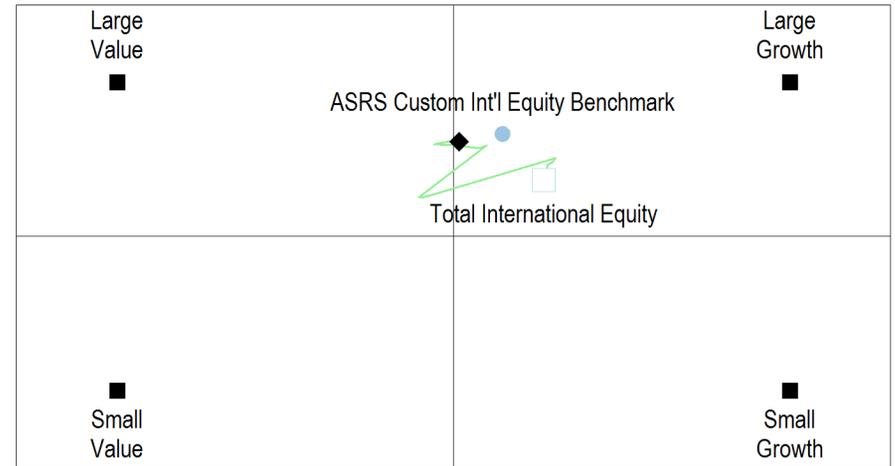


3 Year Risk Return



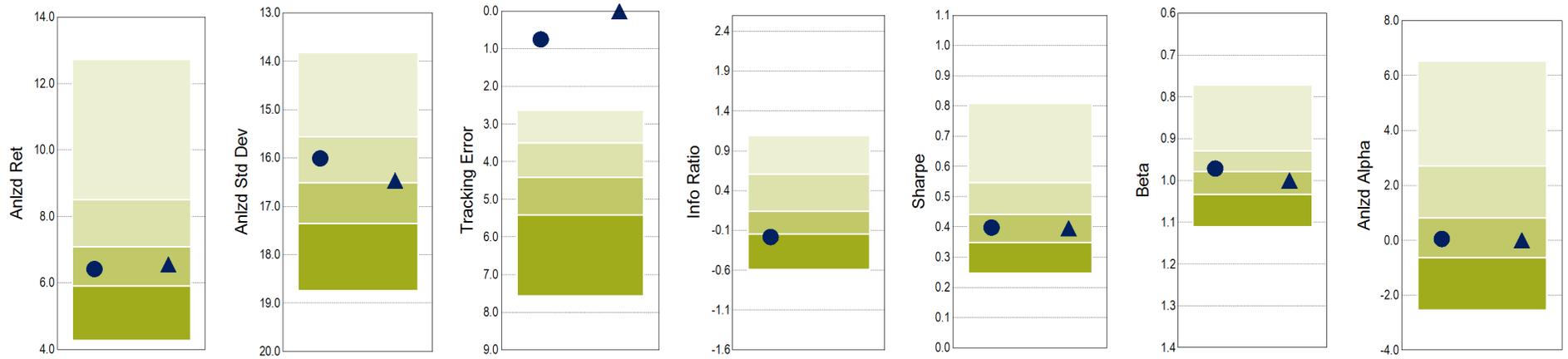
- Total International Equity
- ◆ ASRS Custom Int'l Equity Benchmark
- 68% Confidence Interval
- eA All ACWI ex-US Equity Net

3 Year Style Map



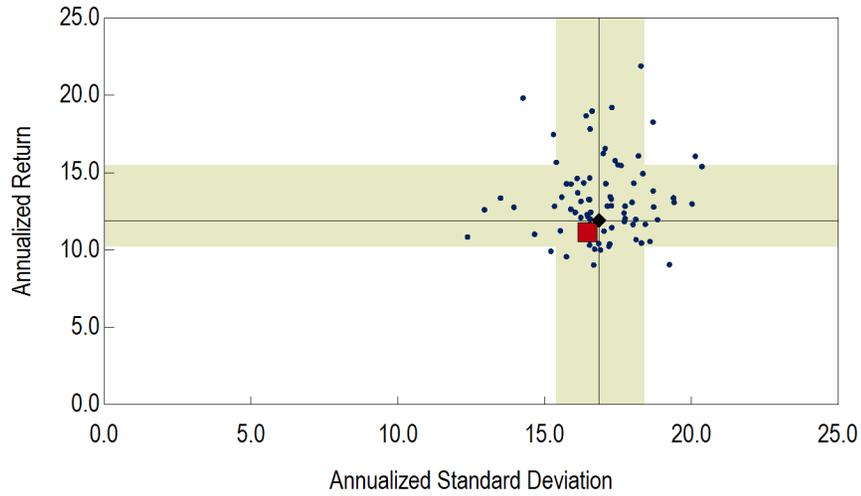
- First Rolling Period
- ◆ Last Rolling Period

*Style map is returns based.



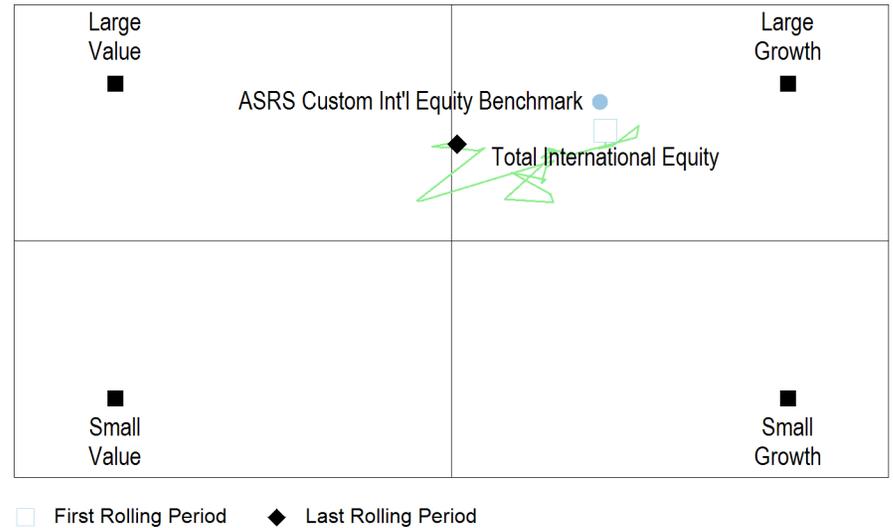
- Total International Equity
- ▲ ASRS Custom Int'l Equity Benchmark
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile

5 Year Risk Return



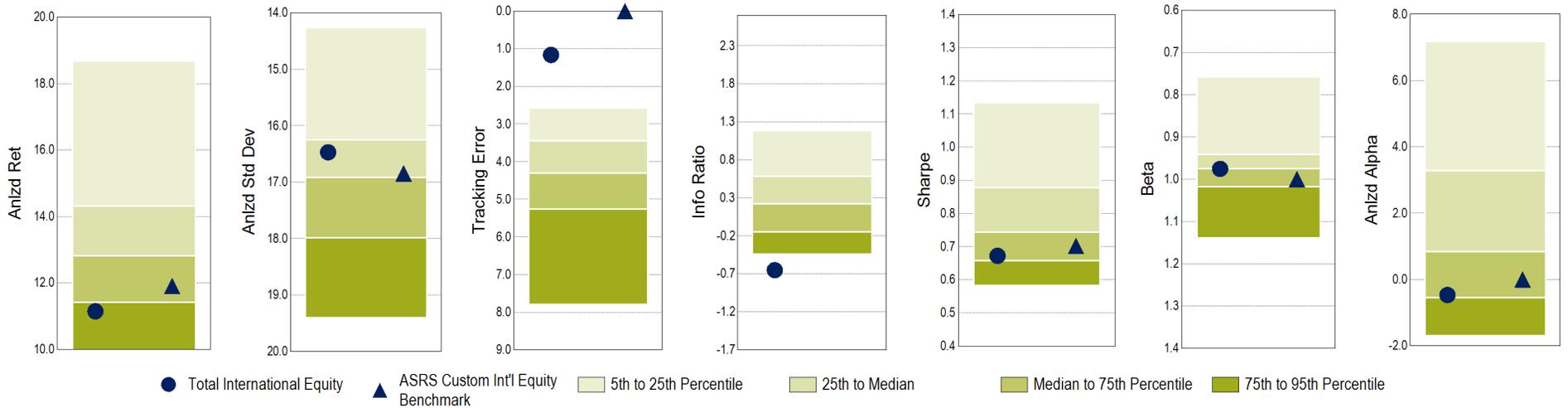
- Total International Equity
- ◆ ASRS Custom Int'l Equity Benchmark
- 68% Confidence Interval
- eA All ACWI ex-US Equity Net

5 Year Style Map



- First Rolling Period
- ◆ Last Rolling Period

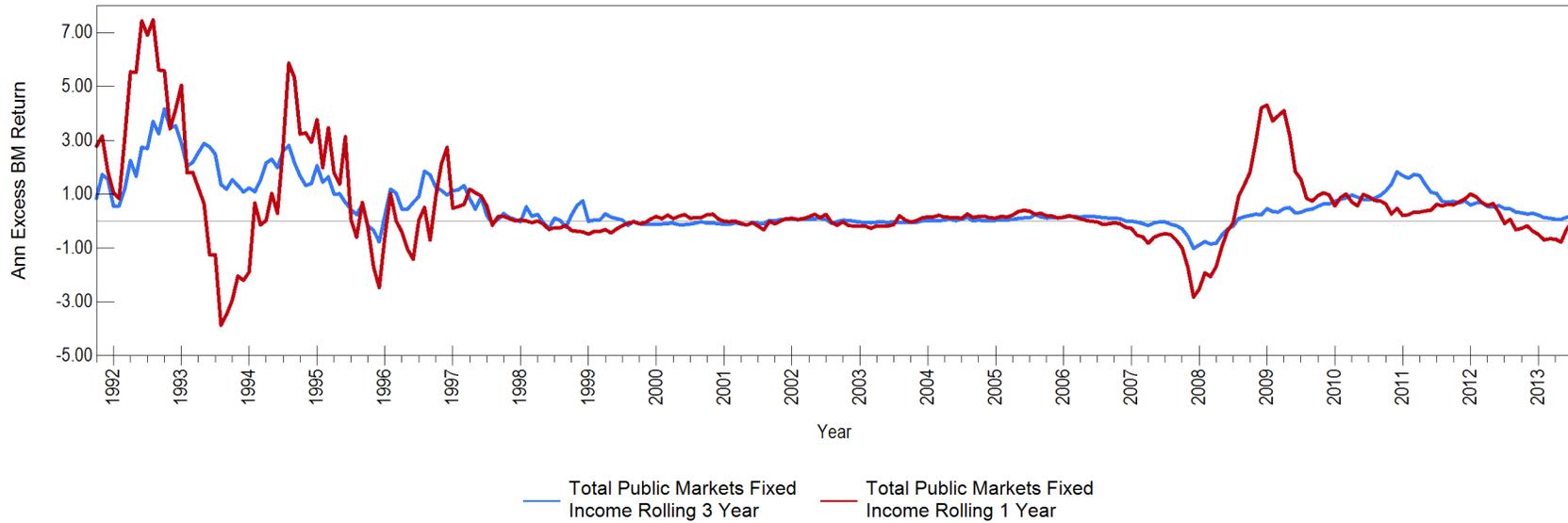
*Style map is returns based.



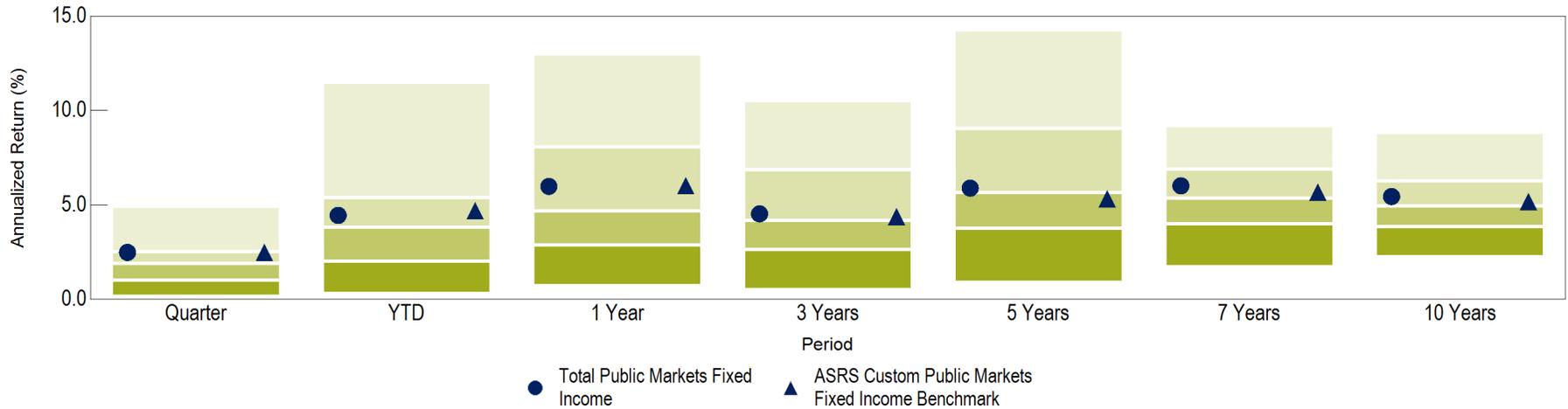
- Total International Equity
- ▲ ASRS Custom Int'l Equity Benchmark
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile

Asset Class Analysis - Total Public Markets Fixed Income

Rolling Annual Excess Benchmark Return

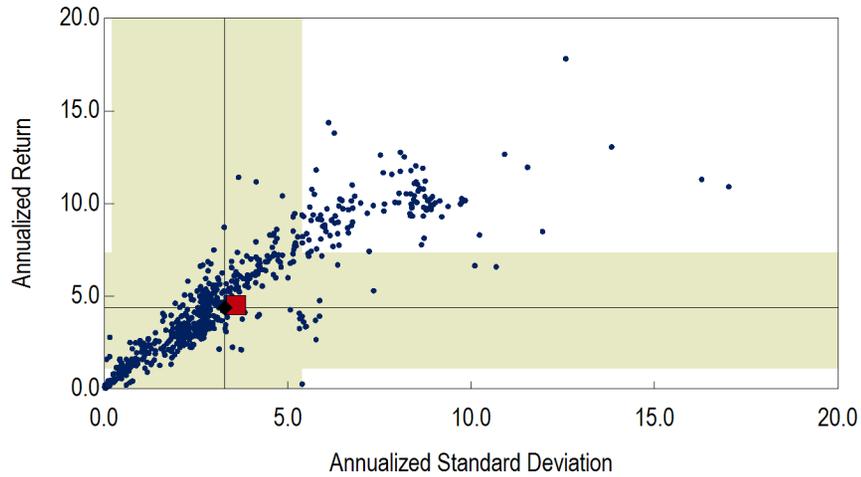


eA All US Fixed Inc Net Accounts



Asset Class Analysis - Total Public Markets Fixed Income

3 Year Risk Return



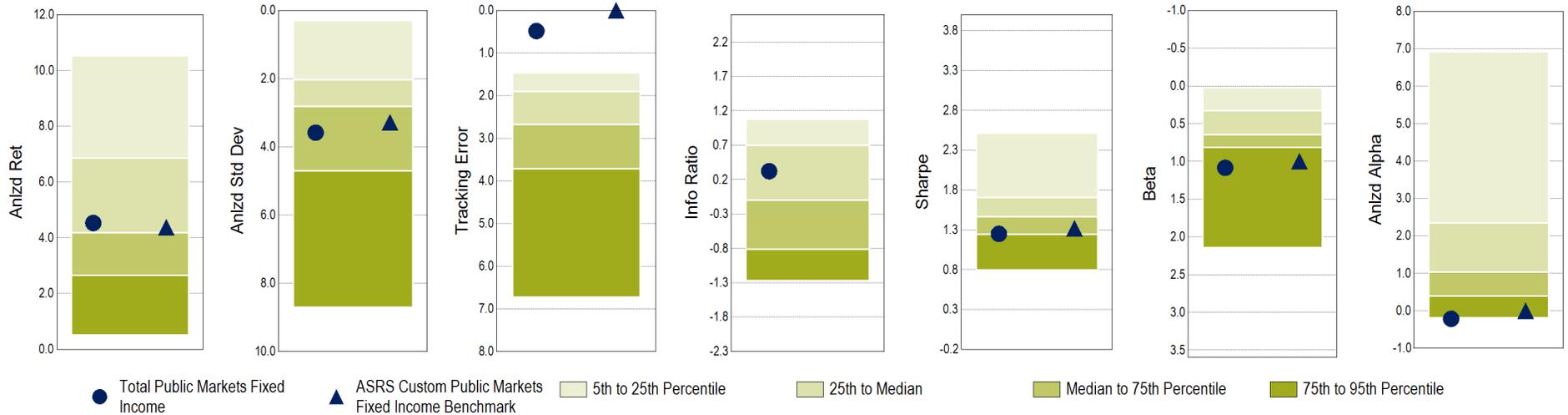
- Total Public Markets Fixed Income
- ◆ ASRS Custom Public Markets Fixed Income Benchmark
- 68% Confidence Interval
- eA All US Fixed Inc Net

3 Year Style Map



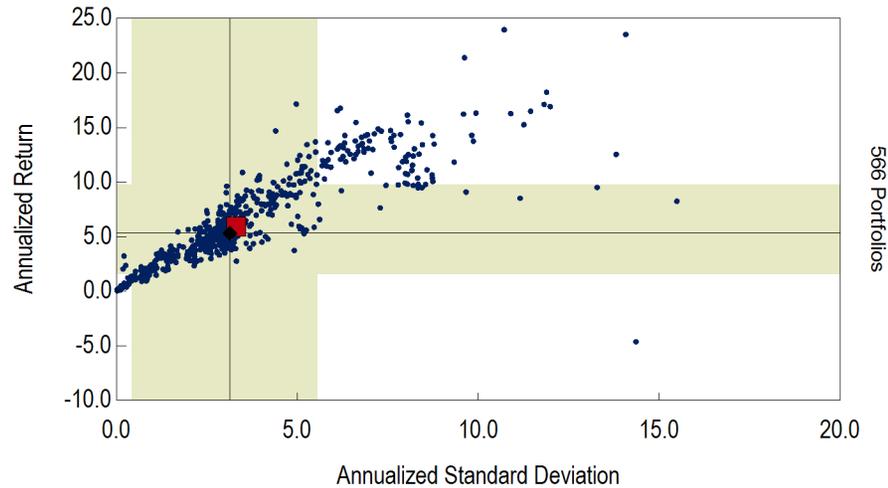
- First Rolling Period
- ◆ Last Rolling Period

*Style map is returns based.

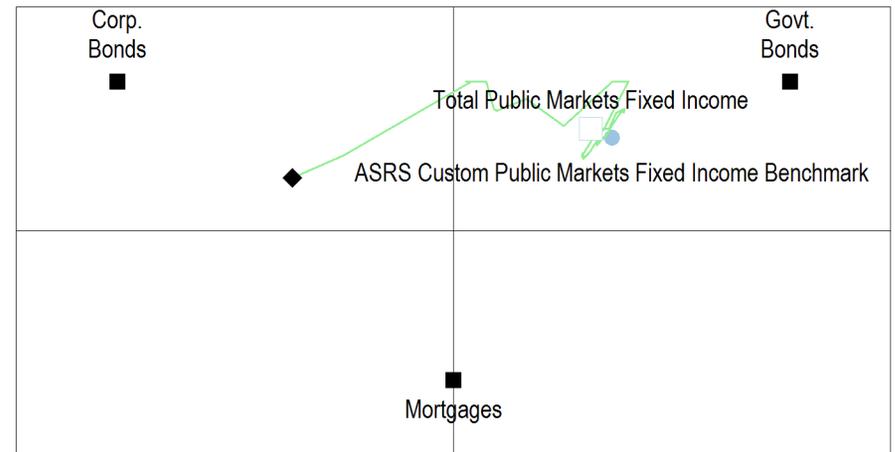


- Total Public Markets Fixed Income
- ▲ ASRS Custom Public Markets Fixed Income Benchmark
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile

5 Year Risk Return



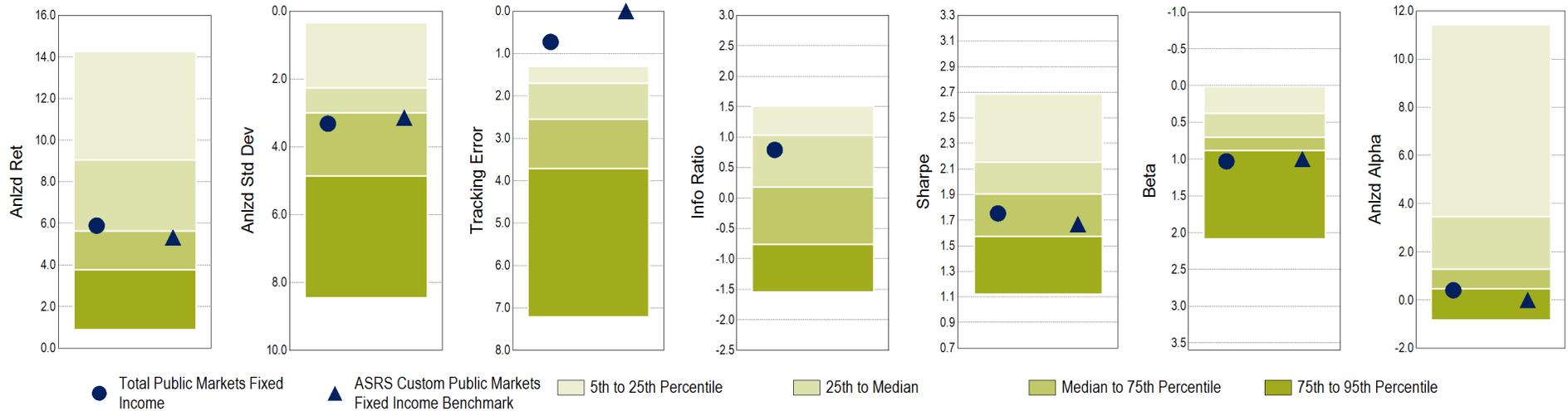
5 Year Style Map



- Total Public Markets Fixed Income
- ◆ ASRS Custom Public Markets Fixed Income Benchmark
- 68% Confidence Interval
- eA All US Fixed Inc Net

- First Rolling Period
- ◆ Last Rolling Period

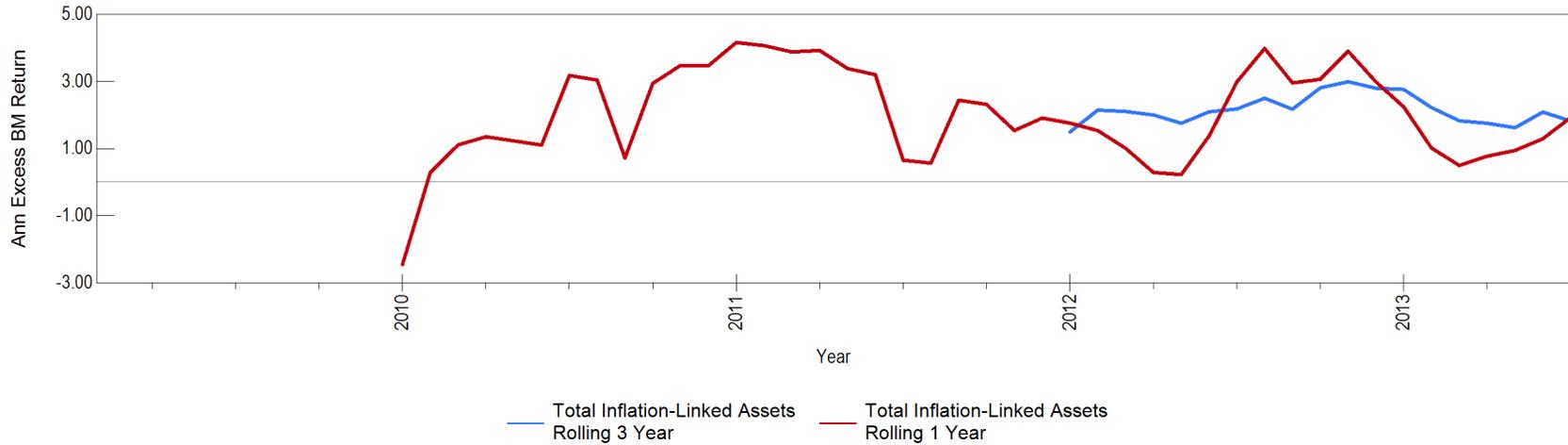
*Style map is returns based.



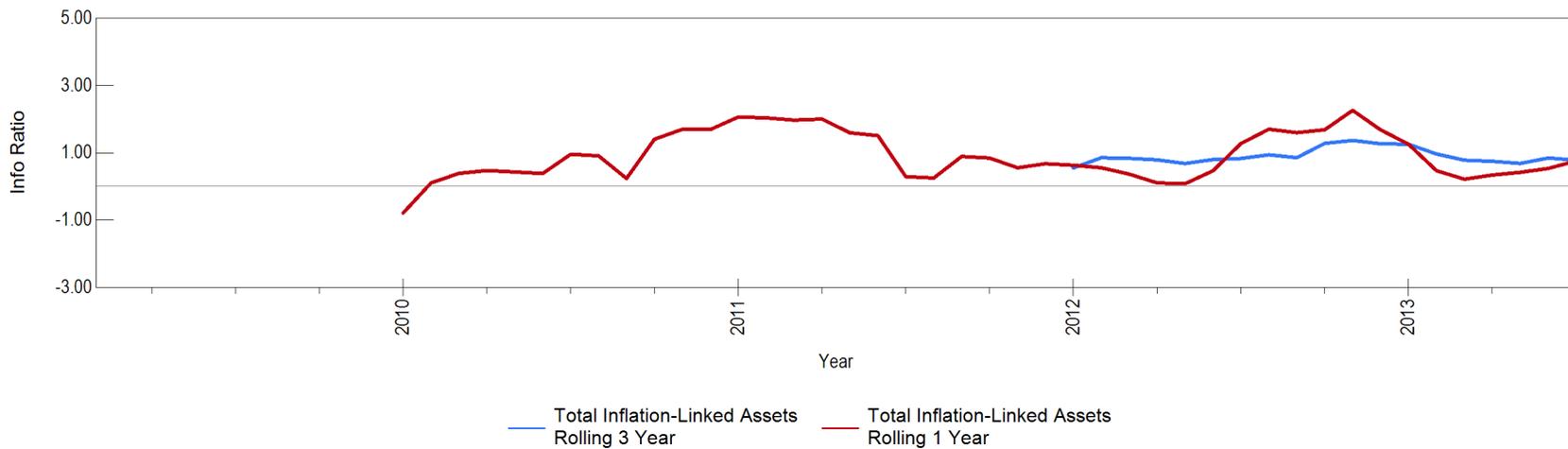
- Total Public Markets Fixed Income
- ▲ ASRS Custom Public Markets Fixed Income Benchmark
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile

Asset Class Analysis - Total Inflation-Linked Assets

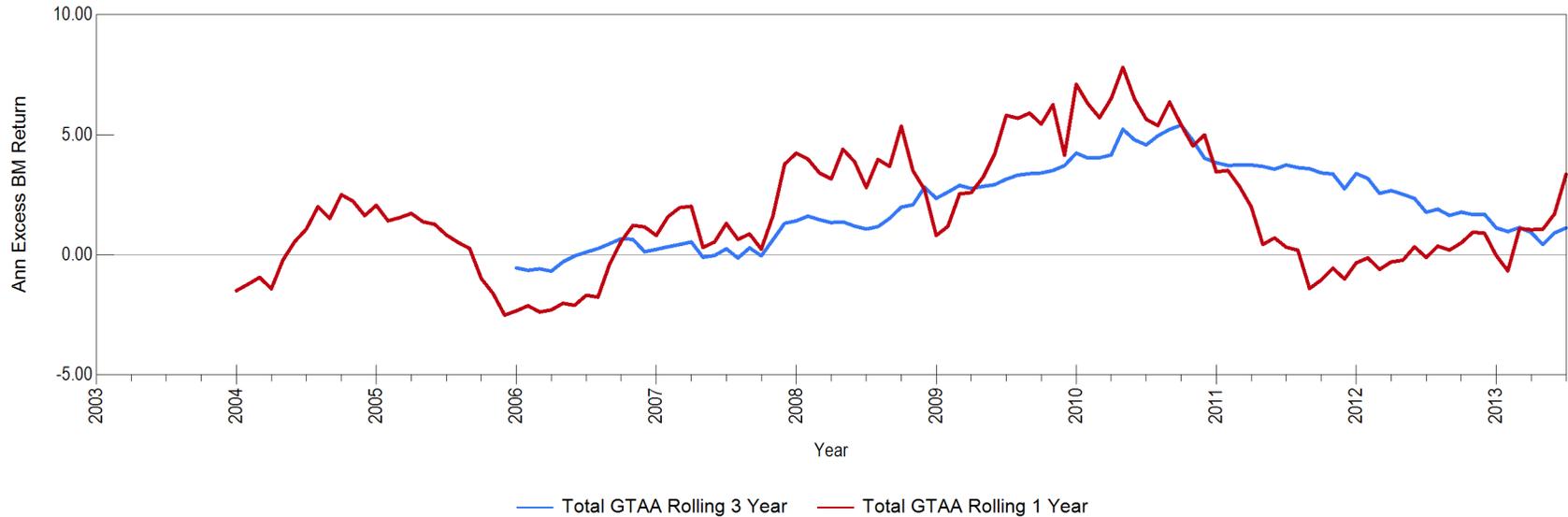
Rolling Annual Excess Benchmark Return



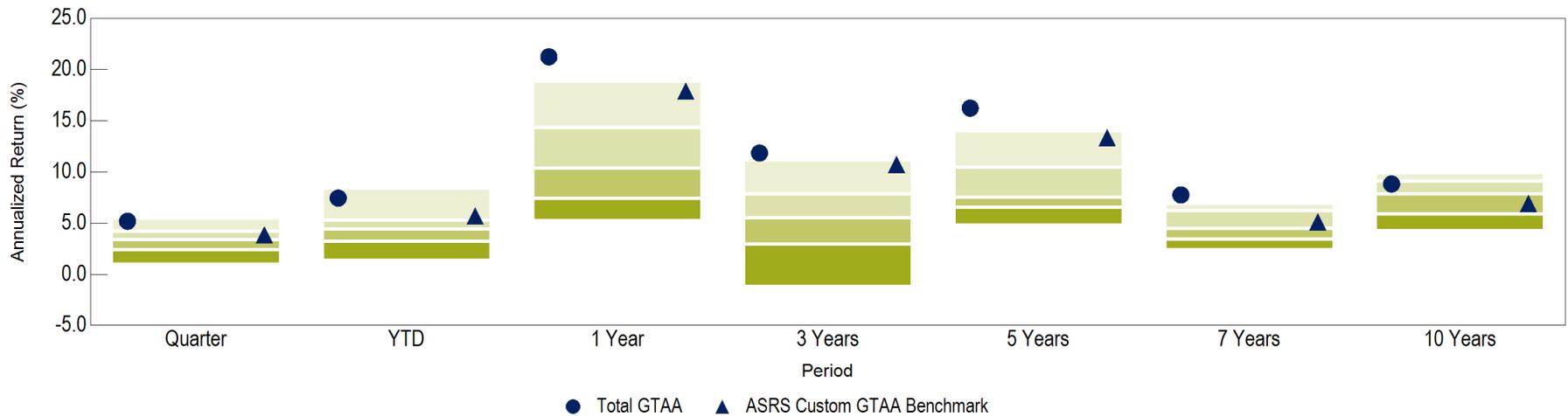
Rolling Information Ratio

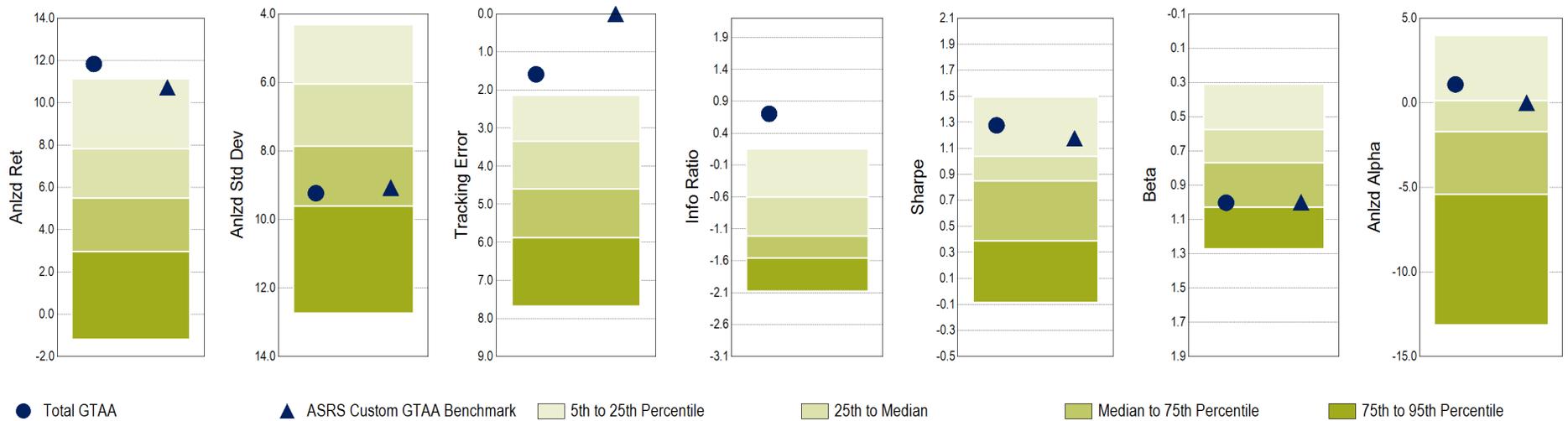
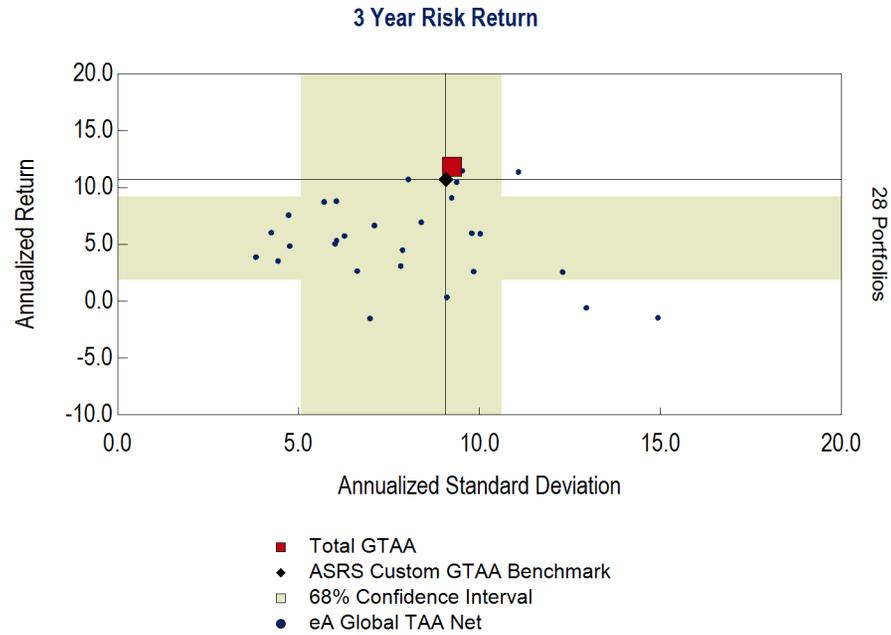


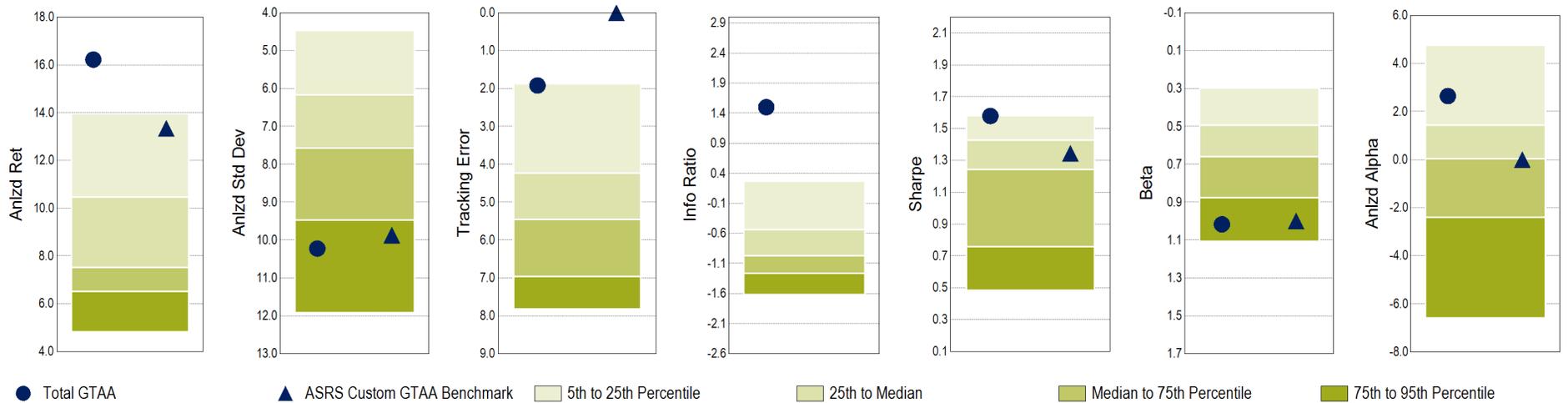
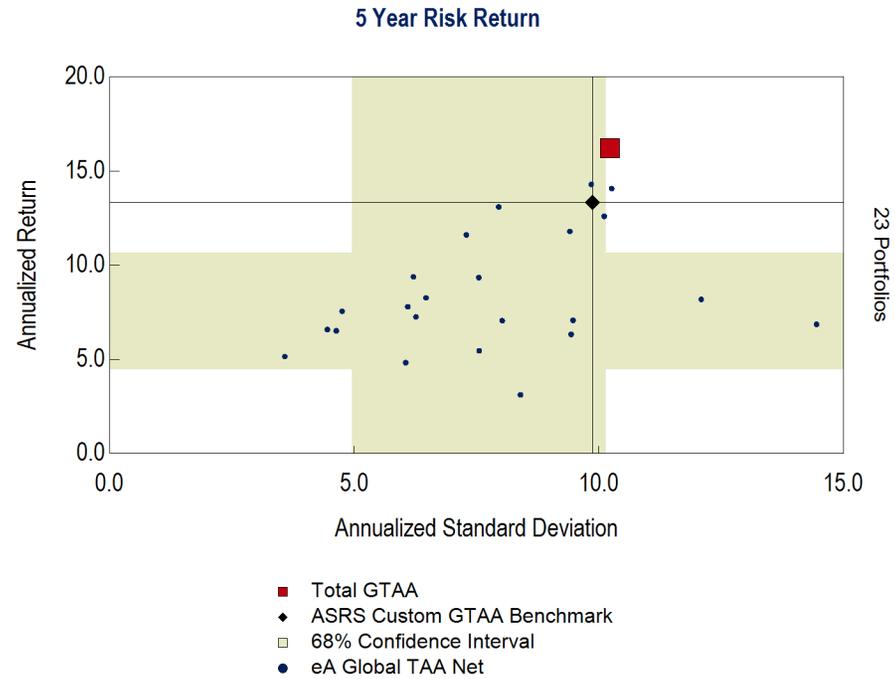
Rolling Annual Excess Benchmark Return



eA Global TAA Net Accounts







- **Five Asset Class Committee meetings have been held since the last time we provided an update on the ASRS Asset Class Committee Meetings.**

- **June 19, 2014 – Ad-Hoc Private Markets Committee**
 - Niche and Tactical Real Estate Investment Disposition Recommendation
 - The Committee heard a recommendation from IMD Staff and RCLCO to sell a property that was a part of the niche and tactical real estate investment portfolio and generated a profit of at least 30% after a two month holding period.
 - Committee approved the recommendation.

- **June 26, 2014 – Private Markets Committee**
 - Private Equity Monthly Status Report, General Discussion and Deal Flow
 - IMD Staff provided a mid-year update on the private equity pacing plan, noting that the current targeted 2014 pace of investments is approximately \$100 million higher than anticipated; however, due to higher than expected returns across other areas of the portfolio, the SAAP target of 7% will not be exceeded.
 - Private Equity Manager Recommendation (\$40 million)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Private Equity is 7%)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight.
 - Committee approved the recommendation.
 - Private Equity Manager Recommendation (\$50 million)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Private Equity is 7%)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight.
 - Committee approved the recommendation.
 - Niche and Tactical Real Estate Manager Recommendation (\$100 million)
 - The Committee approved continuing due diligence on this opportunity at its May meeting and RCLCO provided further diligence and results on this opportunity within the urban retail space.
 - The Committee postponed voting on this matter pending completion of background checks.

- **July 1, 2014 – Ad Hoc Private Markets Committee**

- Niche and Tactical Real Estate Investment Manager Recommendation (\$100 million – deferred from 6/26/2014 PRIVMC meeting)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Real Estate is 8%)
 - Due diligence process was followed in accordance with SIP006 – Investment Manager, Partner, and Co-Investment Selection and Oversight.
 - Committee approved the recommendation.
- Real Estate Investment Discussion
 - RCLCO recommended a variance be granted to change the underwriting criteria of an investment.
 - Committee approved the recommendation.

- **July 14, 2014 – Ad Hoc Private Markets Committee**

- Niche and Tactical Real Estate Investment Discussion
 - At the 2/21/2014 PRIVMC meeting, the Committee approved the pursuit of niche and tactical investments in the real estate asset class in accordance with a documented procedure that includes approval by the Committee before conducting a full due diligence review.
 - IMD Staff and RCLCO presented a potential investment and the Committee authorized further due diligence. In addition, the Committee requested that IMD Staff and RCLCO explore the possibility of increasing the size of the potential investment.

- **July 21, 2014 – Private Markets Committee**

- Private Equity Monthly Status Report, General Discussion and Deal Flow
- Opportunistic Equity Disposition Recommendation
 - The Committee heard a recommendation from IMD Staff regarding the disposition of ownership in a private company that is part of the Opportunistic Equity portfolio and has since gone public.
 - Committee approved the recommendation.

General Observations

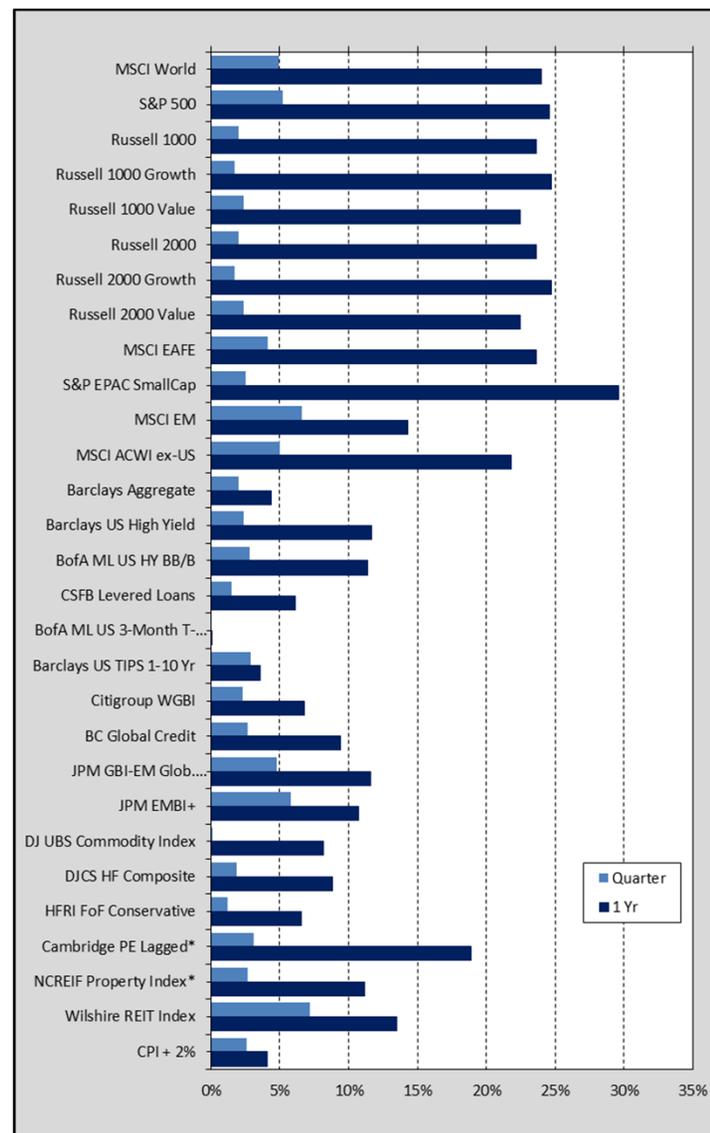
- **The Fund continues to make significant progress moving the portfolio from the Interim SAAP toward the long-term SAAP.**
 - The Interim SAAP progressed toward the long-term SAAP target with a decrease of 1% in U.S. Core Fixed Income to 14% and an increase in Private Debt of 1% to 3%, bringing the Private Debt asset class to its long-term SAAP target weight.
 - Full implementation results in a further reduction of 2% within U.S. Equities and 1% within U.S. Core Fixed Income and an increase of 1% to Private Equity, and 2% to Real Estate.
- **Strong absolute and relative Total Fund performance continues, largely due to the Fund's exposure to global equities.**
 - The Fund's volatility ranks in the bottom quartile of its peer group over all time periods reported herein due to its overweight to equities relative to peers.
 - Continued build-out of private debt and opportunistic debt asset classes provides an opportunity to generate equity-like returns with less volatility.
 - Tactical underweight in Core Fixed Income continues to be a source of value creation on a relative basis for the Fund.
- **Valuations across many asset classes appear stretched**
 - Excluding emerging markets, equity P/E ratios are above long-term averages.
 - Credit spreads continue to tighten globally from insatiable demand.
- **Global Asset Allocation program has added 0.30% of value at the Total Fund level over the past five years.**
 - Strategies combine top-down asset class selection, portfolio construction and risk management techniques
 - Tactical asset class weighting can add value above static, strategic allocation by taking advantage of mispricings and exploiting relationships between global markets
 - Return expectations are subdued across risky asset classes. Tactical asset allocation strategies can be used to identify sources of value
 - Taking full advantage of diversification benefits can produce a more efficient portfolio, especially in highly volatile markets
- **Tactical positioning consistent with IMD House Views**

Market Environment Update and Outlook



- **Second quarter GDP grew at a rate of 4% (according to the advance estimate) after decreasing by 2.1% in the first quarter.**
 - Retail sales (ended June) rose to 3.7% on a year-over-year growth rate basis.
 - The inventory-to-sales ratio has remained mostly flat since early 2010 and closed at 1.29 in May.
 - Corporate profits as a percent of GDP fell from secular highs to 11.6% at the end of Q1 2014 but remain elevated relative to historical levels.
 - The U.S. trade deficit decreased in May.
- **The unemployment rate fell to 6.1% in June; U-6, a broader measure of unemployment, fell to 12.1% during the second quarter.**
- **The Case-Schiller Home Price Index (as of 3/31) stayed nearly flat at 150.79 and is only slightly below the highest level (150.92) it has reached since prior to the financial crisis.**
- **Rolling 12-month CPI increased to 2.1% at the end of May; Capacity Utilization rose slightly to 79.1% in May.**
- **Fed Funds rate remains at 0.25%, while the 10-year Treasury Yield finished June at 2.53%.**
- **The Fed balance sheet continues to increase in 2014, while European Central Bank balance sheets have decreased.**
 - Large economies continue easing (Japan to the extreme), while the ECB cut its main lending rate imposing a negative excess deposit rate.
- **S&P valuations rose in June remaining above the 10-year and long-term averages, which are nearly equal at 16.4x, using current price/earnings ratios.**
 - Cyclically adjusted Shiller PE ratios, are well above the long-term average of 17.6x and above the 10-year average of 23.0x.
 - VIX continues to remain near historically low levels.

		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
World Equity Benchmarks						
MSCI World	World	4.9%	24.0%	11.8%	15.0%	7.2%
		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
Domestic Equity Benchmarks						
S&P 500	Large Core	5.2%	24.6%	16.6%	18.8%	7.8%
Russell 1000	Large Core	2.0%	23.6%	14.6%	20.2%	8.7%
Russell 1000 Growth	Large Growth	1.7%	24.7%	14.5%	20.5%	9.0%
Russell 1000 Value	Large Value	2.4%	22.5%	14.6%	19.9%	8.2%
Russell 2000	Small Core	2.0%	23.6%	14.6%	20.2%	8.7%
Russell 2000 Growth	Small Growth	1.7%	24.7%	14.5%	20.5%	9.0%
Russell 2000 Value	Small Value	2.4%	22.5%	14.6%	19.9%	8.2%
		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
International Equity Benchmarks						
MSCI EAFE	International Developed	4.1%	23.6%	8.1%	11.8%	6.9%
S&P EPAC SmallCap	Small Cap Int'l	2.5%	29.6%	9.8%	15.2%	9.6%
MSCI EM	Emerging Equity	6.6%	14.3%	-0.4%	9.2%	11.9%
MSCI ACWI ex-US	World ex-US	5.0%	21.8%	5.7%	11.1%	7.7%
		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
Domestic Fixed Income Benchmarks						
Barclays Aggregate	Core Bonds	2.0%	4.4%	3.7%	4.9%	4.9%
Barclays US High Yield	High Yield	2.4%	11.7%	9.5%	14.0%	9.1%
BofA ML US HY BB/B	High Yield	2.8%	11.4%	8.8%	12.6%	8.6%
CSFB Levered Loans	Bank Loans	1.5%	6.1%	5.7%	8.8%	5.0%
BofA ML US 3-Month T-Bill	Cash	0.0%	0.1%	0.1%	0.1%	1.6%
Barclays US TIPS 1-10 Yr	Inflation	2.9%	3.6%	2.2%	4.5%	4.6%
		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
Global Fixed Income Benchmarks						
Citigroup WGBI	World Gov. Bonds	2.3%	6.8%	1.6%	3.6%	4.8%
BC Global Credit	Global Bonds	2.7%	9.4%	5.1%	7.0%	5.6%
JPM GBI-EM Glob. Diversified	Em. Mkt. Bonds (Local)	4.8%	11.6%	7.4%	10.3%	9.3%
JPM EMBI+	Em. Mkt. Bonds	5.8%	10.7%	7.2%	10.1%	9.6%
		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
Alternative Benchmarks						
DJ UBS Commodity Index	Commodity	0.1%	8.2%	-5.2%	2.0%	0.9%
DJCS HF Composite	Hedge Fund	1.9%	8.8%	5.2%	7.8%	6.4%
HFRI FoF Conservative	Fund of Funds	1.2%	6.6%	3.4%	4.1%	2.8%
Cambridge PE Lagged*	Private Equity	3.1%	18.9%	14.4%	17.3%	14.9%
NCREIF Property Index*	Real Estate	2.7%	11.2%	11.7%	7.9%	8.7%
Wilshire REIT Index	REIT	7.2%	13.5%	11.7%	24.0%	9.5%
CPI + 2%	Inflation/Real Assets	2.6%	4.1%	3.9%	4.1%	4.6%



* As of 3/31/2014

Positives

- **Early stages of Taper generally accepted by marketplace**
 - Though priced in, “normalization” of rates appears optimistic given dovish Fed comments
- **Q2 GDP growth estimated at 4%**
 - U.S. employment gains have resulted in a positive outlook for consumption
- **ECB’s move to cut main lending rate and impose a negative excess deposit rate for banks met with tepid investor reaction**
- **Developed world inflation is low**
 - Allows Fed continued flexibility to work through Taper
- **Emerging markets made further progress**
 - Positive flows, expectations for global growth and valuations may provide tailwind
- **Volatility remains subdued and markets relatively stable**

Negatives

- **Potential geopolitical instability**
 - Instability in Iraq, Israel and Ukraine could have spillover effects away from oil price shocks
- **Benign market environment in Europe obscures challenging underlying economic conditions**
- **Inflation experienced an uptick**
 - Supply disruptions contributed to food and energy price increases
- **Chinese economic stimulus aided Q2 results but China still lagged broader emerging markets**
- **Valuations beginning to stretch above long-term averages**
 - Developed Equity P/Es above median
 - Credit spreads near historically low levels

Global Equity

- **U.S. equities advanced in the second quarter amid improving economic data underscoring growth in the United States and Europe.**
- **Large cap stocks outperformed small cap stocks during the quarter, with the S&P 500 Index returning 5.2% versus 2.1% for the Russell 2000 Index.**
- **International equities slightly underperformed U.S. markets during the quarter, returning 5.0%, as measured by the MSCI ACWI ex-U.S. Index.**
 - Developed markets returned 4.1% as measured by the MSCI EAFE Index. Within developed markets, Japan was one of the better performing regions, returning roughly 6.6% during the quarter amid positive remarks on structural reform from Prime Minister Abe.
 - Emerging markets returned 6.6% as measured by the MSCI Emerging Markets Index. Returns during the quarter were bolstered by improving conditions in the Ukraine (conditions have since deteriorated), positive election results in India, and better economic conditions in China. Turkey and India were the best performing markets, returning 15% and 13%, respectively.

Private Equity

- **New private equity commitments totaled \$92.1 billion in Q2 2014, bringing total new commitments to \$173.1 billion in the first half of the year. 2014 is on track to be the fifth straight year of increasing commitments.**
 - While the overall trend was up, commitments to North American private equity funds fell 3% in the first half of the year. The relative value of European and Asian private equity may be outweighing the risks of investing overseas.
- **Buyout and growth equity funds have raised \$88.5 billion through the first half of the year, with mega buyout firms accounting for 31% of all buyout/growth equity funds.**
- **Venture capital commitments were \$27.2 billion in the first six months of the year, nearly matching the total raised in all of 2013.**
 - At 16% of total private equity raised, commitments are just below the 10-year historic relative average.
- **Mezzanine funds continue to face strong headwinds from a robust high yield market and an expanding supply of private debt.**
- **Asian private equity commitments accelerated in 2014 to \$21.7 billion.**
 - Represents 13% of 2014 total across all geographies and 72% of all Asian PE funds raised in 2013.
 - Approximately three-fourths of Asia PE raised in the 1st half of 2014 was by China funds.

Fixed Income

- **Bond markets continued their rally from the first quarter as strong performance in Treasuries spurred a rally across fixed income sectors.**
- **The 10-year Treasury yield fell almost 20 basis points during the quarter, finishing at 2.53%.**
- **The Treasury yield curve flattened as two-year yields rose slightly to 0.47% from 0.44%.**
- **Treasury Inflation-Protected Securities, or TIPS, outperformed nominal Treasuries due to increased inflation (expectations and actual), with the Barclays US TIPS Index posting gains of 3.8% during the quarter.**
- **Despite record new supply, investment grade credit posted strong performance, with spreads narrowing seven basis points to 96 basis points.**
 - The U.S. Credit Index gained 2.7% and the Long Duration Credit Index returned 5.0% in the second quarter.
- **High yield bonds returned 2.4%, aided by a decline in Treasury yields and a tightening of credit spreads.**
 - Spreads on high yield credit declined to 337 basis points, a post-crisis low, from 358 basis points at the end of the first quarter.
- **Additional monetary accommodation implemented by the ECB helped to extend a rally in emerging markets debt.**
 - Local currency (JP Morgan GBI-EM Global Diversified – Unhedged) and external currency (JP Morgan EMBI+) emerging markets debt had a stellar second quarter, returning 4.0% and 5.8%, respectively.

Commodities

- **Commodities posted modest gains in the second quarter with the DJ UBS essentially flat while the GSCI returned 2.7%.**
 - Commodity prices experienced high variability among sub-sectors.
- **Further tensions in the Middle East pushed energy prices higher while record low livestock inventories in the U.S. caused cattle prices to spike.**
- **Poor weather conditions in the growing regions, combined with severe cold weather, sparked supply related rallies earlier in the quarter in corn and natural gas before reversing course and trading downward during the second half of the quarter.**

Real Estate

- **NEPC continues to be neutral on core real estate in the U.S. and remains positive on non-core real estate, that is, value-add and opportunistic strategies, particularly in Europe.**
- **Within U.S. core real estate, strong fundamentals continue to be the story along with attractive income spreads relative to interest rates.**
 - The concerns for U.S. core real estate (and U.S. real estate, broadly) continues to be plentiful capital that is driving up pricing; and the market's expectation for higher future interest rates and their impact on capitalization rates and capital values.
- **U.S. REITs have rebounded in 2014 following weak performance in 2013.**
 - 16.2% compounded return through Q2 versus 2.9% annual return in 2013 and 2.3% 20-year average annual return.
 - REITs are trading at slight premiums to NAV with high FFO multiples; indicative of higher public market growth expectations.
- **Overall, the non-core real estate investment environment in the U.S. is normalizing; however, select areas remain attractive.**
 - Non-major markets have been slower to rebound relative to major markets and select property types/geographies remain distressed.
- **Europe is viewed as the best place for a marginal dollar of non-core real estate investment.**
 - Europe is emerging from multi-year recession, but recovery is slow.
 - Banks in EU are still overleveraged and have significant real estate exposure (banks in Europe hold 90%+ of real estate debt or €2,300B; in the U.S. banks hold 49% of real estate debt).

Real Assets/Inflation-Linked Assets

- **NEPC believes that energy, specifically in North America, represents an attractive opportunity in the up-stream and mid-stream parts of the energy value chain.**
- **Agriculture and metals/mining opportunities seem appealing based on long-term demographic trends despite a less certain short-term outlook.**
 - NEPC believes in long-term demand drivers for agriculture, especially for row crops such as corn and soy.
- **Timber is an area of portfolios where we would recommend underweight positions as total return targets are low with a relatively small market opportunity and managers seeking deals outside the U.S.**

- **Interpreting and understanding the low volatility environment is a key challenge.**
 - Low volatility can persist for long periods as a tailwind to markets but can also lead to complacency as excesses build in capital markets.
 - Assess portfolio risk exposure and determine reasonable levels of portfolio liquidity and dry powder for future opportunities.
- **Persistent low volatility may obscure underlying economic risks.**
 - Global growth expectations remain subdued.
 - EM balance of payment concerns remain as some countries slow the pace of reforms.
 - China growth softens as credit growth continues to expand.
 - Geopolitical risks pushing oil prices higher.
- **As taper of QE concludes, there is the potential for increased volatility as markets seek visibility into the Fed's monetary policy for 2015.**
- **Valuations across many asset classes appear stretched.**
 - Excluding EM, equity P-E ratios are above long-term averages.
 - Credit spreads continue to tighten globally from insatiable demand.
- **NEPC themes remain consistent.**
 - Investors would be wise to rebalance to policy targets and maintain portfolio risk balance.
 - Allocate to emerging markets and private markets for higher returns in a low return world.
 - Look for opportunities to be dynamic – particularly in credit markets.

NEPC Updates

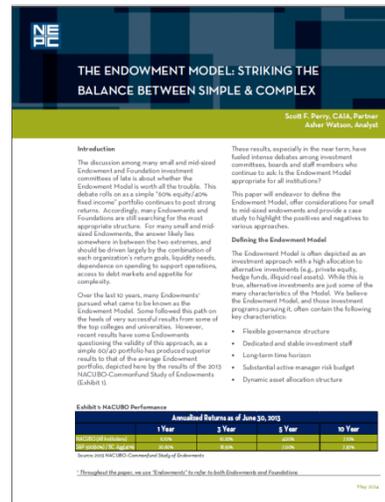
Second Quarter 2014

Highlights of Second Quarter Happenings at NEPC

NEPC Research

Recent White Papers Posted

- *2Q Market Thoughts — “The Volatility Conundrum”* (July 2014)
- *The Endowment Model: Striking the Balance Between Simple & Complex* (May 2014) – Scott F. Perry, CAIA, Partner
- *Hangover Redux: The Impact of Capital Overhang on Private Equity Investing* (May 2014) – Chuck Tedeschi, Senior Consultant, Private Markets Research; Melissa Mendenhall, Consultant, Private Markets Research



News from NEPC

- NEPC is pleased to announce the selection of MSCI's BarraOne and HedgePlatform for risk management and reporting. "This broader relationship with MSCI will provide NEPC with leading risk tools for both total plan risk and hedge fund risk. We are particularly excited about the plans to integrate the InvestorForce Reporting platform with BarraOne," noted Dan Kelly, Chief Operating Officer of NEPC.

Professional Staff Updates

New Client Strategy Team

- Provides high level Research and Consulting Services to all practice areas and develops sophisticated client Research. The team offers a centralized senior level resource pool for all clients that require expertise in asset allocation, defined contribution and alternative assets.
- Led by **Chris Levell, ASA, CFA, CAIA, Partner** focusing on asset allocation
- Supported by **Ross Bremen, CFA, Partner** (Defined Contribution) and **Sean Gill, CFA, CAIA, Partner** (Alternative Assets)



Appendix: SAA Policy History



Strategic Asset Allocation Policy (SAAP) History

- 7/1/75 – 12/31/79 – 40% S&P 500/60% Barclays Capital Aggregate
- 1/1/80 – 12/31/83 – 50% S&P 500/50% Barclays Capital Aggregate
- 1/1/84 – 12/31/91 – 60% S&P 500/40% Barclays Capital Aggregate
- 1/1/92 – 12/31/94 – 50% S&P 500/10% MSCI EAFE/40% Barclays Capital Aggregate
- 1/1/95 – 6/30/97 – 45% S&P 500/15% MSCI EAFE/40% Barclays Capital Aggregate
- 7/1/97 – 12/31/99 – 50% S&P 500/15% MSCI EAFE/35% Barclays Capital Aggregate
- 1/1/00 – 9/30/03 – 53% S&P 500/17% MSCI EAFE/30% Barclays Capital Aggregate
- 10/1/03 – 12/31/06 – 53% S&P 500/15% MSCI EAFE/ACWI ex-U.S.¹/26% Barclays Capital Aggregate/6% NCREIF ODCE (lagged one quarter)
- 1/1/07 – 10/31/2009 – 31% S&P 500/7% S&P 400/7% S&P 600/18% MSCI ACWI ex-U.S./5% Russell 2000 (lagged one quarter)/26% Barclays Capital Aggregate/6% NCREIF ODCE (lagged one quarter)
- 11/1/2009 – 6/30/2012 – 28% S&P 500/6% S&P 400/6% S&P 600/13% MSCI EAFE/2% MSCI EAFE Small Cap/3% MSCI Emerging Markets/7% Russell 2000 (lagged one quarter)/24% Barclays Capital Aggregate/2% Barclays Capital High Yield/6% NCREIF ODCE (lagged one quarter)/3% Dow Jones/UBS Commodities Index
- **7/1/2012 – Present – 23% S&P 500/5% S&P 400/5% S&P 600/14% MSCI EAFE/3% MSCI EAFE Small Cap/6% MSCI Emerging Markets/7% Russell 2000 (lagged one quarter)/13% Barclays Capital Aggregate/5% Barclays Capital High Yield/4% JP Morgan GBI-EM Global Diversified/3% S&P/LSTA Levered Loan Index + 250 basis points (lagged one quarter)/8% NCREIF ODCE (lagged one quarter)/4% Dow Jones/UBS Commodities Index**
- *Interim SAA Policy: 25% S&P 500/5% S&P 400/5% S&P 600/14% MSCI EAFE/3% MSCI EAFE Small Cap/6% MSCI Emerging Markets/6% Russell 2000 (lagged one quarter)/14% Barclays Capital Aggregate/5% Barclays Capital High Yield/4% JP Morgan GBI-EM Global Diversified/3% S&P/LSTA Levered Loan Index + 250 basis points (lagged one quarter)/6% NCREIF ODCE (lagged one quarter)/4% Dow Jones/UBS Commodities Index

Note: Interim SAA Policy includes a proration of 1% Private Equity and 2% Real Estate, which are unfunded. Private Equity was prorated to domestic equity; Real Estate was prorated to domestic equity and fixed income. Recently approved Strategic Asset Allocation Policy effective July 1, 2012.

¹MSCI EAFE/ACWI ex-U.S. Benchmark is the MSCI EAFE Index prior to 10/1/2005 and the MSCI ACWI ex-U.S. thereafter.

Note: All MSCI indices changed from Gross to Net of dividend withholding taxes effective 1/1/2014.



ASRS Custom Asset Class Benchmark History

- **ASRS Custom Total Equity Benchmark** was 77% S&P 500, 23% MSCI EAFE through 12/31/1999; 76% S&P 500, 24% MSCI EAFE through 9/30/2003; 78% S&P 500, 22% MSCI EAFE/ACWI ex-U.S.¹ through 12/31/2006; 49% S&P 500, 11% S&P 400, 11% S&P 600, 29% MSCI ACWI ex-U.S. through 10/31/2009; 48% S&P 500, 10% S&P 400, 10% S&P 600, 23% MSCI EAFE, 4% MSCI EAFE Small Cap, 5% MSCI Emerging Markets through 6/30/2012; 41% S&P 500, 9% S&P 400, 9% S&P 600, 25% MSCI EAFE, 5% MSCI EAFE Small Cap, 11% MSCI Emerging Markets thereafter.
- **ASRS Custom Domestic Equity Benchmark** was S&P 500 through 12/31/2006; 74% S&P 500, 13% S&P 400, 13% S&P 600 through 12/31/2010; 70% S&P 500, 15% S&P 400, and 15% S&P 600 thereafter.
- **ASRS Custom International Equity Benchmark** was MSCI EAFE through 9/30/2005; MSCI ACWI ex-U.S. through 12/31/2010; 72% MSCI EAFE, 11% MSCI EAFE Small Cap and 17% MSCI Emerging Markets through 6/30/2012; 61% MSCI EAFE, 13% MSCI EAFE Small Cap and 26% MSCI Emerging Markets thereafter.
- **ASRS Custom Public Markets Fixed Income Benchmark** was Barclays Capital U.S. Aggregate Index through 12/31/2010; 93% Barclays Capital U.S. Aggregate Index, 7% Barclays Capital U.S. High Yield Bond Index through 12/31/2012; 59% Barclays Capital U.S. Aggregate Index, 23% Barclays Capital U.S. High Yield Bond Index, 18% JP Morgan GBI-EM Global Diversified thereafter.
- **ASRS Custom GTAA Benchmark** was 56% S&P 500, 16% MSCI EAFE, 28% Barclays Capital Aggregate through 9/30/2011; 50% S&P 500, 19% MSCI EAFE, 28% Barclays Capital Aggregate, and 3% DJ UBS Commodities Index through 06/30/2012; 43% S&P 500, 25% MSCI EAFE, 28% Barclays Capital Aggregate, and 4% DJ UBS Commodities Index thereafter.
- **ASRS Custom Inflation-Linked Benchmark** was 100% Barclays Capital U.S. TIPS through 7/31/2010; 50% Barclays Capital U.S. TIPS, 50% DJ UBS Commodities Index through 8/31/2010; 30% Barclays Capital U.S. TIPS, 70% DJ UBS Commodities Index through 5/31/2011; 100% DJ UBS Commodities Index thereafter.

¹MSCI EAFE/ACWI ex-U.S. Benchmark is the MSCI EAFE Index prior to 10/1/2005 and the MSCI ACWI ex-U.S. thereafter.

Note: All MSCI indices changed from Gross to Net of dividend withholding taxes effective 1/1/2014.



- **The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.**
- **Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of Return are annualized when the time period is longer than a year. Performance is presented gross and/or net of fees as indicated.**
- **For managers funded in the middle of a month, the 'since inception' return will start with the first full month, although actual inception dates and cash flows are included in all respective Composite calculations.**
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