

# Portfolio Performance Review

Quarter Ending September 30, 2013



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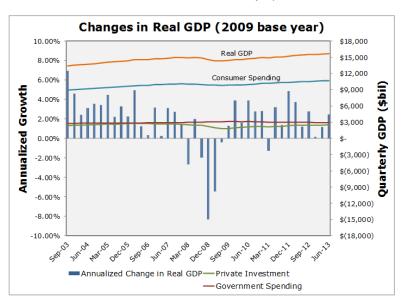
# **Executive Summary**

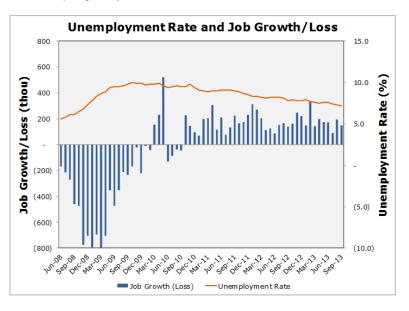




September 30, 2013	Key Economic Indicators									
CPI (all items)	Monthly Cl	hange	Cumulat	ive Change						
Seasonally adjusted	Sep-13	0.2	3-Month	n 0.4						
	Aug-13	0.1	12-Month	n 1.2						
	Jul-13	0.2	10-Yr Annua	ıl 2.4						
Breakeven Inflation	10-Year	2.2								
Consumer Sentiment	Sep-13	77.5								
Unv. of Michigan Survey	Aug-13	82.1								
	1-Yr Ago	78.3	10-Yr Av	g 78.5						
Manufacturing	Sep-13	56.2	Change in Manufa	cturing Sector						
Inst. for Supply Mgmt	Aug-13	55.7	>50	Expansion						
Purchasing Mngrs' ldx	1-Yr Avg	52.4	<50	Contraction						

Note: Seasonally adjusted CPI data is utilized to better reflect short-term pricing activity.

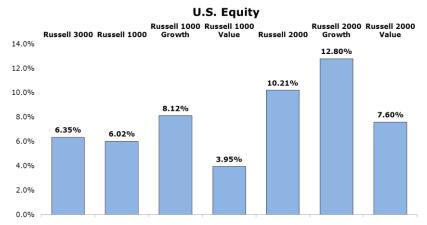




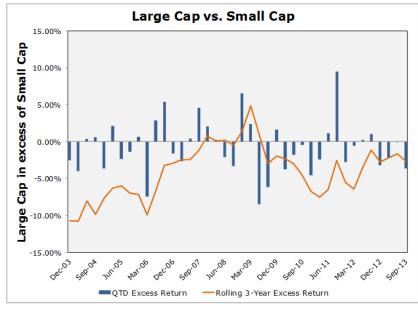
Data sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve Bank of St. Louis, Barclays Capital

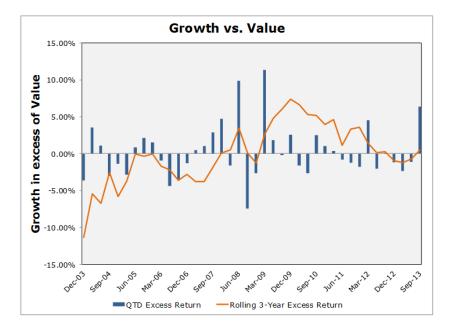


# U.S. Capital Markets: Equity



- U.S. stock market, as represented by the Russell 3000 Index, posted a return of 6.4%. Markets rallied after Fed committed to continuing monetary policy.
- · Small-cap growth stocks performed strongest for the quarter.

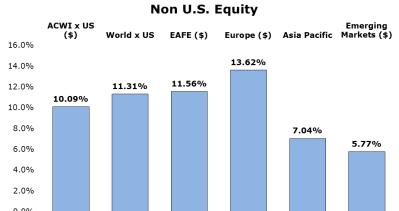




Data sources: Wilshire Compass, Wilshire Atlas



# Non-U.S. Capital Markets

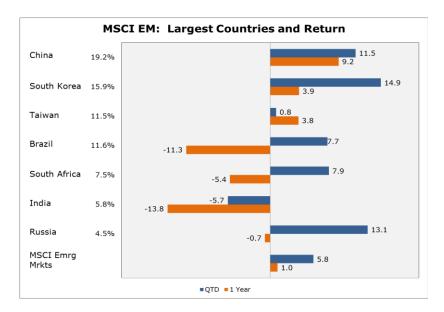




OTD 1 Year

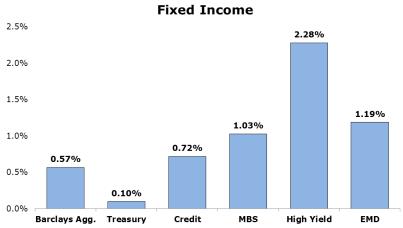
Data sources: Wilshire Compass, MSCI Barra

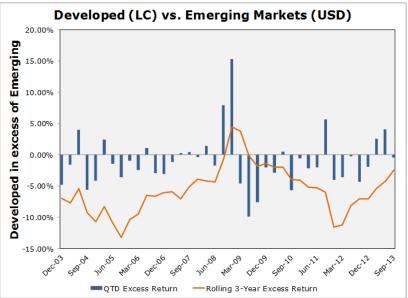
- Global equity markets rallied during the quarter, with a return of 11.3% for the MSCI World ex-U.S. Index.
- Japanese economy began to recover as domestic policy began to stimulate the economy.
- European Union led the international market rally as the Eurozone officially emerged from recession.
- Emerging Markets performance improved on stronger economic indicators from China.



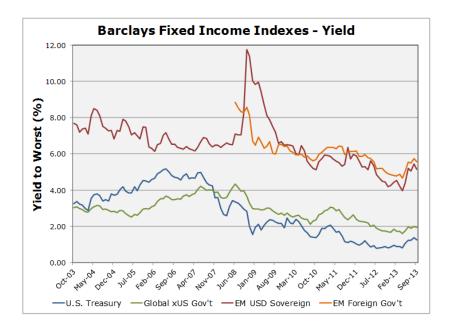


# U.S. Capital Markets: Fixed Income





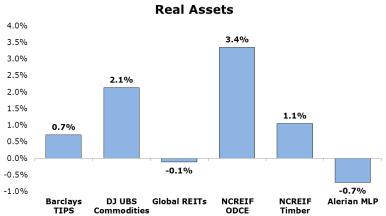
- Ten-Year Treasury yields continued to climb higher during the third quarter settling at 2.64%, 12 basis points higher than 2Q13.
- The yield curve steepened slightly and flattened in intermediate maturities as investors moved to shorter-term paper.



Data sources: Wilshire Compass, Barclays Capital, U.S. Treasury



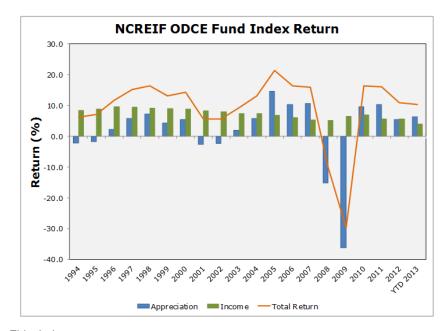






-NPI Current Value Cap Rate

- TIPS, as represented by the Barclays U.S. TIPS Index returned 0.7% for the quarter as the real rates remained largely unchanged.
- U.S. home prices have continued to appreciate strongly through July 2013. Annual home price growth rates are now above 10% for the first time since May 2006.
- Commodities rebounded from a negative quarter in June primarily due to increased demand in industrial metals and crude oil.



Data sources: Wilshire Compass, National Council of Real Estate Investment Fiduciaries

- Wilshire RESI Current Yield



## **Performance Overview**

- LACERS' investment portfolio ended the quarter with a market value of \$12.9 billion, a gain of \$0.9 billion from the previous quarter. The Fund's net of fee return was 5.2% for the quarter and 14.9% for the one-year period.
- The Total Fund underperformed its policy benchmark by 0.6% for the quarter and outperformed by 1.3% for the one-year period.
- In a comparison to other public funds with market values greater than \$10 billion in TUCS (Trust Universe Comparison Service) peer universe, LACERS ranked in the 42nd percentile for the quarter and in the 16th percentile for the one-year period.
- All asset classes produced positive returns for the quarter.
- All public markets (U.S. Equity, Non U.S. Equity, Fixed Income) outperformed their respective benchmarks for the quarter.
- Private Equity<sup>1</sup> and Private Real Estate underperformed their respective benchmarks for the quarter.

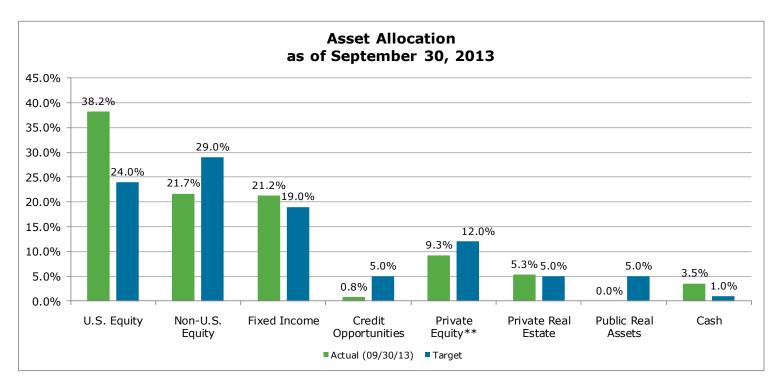
Note: Due to the J-curve effect in early stages of a fund's life, returns may lag prior to realization of proceeds in later years. 

Name change from "Alternative Investments."



# **Fund Overview**





	Actual	Target*	Min.	Max
U.S. Equity	38.2%	24.0%	19.0%	29.0%
Non-U.S. Equity	21.7%	29.0%	24.0%	34.0%
Fixed Income	21.2%	19.0%	15.0%	22.0%
Credit Opportunities	0.8%	5.0%	0.0%	10.0%
Private Equity**	9.3%	12.0%	n/a	n/a
Private Real Estate	5.3%	5.0%	n/a	n/a
Public Real Assets	0.0%	5.0%	2.0%	8.0%
Cash	3.5%	1.0%	0.0%	2.0%

<sup>\*</sup> Revised 1st Qtr 2012: decrease U.S. Equity from 37% to 24%; increase Non-U.S. Equity from 20% to 29%; decrease Fixed Income from 26% to 19%; allocate 5% in Credit Opportunities; increase Private Equity from 9% to 12%; decrease Private Real Estate from 7% to 5%; allocate 5% in Public Real Assets. The implementation of the new Asset Allocation will be in stages over a period of 18 months.

<sup>\*\*</sup>Name change from "Alternative Investments."



# **Detail Actual vs Target Allocation**

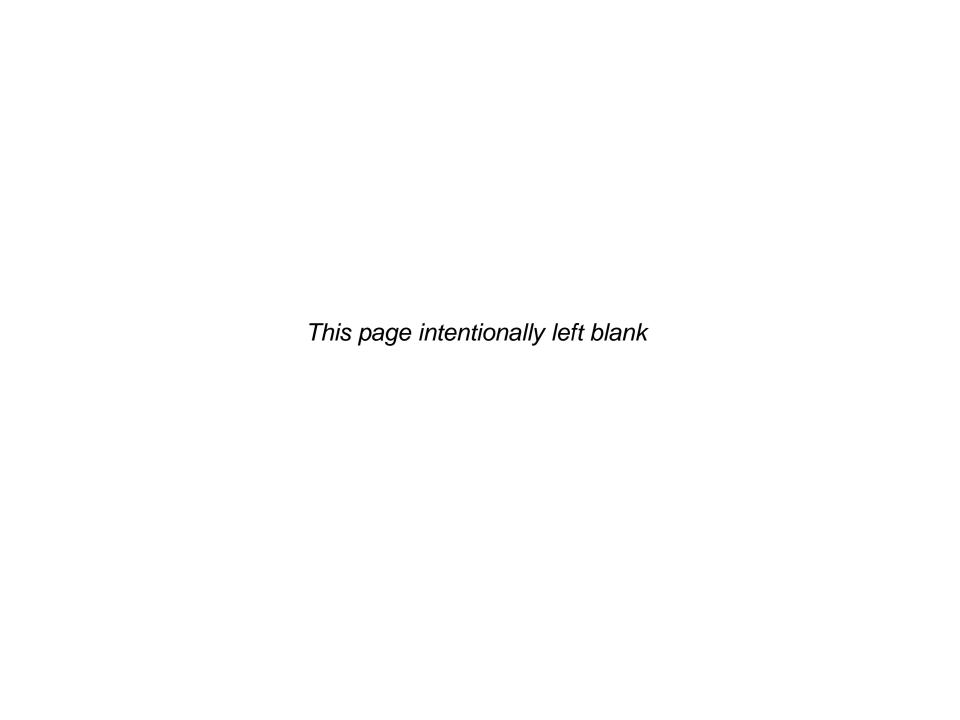
Asset Class / Style	Benchmark		cet Value Billion)	Market Value to Total Fund (%)	Target to Total Fund (%)	Difference from Target (%)
	Equity	\$	8.90	69.2%	65.0%	4.2%
U.S. Equity		\$	4.91	38.2%	24.0%	14.2%
Passive		\$	3.18	24.7%	17.5%	7.2%
Large Cap Core	S&P 500		2.62	20.4%	16.6%	3.8%
Large Cap Growth	Russell 1000 Growth		0.13	1.0%	1.0%	0.1%
Large Cap Value	Russell 1000 Value		0.42	3.3%	0.0%	3.3%
Active		\$	1.74	13.5%	6.5%	7.0%
All Cap	Russell 3000	1	0.10	0.8%	0.2%	0.5%
Large Cap Core	S&P 500		-	0.0%	0.0%	0.0%
Large Cap Growth	Russell 1000 Growth		_	0.0%	0.0%	0.0%
Large Cap Value	Russell 1000 Value		0.53	4.1%	1.0%	3.1%
Mid Cap Core	Russell Mid Cap		0.07	0.5%	1.2%	-0.7%
Small Cap Core	Russell 2000		0.33	2.6%	1.2%	1.4%
Small Cap Growth	Russell 2000 Growth		0.37	2.9%	1.4%	1.5%
Small Cap Value	Russell 2000 Value		0.34	2.6%	1.4%	1.2%
Non-U.S. Equity		\$	2.79	21.7%	29.0%	-7.3%
Passive		\$	1.30	10.1%	10.2%	0.0%
World ex-U.S.	MSCI World ex-U.S.		1.30	10.1%	10.2%	0.0%
Active		\$	1.49	11.6%	18.8%	-7.2%
European	MSCI Europe/10% Abs.		0.54	4.2%	0.0%	4.2%
Asia/Pacific Basin	MSCI Asia/Pacific		0.49	3.8%	0.0%	3.8%
Developed Core	MSCI EAFE/World ex-U.S.		0.16	1.3%	2.9%	-1.6%
Developed Growth	MSCI EAFE/World ex-U.S. Growth		-	0.0%	2.9%	-2.9%
Developed Value	MSCI EAFE/World ex-U.S. Value		-	0.0%	2.9%	-2.9%
Emerging Markets Core	MSCI Emerging Markets		0.11	0.8%	2.6%	-1.8%
Emerging Markets Growth	MSCI Emerging Market Growth		-	0.0%	2.3%	-2.3%
Emerging Markets Value	MSCI Emerging Market Value		0.19	1.4%	2.3%	-0.9%
Small Cap Core	MSCI EAFE Small Cap		-	0.0%	2.9%	-2.9%
Private Equity <sup>1</sup>	Vintage Year	\$	1.19	9.3%	12.0%	-2.7%

<sup>&</sup>lt;sup>1</sup> Name change from "Alternative Investments."



## **Detail Actual vs Target Allocation**

		_				
Asset Class / Style	Benchmark		et Value Billion)	Market Value to Total Fund (%)	Target to Total Fund (%)	Difference from Target (%)
Fixed	Income	\$	2.83	22.0%	24.0%	-2.0%
Core		\$	2.73	21.2%	19.0%	2.2%
Passive	Barclays Capital (BC) Aggregate	\$	-	0.0%	6.7%	-6.7%
Active		\$	2.73	21.2%	12.3%	9.0%
Core	Barclays Capital (BC) Aggregate		2.49	19.4%	10.4%	9.0%
Core Plus	Barclays Capital (BC) Universal		-	0.0%	0.0%	0.0%
Intermediate Core	BC U.S. Govt/Credit Intermediate		0.24	1.9%	1.9%	0.0%
Credit Opportunities		<b>\$</b>	0.10	0.8%	5.0%	-4.2%
U.S. High Yield	BC U.S. High Yield 2% Capped		0.10	0.8%	2.8%	-2.0%
Emerging Market Debt	JP Morgan - EMBI Global Diversified		-	0.0%	1.8%	-1.8%
Opportunistic Credit	TBD		-	0.0%	0.4%	-0.4%
Real		\$	0.68	5.3%	10.0%	-4.7%
Public Real Assets		\$	-	0.0%	5.0%	-5.0%
TIPS	BC U.S. TIPS		-	0.0%	3.0%	-3.0%
REITS	Wilshire REIT		-	0.0%	0.5%	-0.5%
Commodities	S&P-GSCI Total Index		-	0.0%	1.0%	-1.0%
Multi Asset Real Assets	CPI + 5%		-	0.0%	0.5%	-0.5%
Private Real Estate		\$	0.68	5.3%	5.0%	0.3%
	 Cash	\$	0.46	3.5%	1.0%	2.5%





# **Fund Performance**



#### **LACERS Total Fund**

(Returns are Net of Fees)

		rket Value \$million)	% to Total Fund	Current Quarter	One Year	Three Years	Five Years	Ten Years	Fifteen Years <sup>1</sup>	Since Inception <sup>1,2</sup>	5 Year Tracking Error
LACERS Master Trust	\$	12,870	100.0%	5.2	14.9	11.0	8.1	7.7	7.4	8.4	2.5
Policy Benchmark				5.8	13.6	11.1	8.5	7.7	6.8	8.4	
Excess Return				-0.6	1.3	-0.1	-0.4	0.0	0.6	0.0	
U.S. Equity Russell 3000	\$	4,914	38.2%	<b>6.5</b> 6.3	<b>23.2</b> 21.6	<b>16.6</b> 16.8	<b>10.6</b> 10.6	<b>8.0</b> 8.1	<b>7.1</b> 5.6	<b>10.1</b> 8.7	1.3
Excess Return				0.2	1.6	-0.2	0.0	-0.1	1.5	1.4	
Non-U.S. Equity  MSCI ACWI ex U.S.*	\$	2,794	21.7%	<b>10.5</b> <i>10.1</i>	<b>20.2</b> 16.5	<b>6.8</b> 5.9	<b>7.2</b> 6.3	<b>8.9</b> 8.8	<b>7.5</b> 6.2	<b>5.3</b> 5.3	1.5
Excess Return				0.4	3.7	0.9	0.9	0.1	1.3	0.0	
Core Fixed Income BC U.S. Agg.*	\$	2,731	21.2%	<b>0.8</b> 0.6	<b>-0.7</b> -1.2					<b>2.1</b> 0.6	
Excess Return				0.2	0.5					1.5	
Credit Opportunities BC US Corp HY 2% Cap	\$	100	0.8%	<b>2.3</b> 2.3	 					<b>2.3</b> 2.3	
Excess Return				0.0						0.0	
Private Real Estate **  NCREIF Property Lagged + 100b	<b>\$</b> pps *	682	5.3%	<b>1.9</b> 3.1	<b>11.0</b> <i>11.8</i>	<b>10.9</b> 13.6	<b>-6.6</b> <i>3.0</i>	<b>3.5</b> 8.7	<b>5.0</b> 9.1	<b>6.0</b> 9.5	10.5
Excess Return	•			-1.2	-0.8	-2.7	-9.6	-5.2	-4.1	-3.5	
Private Equity <sup>3</sup> ** Russell 3000 + 300bps * A	\$	1,192	9.3%	<b>3.0</b> 7.1	<b>15.2</b> 25.2	<b>14.7</b> <i>20.7</i>	<b>7.9</b> 14.5	<b>13.5</b> 12.2	<b>11.1</b> 10.1	<b>10.0</b> 12.3	19.4
Excess Return				-4.1	-10.0	-6.0	-6.6	1.3	1.0	-2.3	
Cash	\$	456	3.5%								

<sup>&</sup>lt;sup>1</sup> Indicates gross returns.

 $<sup>^{2}</sup>$  For this report, the performance inception date of the LACERS Master Trust is 10/31/94.

 $<sup>^{\</sup>rm 3}$  Name change from "Alternative Investments" for performance book only.

<sup>\*</sup> Both the MS ACWI ex US and Barclays US Agg indices are historically blended with other indices.

<sup>\*\*</sup> Due to the J-Curve effect in early stages of a fund's life, returns may lag prior to realization of proceeds in later years.

 $<sup>^{\</sup>rm A}$  Includes Russell 3000 + 400 bps up to 6/30/12 and Changed to Russell 3000 + 300 bps after 6/30/2012.



## **Private Investments**

## Performance by IRR and Multiples<sup>1</sup>

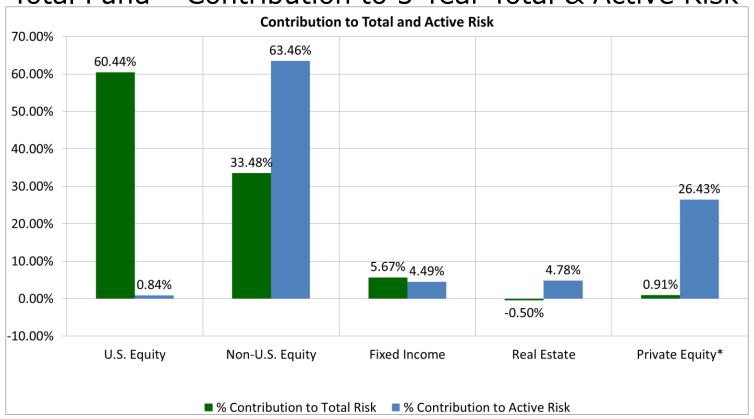
		10-Year Equity	Since Inception	Since Inception
Private Equity	10-Year IRR	Multiple	IRR	Equity Multiple
Aggregate Portfolio	14.4%	N/A	10.9%	1.43x
Core Portfolio	15.5%	N/A	11.4%	1.47x
Specialized Portfolio	N/A	N/A	2.2%	1.08x
Russell 3000 + 300 bps	11.0%	N/A	9.1%	N/A

	10-Year	Since Inception	Since Inception
Real Estate	Return	Return	Equity Multiple
Total Portfolio (TWR)	3.3%	5.3%	N/A
NCREIF + 100 bps (TWR)	9.6%	8.4%	N/A
Total Portfolio IRR	N/A	3.40%	1.12x

Note: Courtland could not provide cash flow weighted benchmark, so only time weighted return (TWR) is reported. 
¹Returns as of 6/30/2013.





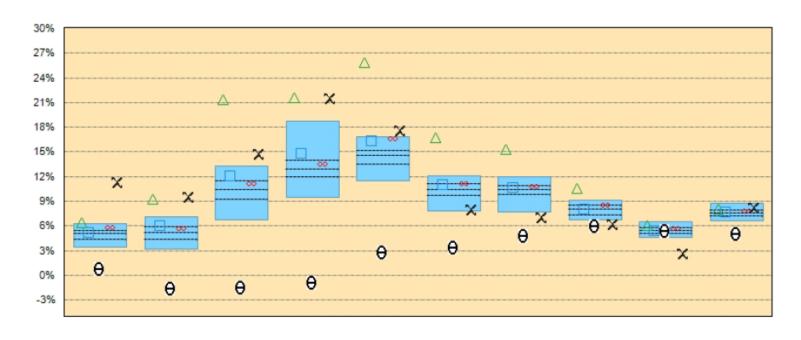


- Public equities comprises 94% of total risk despite actual weighting of 60%. Non-U.S. Equity contributed over 60% of active risk due to strong outperformance in most recent 5-year period.
- Private markets (Real Estate and Private Equities) comprises 31% of active risk as it is difficult to separate active from 'beta' exposures in those asset classes.
- Real Estate has provided modest total risk reduction.

<sup>\*</sup>Name change from "Alternative Investments."

## Trust Universe Comparsion Service Performance Comparison

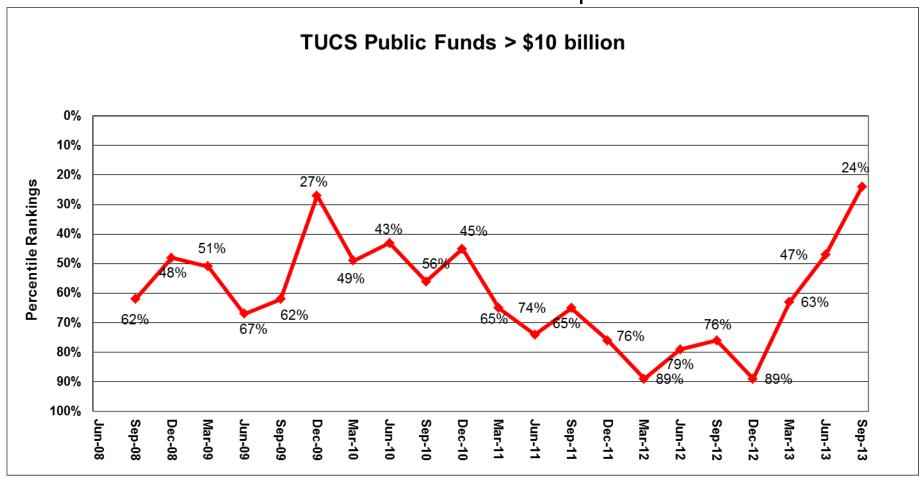
Total Returns of Public Defined Benefit Plans >\$10 billion Cumulative Periods Ending: September 30, 2013



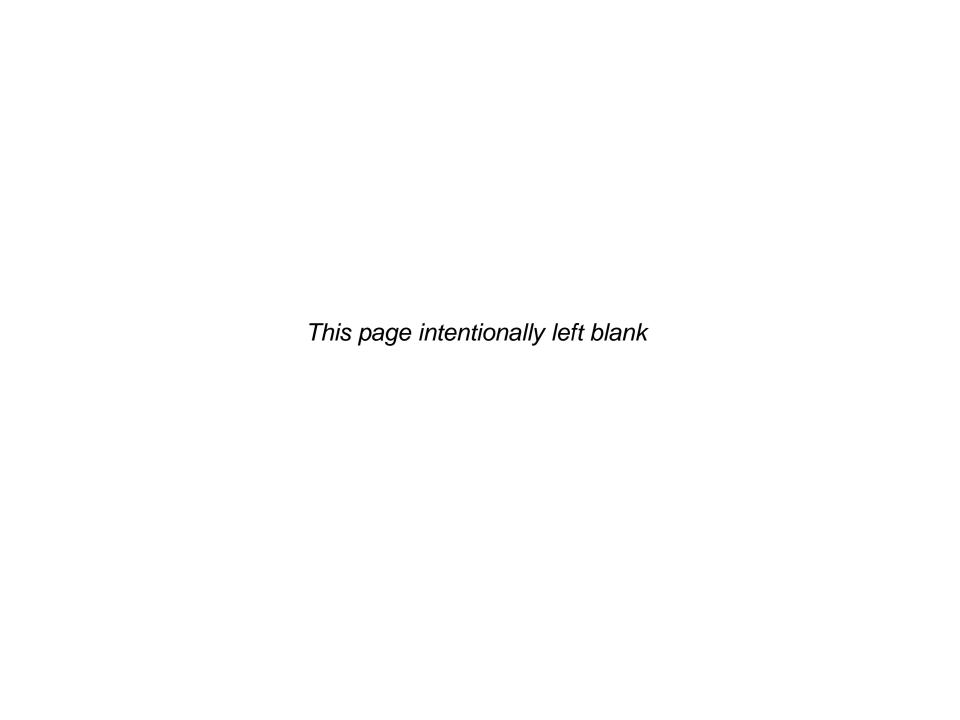
Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	6.22	7.06	13.24	18.72	16.82	12.09	11.96	9.15	6.45	8.79
25th	5.44	5.93	11.44	13.94	15.18	11.10	10.93	8.48	5.84	7.92
50th	5.13	5.19	10.39	12.97	14.55	10.45	10.47	8.02	5.49	7.63
75th	4.36	4.41	9.27	11.93	13.56	9.69	9.86	7.38	5.11	7.24
95th	3.37	3.18	6.69	9.42	11.54	7.85	7.72	6.80	4.59	6.66
No. Of Obs	41	41	41	41	41	39	38	37	37	36
☐ Total Fund NOF	5.24 (42)	6.01 (20)	12.12 (16)	14.87 (16)	16.32 (16)	11.00 (25)	10.69 (36)	8.09 (47)	5.49 (50)	7.74 (36)
Total Fund Policy	5.75 (14)	5.63 (27)	11.14 (27)	13.55 (35)	16.61 (10)	11.15 (22)	10.75 (30)	8.51 (20)	5.69 (41)	7.76 (36)
△ Russell 3000	6.35(1)	9.21(1)	21.31(1)	21.62(1)	25.84(1)	16.77(1)	15.29(1)	10.58(1)	6.08 (15)	8.11 (19)
MSCI Wld Ex US (Net)	11.31(1)	9.51(1)	14.65 (1)	21.45(1)	17.54(1)	7.89 (93)	6.94 (100)	6.12 (100)	2.55 (100)	8.18 (16)
Barelays US Univ Indx	0.75 (100)	-1.64 (100)	-1.56 (100)	-0.99 (100)	2.66 (100)	3.36 (100)	4.72 (100)	5.93 (100)	5.32 (63)	4.91 (100)



# Return to Risk Ratio Comparison



- Return to risk ratio comparison puts funds with different asset allocation objectives on even footing.
- LACERS currently ranks in the 24<sup>th</sup> percentile versus peers on return/risk ratio basis.





# U.S. Equity Managers



## **U.S. Equity Managers**

(Returns are Net of Fees)

	Inception Date	ket Value million)	% to Total U.S. Equity	Current Quarter	One Year	Three Years	Five Years	Ten Years	Since Inception <sup>1</sup>	5 Year Tracking Error
U.S. Equity Russell 3000	Oct-94	\$ 4,914	100.0%	<b>6.5</b> 6.3	<b>23.2</b> 21.6	<b>16.6</b> 16.8	<b>10.6</b> 10.6	<b>8.0</b> 8.1	<b>10.1</b> 8.7	1.3
Excess Return				0.2	1.6	-0.2	0.0	-0.1	1.4	
Aronson, Johnson & Ortiz Russell 1000 Value	Oct-01	\$ 528	10.7%	<b>6.3</b> 3.9	<b>25.3</b> 22.3	<b>18.3</b> <i>16.2</i>	<b>10.3</b> 8.9	<b>8.9</b> 8.0	<b>8.4</b> 7.0	3.2
Excess Return				2.4	3.0	2.1	1.4	0.9	1.4	
Blackrock Russell 1000 Value (Passive) Russell 1000 Value	Dec-98	\$ 423	8.6%	<b>3.9</b> 3.9	<b>22.2</b> 22.3	<b>16.2</b> <i>16.2</i>	<b>9.0</b> 8.9	<b>8.1</b> 8.0	<b>5.7</b> 5.7	0.1
Excess Return				0.0	-0.1	0.0	0.1	0.1	0.0	
Thomson Horstmann Russell 2000	Oct-95	\$ 290	5.9%	<b>10.8</b> <i>10.2</i>	<b>31.9</b> <i>30.1</i>	<b>17.0</b> <i>18.3</i>	<b>11.7</b> <i>11.2</i>	<b>9.3</b> 9.6	<b>11.1</b> 8.9	5.8
Excess Return				0.6	1.8	-1.3	0.5	-0.3	2.2	
Franklin Advisers Russell 2000 Growth	Sep-94	\$ 198	4.0%	<b>13.6</b> <i>12.8</i>	<b>45.5</b> 33.1	<b>23.4</b> <i>20.0</i>	<b>16.5</b> <i>13.2</i>	<b>10.3</b> 9.9	<b>10.0</b> 7.5	4.9
Excess Return				0.8	12.4	3.4	3.3	0.4	2.5	
Sit Investments Russell 2000 Growth	Jan-01	\$ 174	3.5%	<b>14.0</b> <i>12.8</i>	<b>27.7</b> 33.1	<b>17.5</b> <i>20.0</i>	<b>13.0</b> <i>13.2</i>	<b>10.1</b> 9.9	<b>5.2</b> 5.5	5.5
Excess Return				1.2	-5.4	-2.5	-0.2	0.2	-0.3	

¹ Indicates gross returns.



## **U.S. Equity Managers**

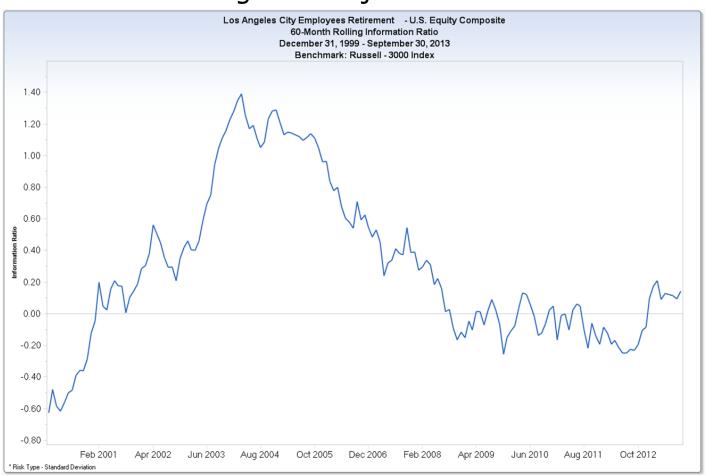
(Returns are Net of Fees)

	Inception Date	ket Value million)	% to Total U.S. Equity	Current Quarter	One Year	Three Years	Five Years	Ten Years	Since Inception <sup>1</sup>	5 Year Tracking Error
Donald Smith & Co. Russell 2000 Value	Feb-06	\$ 115	2.3%	<b>5.0</b> 7.6	<b>24.2</b> 27.0	<b>12.3</b> 16.6	<b>12.5</b> 9.1		<b>6.9</b> 5.6	8.0
Excess Return				-2.6	-2.8	-4.3	3.4		1.3	
PanAgora Asset Management Russell 2000 Value	Feb-06	\$ 222	4.5%	<b>10.4</b> <i>7.6</i>	<b>34.8</b> <i>27.0</i>	<b>21.8</b> 16.6	<b>13.3</b> 9.1	<b></b>	<b>5.9</b> 5.6	2.7
Excess Return				2.8	7.8	5.2	4.2		0.3	
New Mountain Cap Group Russell Midcap Blend	Mar-08	\$ 68	1.4%	<b>2.0</b> 7.7	<b>14.9</b> 27.9	<b>7.8</b> 16.0	<b>9.2</b> 9.9	 	<b>5.7</b> 5.8	12.8
Excess Return				-5.7	-13.0	-8.2	-0.7		-0.1	
Rhumbline Advisors (Passive) S&P 500	Mar-93	\$ 860	17.5%	<b>5.2</b> 5.2	<b>19.4</b> 19.3	<b>16.3</b> 16.3	<b>10.2</b> 10.0	<b>7.7</b> 7.6	<b>9.0</b> 8.8	0.3
Excess Return				0.0	0.1	0.0	0.2	0.1	0.2	
Blackrock S&P 500 S&P 500 Excess Return	Jun-13	\$ 1,763	35.9%	<b>5.2</b> 5.2 0.0	 	 	 	 	<b>5.2</b> 5.2 0.0	
EXCESS RETUIT				0.0					0.0	
Rhumbline Advisors (Passive) Russell 1000 Growth	Jun-13	\$ 131	2.7%	<b>8.1</b> 8.1	<b></b>	<b></b> 	<b></b>	<b></b> 	<b>8.2</b> 7.7	
				0.0					0.5	
Manager-of-Manager Programs			3.0%							
Attucks Russell 2000	Nov-05	\$ 42	0.9%	<b>10.2</b> <i>10.2</i>	<b>32.5</b> <i>30.1</i>	<b>18.9</b> <i>18.3</i>	<b>10.9</b> 11.2	<u></u>	<b>7.7</b> 7.5	3.1
Excess Return				0.0	2.4	0.6	-0.3		0.2	
Capital Prospects Russell 3000	Dec-05	\$ 38	0.8%	<b>7.4</b> 6.3	<b>24.0</b> 21.6	<b>15.9</b> 16.8	<b>9.9</b> 10.6	 	<b>6.3</b> 6.5	2.3
Excess Return				1.1	2.4	-0.9	-0.7		-0.2	
Progress Investment Russell 3000	Oct-06	\$ 62	1.3%	<b>7.9</b> 6.3	<b>22.0</b> <i>21.6</i>	<b>14.7</b> 16.8	<b>8.5</b> <i>10.6</i>	<b></b>	<b>4.5</b> 5.6	2.4
Excess Return				1.6	0.4	-2.1	-2.1		-1.1	

<sup>&</sup>lt;sup>1</sup> Indicates gross returns.



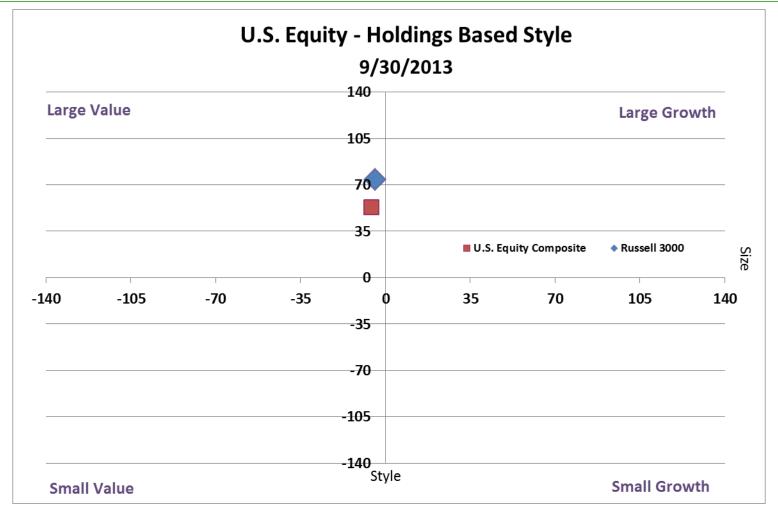
# 5-Year Rolling Risk-Adjusted Active Returns



- Active returns are returns earned over/under benchmark return.
- For the past five years, LACERS' information ratio showed mixed results, but it is trending upward.

Risk-adjusted active returns are referred to as "Information Ratio". Information Ratio = Excess return (alpha) / Excess risk (tracking error).





- LACERS U.S. Equity Portfolio exhibits smaller cap bias versus Russell 3000 benchmark.
- As small cap stocks currently outperforming large cap stocks, this bias is source of outperformance versus benchmark.



#### MANAGER REPORT CARD<sup>1</sup>

	U.S. Managers	Inception Date	Mandate	Current Quarter		One	Year		ree ars	Five `	Years	Since Inception	Comments <sup>2</sup>
				I	U	I	U	I	U	I	U	I	
>	Aronson, Johnson & Ortiz	Oct-01	Large Cap Value	$\checkmark$	1	✓	✓	✓	1	✓	×	✓	Performance satisfactory.
>	Thomson Horstmann	Oct-95	Small Cap	✓	✓	✓	✓	*	×	✓	æ	✓	"On Watch" since Aug. 2013 - performance.
>	Franklin Advisers	Sep-94	Small Cap Growth	✓	✓	✓	✓	✓	✓	✓	✓	✓	Performance satisfactory.
>	Sit Investments	Jan-01	Small Cap Growth	✓	✓	×	×	æ	sc	Jc.	×	3c	"On Watch" since Aug. 2013 - performance.
>	Donald Smith	Mar-06	Small Cap Value	×	x	×	×	×	)c	✓	×	✓	Performance poor. Monitoring manager.
>	Panagora	Mar-06	Small Cap Value	✓	✓	✓	✓	✓	✓	✓	×	✓	Performance satisfactory.
>	New Mountain Cap Grp	Mar-08	Corp Gov	×	n/a	×	n/a	×	n/a	×	n/a	<b>5</b> C	"On Watch" since Aug. 2013 - performance.
>	Attucks	Nov-05	Fund of Funds	×	n/a	✓	n/a	✓	n/a	×	n/a	✓	"On Watch" since Jun. 2011 - performance.
>	Capital Prospects	Dec-05	Fund of Funds	✓	n/a	✓	n/a	*	n/a	*	n/a	<b>sc</b>	"On Watch" since Jun. 2011 - performance.
>	Progress	Sep-06	Fund of Funds	✓	n/a	✓	n/a	×	n/a	×	n/a	<b>s</b> c	"On Watch" since Oct. 2009 - performance.
>	BlackRock R1000 Value (Passive)	Dec-98	R1000 Value Index	=	JC .	x	3c	✓	✓	✓	×	✓	Performance satisfactory.
>	Rhumbline Advisors (Passive)	Mar-93	S&P 500 Index	=	JC .	✓	×	✓	✓	✓	×	✓	Performance satisfactory.
>	BlackRock S&P 500 (Passive)	Jun-13	S&P 500 Index	=	x	n/a	n/a	n/a	n/a	n/a	n/a	<b>s</b> c	Limited track record.
>	Rhumbline Advisors (Passive)	Jun-13	R1000 Growth Index	✓	×	n/a	n/a	n/a	n/a	n/a	n/a	✓	Limited track record.

<sup>&</sup>lt;sup>1</sup>Current Quarter, 1-Yr, 3-Yrs, and 5-Yrs returns are net of fees. Since Inception returns are gross of fee.

	LEGEND			
✓	outperformed index	I	index	
je.	underperformed index	U	universe	median
=	egual to index			

<sup>&</sup>lt;sup>2</sup>Managers are placed on the Watch List for concerns with organization, process, and performance. Managers are normally on the Watch List for 6 months though can be longer if manager issues still remain but not severe enough to warrant contract termination recommendation.



# Aronson , Johnson & Ortiz

Mandate: Large Cap Value Benchmark: Russell 1000 Value

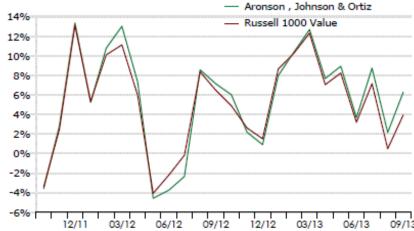
#### Benchmark: Russell 1000 Value

Aronson invests in US stocks with large market caps, low P/E ratios and lower historical earnings per share that are expected to increase.

#### Performance

Strategy

Quarterly Rate of Return Vs Benchmark



Net Returns %	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Aronson , Johnson &	6.3	25.3	28.7	18.3	10.3	8.4	Oct-2001
Russell 1000 Value	3.9	22.3	26.5	16.2	8.9	7.0	
Excess Return	2.4	3.0	2.2	2.1	1.4	1.4	

Objective: Outperform the benchmark by 200 bps, annualized over a full market cycle (normally 3-5 years).

Quarti	le Ranking	gs			,		Ĺ	
35% ¬								
30% -								
25% -			•					
20% -		•		_	_			
15% -				•	==			
10% -							-	
5% -	-							
0% -	Three	One	Two	The	ee	Four	Five	$\neg$
	Months	Year	Years	Yea		ears)	Years	
			QTD	1 Yr.	2 Yrs.	3 Yrs. 4	4 Yrs.	5 Yrs.
■ Arons	son , Johns	on & Ortiz	6.3	25.6	29.0	18.6	16.4	10.6
Rank			35	39	24	9	14	61
Russe	ell 1000 Va	lue	3.9	22.3	26.5	16.2	14.4	8.9
Rank			93	66	42	48	62	90

Rank	3	5 3	9 2	4	9 1	.4 6	51
Russell 1000 Value	3.	9 22.	3 26.	5 16.	2 14	.4 8	.9
Rank	9	3 6	6 4	2 4	8 6	52 9	90
10th Percentile	8.2	30.9	31.2	18.5	16.5	13.7	
1st Quartile	6.7	27.9	28.9	17.8	16.0	11.7	
Median	5.8	24.7	25.8	16.0	15.0	10.8	
3rd Quartile	4.9	20.3	23.4	14.6	13.8	9.8	
90th Percentile	4.1	17.5	19.8	11.2	11.1	8.8	
Number Of Observations	191	177	154	134	111	94	



#### Thomson Horstmann

Mandate: Small Cap Benchmark: Russell 2000

#### Strategy

Thomson invests in US stocks with small market caps and low P/E ratios.

#### Performance



Net Returns %	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Thomson Horstmann	10.8	31.9	32.3	17.0	11.7	11.1	Oct-1995
Russell 2000	10.2	30.1	31.0	18.3	11.2	8.9	
Excess Return	0.6	1.8	1.3	(1.3)	0.5	2.2	

Objective: Outperform the benchmark by 250 bps , annualized over a full market cycle (normally 3-5 years).

	annualized over a full market cycle (normally 3-5 years).										
Quarti	le Ranking	JS									
40% -											
35% -											
30% -		•	•								
25% -				_							
20% -											
15% -											
10% -							- 7				
5% -											
0% -											
076	Three	One	Two		ree	Four	Five				
	Months	Year	Years	s Ye	ars	Years	Year	S			
			QTD	1 Yr.		3 Yrs.		5 Yrs.			
	Thomson Ho	orstmann	11.0	32.7	33.1	17.6	17.2	12.3			
	Rank		36	36	32	79	73	69			
	Russell 200	0	10.2	30.1	31.0	18.3	17.0	11.2			
F	Rank		46	63	59	73	73	81			
	10th Pe	ercentile	13.5	38.5	36.2	23.9	22.5	18.0			
	1st	Quartile	11.6	35.0	33.5	21.2	19.9	15.5			
		Median	10.0	31.5	31.5	19.3	18.1	13.7			
	3rd	Quartile	8.6	28.4	28.4	18.0	16.8	11.9			
	90th Pe	ercentile	7.0	23.8	25.9	15.6	14.6	10.0			
Numb	er Of Obse	rvations	213	203	193	170	133	127			



#### Franklin Global Advisers

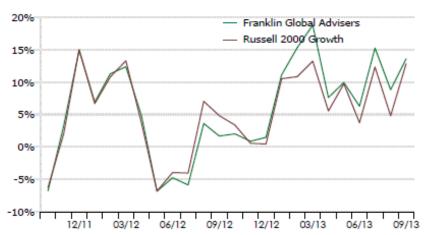
Mandate: Small Cap Growth Benchmark: Russell 2000 Growth

#### Strategy

Franklin invests in US stocks with small market caps, low P/E ratios and earnings per share that are expected to increase at rates much greater than the overall market.

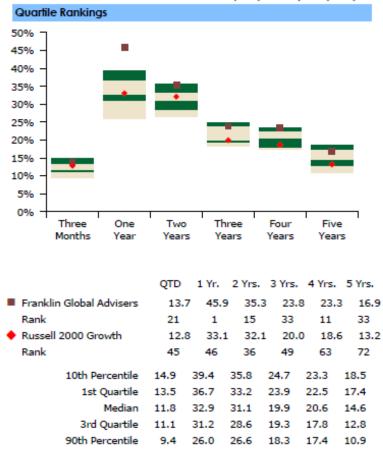
#### Performance

Quarterly Kate of Keturn Vs Benchmark



Net Returns %	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Franklin Global Advis	13.6	45.5	34.9	23.4	16.5	10.0	Sep-1994
Russell 2000 Growth	12.8	33.1	32.1	20.0	13.2	7.5	
Excess Return	0.8	12.4	2.8	3.4	3.3	2.5	

Objective: Outperform the benchmark by 200 bps, annualized over a full market cycle (normally 3-5 years).



82

72

63

53

38

43

Number Of Observations



#### Sit Investments

Mandate: Small Cap Growth Benchmark: Russell 2000 Growth

#### Strategy

SIT invests in US stocks with small market caps, low P/E ratios and earnings per share that are expected to increase at rates much greater than the overall market.

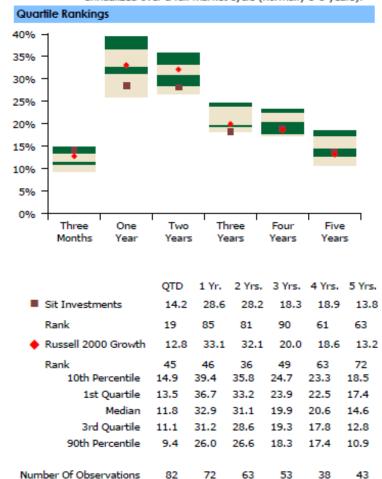
#### Performance

Quarterly Rate of Return Vs Benchmark



Net Returns %	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Sit Investments	14.0	27.7	27.3	17.5	13.0	5.2	Jan-2001
Russell 2000 Growth	12.8	33.1	32.1	20.0	13.2	5.5	
Excess Return	1.2	(5.4)	(4.8)	(2.5)	(0.2)	(0.3)	

Objective: Outperform the benchmark by 300-450 bps, annualized over a full market cycle (normally 3-5 years).





#### Donald Smith & Co.

Mandate: Small Cap Value Benchmark: Russell 2000 Value

#### Strategy

Donald Smith invests in US stocks with small market caps, low P/E ratios and lower historical earnings per share that are expected to increase.

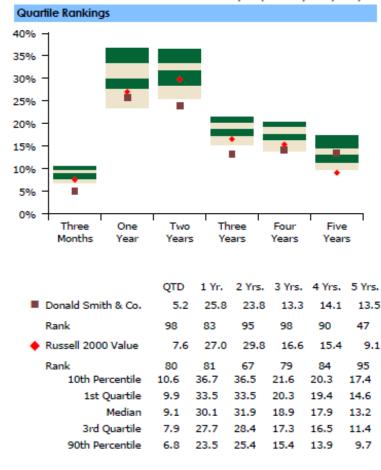
#### Performance

Quarterly Kate of Keturn Vs Benchmark



Net Returns %	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Donald Smith & Co.	5.0	24.2	22.8	12.3	12.5	6.9	Feb-2006
Russell 2000 Value	7.6	27.0	29.8	16.6	9.1	5.6	
Excess Return	(2.6)	(2.8)	(7.0)	(4.3)	3.4	1.3	

Objective: Outperform the benchmark by 300 bps, annualized over a full market cycle (normally 3-5 years).



115

111

121

107

85

Number Of Observations



#### PanAgora Asset Management

Mandate: Small Cap Value Benchmark: Russell 2000 Value

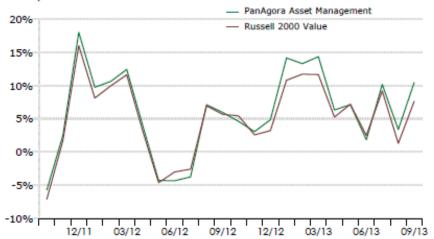
#### Benchmark: Russell 2000 Valu

Panagora invests in US stocks with small market caps, low P/E ratios and lower historical earnings per share that are expected to increase.

#### Performance

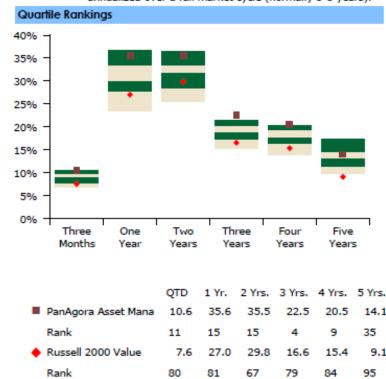
Strategy

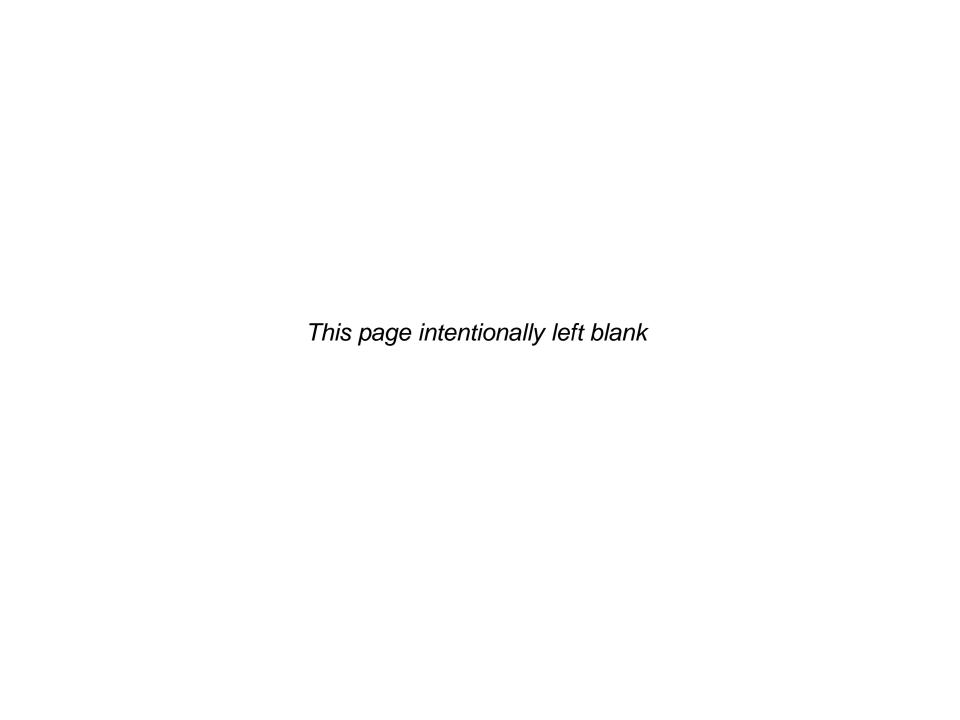
Quarterly Rate of Return Vs Benchmark



Net Returns %	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
PanAgora Asset Mana	10.4	34.8	34.6	21.8	13.3	5.9	Feb-2006
Russell 2000 Value	7.6	27.0	29.8	16.6	9.1	5.6	
Excess Return	2.8	7.8	4.8	5.2	4.2	0.3	

Objective: Outperform the benchmark by 200 bps, annualized over a full market cycle (normally 3-5 years).







# Non-U.S. Equity Managers



## **Non-U.S. Equity Managers**

(Returns are Net of Fees)

	Inception Date	ket Value Smillion)	% to Total Non-U.S. Equity	Current Quarter	One Year	Three Years	Five Years	Ten Years	Since Inception <sup>1</sup>	5 Year Tracking Error
Non-U.S. Equity	Oct-94	\$ 2,794	100.0%	10.5	20.2	6.8	7.2	8.9	5.3	1.5
MSCI ACWI ex U.S.*				10.1	16.5	5.9	6.3	8.8	5.7	
Excess Return				0.4	3.7	0.9	0.9	0.1	-0.4	
Emerging Markets MSCI Emerging Markets ND	Jun-12	\$ 295	10.6%	<b>6.7</b> 5.8	0.0 1.0				<b>6.9</b> 7.0	
Excess Return				0.9	-1.0				-0.1	
Batterymarch  MSCI Emerging Markets ND	Sep-08	\$ 109	3.9%	<b>5.0</b> 5.8	<b>1.3</b> <i>1.0</i>	<b>-3.4</b> -0.3	<b>5.3</b> <i>7.2</i>	<b></b> 	<b>6.8</b> 7.5	3.5
Excess Return				-0.8	0.3	-3.1	-1.9		-0.7	
Boston Company MSCI Emerging Markets ND	Jan-03	\$ 186	6.7%	<b>7.8</b> 5.8	<b>-0.8</b> 1.0	<b>-3.5</b> -0.3	<b>6.1</b> <i>7.2</i>	<b></b> 	<b>14.7</b> 15.0	3.8
Excess Return				2.0	-1.8	-3.2	-1.1		-0.3	
Developed ex-U.S.  MSCI EAFE ND	Jun-12	\$ 2,499	89.4%	<b>10.9</b> 11.6	<b>23.2</b> 23.8	 	 	 	<b>25.5</b> 25.1	
Excess Return  Capital Guardian  MSCI Europe	May-96	\$ 545	19.5%	-0.7 <b>13.9</b> 13.6	-0.6 <b>29.7</b> 24.2	11.6 8.7	<b>8.3</b> 6.0	8.9 8.5	0.4 <b>9.5</b> 7.1	2.9
Excess Return				0.3	5.5	2.9	2.3	0.4	2.4	
Daiwa <i>MSCI Pacific</i> *	Dec-95	\$ 231	8.3%	<b>8.6</b> 8.0	<b>22.5</b> 23.3	<b>6.5</b> 8.3	<b>6.8</b> 7.3	<b>7.6</b> 7.1	<b>4.6</b> 1.5	2.4
Excess Return				0.6	-0.8	-1.8	-0.5	0.5	3.1	
Franklin Templeton  MS AC Asia Pacific*	Nov-91	\$ 256	9.1%	<b>3.1</b> 7.0	<b>11.7</b> 15.9	<b>9.1</b> 5.9	<b>11.7</b> 8.0	<b>11.5</b> 8.1	<b>8.1</b> 3.6	5.9
Excess Return				-3.9	-4.2	3.2	3.7	3.4	4.5	

<sup>&</sup>lt;sup>1</sup> Indicates gross returns. \* The MS ACWI ex U.S., MSCI Pacific, and MSCI AC Asia Pacific indices are historically blended with other indices.



# **Non-U.S. Equity Managers**

(Returns are Net of Fees)

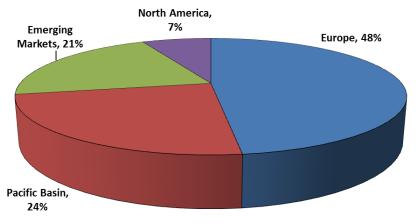
	Inception Date	ket Value million)	% to Total Non-U.S. Equity	Current Quarter	One Year	Three Years	Five Years	Ten Years	Since Inception <sup>1</sup>	5 Year Tracking Error
State Street Equity (Passive)	Aug-93	\$ 1,305	46.7%	11.8	22.3	8.5	7.0	8.6	6.1	0.2
MSCI World ex U.S.				11.7	21.8	8.1	6.7	8.3	5.4	
Excess Return				0.1	0.5	0.4	0.3	0.3	0.7	
TT International  MSCI World ex U.S.	May-01	\$ 163	5.8%	<b>11.3</b> 11.3	<b>30.9</b> 21.4	<b>8.5</b> 7.9	<b>5.8</b> 6.1	<b>7.6</b> 8.1	<b>5.3</b> 5.4	4.2
Excess Return				0.0	9.5	0.6	-0.3	-0.5	-0.1	

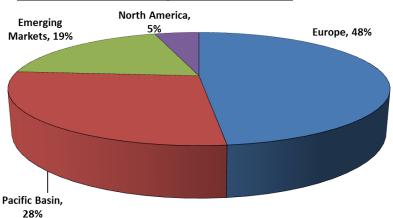
<sup>&</sup>lt;sup>1</sup> Indicates gross returns.



# **Country Allocation**







• As LACERS implements the new asset allocation, the geographic weightings of the Non-U.S. Equity Composite will become closer to the benchmark.



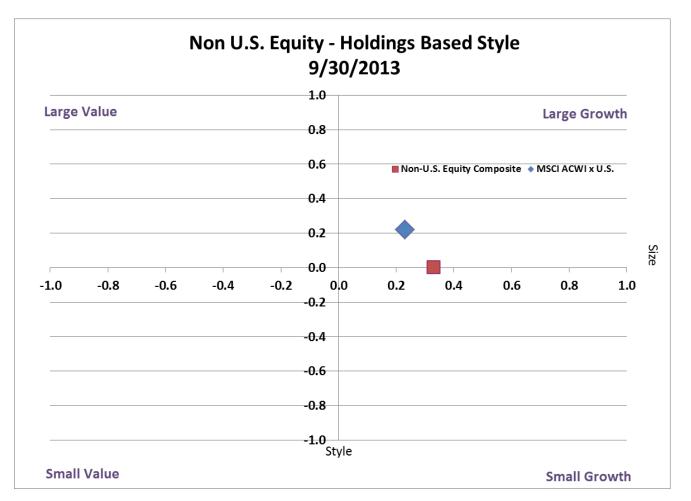
# 5-Year Rolling Risk-Adjusted Active Returns



- Active returns are returns earned over/under benchmark return.
- Non-U.S. Equity's rolling information ratio has been mostly increasing for past 3 years.

Risk-adjusted active returns are referred to as "Information Ratio". Information Ratio = Excess return (alpha) / Excess risk (tracking error).





 LACERS Non-U.S. Equity Portfolio has exhibited modest small cap bias compared to MSCI ACWI x U.S. index.



# MANAGER REPORT CARD<sup>1</sup>

Non-U.S. Managers	Inception Date	Mandate	Curi Qua	rent	One	Year		ree ars	Five `	Years	Since Inception	Comments <sup>2</sup>
			I	U	I	U	I	U	I	U	I	
> Batterymarch	Aug-08	Emerging Markets	×	æ	✓	sc	æ	x	sc	×	<b>JC</b>	"On Watch" since Nov. 2013 - performance lagging. Monitoring manager.
> Boston Company	Jan-03	Emerging Markets	✓	✓	sc	sc	3c	sc	sc	×	<b>sc</b>	"On Watch" since Feb. 2012 - performance lagging. Monitoring manager.
> Capital Guardian	May-96	Europe	✓	✓	✓	✓	✓	✓	✓	×	✓	Performance satisfactory.
> Daiwa	Dec-95	Asia Pacific	✓	✓	sc	✓	×	sc	x	x	✓	"On Watch" since Oct. 2011 - organization. Performance mixed. Monitoring manager.
> Franklin Templeton	Nov-91	Asia Pacific	×	æ	x	x	✓	✓	✓	✓	✓	Performance satisfactory.
> TT International	May-01	Non US Developed	✓	✓	✓	✓	✓	sc	sc	×	*	"On Watch" since Jan. 2009 - performance improving. Monitoring manager.
> State Street	Aug-93	Non US Developed	✓	✓	✓	x	✓	x	✓	×	✓	Performance satisfactory.
> Knight Vinke	Apr-06	Corp Gov - Europe	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	In redemption process.

<sup>&</sup>lt;sup>1</sup>Current Quarter, 1-Yr, 3-Yrs, and 5-Yrs returns are net of fees. Since Inception returns are gross of fee.

<sup>&</sup>lt;sup>2</sup>Managers are placed on the Watch List for concerns with organization, process, and performance. Managers are normally on the Watch List for 6 months though can be longer if manager issues still remain but not severe enough to warrant contract termination recommendation.

	LEGEND		
✓	outperformed index	I	index
sc	underperformed index	U	universe median
=	equal to index		



# **Boston Company**

Mandate: Emerging Markets Equity

Benchmark: MSCI Emerging Markets ND

# Strategy

Boston Co. invests in Non-US stocks in emerging countries that are part of the MSCI Emerging Markets index.

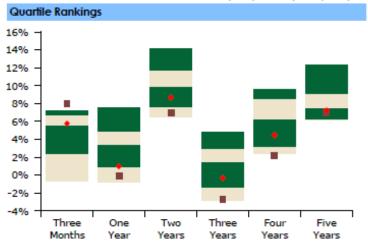
#### Performance

Quarterly Rate of Return Vs Benchmark



Net Returns %	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Boston Company	7.8	(0.8)	6.3	(3.5)	6.1	14.7	Jan-2003
MSCI Emerging Mark	5.8	1.0	8.7	(0.3)	7.2	15.0	
Excess Return	2.0	(1.8)	(2.4)	(3.2)	(1.1)	(0.3)	

Objective: Outperform the benchmark by 200-300 bps, annualized over a full market cycle (normally 3-5 years).



	QTD	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Boston Company	8.0	(0.1)	7.0	(2.8)	2.2	7.0
Rank	8	84	86	86	95	66
<ul> <li>MSCI Emerging Market</li> </ul>	5.8	1.0	8.7	(0.3)	4.5	7.2
Rank	43	75	67	67	64	60
10th Percentile	7.2	7.5	14.2	4.8	9.6	12.3
1st Quartile	6.7	5.0	11.7	3.0	8.6	9.1
Median	5.6	3.4	9.9	1.5	6.3	7.5
3rd Quartile	2.3	0.9	7.6	(1.4)	3.1	6.3
90th Percentile	(0.7)	(8.0)	6.5	(2.8)	2.3	6.1
Number Of Observations	71	68	63	57	51	47



# Batterymarch

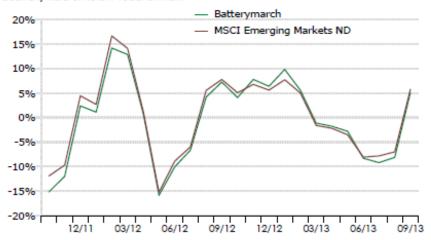
Mandate: Emerging Markets Equity
Benchmark: MSCI Emerging Markets ND

### Strategy

Batterymarch invests in Non-US stocks in emerging countries that are part of the MSCI Emerging Markets index.

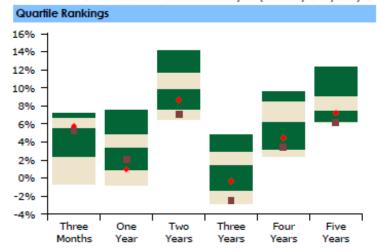
#### Performance

Quarterly Rate of Return Vs Benchmark



Net Returns %	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Batterymarch	5.0	1.3	6.2	(3.4)	5.3	6.8	Sep-2008
MSCI Emerging Mark	5.8	1.0	8.7	(0.3)	7.2	7.5	
Excess Return	(8.0)	0.3	(2.5)	(3.1)	(1.9)	(0.7)	

Objective: Outperform the benchmark by 300 bps, annualized over a full market cycle (normally 3-5 years).



	QTD	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
Batterymarch	5.3	2.1	7.1	(2.5)	3.5	6.2
Rank	53	62	84	81	73	90
MSCI Emerging Marke	5.8	1.0	8.7	(0.3)	4.5	7.2
Rank	43	75	67	67	64	60
10th Percentile	7.2	7.5	14.2	4.8	9.6	12.3
1st Quartile	6.7	5.0	11.7	3.0	8.6	9.1
Median	5.6	3.4	9.9	1.5	6.3	7.5
3rd Quartile	2.3	0.9	7.6	(1.4)	3.1	6.3
90th Percentile	(0.7)	(0.8)	6.5	(2.8)	2.3	6.1
Number Of Observations	71	68	63	57	51	47



# Capital Guardian

Mandate: Europe Region Equity Manager

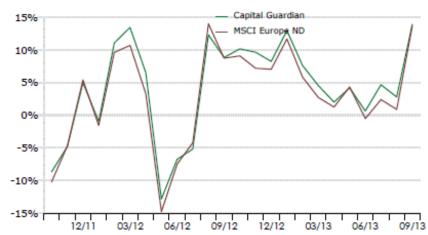
Benchmark: MSCI Europe ND

### Strategy

Capital Guardian invests in Non-US stocks across all developed European countries.

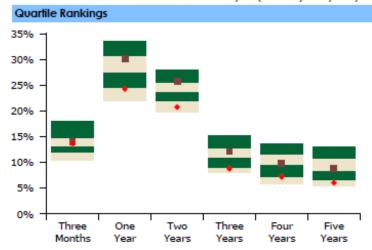
#### Performance

Quarterly Rate of Return Vs Benchmark



Net Returns %	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Capital Guardian	13.9	29.7	25.2	11.6	8.3	9.5	May-1996
MSCI Europe ND	13.6	24.2	20.7	8.7	6.0	7.1	
Excess Return	0.3	5.5	4.5	2.9	2.3	2.4	

Objective: Outperform the benchmark by 200 bps, annualized over a full market cycle (normally 3-5 years).



	QTD	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
Capital Guardian	14.0	30.2	25.6	12.1	9.8	8.8
Rank	40	30	25	35	45	45
<ul> <li>MSCI Europe ND</li> </ul>	13.6	24.2	20.7	8.7	7.2	6.0
Rank	50	80	90	80	80	85
10th Percentile	17.9	33.5	27.8	15.2	13.6	12.9
1st Quartile	14.9	30.7	25.5	12.8	11.7	10.8
Median	13.2	27.5	23.8	11.1	9.6	8.4
3rd Quartile	12.0	24.5	22.0	9.1	7.2	6.6
90th Percentile	10.4	22.0	19.8	8.0	5.7	5.4
Number Of Observations	110	108	103	100	99	93



# Daiwa

Mandate: Pacific Basin Manager

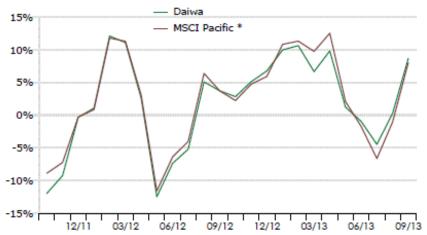
Benchmark: MSCI Pacific

## Strategy

DAIWA invests in Non-US stocks primarily in Japan and Australia. Investment opportunities in other Asian countries are also pursued.

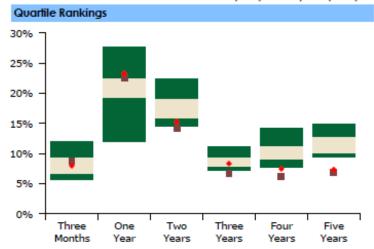
#### Performance

Quarterly Rate of Return Vs Benchmark



Net Returns %	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Daiwa	8.6	22.5	14.1	6.5	6.8	4.6	Dec-1995
MSCI Pacific *	8.0	23.3	15.3	8.3	7.3	1.5	
Excess Return	0.6	(0.8)	(1.2)	(1.8)	(0.5)	3.1	

Objective: Outperform the benchmark by 200 bps , annualized over a full market cycle (normally 3-5 years).



■ Daiwa	8.7	22.6	14.3	6.6	6.2	6.9
Rank	50	25	99	99	99	99
♦ MSCI Pacific *	8.0	23.3	15.3	8.3	7.5	7.3
Rank	50	25	75	50	99	99
10th Percentile	11.9	27.7	22.4	11.2	14.1	15.0
1st Quartile	9.4	22.5	19.1	9.5	11.2	12.8
Median	6.7	19.3	15.9	8.0	9.0	10.1
3rd Quartile	5.7	11.9	14.5	7.1	7.8	9.4
90th Percentile	5.7	11.9	14.5	7.1	7.8	9.4
Number Of Observations	9	9	9	9	9	9



# Franklin Templeton

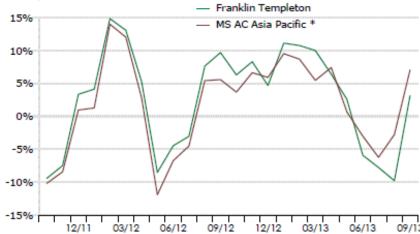
Mandate: Pacific Basin Manager
Benchmark: MS AC Asia Pacific \*

# Strategy

Franklin invests in Non-US stocks in the Asia/Pacific region. Investments are in both developed and emerging countries.

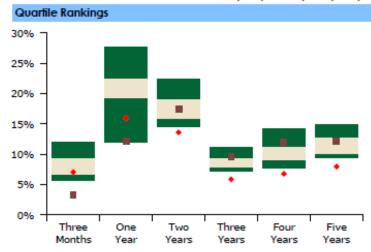
#### Performance

Quarterly Rate of Return Vs Benchmark



Net Returns %	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Franklin Templeton	3.1	11.7	16.9	9.1	11.7	8.1	Nov-1991
MS AC Asia Pacific *	7.0	15.9	13.6	5.9	8.0	3.6	
Excess Return	(3.9)	(4.2)	3.3	3.2	3.7	4.5	

Objective: Outperform the benchmark by 200 bps , annualized over a full market cycle (normally 3-5 years).



	QTD	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
Franklin Templeton	3.2	12.1	17.4	9.5	12.0	12.1
Rank	99	75	50	25	25	50
MS AC Asia Pacific *	7.0	15.9	13.6	5.9	6.8	8.0
Rank	50	75	99	99	99	99
10th Percentile	11.9	27.7	22.4	11.2	14.1	15.0
1st Quartile	9.4	22.5	19.1	9.5	11.2	12.8
Median	6.7	19.3	15.9	8.0	9.0	10.1
3rd Quartile	5.7	11.9	14.5	7.1	7.8	9.4
90th Percentile	5.7	11.9	14.5	7.1	7.8	9.4
Number Of Observations	9	9	9	9	9	9

OTD 1 Yr. 2 Yrs. 3 Yrs. 4 Yrs. 5 Yrs.



# TT International

Mandate: Non-US Developed Equity Mgrs.

Benchmark: MSCI World ex US

### Strategy

TT Intl invests in Non-US stocks primarily in developed countries. There is no regional focus. Potential investment opportunities are pursued in all countries within the MSCI World ex US index.

#### Performance



Net Returns %	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
TT International	11.3	30.9	21.4	8.5	5.8	5.3	May-2001
MSCI World ex US	11.3	21.4	17.5	7.9	6.1	5.4	
Excess Return	0.0	9.5	3.9	0.6	(0.3)	(0.1)	

Objective: Annualized absolute excess returns expected to be 15% per annum over a full market cycle (normally 3-5 years).

Quarti	ile Ranking	gs				
35% -						
30% -						
25% -			_			
20% -		•				
15% -						
10% -	•			-		_
5% -						•
0% -					_	
	Three Months	One Year	Two Years	Three Years	Four Years	Five Years

	QID	1	2 113	3 113.	7 113	5 115.
TT International	11.5	31.5	22.0	9.1	7.7	6.4
Rank	41	3	21	58	73	82
<ul> <li>MSCI World ex US</li> </ul>	11.3	21.4	17.5	7.9	6.9	6.1
Rank	43	64	81	81	85	89
10th Percentile	13.0	30.3	24.7	14.0	13.0	13.4
1st Quartile	12.0	26.6	21.5	12.1	10.8	10.3
Median	11.0	24.1	20.2	9.6	9.3	8.3
3rd Quartile	9.7	19.9	18.2	8.3	7.5	6.9
90th Percentile	8.3	16.9	16.3	6.8	6.6	6.0
Number Of Observations	174	168	160	153	136	124



# Fixed Income Managers



# **Fixed Income Managers**

(Returns are Net of Fees)

	Inception Date	ket Value million)	% to Total Fixed Income	Current Quarter	One Year	Three Years	Five Years	Ten Years	Since Inception <sup>1</sup>	5 Year Tracking Error
Core Fixed Income BC U.S. Agg*	Jun-12	\$ 2,731	100.0%	<b>0.8</b> 0.6	<b>-0.7</b> -1.2	<b></b> 	<b></b>	<b></b> 	<b>2.1</b> 0.6	
Excess Return				0.2	0.5				1.5	
Loomis Sayles BC U.S. Agg*	Jun-80	\$ 1,100	40.3%	<b>0.6</b> 0.6	<b>-0.8</b> -1.2	<b>3.9</b> 3.3	<b>8.8</b> 5.9	<b>5.9</b> 4.9	<b>9.8</b> 8.3	3.3
Excess Return				0.0	0.4	0.6	2.9	1.0	1.5	
Neuberger Berman <i>BC U.S. Agg</i> *	Nov-90	\$ 1,124	41.2%	<b>0.9</b> 0.6	<b>-0.7</b> -1.2	<b>4.5</b> 3.3	<b>9.0</b> 5.9	<b>6.2</b> 4.9	<b>7.5</b> 6.7	3.3
Excess Return				0.3	0.5	1.2	3.1	1.3	0.8	
Baird Advisors  BC U.S. Agg Govt/Credit Intermed	Mar-05	\$ 239	8.7%	<b>0.8</b> 0.6	<b>0.8</b> -0.5	<b>3.7</b> <i>2.4</i>	<b>6.3</b> 5.0	 	<b>5.3</b> 4.6	1.3
Excess Return				0.2	1.3	1.3	1.3		0.7	
LM Capital Group BC U.S. Agg*	Mar-05	\$ 268	9.8%	<b>1.0</b> 0.6	<b>-1.4</b> -1.2	<b>3.1</b> <i>2.8</i>	<b>6.8</b> 5.2	 	<b>5.4</b> 4.7	2.6
Excess Return				0.4	-0.2	0.3	1.6		0.7	
Credit Opportunities BC US Corp HY 2% Cap	Jun-13	\$ 100	100.0%	<b>2.3</b> 2.3	<b></b>	<b></b>	<b></b>		<b>2.3</b> 2.3	
Excess Return				0.0					0.0	
Aegon USA BC US Corp HY 2% Cap	Jun-13	\$ 50	49.9%	<b>1.9</b> 2.3	<b></b> 	<b></b> 	<b></b> 	<b></b> 	<b>2.0</b> 2.3	
Excess Return				-0.4					-0.3	
Franklin Advisors BC US Corp HY 2% Cap	Jun-13	\$ 50	50.1%	<b>2.6</b> 2.3	<b></b> 	 	<b></b> 	<b></b> 	<b>2.7</b> 2.3	
Excess Return				0.3					0.4	

<sup>&</sup>lt;sup>1</sup> Indicates gross returns.

<sup>\*</sup> The BC U.S. Universal index has historical data blended with other indices.



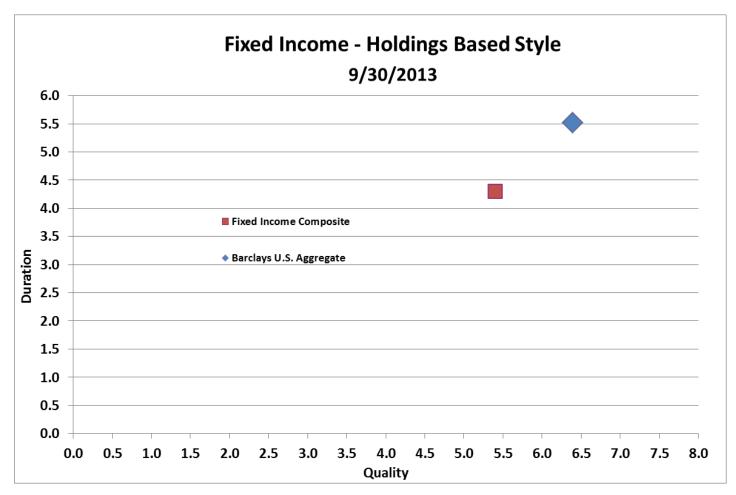
# 5-Year Rolling Risk-Adjusted Active Returns



- Active returns are returns earned over/under benchmark return.
- Despite dip in 2008, fixed income composite has provided mostly positive risk-adjusted active returns since inception.

Risk-adjusted active returns are referred to as "Information Ratio". Information Ratio = Excess return (alpha) / Excess risk (tracking error).





- LACERS Fixed Income portfolio has slightly lower duration than benchmark.
- Portfolio is modestly lower quality versus benchmark.



# MANAGER REPORT CARD<sup>1</sup>

Core Fixed Income	Inception Date	Mandate		rent	One	Year		ree ars	Five Since Years Inception			Comments <sup>2</sup>
			I	U	I	U	I	U	I	U	I	
> Neuberger Berman	Nov-90	Core - Plus	✓	✓	✓	✓	✓	✓	✓	✓	✓	Performance satisfactory.
> Loomis Sayles	Jun-80	Core - Plus	✓	æ	✓	✓	✓	✓	✓	✓	✓	Performance satisfactory.
> Baird Advisors	Mar-05	Intermediate	✓	✓	✓	✓	✓	✓	✓	✓	✓	Performance satisfactory.
> LM Capital Group	Feb-05	Core - Plus	✓	✓	æ	æ	✓	✓	✓	✓	✓	Performance satisfactory.
Credit Opportunities												
> Aegon USA	Jun-13	High Yield Bonds	×	æ	n/a	n/a	n/a	n/a	n/a	n/a	×	Limited track record.
> Franklin Advisers	Jun-13	High Yield Bonds	✓	✓	n/a	n/a	n/a	n/a	n/a	n/a	✓	Limited track record.

<sup>&</sup>lt;sup>1</sup>Current Quarter, 1-Yr, 3-Yrs, and 5-Yrs returns are net of fees. Since Inception returns are gross of fee.

<sup>&</sup>lt;sup>2</sup>Managers are placed on the Watch List for concerns with organization, process, and performance. Managers are normally on the Watch List for 6 months though can be longer if manager issues still remain but not severe enough to warrant contract termination recommendation.

	LEGEND										
1	outperformed index	I	index								
æ	underperformed index	U	universe median								
=	equal to index										



# Baird Advisors

Mandate: Intermediate Fixed Income

Benchmark: BC US Agg Govt/Credit Intermed

Strategy

Baird invests primarily in US investment-grade bonds in the government and credit sectors with 3-5 year maturities.

### Performance

Quarterly Rate of Return Vs Benchmark



Net Returns %	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Baird Advisors	0.8	0.8	3.5	3.7	6.3	5.3	Mar-2005
BC US Agg Govt/Crea	0.6	(0.5)	1.9	2.4	5.0	4.6	
Excess Return	0.2	1.3	1.6	1.3	1.3	0.7	

Objective: Outperform the benchmark by 15-40 bps , annualized over a full market cycle (normally 3-5 years).

					(	//-
Quarti	le Ranking	js .				
8% - 7% -						
6% -						-
5% - 4% -						
3% - 2% -				•		
1% -	_					
0% -		•				
-1% -						
-2% +	Three Months	One Year	Two Years	Three Years	Four Years	Five Years

	QTD	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
Baird Advisors	0.8	1.0	3.7	3.9	5.5	6.4
Rank	15	18	19	13	14	17
<ul> <li>BC US Agg Govt/Cred</li> </ul>	0.6	(0.5)	1.9	2.4	3.7	5.0
Rank	32	71	36	46	27	33
10th Percentile	0.9	1.9	4.7	3.9	5.8	7.6
1st Quartile	0.7	0.7	2.3	3.1	3.8	5.1
Median	0.4	0.2	1.5	2.1	2.7	4.2
3rd Quartile	0.2	(0.8)	0.8	1.2	1.5	2.5
90th Percentile	0.0	(1.5)	0.5	0.7	0.9	2.0
Number Of Observations	44	36	39	39	34	29



# LM Capital Group

Mandate: Intermediate Fixed Income

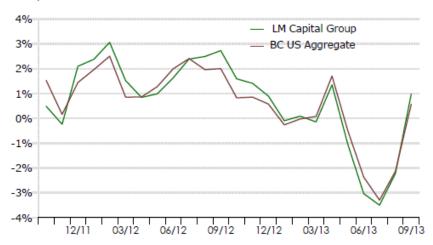
Benchmark: BC US Aggregate

## Strategy

LM Capital invests primarily in US investment-grade bonds in the government and credit sectors with 3-5 year maturities.

#### Performance

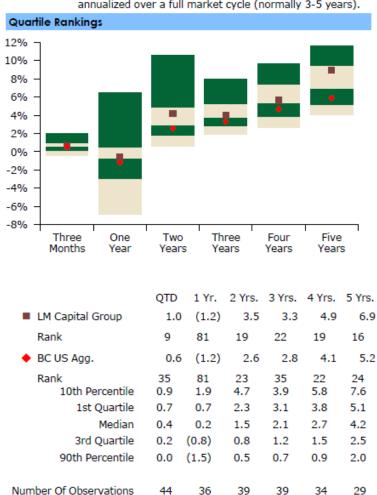
Quarterly Rate of Return Vs Benchmark



LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	ITD Return	Inception Date
1.0	(1.4)	3.3	3.1	6.8	5.4	Mar-2005
0.6	(1.2)	2.6	2.8	5.2	4.7	
0.4	(0.2)	0.7	0.3	1.6	0.7	
	1.0 0.6	1.0 (1.4) 0.6 (1.2)	1.0 (1.4) 3.3 0.6 (1.2) 2.6	1.0 (1.4) 3.3 3.1 0.6 (1.2) 2.6 2.8	1.0 (1.4) 3.3 3.1 6.8 0.6 (1.2) 2.6 2.8 5.2	

Prior to 6/30/13 the indice was the BC US Universal and after 6/30/13 the indice is now the BC US Agg

Objective: Outperform the benchmark by 30-80 bps, annualized over a full market cycle (normally 3-5 years).





# Loomis Sayles

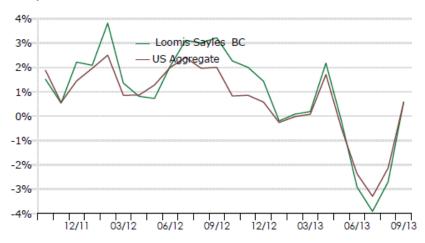
Mandate: US Fixed Income Manager Benchmark: BC US Aggregate

Strategy

Loomis invests primarily in US investment-grade bonds rated BBB- or higher by Moodys.

#### Performance

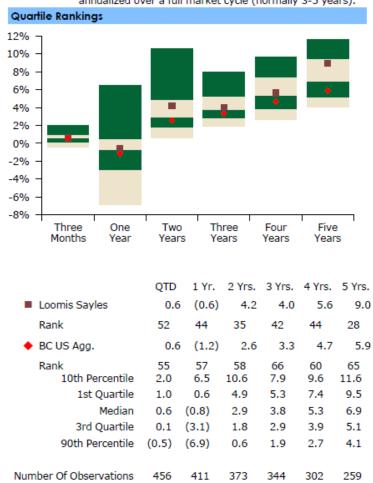
Quarterly Rate of Return Vs Benchmark



Net Returns %	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Loomis Sayles	0.6	(0.8)	4.1	3.9	8.8	9.8	Jun-1980
BC US Aggregate	0.6	(1.2)	2.6	3.3	5.9	8.3	
Excess Return	0.0	0.4	1.5	0.6	2.9	1.5	

Prior to 6/30/13 the indice was the BC US Universal and after 6/30/13 the indice is now the BC US Agg

Objective: Outperform the benchmark by 50 bps, annualized over a full market cycle (normally 3-5 years).





# Neuberger Berman

Mandate: US Fixed Income Manager

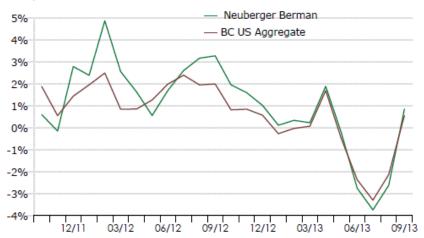
Benchmark: BC US Aggregate

### Strategy

Nueberger invests in investment-grade bonds rated BBB- or higher by Moodys.

#### Performance

Quarterly Rate of Return Vs Benchmark



Net Returns %	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Neuberger Berman	0.9	(0.7)	4.9	4.5	9.0	7.5	Nov-1990
BC US Aggregate	0.6	(1.2)	2.6	3.3	5.9	6.7	
Excess Return	0.3	0.5	2.3	1.2	3.1	0.8	

Prior to 6/30/13 the indice was the BC US Universal and after 6/30/13 the indice is now the BC US Agg

Objective: Outperform the benchmark by 100 bps, annualized over a full market cycle (normally 3-5 years).

annualized o	ver a ful	l market	cycle (r	normally	3-5 yea	ars).
Quartile Rankings						
12% 7						
10% -						
8% -						
6% -	1 _				•	
4% -				•		
2% -	•					
0% -						
-2% -						
-4% -						
-6% -						
-8%						_
Three One Months Year	Two Year		ree ars	Four Years	Five Years	
Mondis Teal	Teal	5 16	ais	Tears		
	QTD	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.
■ Neuberger Berman	0.9	(0.5)	5.1	4.7	6.9	9.2
Rank	29	40	24	33	30	26
<ul> <li>BC US Agg.</li> </ul>	0.6	(1.2)	2.6	3.3	4.7	5.9
Rank	55	57	58	66	60	65
10th Percentile	2.0	6.5	10.6	7.9	9.6	11.6
1st Quartile	1.0	0.6	4.9	5.3	7.4	9.5
Median	0.6	(0.8)	2.9	3.8	5.3	6.9
3rd Quartile	0.1	(3.1)	1.8	2.9	3.9	5.1
90th Percentile	(0.5)	(6.9)	0.6	1.9	2.7	4.1
Number Of Observations	456	411	373	344	302	259
Number Of Observations	456	411	373	344	302	259



# Aegon USA

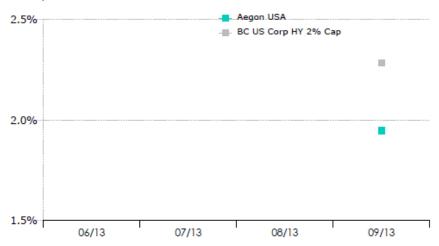
Mandate: High Yield Fixed Income Benchmark: BC US Corp HY 2% Cap

## Strategy

Aegon USA Investment Management, LLC. primarily invests in fixed income securities that are issued by corporations with high yield ratings (below investment grade) with a heavy focus on controlling credit risk via in-depth research of all issuers in the portfolio.

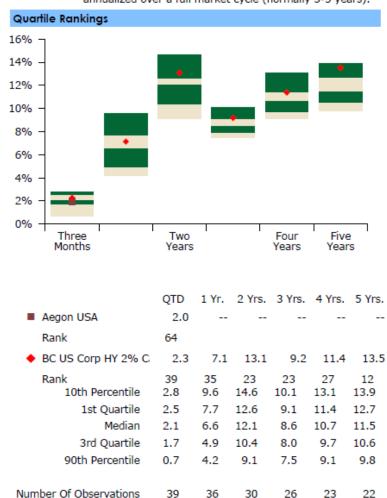
#### Performance

Quarterly Rate of Return Vs Benchmark



Net Returns %	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Aegon USA	1.9					2.0	Jun-2013
BC US Corp HY 2% C	2.3					2.3	
Excess Return	(0.4)					(0.3)	

Objective: Outperform the benchmark by 200 bps , annualized over a full market cycle (normally 3-5 years).





# Franklin Advisers

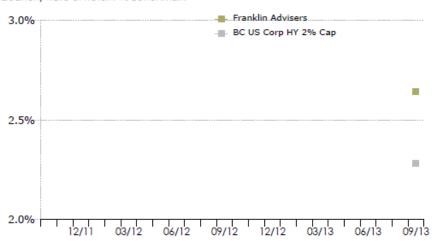
Mandate: High Yield Fixed Income Benchmark: BC US Corp HY 2% Cap

# Strategy

Franklin Advisers, Inc. invests in U.S. high yield corporate bond market that focus on fundamental credit analysis of corporate issuers across the high yield market with a goal of identifying those securities offering the potential for strong risk-adjusted total returns.

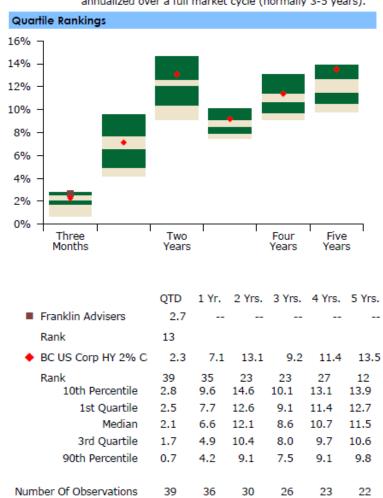
#### Performance

Quarterly Rate of Return Vs Benchmark



Net Returns %	LCQ	1 Yr.	2 Yrs.	3 Yrs.	5 Yrs.	Gross ITD Return	Inception Date
Franklin Advisers	2.6					2.7	Jun-2013
BC US Corp HY 2% C	2.3					2.3	
Excess Return	0.3					0.4	

Objective: Outperform the benchmark by 200 bps , annualized over a full market cycle (normally 3-5 years).





# **Definitions**



#### I. Asset Allocation

Market %: market value as a percent of the total fund's market value.

Target %: investment policy on target allocation for each asset classes.

Minimum and Maximum %: range of allocation for each asset classes.

### II. Policy Benchmarks

Current (adopted January 24, 2012)

U.S Equity: 24% Russell 3000

Non-U.S Equity: 29% MS ACWI ex U.S. Net Div

Fixed Income: 19% Barclays Capital (BC) Aggregate

♦ Credit Opportunities: 5% 65% Barclays U.S. High Yield Capped / 35% JP Morgan EMBI - Global Diversified

Public Real Assets: 5% CPI + 5%

Private Real Estate: 5% NCREIF + 100 bps annually

Private Equity: 12% Russell 3000 plus 300 bps annually. Calculated on a dollar-weighted basis, and

holding cash flows at 0% return for the first 36 months

Cash: 1% 90-day Treasury Bill

Total: 24% U.S. Equity; 29% Non-U.S. Equity; 19% Fixed Income; 5% Credit Opportunities; 5% Public Real Assets;
 5% Private Real Estate; 12% Private Equity; 1% Cash

# Prior (adopted October 13, 2009)

◆ U.S Equity: 27% Russell 3000

Non-U.S Equity: 20% MS ACWI ex U.S. Net Div

Core Fixed Income: 26% Barclays Capital (BC) Universal

Private Real Estate: 7% NCREIF

Private Equity: 9% Russell 3000 plus 400 bps annually. Calculated on a dollar-weighted basis, and holding

cash flows at 0% return for the first 36 months.

Cash: 1% 90-day Treasury Bill

Total: 37% U.S. Equity; 20% Non-U.S. Equity; 26% Core Fixed Income; 7% Private Real Estate; 9% Private Equity;
 1% Cash



#### III. Indices

#### Cash

**Salomon Brothers 3-Month Treasury Bills:** an average of the last three 3-month treasury bill issues' monthly return equivalents of yield averages, which are not marked to market. Month-end discount yields are converted to bond-equivalent yields, then a simple average is taken, and that number is decompounded to a monthly return using the actual number of days in the month and a 365-day year.

#### Equity

- Dow Jones Industrial Average: This index is the price-weighted average of 30 actively traded blue chip stocks.
- NASDAQ: A market value weighted index that measures all domestic and non-US based securities, more than 4700 companies listed on the NASDAO stock market.
- Russell Midcap Value: contains Russell Midcap stocks having less-than-average growth orientation and are included in the Russell 1000 Value Index.
- Russell 1000: consists of the 1000 largest securities in the Russell 3000 Index. The Russell 1000 is capitalization-weighted.
- Russell 1000 Growth: contains Russell 1000 stocks having greater-than-average growth orientation. Stocks tend
  to exhibit lower dividend yields and higher price-to-book ratios, price-earnings ratios and forecast growth values than
  the Value universe. The index is capitalization-weighted (as opposed to equal-weighted).
- Russell 1000 Value: contains those Russell 1000 securities with a less-than-average growth orientation. Securities
  in this index tend to exhibit lower price-to-book and price-earnings ratios, higher dividend yields and lower
  forecasted growth values than the Growth universe. Russell 1000 Value is capitalization-weighted.
- Russell 2000: contains the smallest 2,000 stocks in the Russell 3000 Index, representing approximately 11% of the Russell 3000 total market capitalization. The index is capitalization-weighted (as opposed to equal-weighted).
- Russell 2000 Growth: contains those Russell 2000 securities with a greater-than-average growth orientation.
   Securities in this index tend to exhibit higher price-to-book and price-earnings ratios, lower dividend yields and higher forecasted growth values than the Value universe.
- Russell 2000 Value: contains those Russell 2000 securities with a less-than-average growth orientation. Securities
  in this index tend to exhibit lower price-to-book and price-earnings ratios, higher dividend yields and lower
  forecasted growth values than the Growth universe.
- Russell 3000: measures performance of the 3000 largest US companies based on total market capitalization. This
  index represents approximately 98% of the investable US equity market. The Russell 3000 is capitalization-weighted.



- Standard and Poor 500: the S&P, which represents approximately 75% of NYSE market capitalization and 30% of NYSE issues, contains 500 industrial, utility, transportation and financial companies in the U.S. markets (mostly NYSE issues). The S&P is capitalization-weighted (as opposed to equal-weighted), calculated on a total return basis with dividends reinvested.
- Morgan Stanley All Country World ex USA: an arithmetic, market value-weighted average of approx. 1800 securities from outside the United States. The index is calculated on a total return basis, including reinvestment of gross dividends before deduction of withholding taxes.
- Morgan Stanley Capital International Emerging Markets Free: contains securities of the following counties which are available to all investors regardless of local status: Argentina, Brazil, Chile, Colombia, Greece, India, Indonesia, Israel, Jordan, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Portugal, South Africa, Sri Lanka, Thailand, Turkey and Venezuela.
- Morgan Stanley Capital International EAFE: an arithmetic, market value-weighted average of over 900 securities
  from Europe, Australia, and the Far East. The index is calculated on a total return basis, including reinvestment of
  gross dividends before deduction of withholding taxes. The following countries are represented: Australia, Austria,
  Belgium, Denmark, Finland, France, Germany, Hong Kong, Ireland, Italy, Japan, Malaysia, Netherlands, New
  Zealand, Norway, Singapore, Spain, Sweden, Switzerland and the United Kingdom.
- Morgan Stanley Capital International Europe: includes companies representing 15 European countries: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.
- Morgan Stanley Capital International Pacific: includes companies representing 5 countries: Australia, Hong Kong, Japan, New Zealand and Singapore.
- Morgan Stanley Capital International Pacific ex Japan: includes companies representing 4 countries: Australia, Hong Kong, New Zealand and Singapore.
- Morgan Stanley All Country Asia Pacific: includes companies representing 14 countries: Australia, China, Hong Kong, India, Indonesia, Japan, Malaysia, Pakistan, Philippines, Korea, New Zealand, Singapore, Thailand, and Taiwan. It is calculated on a total return basis with dividends reinvested.

## Fixed Income

 Barclays Capital Aggregate: an aggregate of the Government/Corporate Bond Index, the Mortgage-Backed Securities Index, and the Asset-Backed Securities Index. The index contains fixed rate debt issues with at least oneyear maturity, \$100 million par value outstanding, and investment grade ratings by Moody's, S&P or Fitch (in that order). Returns are market-value weighted inclusive of accrued interest.



- Barclays Capital US Govt/Credit Intermediate: This index is a sub-component of the Barclays Capital Aggregate index. Bonds consist of the US Treasury, US Agency (non-MBS), and US Investment-grade credit holdings with a maturity range of 1 to 10 years.
- Barclays U.S. High Yield 2% Capped: This index is an unmanaged index that covers U.S. corporate, fixed-rate, non-investment grade debt with at least one year to maturity and at least \$150 million in par outstanding. Index weights for each issuer are capped at 2%.
- Bond Rating Methodology: Bond ratings are intended to characterize the risk associated with holding a particular bond or categories of bonds. These ratings are the risk assessed by the market and that the bond issuer must pay to attract purchasers to the bond. These ratings are expressed as a series of letters and sequences.

#### Rating Categories in descending order:

♦ AAA:	The best quality rating, stable cash flows, very protective bond covenants, very low proba	bility of

default.

Aa: The second best rating. Stable cash flows, less protective bond covenants, very low probability of

default.

A: Stable cash flows, less protective bond covenants, long-term probability of default is higher than

AAA or Aa.

Baa: Medium quality rating, reliable cash flows short term, less-reliable cash flows long term, bond

covenants offer limited protection. Moderate probability of default. Downgrade to a lower rating is

also possible. Baa bonds are the lowest rating still considered 'investment grade.

Ba thru B: Highly speculative. Long-term assurance of cash flows and protective elements are low.

Purchasers of these bonds generally specialize in assessing credit risk of specific bond issues. Much higher spreads versus investment grade bonds provide the incentive for purchasers. High

default or downgrade risk.

Caa thru C: Poor standing. Either close to default or in default. Highly probable loss of principal.

D: Coupon payments were not paid on the due date which puts the bond In default, Unless both

Protective covenants and issuer assets are adequate (not likely), holder loses all likelihood of

recovering principal.

### Private Real Estate

NCREIF Property Index: the NPI contains investment-grade, non-agricultural, income-producing properties which may be financed in excess of 5% gross market value; were acquired on behalf of tax exempt institutions; and are held in a fiduciary environment. Data is collected quarterly from a membership of investment managers and plan sponsors.



Returns are gross of fees; include income, realized gains/losses, and appreciation/depreciation; and are market-value weighted. Property values are determined by consistent appraisal methodology and sold properties are removed in the quarter of the sale (the historical data remains). Current quarter performance is preliminary.

### IV. Universe Comparison

All Northern Trust Universes are gross of fees. Universe breaks are at 10, 25, 50, 75 and 90 percentiles.

#### TUCS Plan Universes

Published on a quarterly basis using monthly observations. Over time, the plan population members will change due to new plans being introduced and other plans closing or leaving the universe.

#### Public Funds

Includes the range of performance of all Public Funds greater than 10 billion dollars. Monitored by the Wilshire's Trust Universe Comparison Services Group. Plans include state and municipal plans and systems.

### Manager Universes

Created using the performance of managers used by sponsor subscribers to the Risk & Performance Services Group (RPS). Each occurrence of a manager is considered as an observation. The manager universes are used to describe the actual experience of plan sponsors use of the managers; no manager supplied representative portfolios or composites are used in the creation of the universes. All occurrences of a manager are included in the magnitudes they are used by the sponsors; no stratification or judgments are introduced by RPS to alter a manager's representation. Manager portfolios are used from all market segments (ERISA, Public, Foundation & Endowments, and Wealth) since managers are hired to fulfill a specific policy objective that is not unique by plan type. Inclusion in a universe is based upon quantitative screening using the criteria described; an RPS analyst determines the comparison of a manager to this style background for reporting purposes. The portfolio criteria are applied as the average of the values over the time period being observed and not simply the current point in time value.

### U.S. Equity - Large Cap Core

Includes portfolios with a portfolio average market capitalization greater than \$10 billion but not displaying any significant growth or value bias. The Barra Growth and Barra Book to Price risk factors are used to determine style orientation. Most of the portfolios also display a market-like beta.



### U.S. Equity - Large Cap Growth

Includes portfolios with a portfolio average market capitalization greater than \$10 billion. Portfolios will also display a significant growth bias as represented by a Barra Growth Risk Factor in the top 40% of all US equity portfolios and a Barra Price/Book score in the bottom 70% of all US equity portfolios monitored by RPS. Most growth portfolios display an above market beta.

### U.S. Equity - Large Cap Value

Includes portfolios with a portfolio average market capitalization greater than \$10 billion. Portfolios will also display a significant value bias as represented by a Barra Price/Book score in the top 30% of all US equity portfolios monitored by RPS. Most value portfolios display a below market beta and above market dividend yield.

#### U.S. Equity - Small Cap Growth

Includes portfolios with a portfolio average market capitalization of less than \$2 billion. Small Cap Growth portfolios will also display a growth bias as represented by a Barra Growth Risk Factor in the top 31% of all US equity portfolios monitored by RPS.

#### U.S. Equity - Small Cap Value

Includes portfolios with a portfolio average market capitalization of less than \$2 billion. Small Cap Value portfolios will also display a value bias as represented by a Barra Price/Book score in the top 27% and a Barra Growth factor score in the bottom 31% of all US equity portfolios monitored by RPS.

### Non-U.S. Equity - Developed Markets

Includes all managers investing in developed markets outside of North America. The majority of the portfolios in this universe are EAFE-oriented but may contain an opportunistic allocation to emerging markets equity (extended EAFE). There are a few regional non-US equity managers (Europe & Pacific Basin) also represented.

### Non-U.S. Equity - Emerging Markets

Includes all managers investing in emerging markets. The universe includes emerging markets managers that are diversified across all emerging markets as well as specialists in regional emerging markets.

#### U.S. Core Fixed Income

Includes all managers, active and passive, investing in US Fixed Income.



# • Credit Opportunities

Includes all managers, active and passive, investing in US high yield and emerging market debt managers.

#### Public Real Assets

Includes all managers investing in Public REITS, TIPS, Commodities, and Multi Asset Real Asset/Return managers.

#### V. Investment Performance

- Time: the internal rate of return (accounting for daily cash flows) monthly based on trade-date, full accrual accounting, and using market values. For periods of greater than one month, a time series of linked monthly returns is maintained, introducing a time weighted effect.
- The Private Real Estate and the Private Equity returns are lagged one quarter.
- The LACERS Total Fund return is dollar-weighted to include Private Equity.

#### VI. Performance Attribution

### Holdings-Based Attribution.

U.S. Equity, Non-U.S. Equity, and Fixed Income tables are Holdings-based. The table details various attribution subcategories which impacted each manager's performance such as: selection, weighting, duration, yield, quality, etc.

### VII. Terminology

- Duration: A measure of the sensitivity of the price (the value of principal) of a fixed-income portfolio given a 1% change in the US Treasury yield curve (interest rates). A portfolio with a duration of 4 would be expected to lose 4% of its value when interest rates rise 1%. Duration is expressed as a number of years. Rising interest rates mean falling bond prices, while declining interest rates mean rising bond prices.
- Information ratio: A ratio of portfolio returns above the returns of a benchmark (usually an index) to the volatility of
  those returns. The information ratio (IR) measures a portfolio manager's ability to generate excess returns relative to a
  benchmark, but also attempts to identify the consistency of the investor. This ratio will identify if a manager has beaten





the benchmark by a lot in a few months or a little every month. The higher the IR the more consistent a manager is and consistency is an ideal trait.

- Standard deviation: A statistical measure of volatility or the degree to which an individual value in a probability
  distribution tends to vary from the mean of the distribution. A manager with a one-year return of 5% and a standard
  deviation of 5, indicates the range of returns for this manager will likely fall between 0% and 10% during most annual
  time periods.
- Tracking error: A measure of the difference between returns of the portfolio and that of the benchmark it was attempting to imitate; reported as a "standard deviation percentage" difference.