North Carolina Department of State Treasurer

Investment Advisory Committee Meeting

February 19, 2014

Agenda

10:00	**Opening Remarks**	Treasurer Cowell
10:05	**Approval of Minutes**	Treasurer Cowell
10:10	**Update on Performance**	Kevin SigRist, CIO
10:30	**Fixed Income/Credit Review**	Jeff Smith, Director Ron Funderburk, Director
11:30	**Legislative/Governance Update**	Tony Solari, Director Nancy Williams, Hewitt EnnisKnupp
12:00	**Lunch**	
12:45	**Investment Policy Statement**	Kevin SigRist, CIO Kai Peterson, Buck Consulting
1:45	**IAC Member Q&A**	IAC Members
1:55	**Public Comment**	Treasurer Cowell
2:00	**Meeting Adjourned**	Treasurer Cowell

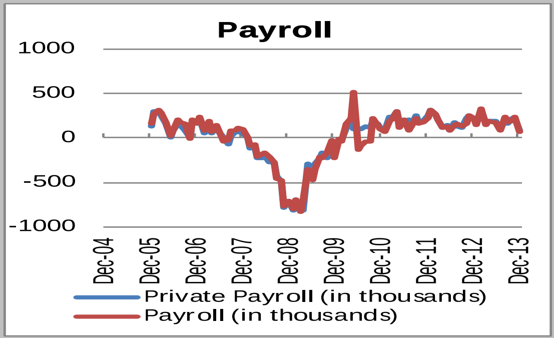
<u>Date of Next Meeting</u>
The next Investment Advisory Committee meeting will be held on Thursday, May 22, 2014. More information regarding this meeting will be communicated.

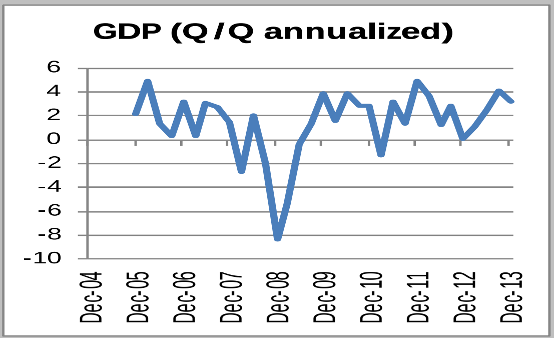
<u>Questions</u>
Questions relating to the items on the Agenda should be addressed to the Investment Management Division of the State Treasurer's Office at (919) 807-3121 or by email at Lynda.Boulay@nctreasurer.com.

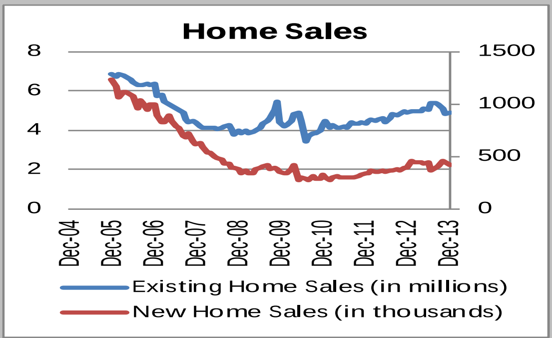
IMD Performance Review

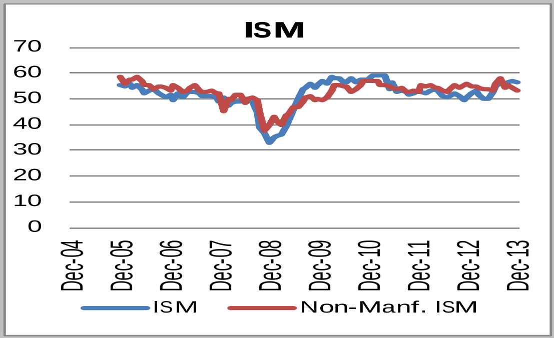
February 19, 2014

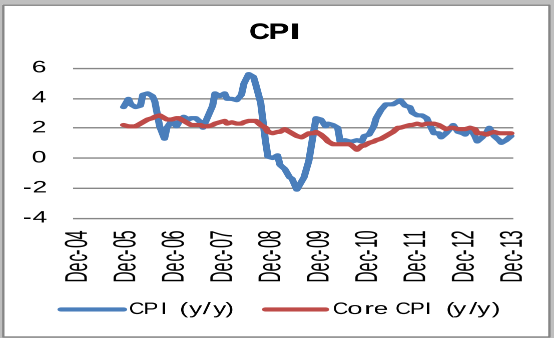
U.S. Economic Environment

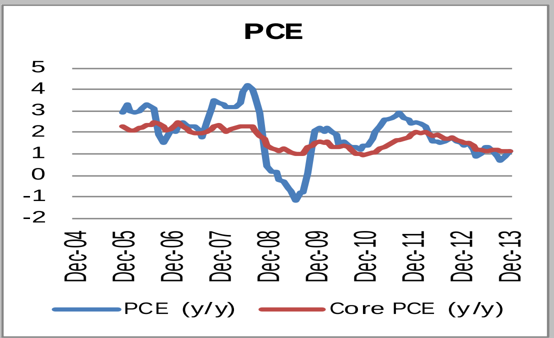


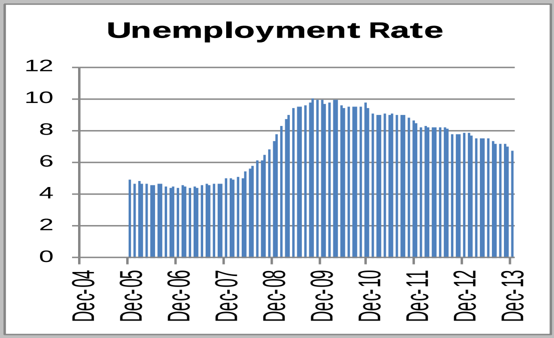


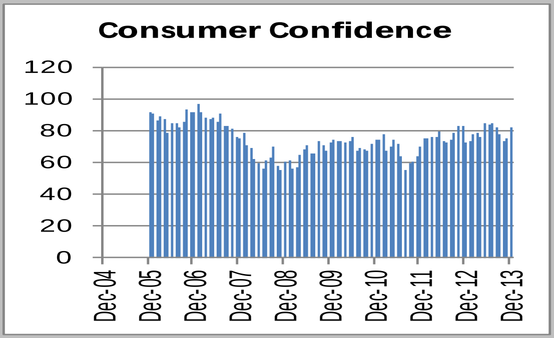


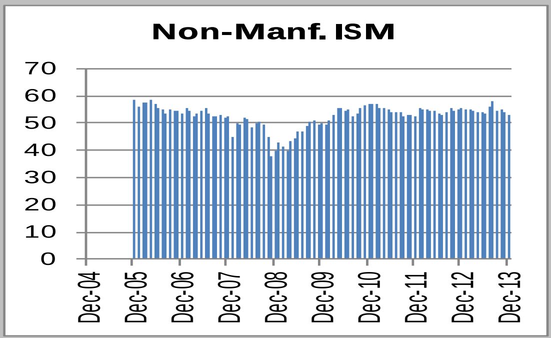








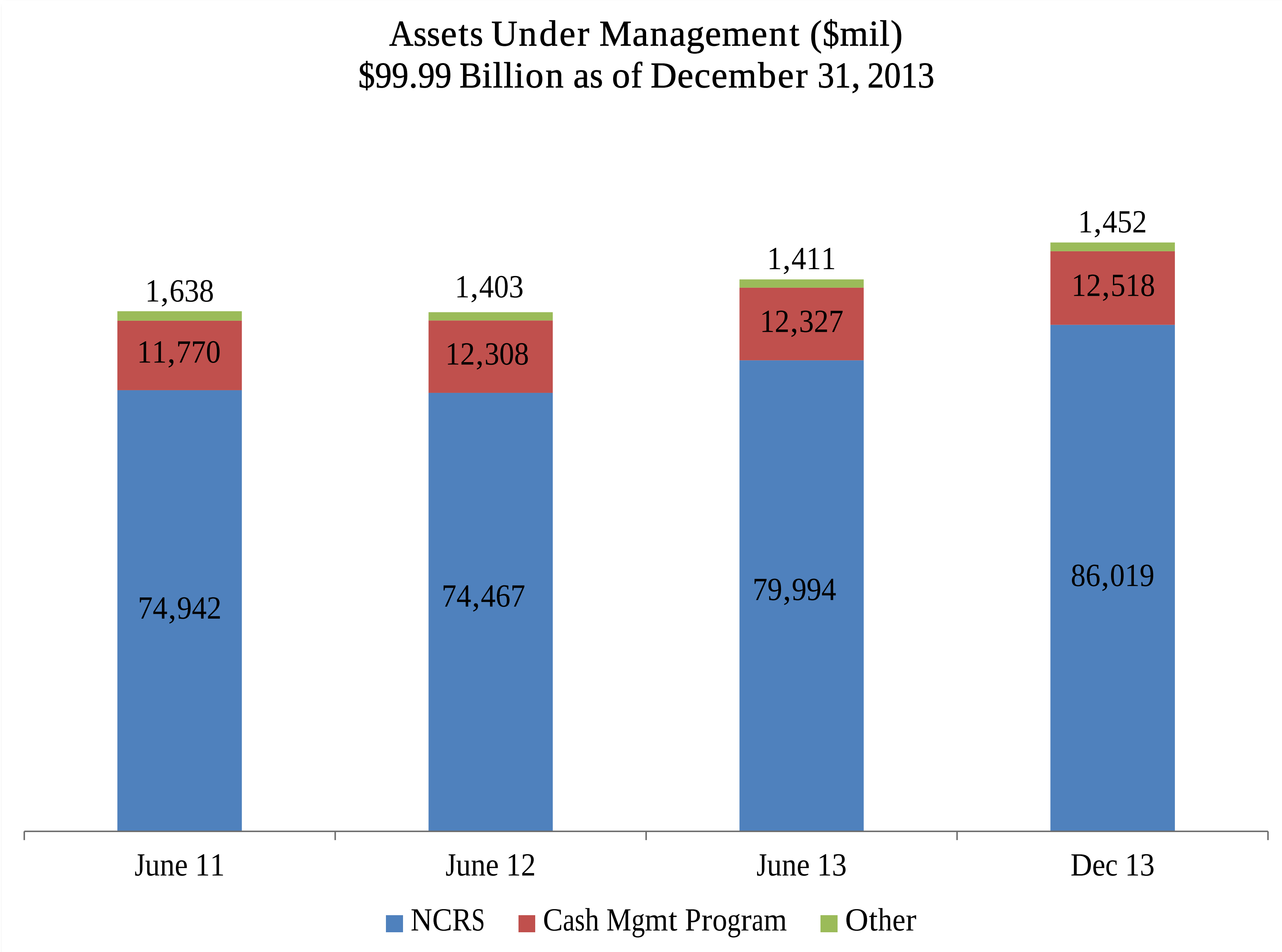




Global Economic Environment

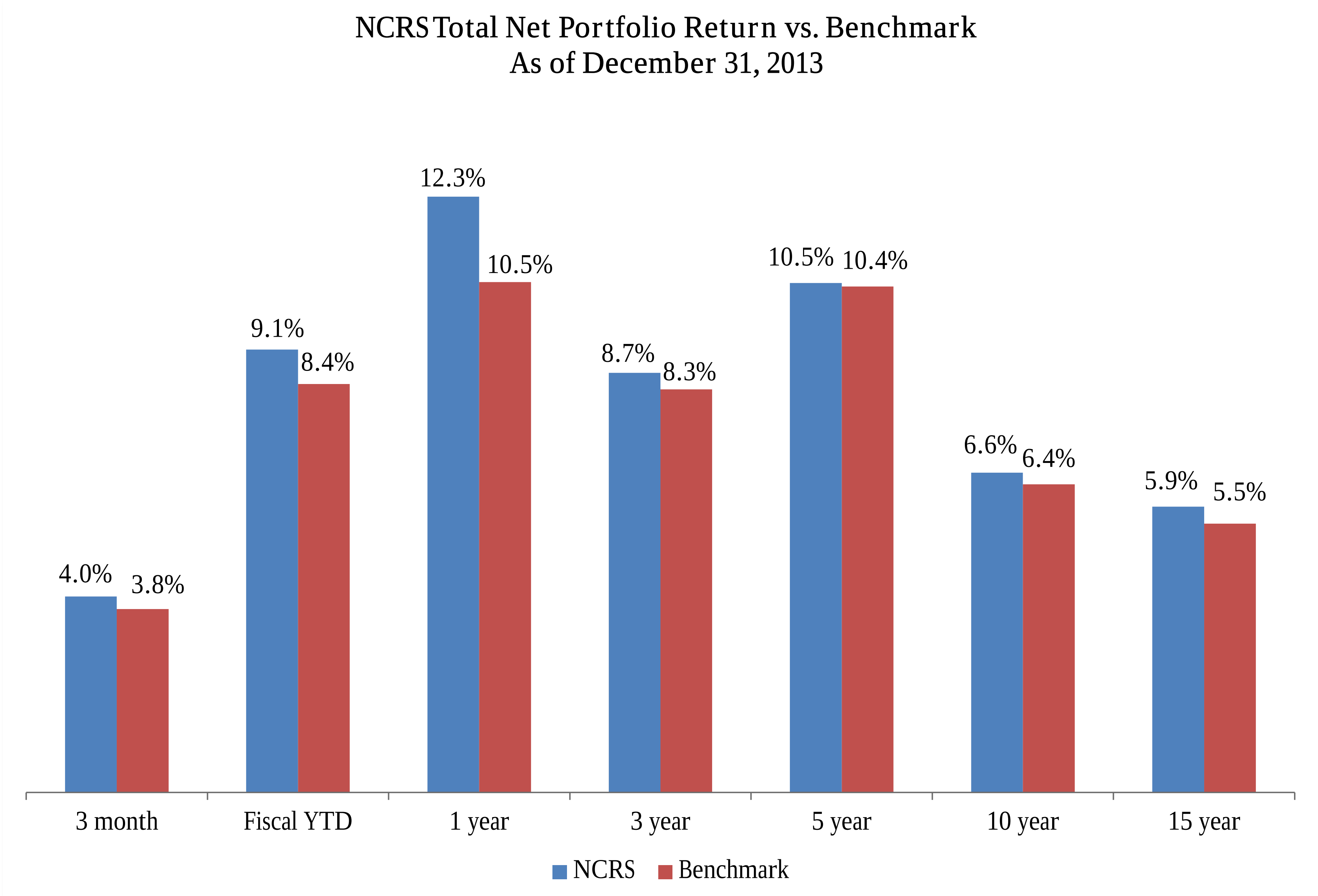
	Real GDP YoY		Unemployment		CPI YoY	
Countries	Date	Value	Date	Value	Date	Value
U.S.	12/13	2.7	12/13	6.7	12/13	1.5
Europe						
Germany	09/13	0.6	12/13	6.8	12/13	1.4
France	09/13	0.2	12/13	10.8	12/13	0.7
U.K	12/13	2.8	11/13	7.1	12/13	2
Italy	09/13	-1.8	12/13	12.7	12/13	0.7
Spain	12/13	-0.1	12/13	25.8	12/13	0.3

	Real GDP YoY		Unemployment		CPI YoY	
Countries	Date	Value	Date	Value	Date	Value
Asia/Pacific/Latam						
China	12/13	7.7			12/13	2.5
India	09/13	4.8			12/13	9.13
Japan	09/13	2.4	12/13	3.7	12/13	1.6
Indonesia	12/13	5.72			12/13	8.38
Brazil	09/13	2.16			12/13	5.91
Australia	09/13	2.3	12/13	5.8	12/13	2.7


Assets Under Management ($mil)
$99.99 Billion as of December 31, 2013
1,638
11,770
74,942
1,403
12,308
74,467
1,411
12,327
79,994
1,452
12,518
86,019
June 11
June 12
June 13
Dec 13
NCRS
Cash Mgmt Program
Other

NCRS Asset Allocation as of December 31, 2013

	Market Value	Current	Strategic Target	Transitional Target
Global Equity	$41,490,720,074	48.23%	40.50%	43.71%
Total Fixed Income	$26,409,754,770	30.70%	36.00%	35.23%
LTIF	$26,044,822,869	30.28%		
Real Estate	$7,118,767,672	8.28%	8.00%	8.28%
Alternatives	$3,865,336,263	4.49%	6.50%	4.49%
Private Equity	$3,582,832,179	4.17%		
Hedge Funds	$282,504,084	0.33%		
Credit	$4,083,452,126	4.75%	4.50%	4.75%
Inflation	$2,623,210,728	3.05%	4.50%	3.05%
Cash	$428,057,351	0.50%	0.00%	0.50%
Total Fund	$86,019,298,984	100.00%	100.00%	100.00%


NCRS Total Net Portfolio Return vs. Benchmark
As of December 31, 2013
4.0%
3.8%
9.1%
8.4%
12.3%
10.5%
8.7%
8.3%
10.5%
10.4%
6.6%
6.4%
5.9%
5.5%
3 month
Fiscal YTD
1 year
3 year
5 year
10 year
15 year
NCRS
Benchmark

NCRS Net Return Attribution
Contribution to Total Fund Performance vs. Benchmark

	3 months	1 Year	3 Years	5 Years
Global Equity	0.18	1.04	0.39	0.25
Fixed Income	0.12	0.42	0.05	0.19
Real Estate	-0.11	-0.05	-0.22	-0.27
Private Equity	-0.06	-0.16	-0.20	-0.31
Hedge Funds	0.00	0.01	0.00	0.05
Credit Strategies	0.12	0.48	0.31	0.21
Inflation Portfolio	-0.01	0.02	0.01	-0.04
Cash	0.00	0.00	0.00	0.00
Total NCRS	0.25	1.76	0.34	0.07

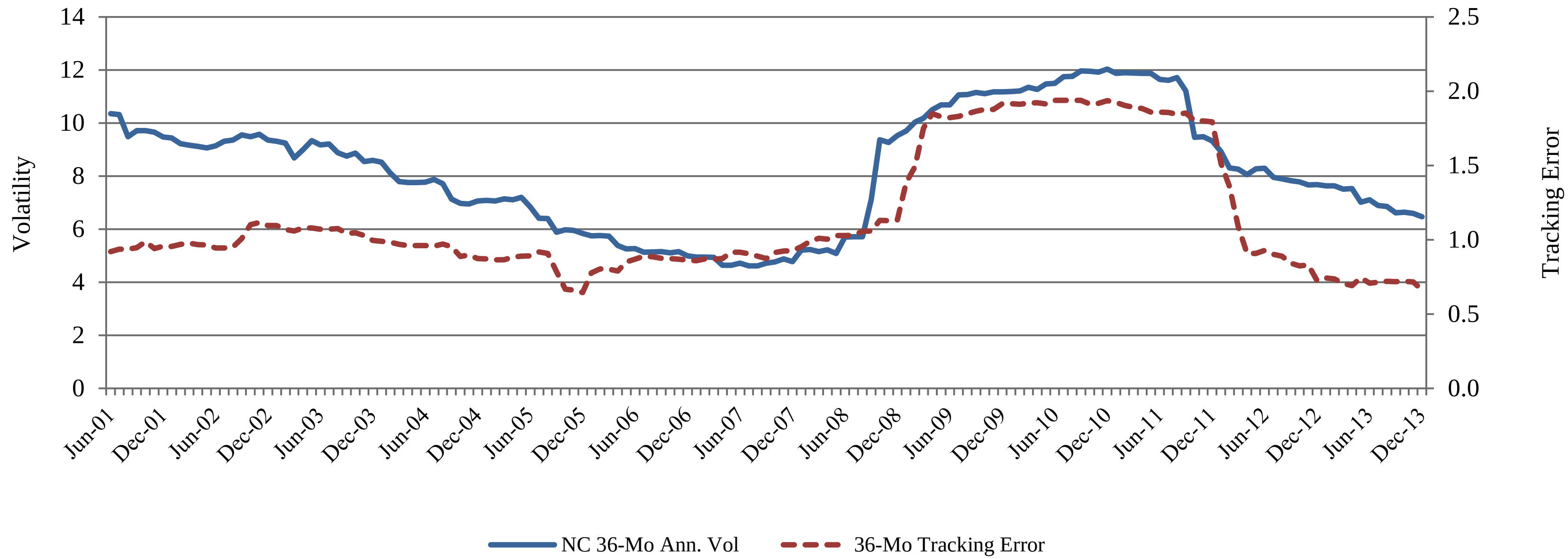
As of December 31, 2013

NCRS Gross of Fees Return and Risk
BNY Mellon Universe - Public Funds > $1B

Returns	1 Year	3 Years	5 Years	10 Years	15 Year
25th percentile	17.22	10.34	13.38	7.72	7.03
Median	14.75	9.77	12.53	7.33	6.53
75th percentile	11.59	8.97	11.41	6.77	6.11
NCRS	12.81	9.10	10.95	6.92	6.11
Percentile Rank	69	71	78	72	75
Risk	**1 Year**	**3 Years**	**5 Years**	**10 Years**	**15 Year**
25th percentile	6.22	8.35	10.22	10.34	10.33
Median	5.70	7.57	9.30	9.70	9.82
75th percentile	4.98	6.68	8.26	8.84	8.76
NCRS	5.14	6.47	8.00	8.16	8.39
Percentile Rank	70	79	79	90	84

As of December 31, 2013

NCRS Rolling 3 Year Total Fund Volatility & Tracking Error as of December 31, 2013



NCRS Risk and Return Metrics as of December 31, 2013

Program	POSITION		36-MONTH					60-MONTH				
	$ Bil	% Wgt	Return	St. Dev	Active Return	TE	IR	Return	St. Dev	Active Return	TE	IR
Global Equity	41.5	48.2	11.3	14.1	0.8	0.7	1.1	16.1	16.9	0.9	1.0	0.9
Fixed Income	26.4	30.7	4.7	4.1	0.3	0.8	0.3	6.1	4.3	0.7	0.8	0.9
Real Estate	7.1	8.3	10.9	3.0	-2.9	4.2	-0.7	-1.8	7.9	-4.2	7.4	-0.6
Private Equity	3.6	4.2	10.4	3.2	-5.1	5.9	-0.9	5.8	5.7	-5.1	15.6	-0.3
Hedged Strategies	0.3	0.3	2.4	3.5	-0.4	3.3	-0.1	6.0	4.0	2.7	3.8	0.7
Credit Strategies	4.1	4.7	10.7	3.9	8.1	4.1	2.0	--	--	--	--	--
Inflation Portfolio	2.6	3.0	-2.6	11.1	0.5	3.9	0.1	--	--	--	--	--
Cash	0.4	0.5	--	--	--	--	--	--	--	--	--	--
Total NCRS	**86.0**	**100.0**	**8.6**	**6.5**	**0.3**	**0.7**	**0.5**	**10.5**	**8.0**	**0.1**	**1.5**	**0.0**

Note: Active Return= Net Managed less benchmark returns; TE=Tracking Error; IR = Information Ratio

NCRS Liquidity Profile as of December 31, 2013

Invested Assets

	Global Equity	Credit Portfolio	Inflation Portfolio	Hedge Fund Portfolio	Private Equity	Real Estate	Fixed Income	Cash	TOTAL	Allocation
Level 1	$40,452,244,580	$349,360,710	$1,054,813,206	-	$2,129,663	$512,346,966	$26,409,754,770	$428,057,351	***$69,208,707,246***	80.5%
Level 2	$1,038,475,494	$1,560,696,368	$418,934,273	-	-	$1,511,273,159	-		***$4,529,379,293***	5.3%
Level 3	-	$1,083,153,718	-	$267,396,691	$43,800,816	-	-		***$1,394,351,224***	1.6%
Level 4	-	$1,090,241,330	$1,149,463,249	$15,107,393	$3,536,901,699	$5,095,147,548	-		***$10,886,861,219***	12.7%
TOTAL	***$41,490,720,074***	***$4,083,452,126***	***$2,623,210,728***	***$282,504,084***	***$3,582,832,179***	***$7,118,767,672***	***$26,409,754,770***	***$428,057,351***	***$86,019,298,983***	

Invested Assets plus Unfunded Commitments

	Global Equity	Credit Portfolio	Inflation Portfolio	Hedge Fund Portfolio	Private Equity	Real Estate	Fixed Income	Cash	TOTAL	Allocation
Level 1	$35,891,091,013	$349,360,710	$1,054,813,206	-	$2,129,663	$512,346,966	$24,353,642,105	$428,057,351	***$62,591,441,014***	72.8%
Level 2	$1,038,475,494	$1,560,696,368	$418,934,273	-	-	$1,511,273,159	-	-	***$4,529,379,293***	5.3%
Level 3	-	$1,083,153,718	-	$267,396,691	$43,800,816	-	-	-	***$1,394,351,224***	1.6%
Level 4	-	$1,879,397,182	$2,741,241,103	$15,107,393	$5,717,121,560	$7,151,260,213	-	-	***$17,504,127,451***	20.3%
TOTAL	***$36,929,566,507***	***$4,872,607,978***	***$4,214,988,582***	***$282,504,084***	***$5,763,052,040***	***$9,174,880,337***	***$24,353,642,105***	***$428,057,351***	***$86,019,298,983***	

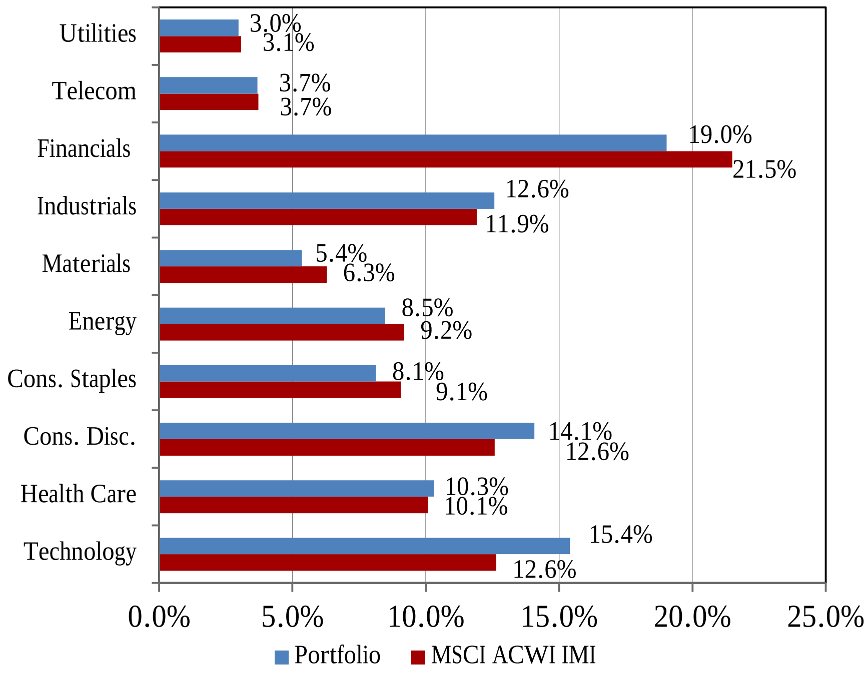
The Liquidity Level defines the level of liquidity for each investment.

- Level 1: Highly liquid (T+3 or less)
- Level 2: Separate or Commingled Funds with Monthly, Quarterly or Semi-Annual redemption period
- Level 3: Annual to 24 month redemption period
- Level 4: Illiquid (> 24 month redemption period)

NCRS Global Equity Net Performance as of December 31, 2013

	3 Month	1 Year	3 Years	5 Years	10 Years
Global Equity	7.60	26.24	11.35	16.12	6.99
Custom Equity Benchmark[1]	7.22	23.78	10.52	15.18	6.42
Domestic Portfolio	10.62	35.65	16.40	19.49	8.21
Russell 3000	10.10	33.55	16.24	18.71	7.88
Non-US Portfolio	5.05	17.50	5.85	12.38	7.42
Custom Non-US Benchmark[2]	4.75	15.82	5.12	11.66	6.35
Global Portfolio	8.65	36.06	15.74	17.23	-
MSCI ACWI	7.31	22.80	9.73	14.92	7.17
Equity Rebalance	7.53	25.40	-	-	-
Rebalance Custom Benchmark[3]	7.09	25.67	-	-	-
Equity Hedge	3.77	10.38	-	-	-
Equity Hedge Custom Benchmark[4]	1.96	6.21	-	-	-

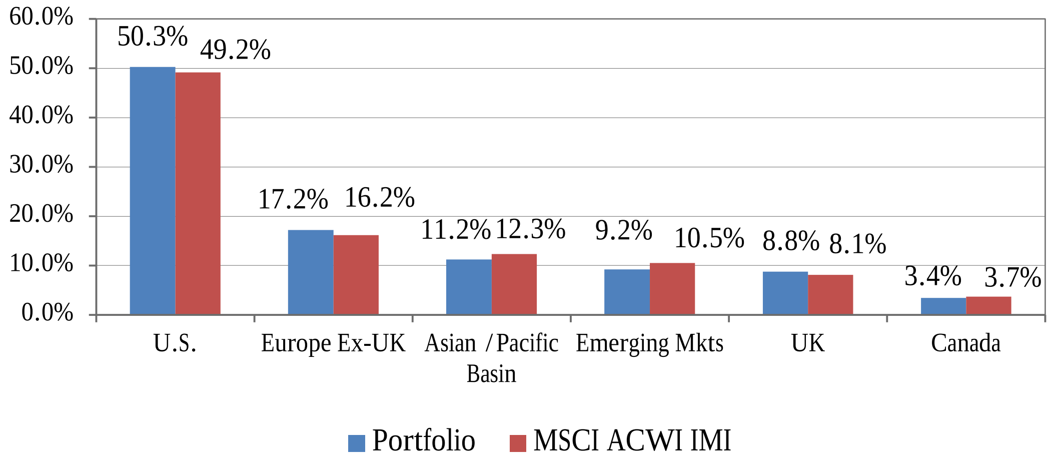
Total Equity Sector Allocation



Portfolio Characteristics

	Portfolio	MSCI ACWI IMI
Price/Earnings	19.8	18.8
Dividend Yield	2.18	2.33
Price/Book	2.09	2.05
Debt/Equity	0.84	0.87
Market Cap ($ Weighted Median)	32,559	35,281
Return on Equity - 1 Year	15.1	15.1

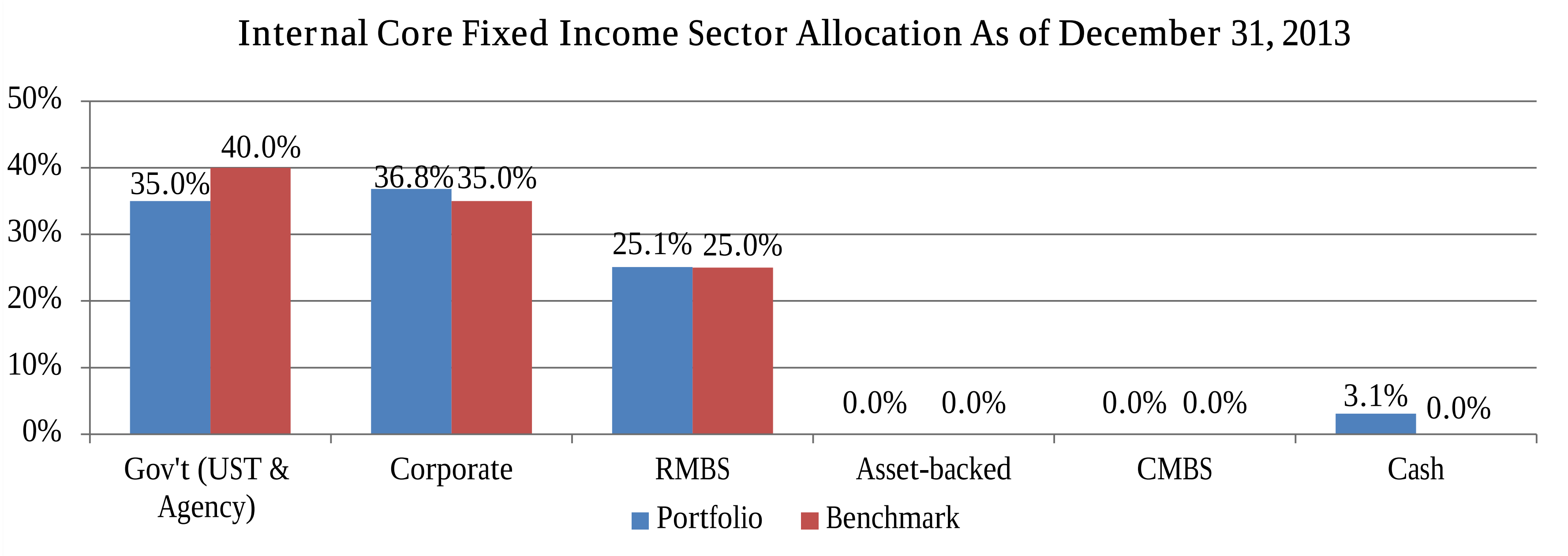
Total Equity Regional Allocation

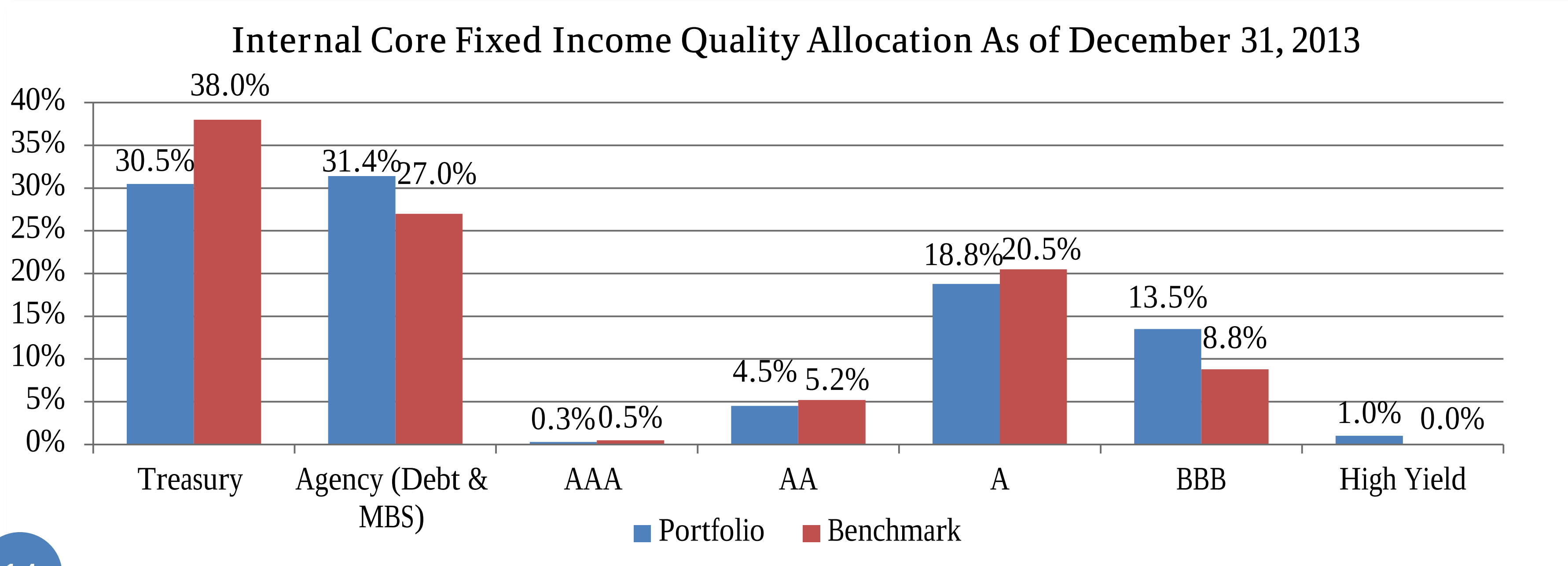


NCRS Fixed Income Net Performance as of December 31, 2013	3 Month	1 Year	3 Years	5 Years	10 Years
Total Fixed Income	(0.18)	(3.49)	4.69	6.14	5.84
ML Custom Benchmark[5]	(0.56)	(4.60)	4.45	5.43	5.40
Core Fixed Income	(0.22)	(3.74)	4.79	6.07	5.87
Non-Core Fixed Income	2.59	4.64	7.17	9.49	-
ML Custom Benchmark[5]	(0.56)	(4.60)	4.45	5.43	5.40

Internal Core Fixed Income Portfolio Characteristics as of December 31, 2013

	Avg. Coupon	Yield to Maturity	Duration
Government (Treasury & Agency)	5.36%	2.56%	7.6
Corporate	5.61%	4.10%	8.5
Mortgage	4.14%	3.25%	5.5
Total	**5.14%**	**3.32%**	**7.4**


Internal Core Fixed Income Sector Allocation As of December 31, 2013
50%
40%
30%
20%
10%
0%
35.0%
40.0%
36.8%
35.0%
25.1%
25.0%
0.0%
0.0%
0.0%
0.0%
3.1%
0.0%
Gov't (UST & Agency)
Corporate
RMBS
Asset-backed
CMBS
Cash
Portfolio
Benchmark


Internal Core Fixed Income Quality Allocation As of December 31, 2013
40%
35%
30%
25%
20%
15%
10%
5%
0%
30.5%
38.0%
31.4%
27.0%
0.3%
0.5%
4.5%
5.2%
18.8%
20.5%
13.5%
8.8%
1.0%
0.0%
Treasury
Agency (Debt & MBS)
AAA
AA
A
BBB
High Yield
Portfolio
Benchmark

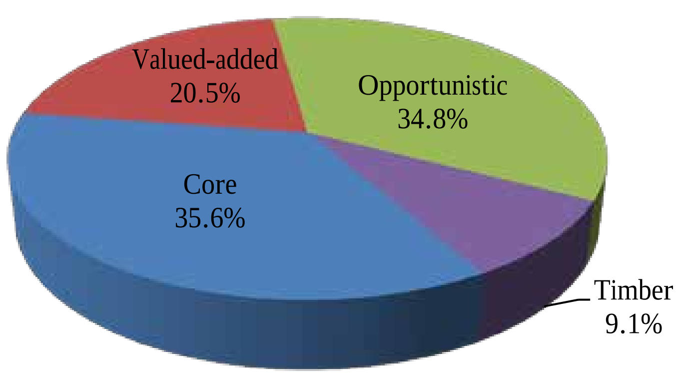
NCRS Real Estate Net Performance as of December 31, 2013

	3 Month	1 Year	3 Years	5 Years	10 Years
Total Real Estate	1.81	11.56	10.89	(1.79)	4.40
Custom Real Estate Benchmark[6]	3.11	12.18	13.78	2.42	7.18
Core Private Real Estate (w/o Timber)	0.66	13.52	11.52	1.44	6.46
Value Add Private Real Estate	2.06	10.88	15.24	(2.19)	3.98
Opportunistic Private Real Estate	3.26	13.95	10.99	(6.30)	4.87
Timber	(0.02)	5.58	0.96	(5.11)	3.76
REITS	0.49	6.61	8.03	16.80	-

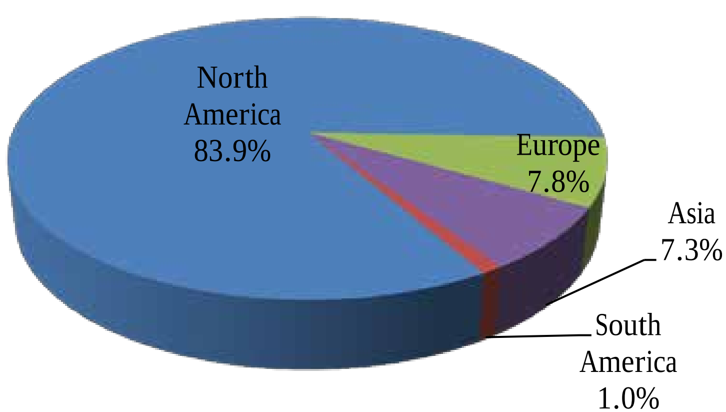
Real Estate IRR by Vintage Year

	Pre-04	2004	2005	2006	2007	2008	2010	2011	2012	2013	Total
NCRS	7.82	9.27	-2.66	-2.55	1.77	9.65	9.35	14.09	-5.05	-5.80	3.98
Funds	21	3	15	19	13	6	5	8	8	7	105

Strategy Allocation by Value



Geographic Allocation by Value



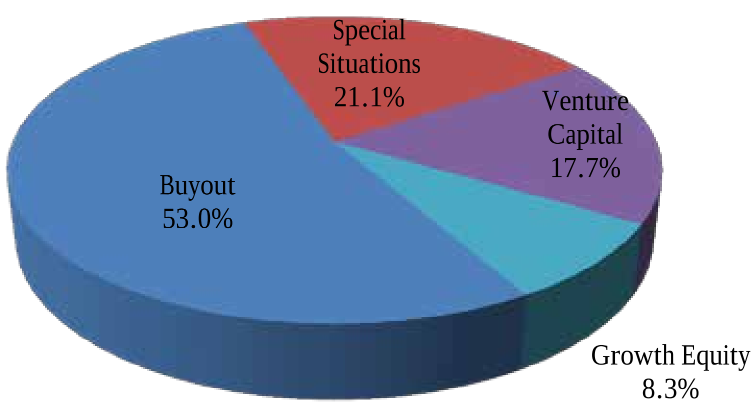
NCRS Alternatives Net Performance as of December 31, 2013

	3 Month	1 Year	3 Years	5 Years	10 Years
Alternatives	4.16	11.54	9.60	6.34	5.99
Custom Alternatives Benchmark[7]	5.19	14.63	13.99	10.31	8.22
Private Equity	4.23	11.72	10.39	5.81	7.83
Custom Private Equity Benchmark[8]	5.43	15.33	15.45	10.90	9.56
Hedge Funds	3.22	9.32	2.41	6.04	2.83
Custom Hedge Fund Benchmark[9]	2.15	6.08	2.78	3.33	5.27

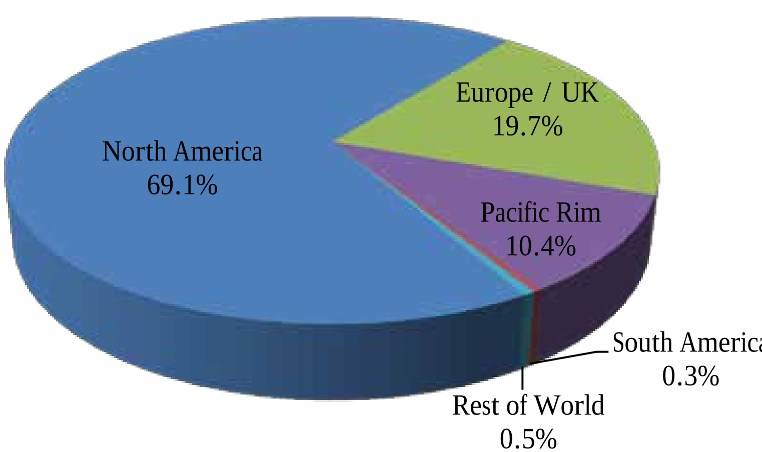
Private Equity IRR by Vintage Year

	Pre-03	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
NCRS	12.64	13.21	6.98	5.84	2.81	5.63	8.17	10.45	16.18	6.10	-4.30	-26.32	6.50
Funds	26	2	3	11	21	13	17	3	1	6	5	10	118

Private Equity Strategy Allocation by Commitments



Private Equity Geographic Allocation by Value



NCRS Credit Strategies & Inflation Portfolio Net Performance as of December 31, 2013

	3 Month	1 Year	3 Years	5 Years	10 Years
Total Credit Strategies	3.91	16.56	10.73	-	-
Custom Credit Benchmark[10]	1.37	5.32	2.60	-	-
Total Inflation Portfolio	(0.32)	(3.05)	(2.57)	-	-
Custom Inflation Benchmark	0.11	(3.86)	(3.09)	-	-

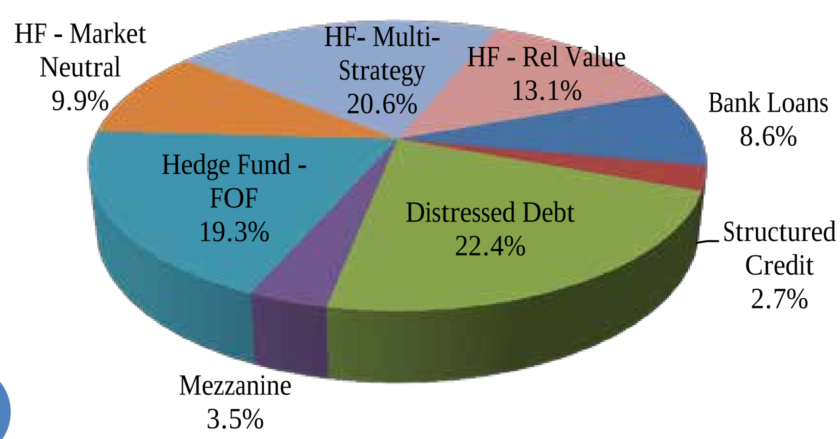
Credit Strategies IRR by Vintage Year

	2005	2007	2008	2009	2010	2011	2012	2013	Total
NCRS	3.67	17.15	11.15	22.42	14.30	7.00	6.99	16.90	10.80
Funds	1	1	3	1	4	9	2	7	28

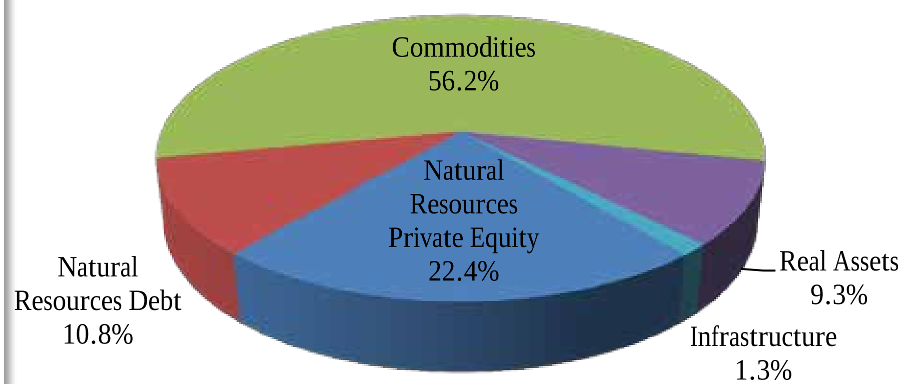
Inflation Portfolio IRR by Vintage Year

	2006	2007	2008	2009	2010	2011	2012	2013	Total
NCRS	5.40	12.03	10.15	n/a	-5.28	-7.23	10.19	3.91	-3.34
Funds	1	2	2	0	3	9	7	11	35

Credit Strategies Strategy Allocation by Value



Inflation Portfolio Strategy Allocation by Value



New Investments – Since December IAC Meeting

	Fund Name	Firm Name	Commitment	Closing Date
Global Equity				
		None		
Private Equity				
	Apollo Investment Fund VIII	Apollo Advisors	$220,000,000	12/17/2013
	TCV VIII	TCV	$150,000,000	12/23/2013
Real Estate				
	Blackstone Edens Investment Partners	Blackstone Group	$487,500,000	12/18/2013
	LaSalle Real Estate Debt Strategies II	LaSalle Investment Management	£50,000,000	12/23/2013
Credit Strategies				
	Benefit Street Partners Capital Opportunity Fund	Benefit Street Partners	$150,000,000	12/23/2013
	Providence Debt Fund III	Providence Partners	$200,000,000	12/23/2013
	Claren Road Opportunities Partners	Claren Road Asset Management	$130,000,000	12/31/2013
Inflation Portfolio				
	IFM Global Infrastructure Fund	IFM	$300,000,000	12/23/2013
	Energy Capital Partners III	Energy Capital Partners	$100,000,000	1/28/2014
	Jade Real Assets	Highbridge Principal Strategies	$150,000,000	1/31/2014
Hedge Funds				
		None		

Appendix: NCRS Asset Class Net Performance
As of December 31, 2013

	1 Year	3 Years	5 Years	10 Years	15 Years
Global Equity	26.24%	11.35%	16.12%	6.99%	5.41%
Benchmark	23.78%	10.52%	15.18%	6.42%	4.38%
Fixed Income	-3.49%	4.69%	6.14%	5.84%	6.23%
Benchmark	-4.60%	4.45%	5.43%	5.40%	5.86%
Real Estate	11.56%	10.89%	-1.79%	4.40%	5.26%
Benchmark	12.18%	13.78%	2.42%	7.18%	7.98%
Private Equity	11.72%	10.39%	5.81%	7.83%	5.46%
Benchmark	15.33%	15.45%	10.90%	9.56%	7.84%
Hedge Funds	9.32%	2.41%	6.04%	2.83%	-
Benchmark	6.08%	2.78%	3.33%	5.27%	-
Credit Strategies	16.56%	10.73%	-	-	-
Benchmark	5.32%	2.60%	-	-	-
Inflation Portfolio	-3.05%	-2.57%	-	-	-
Benchmark	-3.86%	-3.09%	-	-	-

NOTES:

1. As of 5/1/12, the Global Equity Benchmark is the dynamically weighted return of the Domestic Benchmark, the Non-US Benchmark, the Global Benchmark, the Rebalance Benchmark, and the Equity Hedge Benchmark

2. As of 10/1/10, the Custom Non-US Benchmark is the MSCI ACWI ex US IMI Index

3. The Equity Rebalance (Gladius) Custom Benchmark is a combination of the return of the underlying benchmarks within share class A, and share class B's performance minus the accrued premium of share class B.

4. The Equity Hedge Custom Benchmark is the return of the MSCI World Index beta adjusted to the target beta of the Equity Hedge portfolio.

5. The ML Custom Benchmark consists of 40% Gov't 5+yr / 35% Corp. (Inv. Grade - BBB Max 25%) 5+yr / 25% Mtg. Master

6. As of 7/1/07, the Custom Real Estate Benchmark consists of 90% NCREIF ODCE Index / 10% FTSE EPRA/NAREIT Global Securities Index

7. As of 7/1/11, the Custom Alternatives Benchmark is the dynamically weighted return of the Custom Private Equity Benchmark and the Custom Hedge Fund Benchmark

8. As of 7/1/11, The Custom Private Equity Benchmark is the custom Cambridge Associates benchmark

9. As of 7/1/11, The Custom Hedge Fund Benchmark is the HFRI FOF Conservative Index

10. As of 7/1/11, The Custom Credit Benchmark consists of 50% HFRX Distressed / 20% HFRX Relative Value / 15% CS Leveraged Loan / 15% BOA High Yield

11. As of 7/1/11, The Custom Inflation Benchmark is the dynamically weighted return of the Private Energy benchmark (Cambridge Energy) and the Commodities benchmark (DJ-UBS Commodities Index)

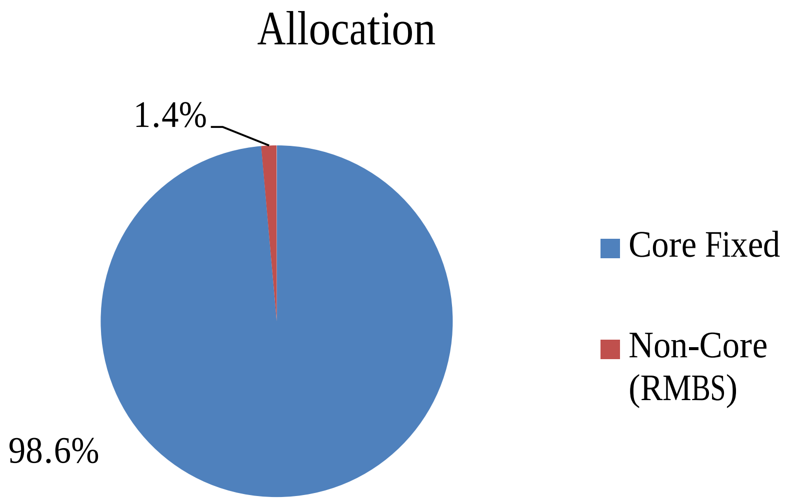
12. As of 7/1/11, the Total Pension Custom Benchmark consists of the dynamically weighted return of the Fixed Income Benchmark, Custom Equity Benchmark, Custom Real Estate Benchmark, Custom Alternatives Benchmark, Custom Credit Benchmark, & Custom Inflation Benchmark

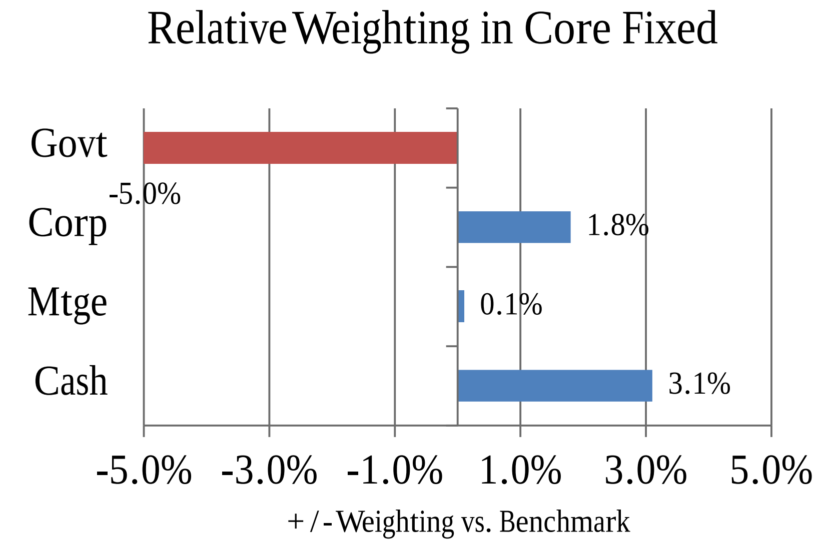
Fixed Income Overview

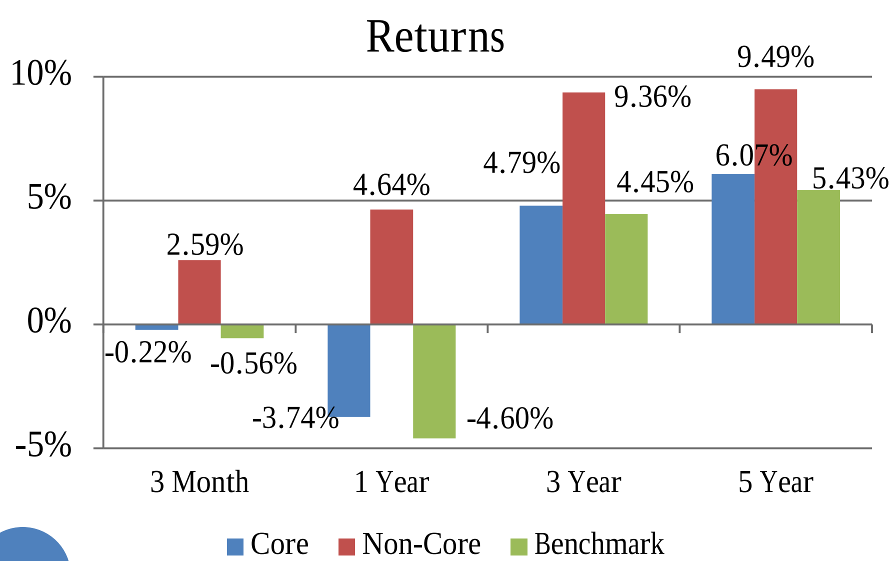
February 19, 2014

Fixed Income Profile

As of December 31, 2013







- Near term strategy in core remains focused on an mild overweight to corporate debt and a short relative duration position
- Non-core added 25bp performance to total fixed income over the last year
- Our defensive fixed income strategy outperformed the index by 110 bps for the calendar year as rates increased more than 100bps across most of the yield curve

Intermediate and Long Treasury Yields Back Up In 2013

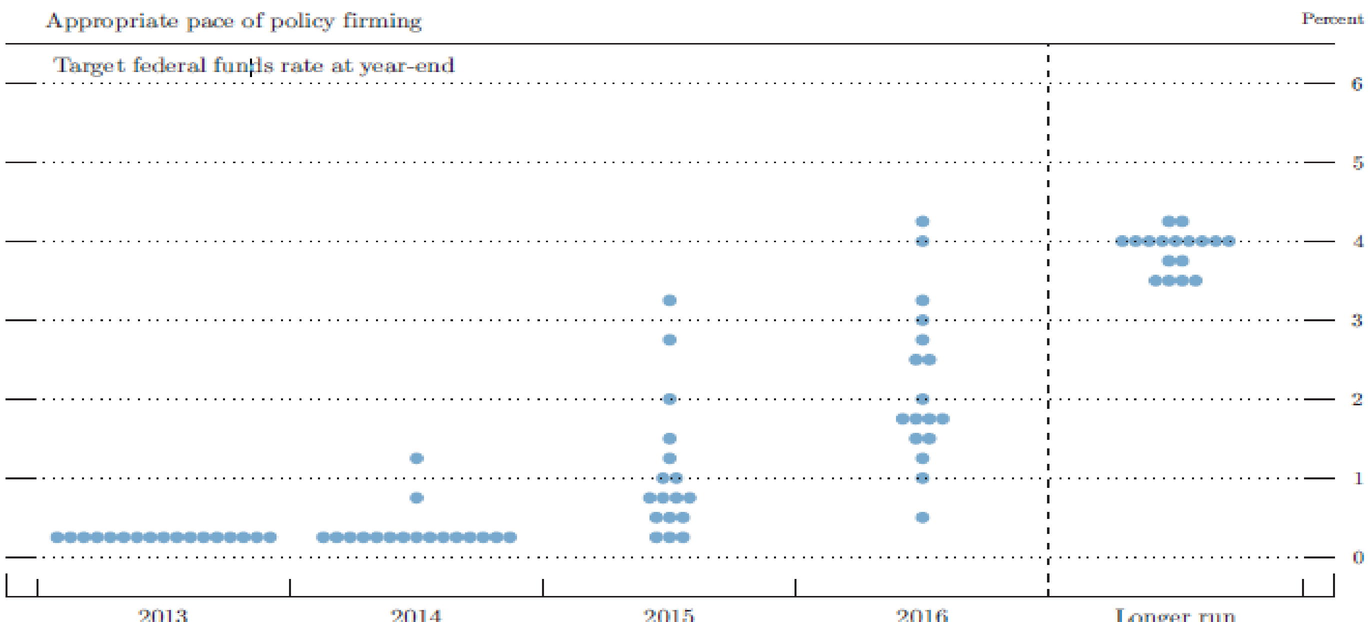
FOMC Projections

Economic Projections of Federal Reserve Board Members and Federal Reserve Bank Presidents, December 2013

Advance release of table 1 of the Summary of Economic Projections to be released with the FOMC minutes

Percent

Variable	Central tendency[1]					Range[2]				
	2013	2014	2015	2016	Longer run	2013	2014	2015	2016	Longer run
Change in real GDP	2.2 to 2.3	2.8 to 3.2	3.0 to 3.4	2.5 to 3.2	2.2 to 2.4	2.2 to 2.4	2.2 to 3.3	2.2 to 3.6	2.1 to 3.5	1.8 to 2.5
September projection	2.0 to 2.3	2.9 to 3.1	3.0 to 3.5	2.5 to 3.3	2.2 to 2.5	1.8 to 2.4	2.2 to 3.3	2.2 to 3.7	2.2 to 3.5	2.1 to 2.5
Unemployment rate	7.0 to 7.1	6.3 to 6.6	5.8 to 6.1	5.3 to 5.8	5.2 to 5.8	7.0 to 7.1	6.2 to 6.7	5.5 to 6.2	5.0 to 6.0	5.2 to 6.0
September projection	7.1 to 7.3	6.4 to 6.8	5.9 to 6.2	5.4 to 5.9	5.2 to 5.8	6.9 to 7.3	6.2 to 6.9	5.3 to 6.3	5.2 to 6.0	5.2 to 6.0
PCE inflation	0.9 to 1.0	1.4 to 1.6	1.5 to 2.0	1.7 to 2.0	2.0	0.9 to 1.2	1.3 to 1.8	1.4 to 2.3	1.6 to 2.2	2.0
September projection	1.1 to 1.2	1.3 to 1.8	1.6 to 2.0	1.7 to 2.0	2.0	1.0 to 1.3	1.2 to 2.0	1.4 to 2.3	1.5 to 2.3	2.0
Core PCE inflation[3]	1.1 to 1.2	1.4 to 1.6	1.6 to 2.0	1.8 to 2.0		1.1 to 1.2	1.3 to 1.8	1.5 to 2.3	1.6 to 2.2	
September projection	1.2 to 1.3	1.5 to 1.7	1.7 to 2.0	1.9 to 2.0		1.2 to 1.4	1.4 to 2.0	1.6 to 2.3	1.7 to 2.3	



SOURCE: FEDERAL RESERVE

Modest Rate Increases Expected in the Near Term

95) Chart | Page 1/3 | Bond Yield Forecasts

Region: G7 | Spread: 2 Year - 10 Year

	Rate	Market Yield	Q1 14	Q2 14	Q3 14	Q4 14	Q1 15	Q2 15
	United States							
1)	US 30-Year	3.65	3.91	4.05	4.14	4.26	4.31	4.41
2)	US 10-Year	2.67	2.96	3.13	3.28	3.42	3.50	3.61
3)	US 2-Year	0.31	0.41	0.53	0.66	0.82	0.94	1.09
4)	US 3-Month Libor	0.24	0.27	0.30	0.33	0.38	0.44	0.58
5)	Fed Funds Target Rate	0.25	0.25	0.25	0.25	0.25	0.25	0.38
	2 Year - 10 Year Spread	2.36	2.55	2.61	2.62	2.60	2.56	2.52

95) Chart Analysts | 96) Forecast Histogram | Bond Yield Forecasts: Analysts

US 10-Year

Market Yield 2.67

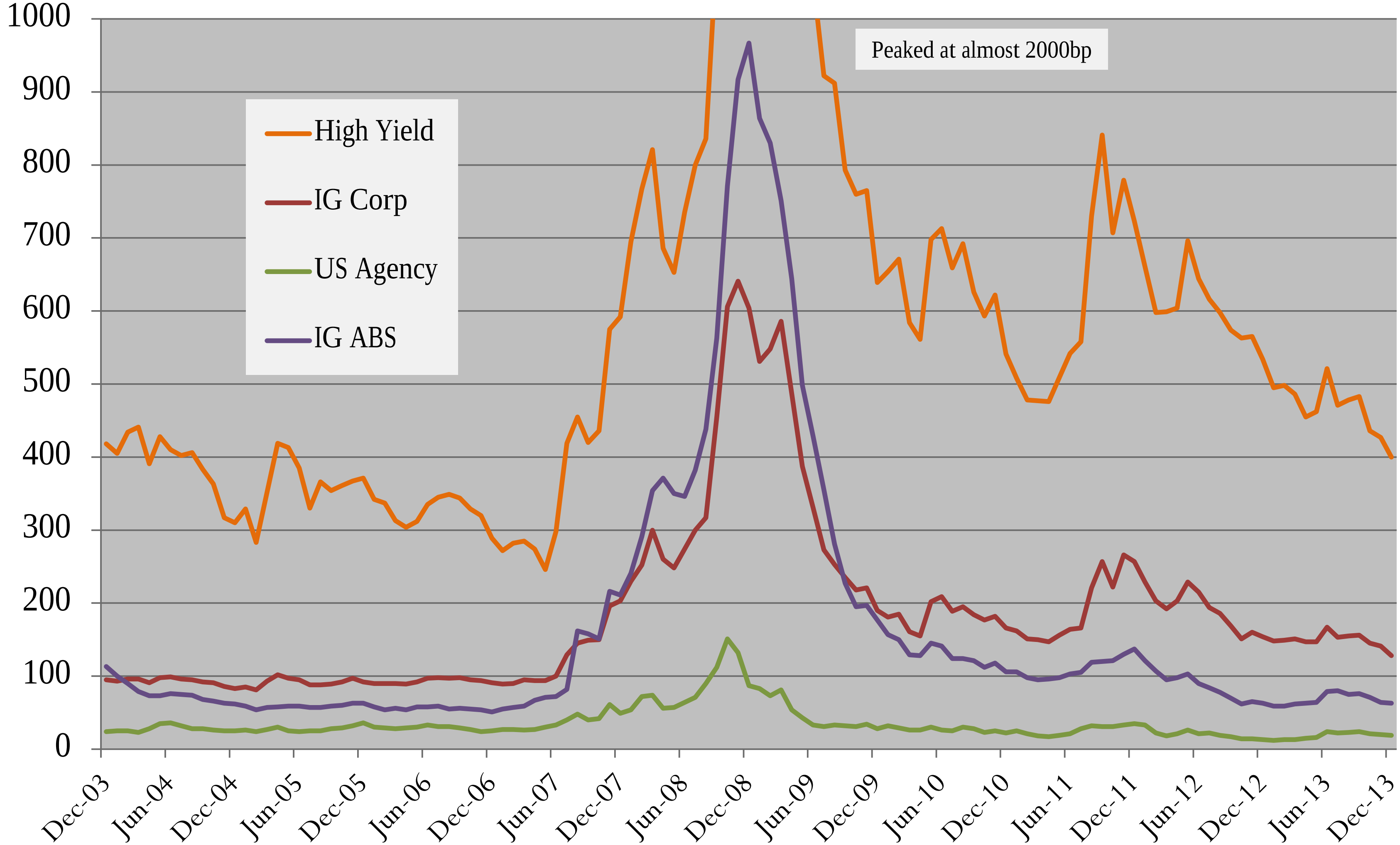
	Q1 14	Q2 14	Q3 14	Q4 14	Q1 15	Q2 15
Bloomberg Wgt Avg	2.96	3.13	3.28	3.42	3.50	3.61
Implied Forward Yield	2.77	2.86	2.94	3.03	3.12	3.20
Median Forecast	3.00	3.15	3.30	3.45	3.55	3.70
Average Forecast	2.99	3.12	3.26	3.40	3.48	3.59
High Forecast	3.25	3.50	3.75	4.00	4.00	4.11
Low Forecast	2.50	2.35	2.45	2.50	2.60	2.64
Responses	70	70	69	71	59	53
Jan. Survey Median	3.00	3.15	3.30	3.45	3.58	3.69
Dec. Survey Median	2.95	3.08	3.23	3.40	3.45	
Change in Medians	0.05	0.07	0.07	0.05	0.13	

Recent Updates
- G. Lebas
- E. Harris
- A. Rajadhyaksha
- N. Janzen

	Firm Name	Analyst	As of	Q1 14	Q2 14	Q3 14	Q4 14	Q1 15	Q2 15
1)	Moody's Economy.com	M. Zandi	01/16	3.00	3.22	3.46	3.61	3.75	4.11

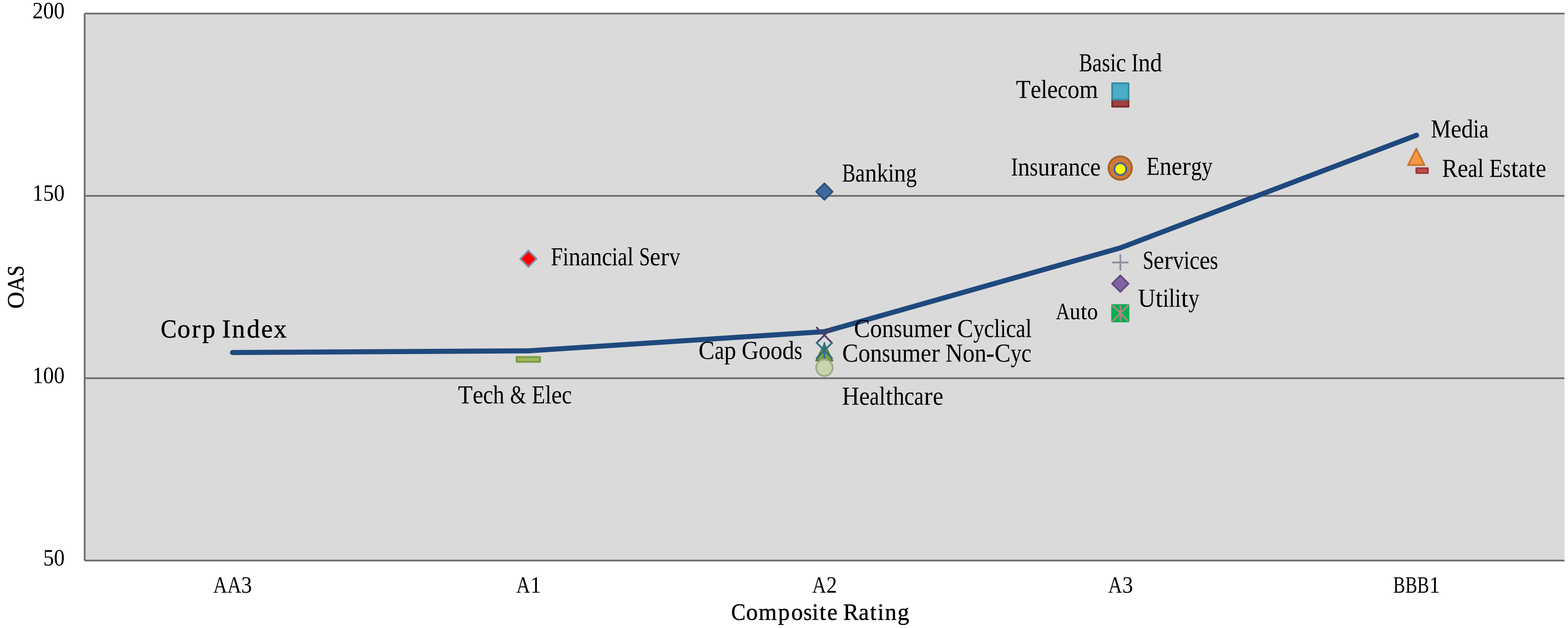
Fixed Income Credit Markets

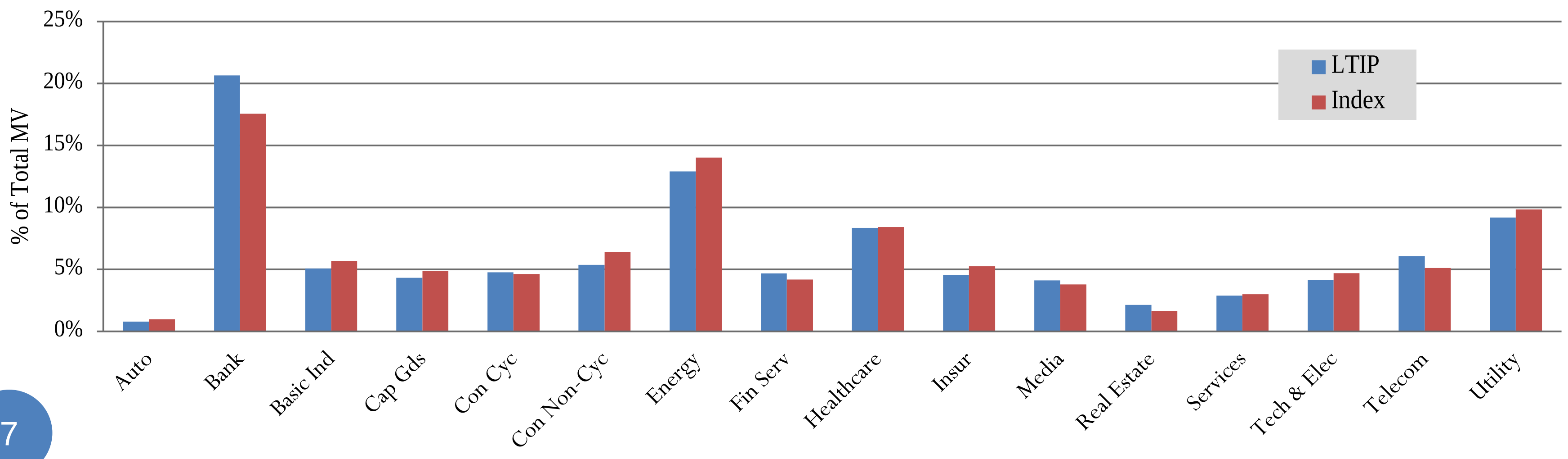
10 Year Spread History



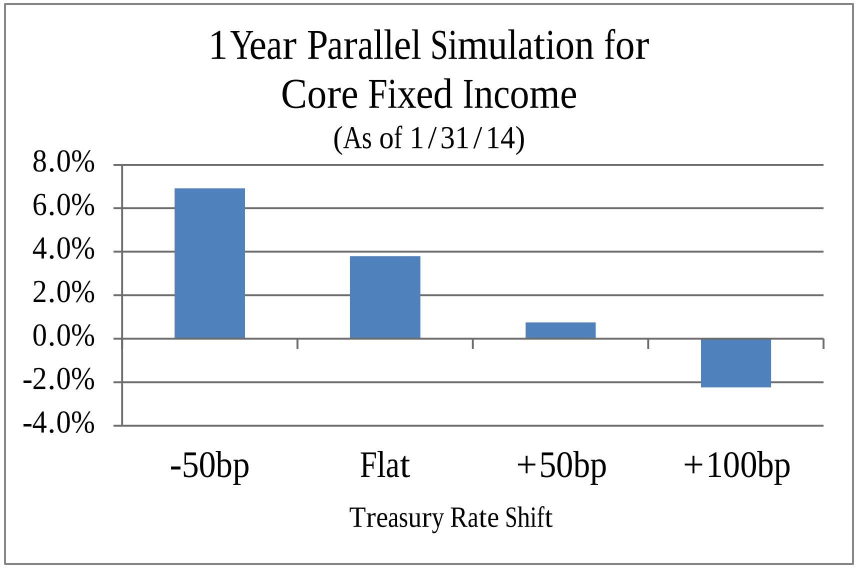
SOURCE: BofA Merrill Lynch Bond Indices

Corporate Relative Value and LTIP Allocation by Sector

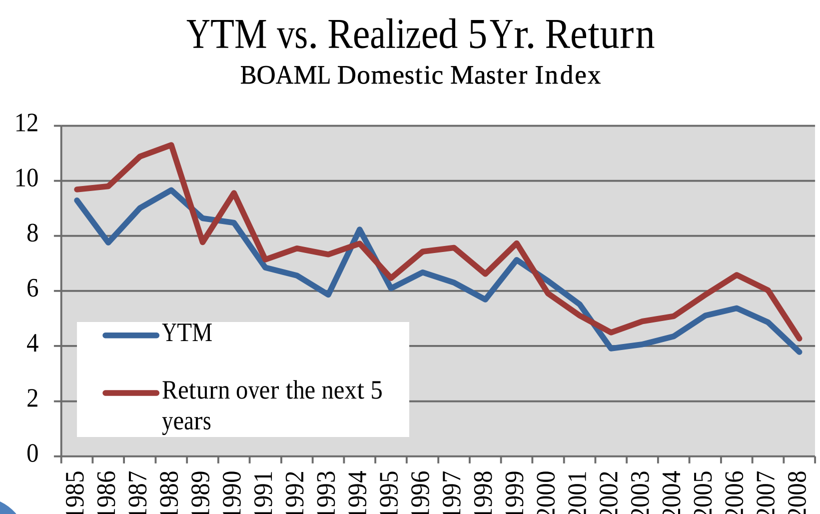


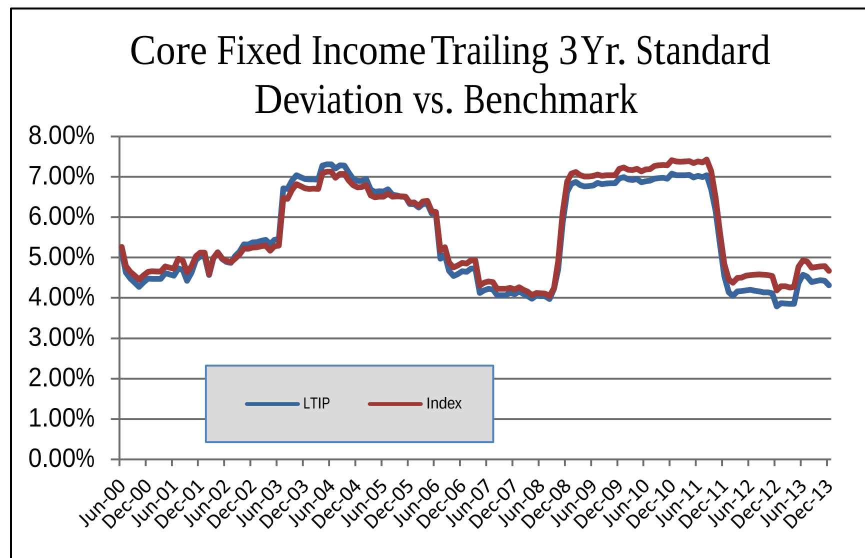


Fixed Income Expectations



- The portfolio volatility remains consistent with the market
- Expectations are for rates to rise modestly during 2014 as well
- Near term inflationary pressures appear modest
- Return expectations over the next five years remain in the 2% to 4% range
- The new structure will position the portfolio better for rates increases with limited impact on expected returns





IG Fixed Income Transition

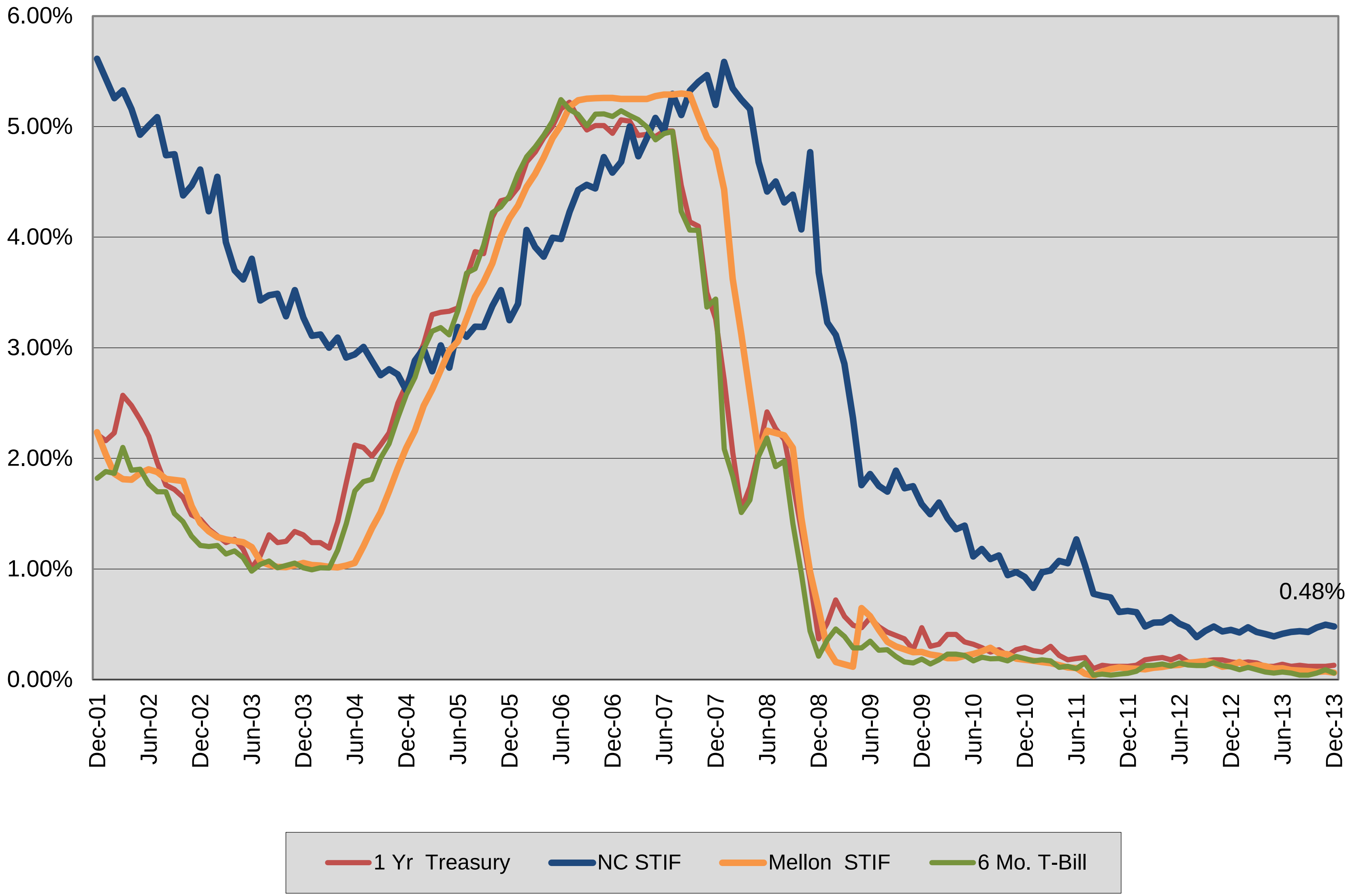
	Current Target Total Fixed	Current Total Fixed	New Target Total Fixed
Government (UST & Agency)	40%	34.5%	27%
Corporate	35%	36.3%	31.5%
Mortgages	25%	24.7%	31.5%
Non Core		1.4%	
Cash (STIF)		3.1%	10%
TOTAL		100%	100%

IG Core Fixed Income Transition

	Current Target Core Only	Current Core Only	New Target Core Only
Government (UST & Agency)	40%	35%	30%
Corporate	35%	36.8%	35%
Mortgages	25%	25.1%	35%
Cash		3.1%	
TOTAL		100%	100%

Short Term Portfolio (STIF) Rate History

$13.5 Billion AUM as of 12/31/13



Fixed Income Team

Structure & Experience

Jeff Smith , CFA
Director of Fixed Income
22 years with IMD

Brett Hall
Senior Portfolio Manager
15 years with IMD
Prior 2 years at Merrill Lynch

Beth Harrison
Portfolio Manager
35 years with IMD

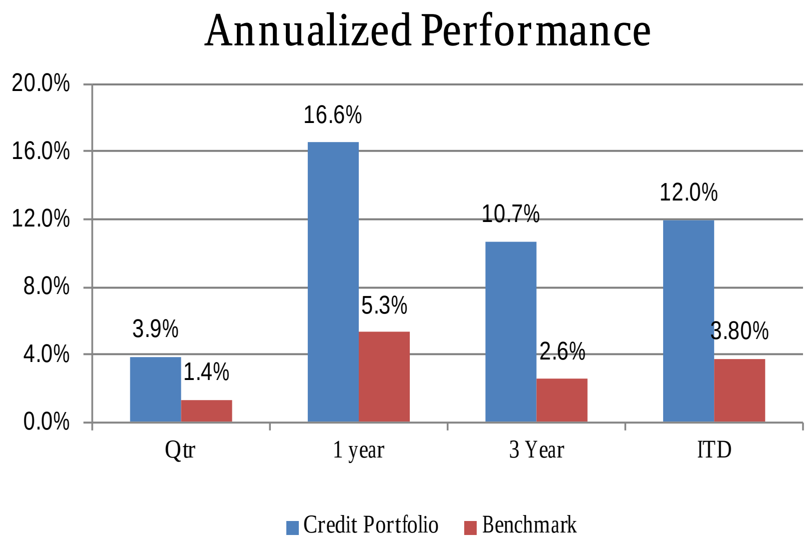
Mike Nichols, CFA
Senior Credit Analyst
6 years with IMD
Prior 8 years at BB&T and PFPC Global Fund

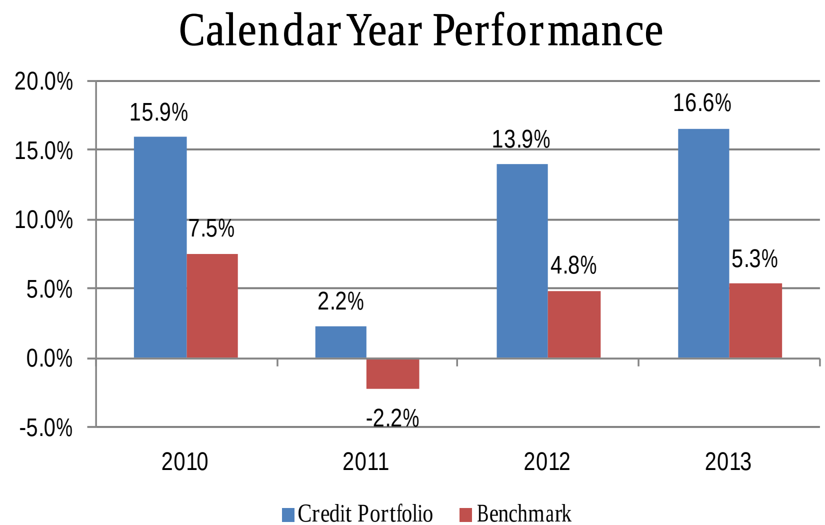
Carlene Hughes
Credit Analyst
13 years with IMD
Prior 4 years at Bank of America and American Express Adv.

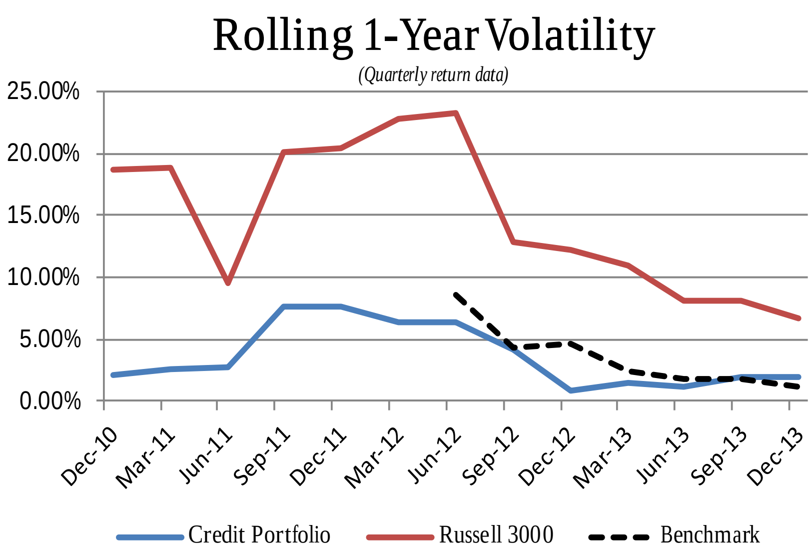
Credit Portfolio Overview

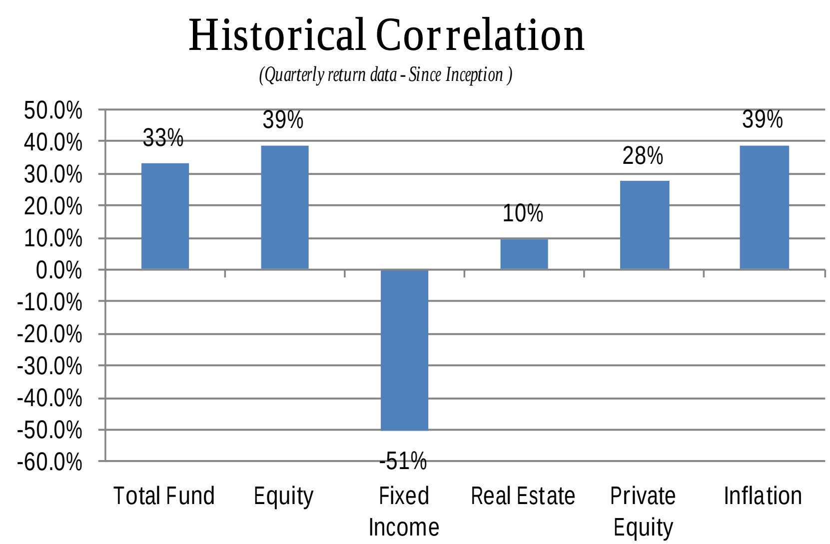
February 19, 2014

Credit Portfolio Performance



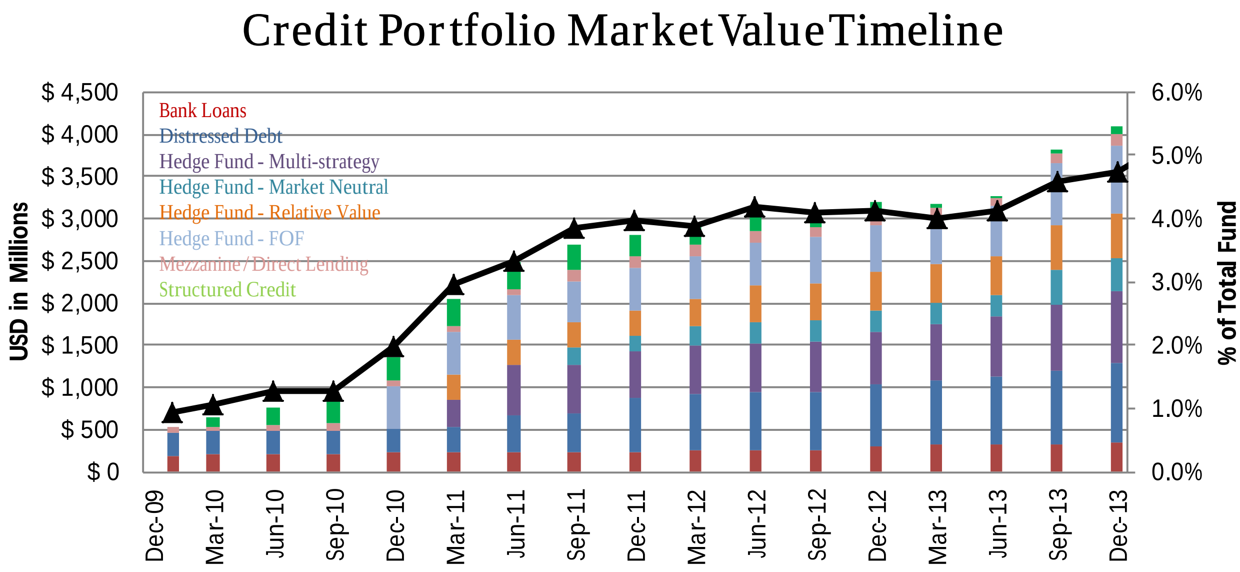


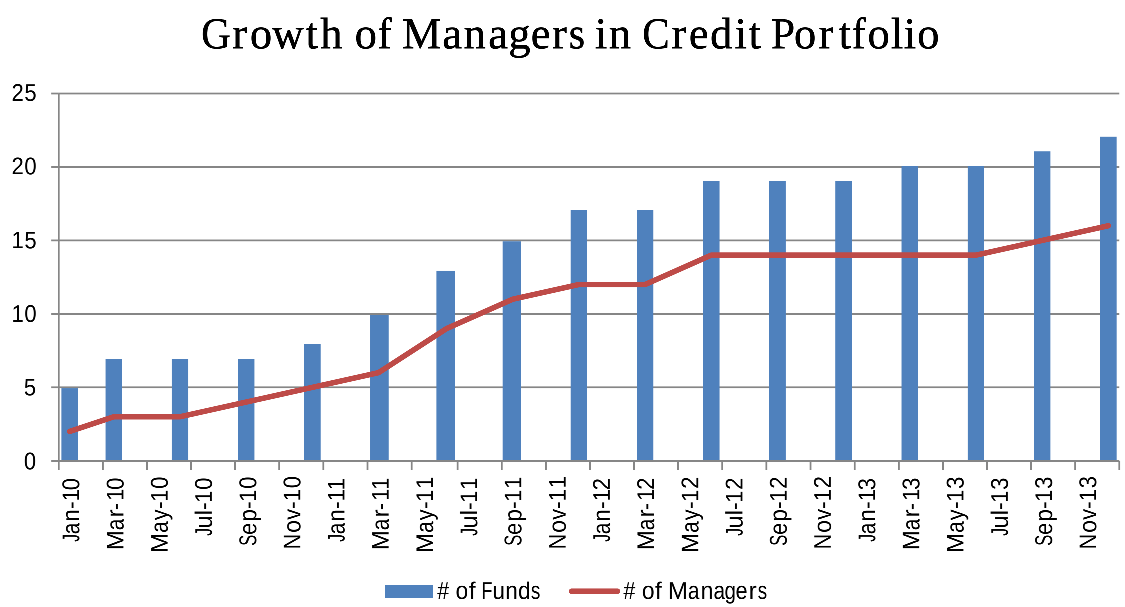




Benchmark: 50% HFRX Distressed, 20% HFRX Relative Value, 15% BOA HY Index, 15% CS Leveraged Loan Index *As of 12/31/13

Credit Portfolio History

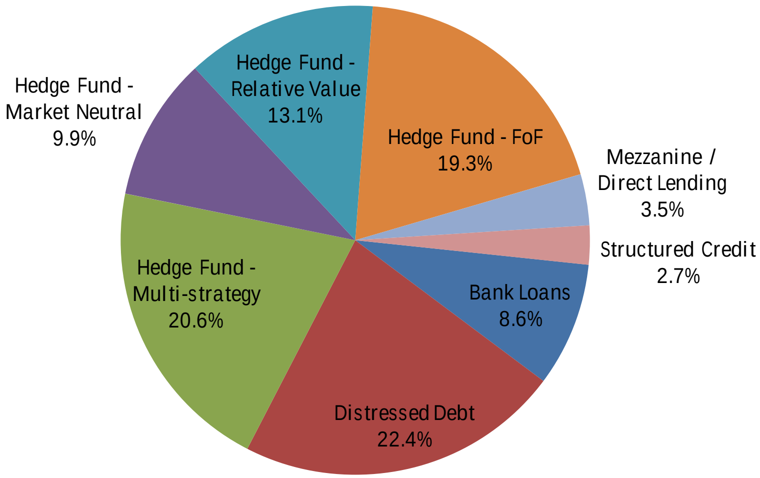




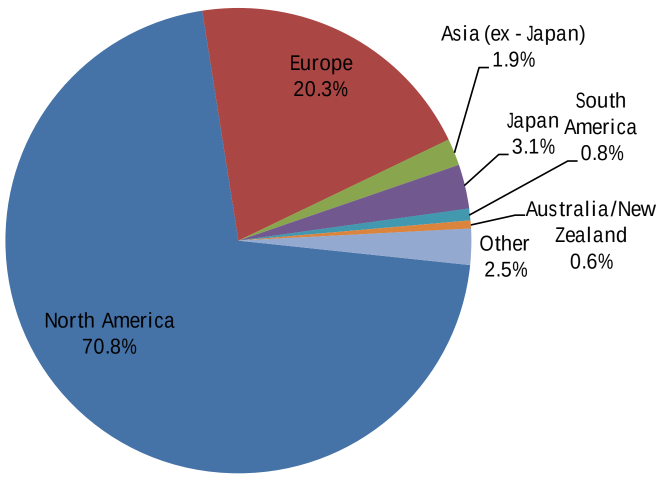
*As of 12/31/13

Credit Portfolio Characteristics

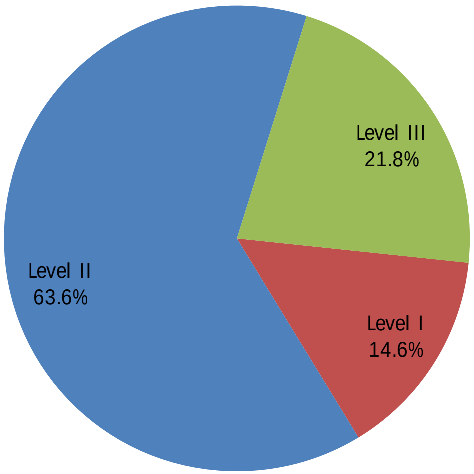
Strategy Allocation



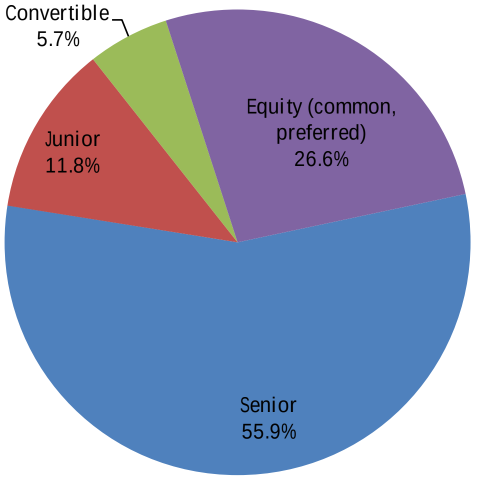
Assets by Marketbility



Liquidity of Underlying Assets

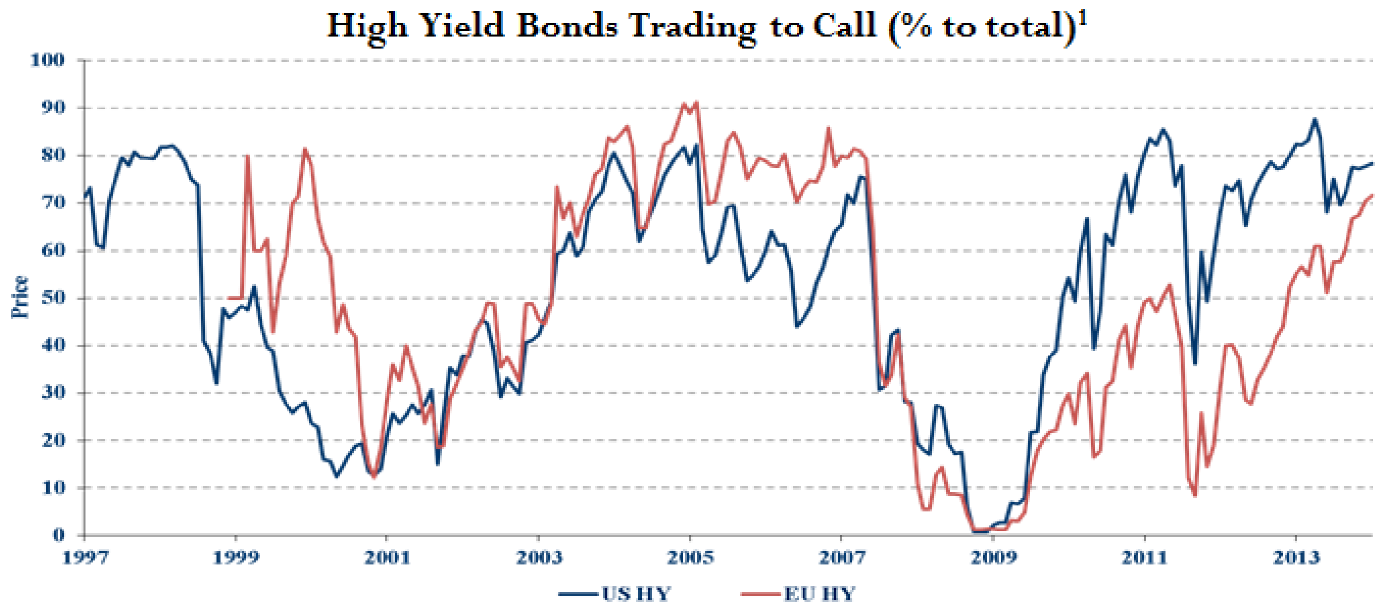


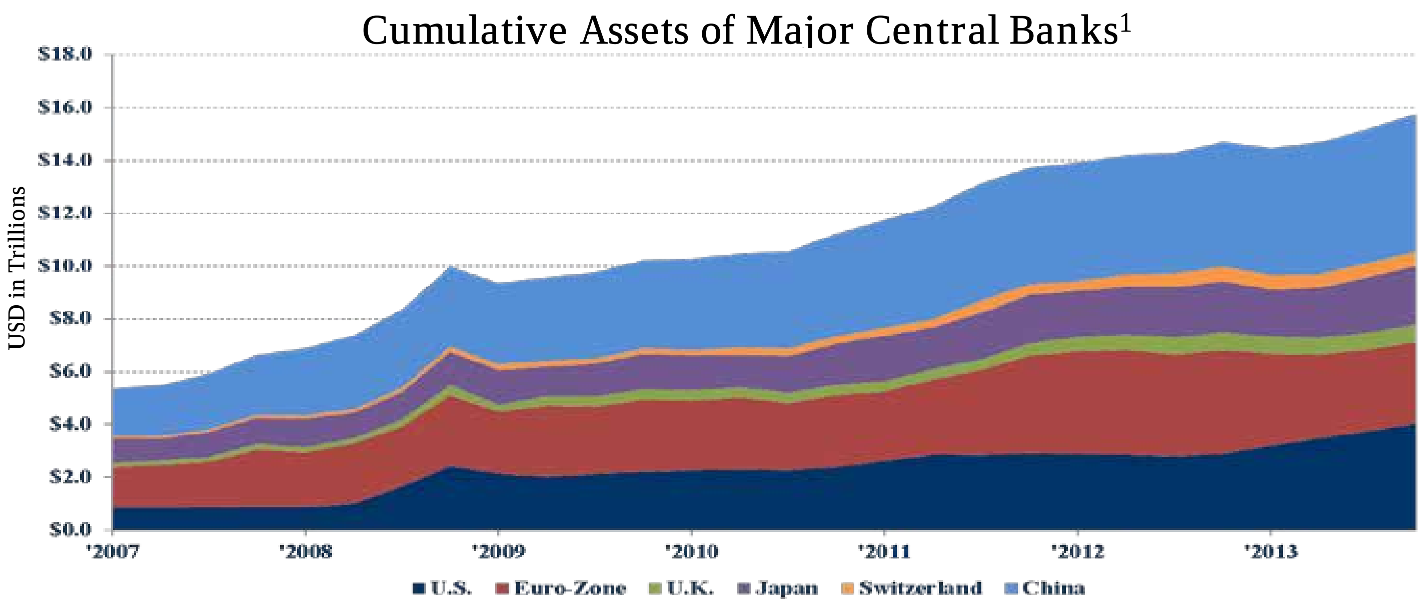
Capital Structure Allocation



* As of 12/31/13

Credit Portfolio Market Environment (1 of 3)



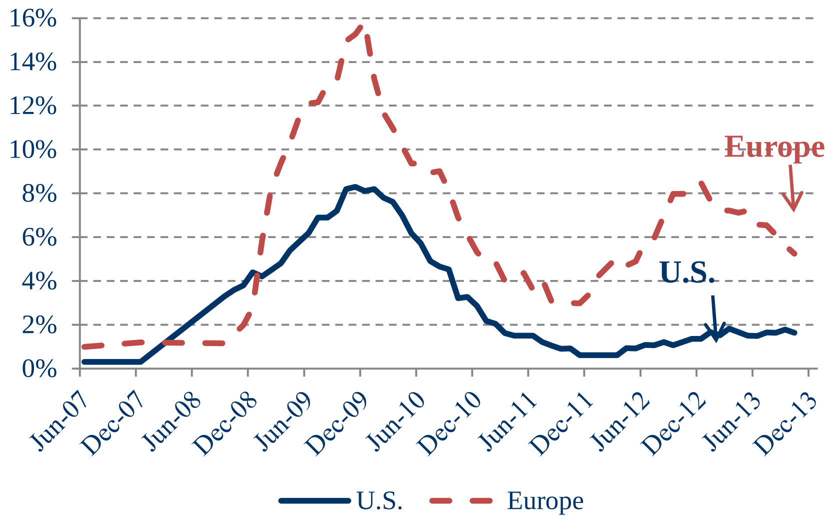


Sources: 1) BAML

Credit Portfolio Market Environment (2 of 3)

- U.S: Default rate remains low (sub 2%) and HY and leverage loan maturity wall has been successfully pushed back
- Europe: Default rate has been stabilizing but maintains 5% level with higher volatility. [redacted]

European vs. U.S. Default Rate[1]



[redacted]

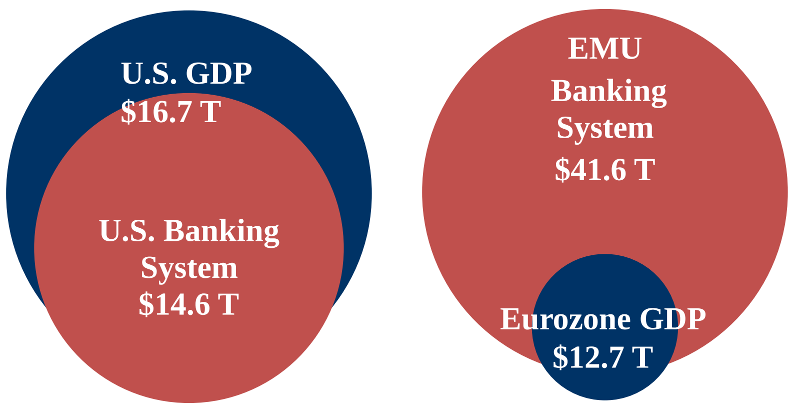
REDACTED: CONTAINS CONFIDENTIAL INFORMATION PROVIDED BY A VENDOR

Sources: 1) S&P and Moody's, [redacted]

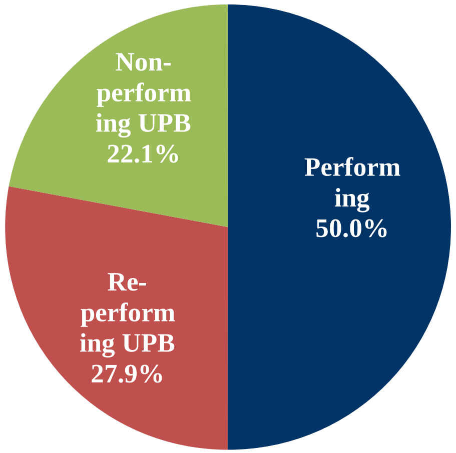
Credit Portfolio Market Environment (3 of 3)

- Europe: European banks remain too large relative to their economies and must recapitalize and sell assets
- Structured Credit: $840 billion Unpaid Principal Balance ("UPB") of underlying loans are outstanding in the Non-Agency Universe

Banking to GDP Ratio[1] (U.S. vs. Europe)



Non-Agency Universe Composition[2]



Sources: 1) FDIC, 2) Loan Performance System as of September 2013

Portfolio Review

- Performed annual portfolio review with consultant (i.e., Albourne)

<u>Findings</u>

- The credit portfolio is well structured and has performed well
  - 3 Year Annualized Statistics: 10.7% Return, 3.9% Volatility, 2.74 Sharpe Ratio
- Forward looking return expectations are lower due to yield compression and low default rate environment
- We should selectively consider the following:
  - Increasing exposure to Multi-Strategy credit managers
  - Increasing exposure to Europe
  - Increasing exposure to Direct Lending
  - Increasing exposure to niche and less liquid opportunities

Credit Portfolio Attributes and 2014 Objectives

Positive Attributes

- Delivering on the portfolio mandate
- Continuing to drive thoughtful LP terms

2014 Objectives

- Continue diversifying the portfolio
- Continue increasing our exposure to Direct Lending
- Explore Europe, Structured Credit, and Opportunistic Allocations
- Explore ways to enhance the structure of our core relationships
- Incorporate the new asset allocation study into the work plan
- Continue with the SAS / risk management implementation

Credit & Inflation Team

Structure & Experience

Ronald Funderburk, CFA
Director
5 years with IMD
8 Years Industry Experience
Harvard, MBA
Previously at Alliance Bernstein, Ernst & Young, Goldman Sachs

Kathy Hahn, CFA
Portfolio Manager
3 years with IMD
9 Years Industry Experience
Wharton, MBA
Previously at Lehman, JP Morgan, PIMCO

Sondra Vitols, CAIA
Portfolio Manager
1 Year with IMD
15 Years Industry Experience
Princeton, Phd. Physics
Previously at DE Shaw, Credit Suisse

Nicholas Sykes
Portfolio Manager
1 Year with IMD
6 Years Industry Experience
Stanford, MBA
Previously at Bridgewater Associates, JP Morgan

NCRS Asset Liability Study and Investment Policy Statement Review

February 19, 2014

Goals for February 2014 IAC Meeting

- Review context and focus of modeling

- Review updated draft Investment Policy Statement
  - Strategic Asset Allocation
  - Risk Management and Controls
  - Performance Benchmarks
  - Other Programmatic Initiatives
  - Portfolio Investment Strategy and Guidelines

- Assess next steps before presenting the Investment Policy Statement to the Treasurer for final approval

Context for Asset Liability Study

- Baseline focus on 10-, 20-, and 30-year economic and financial environment
  - Initially very low interest rates moderately rising over intermediate term
  - Moderately rising inflation
  - Modest public equity market returns by long-term historical standards for intermediate term
  - Some benefits to diversification, but all investments approaches are impacted by low return environment
- Risk Scenarios: Fragility due to continued high reliance on global policy makers in face of unprecedented interventions, cyclical headwinds, and structural imbalances
  - U.S. economy has less momentum than expected; emerging market BOP issues and delayed European normalization; systemic shock
  - Inflation rises more than expected; global growth surprises on upside; supply shocks

“Role in the Portfolio” Perspective

- Rates and Liquidity
  - Treasury bonds, mortgage agency bonds, and investment grade credit
  - Cash/short duration
- Growth
  - Global public equity (long-only and hedged equity)
  - Private equity
  - Public/Private non investment grade credit (distressed, mezzanine, and long/short)
  - Non-core real estate
- Inflation Sensitive and Diversifiers
  - Short duration TIPS and/or global ILB
  - Core real estate (public and private)
  - Public/Private natural resources (commodities, energy, timberland, agriculture, etc.)
- Multi-Strategy

Focus of Buck Policy Modeling

- Status quo
  - Strategic asset allocation policy
  - Actual asset allocation
- Changing the fixed income structure
  - Lowering long duration (~8 years) to holding only 1- to 5-year bonds (~3 years)
  - Quasi-barbell and reallocation between subsectors
- Three different policy formulations for December IAC Meeting
  - Enhanced status quo (more diversified and new fixed income structure)…"Sample B"
  - De-risking (new fixed income structure)…"Sample C"
  - Return-seeking…"Sample D"
- Staff recommended Strategic Asset Allocation for February IAC Meeting
  - "Sample E" blends the desirable characteristics of Sample B and Sample C (Exhibit 1)
  - Supplemental analysis of simplified 65% stocks and 35% bonds policy (Exhibit 2)

Alternative Strategic Asset Allocation

12/31/2013 Data	*Current Strategic*	*12/31/13 Actual*	*New Strategic*
Long-Only Public Equity	40.50%	48.06%	39.00%
Hedged Equity	0.00%	0.17%	3.00%
Private Equity	6.50%	4.17%	6.00%
Non IG Credit	4.50%	4.75%	7.00%
Non Core Real Estate	4.32%	4.58%	3.00%
Government	14.40%	10.60%	7.56%
RMBS	9.00%	8.03%	8.82%
IG Credit	12.60%	11.13%	8.82%
Cash (total fund and tactical in LTIF)	0.00%	1.44%	3.80%
Short-Term TIPS	0.00%	0.00%	2.00%
Publicly Traded Commodities	2.70%	1.71%	1.00%
Private Natural Resources (incl Timber)	1.80%	2.09%	3.00%
Core Real Estate	2.88%	2.35%	4.00%
REITS	0.80%	0.60%	1.00%
Multi-Strategy	0.00%	0.33%	2.00%

Growth Oriented	55.82%	61.73%	58.00%
Rates & Liquidity	36.00%	31.20%	29.00%
Inflation Sensitive and Diversifiers	8.18%	6.75%	11.00%
Multi-Strategy	0.00%	0.33%	2.00%

Source: IMD and Buck Consulting

Performance Metrics Summary

	Current Strategic	12/31/13 Actual	New Strategic
Expected Return - 10 yr	6.0%	6.2%	6.1%
Expected Volatility - 10 yr	10.5%	10.9%	10.3%
Expected Return - 20 yr	7.2%	7.3%	7.3%
Expected Volatility - 20 yr	10.7%	11.1%	10.5%
Expected Return - 30 yr	7.8%	7.8%	7.8%
Expected Volatility - 30 yr	10.8%	11.2%	10.6%
Equity Beta	0.578	0.618	0.577
Inflation Beta	0.194	0.187	0.251
Interest Rate Beta	0.347	0.292	0.267
Average PV of Contributions at time 30	41.2	40.5	41.0
CTE 25th Percentile at time 30	72.4	72.8	72.3
Frequency of Contribution Rate Increase > 3%	0.054	0.056	0.053
Probability Rolling 3 year CAGR < 0.00%	0.110	0.117	0.107
Probability 30 year **CAGR ≥7.25%**	0.594	0.608	0.600
AVA Funded Ratio 50th Percentile at time 30	110.2%	111.1%	110.0%
AVA Funded Ratio 5th Percentile at time 5	72.7%	72.5%	73.2%

Source: IMD and Buck Consulting

New Strategic Asset Allocation in IPS Format

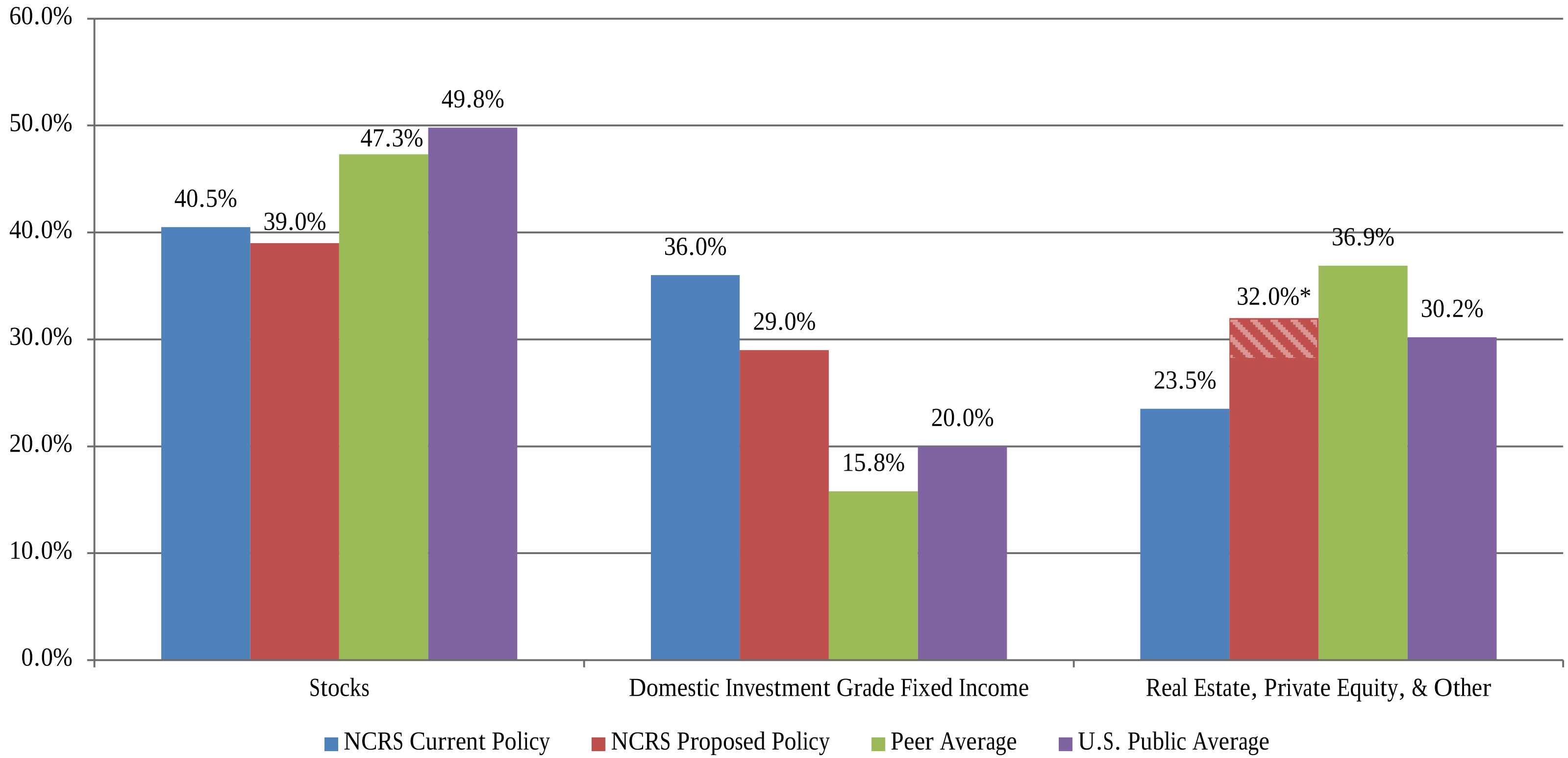
	Minimum	Target	Maximum
Rates and Liquidity	24%	29%	42%
Investment Grade Fixed Income	*24%*	*28%*	*32%*
Cash	*0%*	*1%*	*10%*
Growth	37%	58%	71%
Global Public Equity	*37%*	*42%*	*47%*
Private Equity	*0%*	*6%*	*8.75%*
Non-Core Real Estate	*0%*	*3%*	*8%*
Opportunistic Fixed Income	*0%*	*7%*	*7.5%*
Inflation Sensitive and Diversifiers	4%	11%	16%
Inflation Sensitive	*2%*	*6%*	*7.5%*
Core Real Estate	*2%*	*5%*	*10%*
Multi-Strategy	0%	2%	4%

Comparing New and Current Strategic Asset Allocations

	Current Strategy	New Strategy	Change
Rates and Liquidity	36.0%	29%	-7.0%
Investment Grade Fixed Income	*36.0%*	*28%*	*-8.0%*
Cash	*0%*	*1%*	*+1.0%*
Growth	55.8%	58%	+2.2%
Global Public Equity	*40.5%*	*42%*	*+1.5%*
Private Equity	*6.5%*	*6%*	*-0.5%*
Non-Core Real Estate	*4.3%*	*3%*	*-1.3%*
Opportunistic Fixed Income	*4.5%*	*7%*	*+3.5%*
Inflation Sensitive and Diversifiers	8.2%	11%	+3.8%
Inflation Sensitive	*4.5%*	*6%*	*+2.5%*
Core Real Estate	*3.7%*	*5%*	*+1.3%*
Multi-Strategy	0.0%	2%	+2%

Peer Comparisons

Asset Allocation Policy Comparison (CEM: U.S. Public Funds)
As of 12/31/2012



- 32% number includes 4% in publicly-traded TIPS, REITS, and high yield credit.

CEM Peer Group for NCRS:

- 16 U.S. public sponsors
- Fund sizes range from $38 billion to $249 billion
- Median size of $71 billion

Comparing Actual to New Strategic Asset Allocation

	2/12/14 Actual	New Strategy	Difference
Rates and Liquidity	32.1%	29%	-3.1%
Investment Grade Fixed Income	*31.5%*	*28%*	*-3.5%*
Cash	*0.6%*	*1%*	*0.4%*
Growth	60.5%	58%	-2.5%
Global Public Equity	*46.9%*	*42%*	*-4.9%*
Private Equity	*4.2%*	*6%*	*1.8%*
Non-Core Real Estate	*4.5%*	*3%*	*-1.5%*
Opportunistic Fixed Income	*4.9%*	*7%*	*2.1%*
Inflation Sensitive and Diversifiers	7.0%	11%	4.0%
Inflation Sensitive	*4.0%*	*6%*	*2.0%*
Core Real Estate	*3.0%*	*5%*	*2.0%*
Multi-Strategy	0.3%	2%	1.7%

Qualitative Considerations

- Impact on Fees?
  - Modest in light of potential value-add from expanded strategies
  - Annual fees may increase about 10 basis points due to the allocation away from internal fixed income
  - Commitment to continue to proactively negotiate existing/new relationships

- Impact on Complexity?
  - Limited impact as already invested in most forms of vehicles and strategies
  - Changing how much we are investing in, not taking on new endeavors
  - Commitment to move portions of the investment program to more traditional separate accounts
  - Commitment to utilize customized vehicles with more transparency, investor protections, and alignment

Other Changes to Investment Policy Statement

- Investment Objectives
- Risk Management and Controls
- Performance Benchmarks
- Other Programmatic Initiatives
- Portfolio Strategy and Guidelines

Updated Investment Objectives

- Provide investment returns sufficient for the Fund to make timely payment of statutory benefits to current and future members and keep contribution rates at a reasonable level over the long-term. To achieve this, long-term projected investment returns should be generally consistent with the actuarial assumed rate of return, unless otherwise determined by the Treasurer
- Avoid excessive volatility in contribution rates over the intermediate-term by maintaining a moderate risk profile and diversifying with respect to economic and financial risk factors. It is acceptable to limit the use of return-seeking strategies in order to avoid excessive volatility
- Achieve cost-efficiency in the overall investment program
- Exceed composite benchmark returns for the Fund and broad categories of investments within reasonable risk limits and over market cycles
- Ensure sufficient liquidity to meet the Fund's obligations over all time periods
- Comply with all governing statutes as consistent with fiduciary obligations

Projections with New Strategic Asset Allocation

Projected Ranges of Annualized Compound Passive Investment Returns

Horizon	5th Percentile	25th Percentile	Expected (Average)	75th Percentile	95th Percentile
10 Years	0.0%	3.6%	6.1%	8.3%	11.9%
20 Years	2.6%	5.4%	7.3%	9.1%	11.7%
30 Years	3.8%	6.2%	7.8%	9.3%	11.8%

Source: IMD and Buck Consulting

Risk Management and Controls

- Risk Standards and Metrics
  - Annual volatility of Fund returns of 10%
  - Betas
  - Net of fees risk-adjusted returns
  - Net contributions as a ratio of Fund assets and Level 1 liquidity
  - Fund tracking error or active risk (TBD in Risk Budget Policy)
- Rebalancing + / -2%
- Cost-effectiveness
- Portfolio-level Guidelines
- Compliance

Fund Benchmarks

- Long-Term Policy Benchmark has roughly equivalent projected volatility as the Strategic Asset Allocation
  - 57% MSCI All Country World Investable Market Index, in dollar terms, net of withholding taxes on non-resident institutional investors
  - 33% Bank of America Merrill Lynch 5+ Years U.S. Treasury Index
  - 6% Dow Jones-UBS Commodities Index
  - 4% Bank of America Merrill Lynch 1-3 Years U.S. Inflation-Linked Treasury Index.

- Implementation Benchmark is a weighted performance of the Portfolios' individual benchmarks using the Target Allocations

Rates and Liquidity: Portfolio Benchmarks

- Cash. iMoneyNet First Tier Institutional Money Market Funds Net Index.
- Investment Grade Fixed Income
  - 10% iMoneyNet First Tier Institutional Money Market Funds Net Index
  - 90% custom BOAML Core Investment Grade Index. The custom BOAML core index comprised of the following weightings:
    - 30% BOAML 5+ Years Governments
    - 35% BOAML 5+ Years Investment Grade Corporates
    - 35% BOAML Mortgage Master
    - BOAML signifies: Bank of America Merrill Lynch indices

Growth: Portfolio Benchmarks

- Global Public Equity. A custom index comprised of a dynamically weighted combination of two components including MSCI All Country World Investable Market Index (MSCI ACWI IMI), in dollar terms, net of withholding taxes on non-resident institutional investors and a beta adjusted MSCI ACWI IMI Index. MSCI signifies: Morgan Stanley Capital International
- Private Equity. A custom index, net of all fees and expenses, comprised of the following Cambridge Associates LLC indices: U.S. Private Equity Buyouts and Growth Equity, U.S. Venture Capital, Global (Ex. U.S.) PE and VC, Distressed Securities, Secondaries and Fund-of-Funds
- Non-Core Real Estate. Courtland Non-Core Real Estate Fund index
- Opportunistic Fixed Income. A custom index, net of all fees and expenses, comprised of 50% HFRX Distressed Securities Index, 20% HFRX Relative Value Index, 15% Credit Suisse Leveraged Loan Index, and 15% BOAML High Yield Index

Inflation Sensitive and Diversifiers and Multi-Strategy: Portfolio Benchmarks

- Inflation Sensitive and Diversifiers. A custom index, net of all fees and expenses, consisting of 33.0% Bank of America Merrill Lynch 1-3 Years U.S. Inflation-Linked Treasury Index, 17% Dow Jones-UBS Commodities Index, and 40% of the dynamically weighted combination of Cambridge Energy Private Equity Index and NCREIF Timberland Index
- Core Real Estate. A custom index comprised of 80% weighting of the National Council of Real Estate Investment Fiduciaries Open-End Diversified Core Equity Fund Index ("NCREIF ODCE Index"), net of all fees and expenses, and 20% weighting of the Financial Times and London Stock Exchange ("FTSE") European Public Real Estate Association ("EPRA") and the National Association of Real Estate Investment Trusts ("NAREIT") Global Index ("FTSA/EPRA/NAREIT Global Index")
- Multi-Strategy. A custom index comprised of a dynamically weighted combination of the HFRX Multi-Strategy Hedge Fund Index, net of fees, and the market value weighted benchmarks for any other total fund strategies within the Portfolio

Other Programmatic Initiatives

- Small and Emerging Managers (SEMS)
  - Endeavor to invest with SEMS for actively managed mandates in each Portfolio so long as all fiduciary requirements are met
  - Aggregate Fund assets invested with SEMS will vary over time, but will be monitored against a $1.5 billion standard for actively managed investment strategies
- Corporate Governance
  - Financial regulatory reform
  - Sustainability
  - Company engagement
  - Board Diversity
- Innovation Fund

Portfolio Strategy and Guidelines

- Global Public Equity
- Non-Core Real Estate
- Opportunistic Fixed Income
- Inflation Sensitive
- Core Real Estate
- Multi-Strategy

Next Steps

- Take additional input on IPS during February and/or March
- Finalize IPS for March or April implementation date, unless IAC would like to review again in May
- Finalize statutory compliance matrix at the individual investment level to reflect new classifications
- Finalize work plans for Real Estate, Private Equity, Opportunistic Fixed Income, and Inflation Sensitive
- Formulate transition plans
- Finalize changes to performance measurement hierarchy

Appendix: Peer Comparisons

Ten Largest U.S. Pension Plan Asset Allocation Policy Comparison

Plan	Assets (MM)*	Public Equities	Fixed Income	Real Estate, Private Equity, & Other	Assumed Rate of Return	Funded Status
CalPERS	$243,227	49.0%	20.0%	31.0%	7.50%	73.6%
CalSTRS	$155,360	51.0%	17.0%	32.0%	7.50%	69.0%
NY State Common	$150,110	43.0%	22.0%	35.0%	7.50%	90.2%
Florida SBA	$126,890	52.0%	25.0%	23.0%	7.75%	86.9%
NYC RS	$122,071	49.5%	24.0%	26.5%	7.00%	64.2%
Teacher RS of Texas	$112,443	45.0%	14.0%	41.0%	8.00%	82.7%
General Motors	$101,913	27.4%	45.8%	26.8%	6.20%	82.9%
NY State Teachers' RS	$88,561	55.0%	28.0%	17.0%	8.00%	96.7%
State of WI Inv. Board	$83,410	49.0%	26.0%	25.0%	7.20%	99.9%
Ohio Public ERS	$78,968	42.5%	23.5%	34.0%	8.00%	77.4%
NCRS (TSERS)	$77,130	40.5%	36.0%	23.5%	7.25%	94.2%

*Listed in order of largest pension plans in the U.S. as reported by P&I Research Center as of 9/30/2012
Fixed Income allocations for some funds include non U.S. and non investment grade bonds

North Carolina Department of State Treasurer

Investment Management Division

Investment Strategy Discussion

Investment Advisory Committee Meeting

Revised Actual, New Strategic, 65/35 Portfolio w/ Graphs & Summary

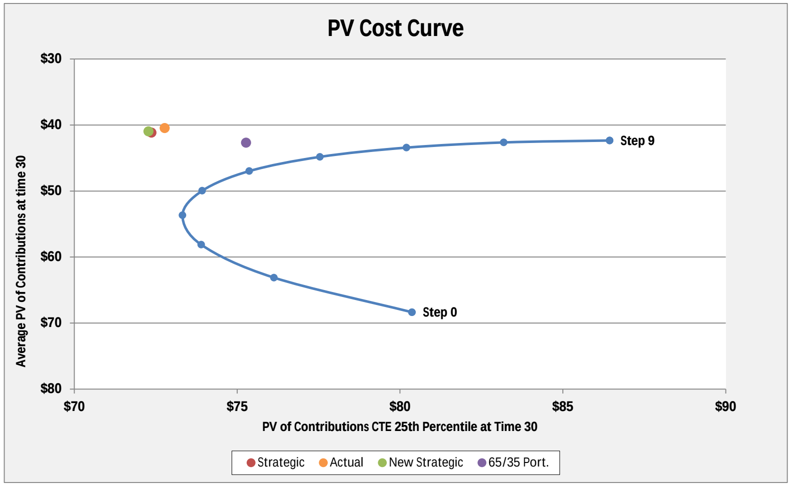
February 10, 2014

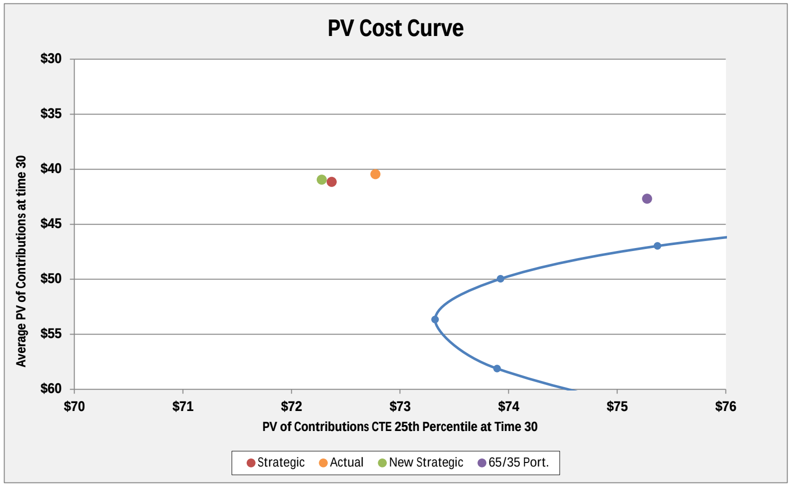
Alternative Strategies – TSERS

12/31/2013 Data	*Strategic*	*Actual*	*New Strategic*	*65%/35% Portfolio**
Long-Only Public Equity	40.50%	48.06%	39.00%	65.00%
Hedged Equity	0.00%	0.17%	3.00%	0.00%
Private Equity	6.50%	4.17%	6.00%	0.00%
Non IG Credit	4.50%	4.75%	7.00%	0.00%
Non Core Real Estate	4.32%	4.58%	3.00%	0.00%
Government	14.40%	10.60%	7.56%	11.77%
RMBS	9.00%	8.03%	8.82%	9.21%
IG Credit	12.60%	11.13%	8.82%	12.61%
Cash (total fund and tactical in LTIF)	0.00%	1.44%	3.80%	1.41%
Short-Term TIPS	0.00%	0.00%	2.00%	0.00%
Publicly Traded Commodities	2.70%	1.71%	1.00%	0.00%
Private Natural Resources (incl Timber)	1.80%	2.09%	3.00%	0.00%
Core Real Estate	2.88%	2.35%	4.00%	0.00%
REITS	0.80%	0.60%	1.00%	0.00%
Multi-Strategy	0.00%	0.33%	2.00%	0.00%
Growth Oriented	55.82%	61.73%	58.00%	65.00%
Rates & Liquidity	36.00%	31.20%	29.00%	35.00%
Inflation Sensitive and Diversifiers	8.18%	6.75%	11.00%	0.00%
Multi-Strategy	0.00%	0.33%	2.00%	0.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**

* Invested in short duration fixed income

Cost Curve – TSERS





	CTE 25th Percentile at time 30 ($Billions)	Average at time 30 ($Billions)
Strategic	72.4	41.2
Actual	72.8	40.5
New Strategic	72.3	41.0
65%/35% Portfolio	75.3	42.7

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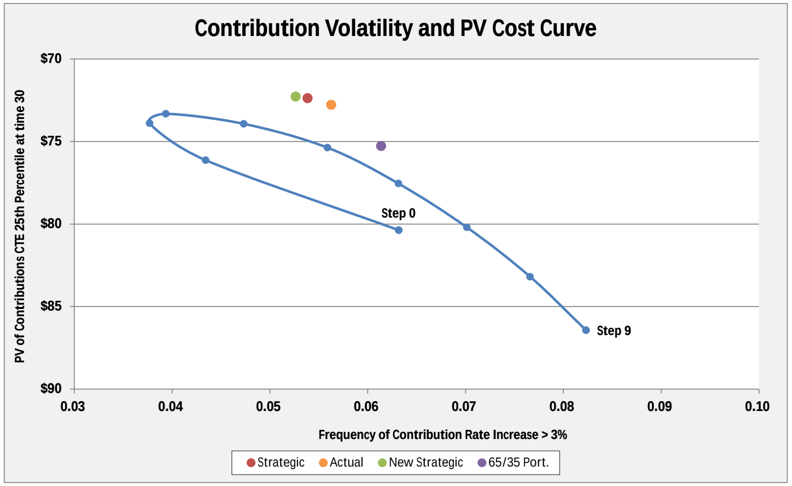
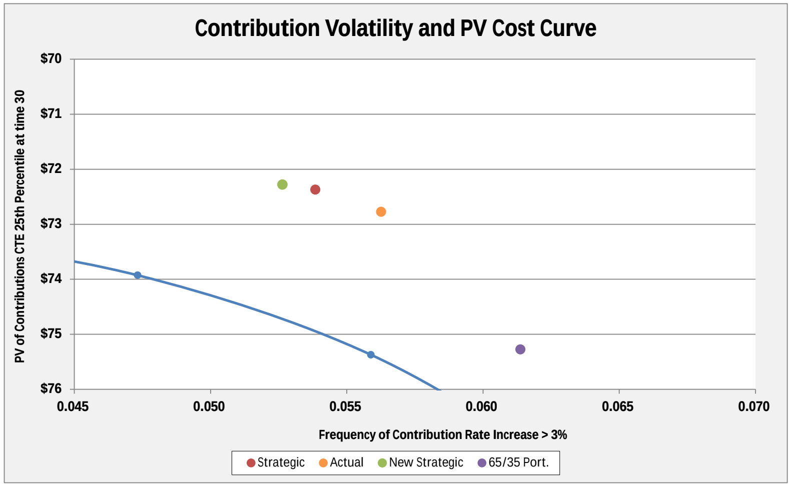
Cost Curve – TSERS





	Frequency of Contribution Rate Increase > 3%	CTE 25th Percentile at time 30 ($Billions)
Strategic	0.054	72.4
Actual	0.056	72.8
New Strategic	0.053	72.3
65%/35% Portfolio	0.061	75.3

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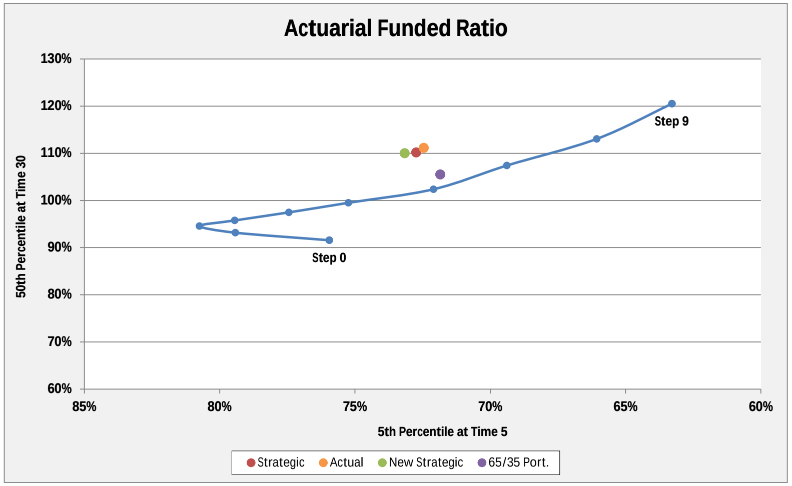
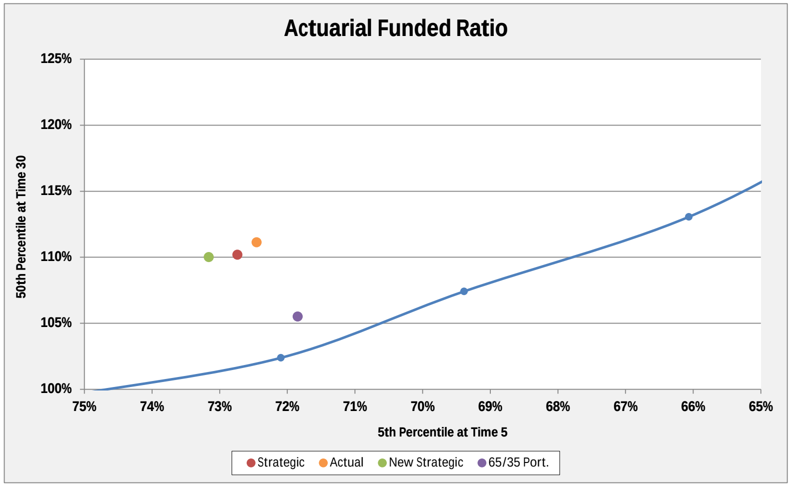
AVA Funded Ratio Curve – TSERS

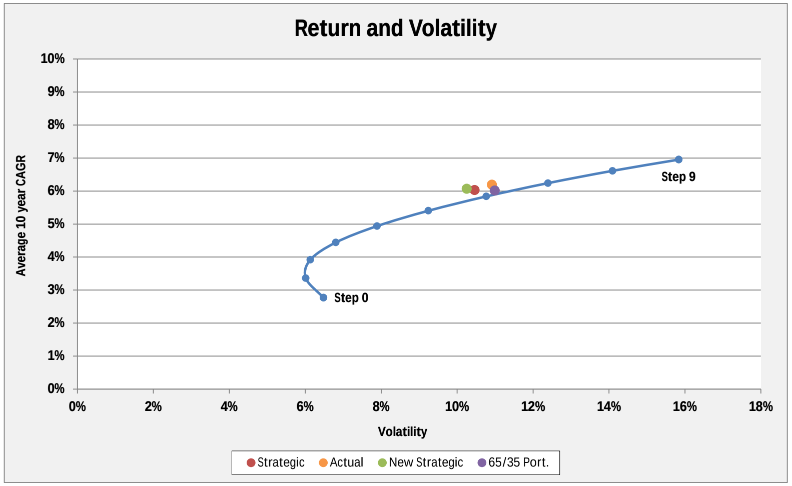


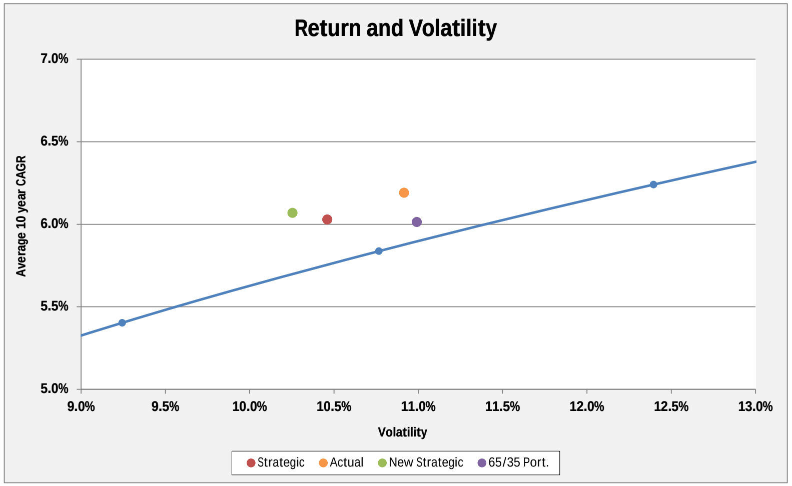


	5th Percentile at time 5	50th Percentile at time 30
Strategic	72.7%	110.2%
Actual	72.5%	111.1%
New Strategic	73.2%	110.0%
65%/35% Portfolio	71.8%	105.5%

Return and Volatility Curve – TSERS

10 Year Horizon

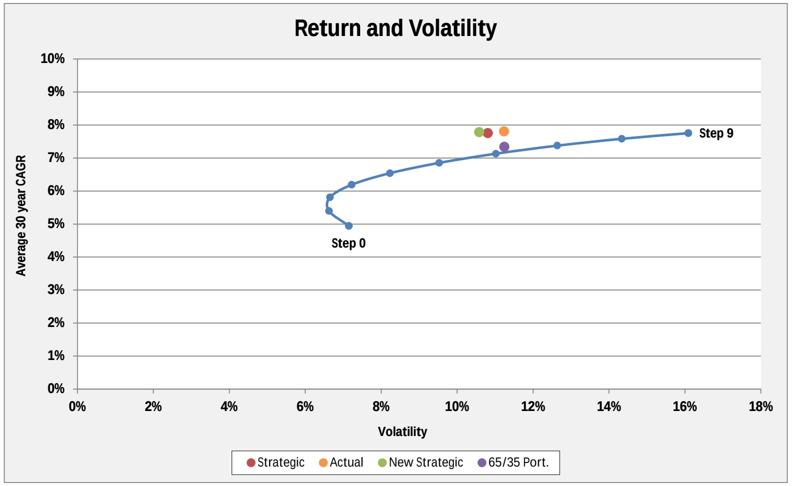


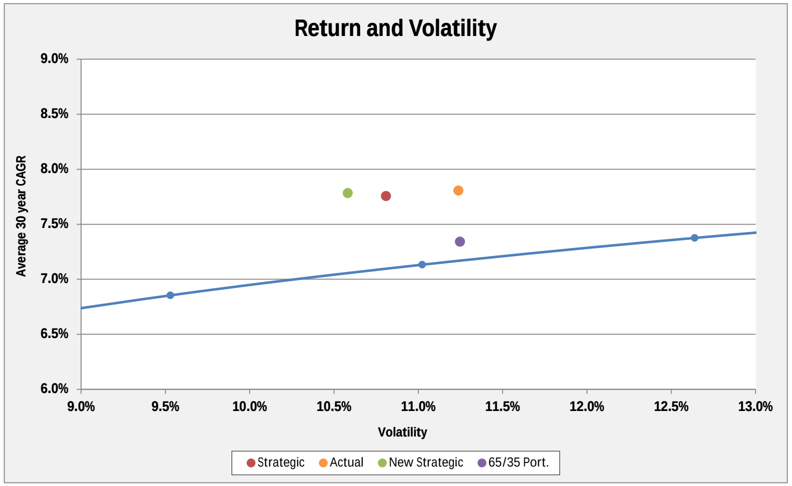


	Average 10 year CAGR	Volatility
Strategic	6.0%	10.5%
Actual	6.2%	10.9%
New Strategic	6.1%	10.3%
65%/35% Portfolio	6.0%	11.0%

Return and Volatility Curve – TSERS

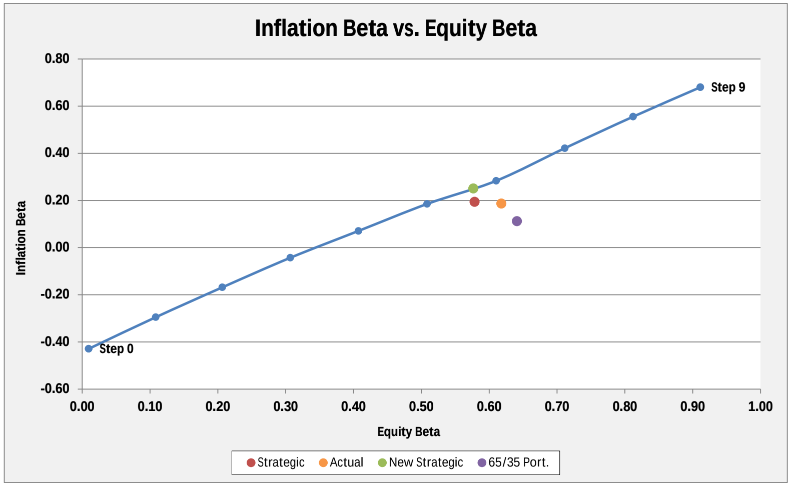
30 Year Horizon

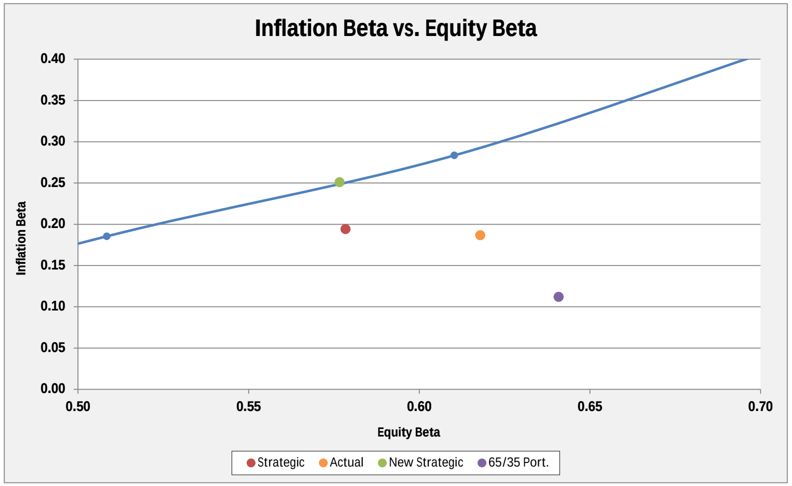




	Average 30 year CAGR	Volatility
Strategic	7.8%	10.8%
Actual	7.8%	11.2%
New Strategic	7.8%	10.6%
65%/35% Portfolio	7.3%	11.2%

Inflation and Equity Beta Curve – TSERS





	Equity Beta	Inflation Beta
Strategic	0.578	0.194
Actual	0.618	0.187
New Strategic	0.577	0.251
65%/35% Portfolio	0.641	0.112

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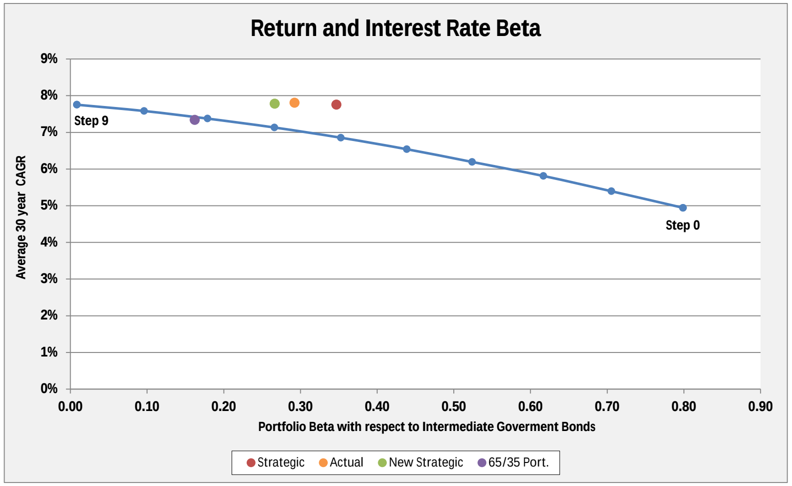
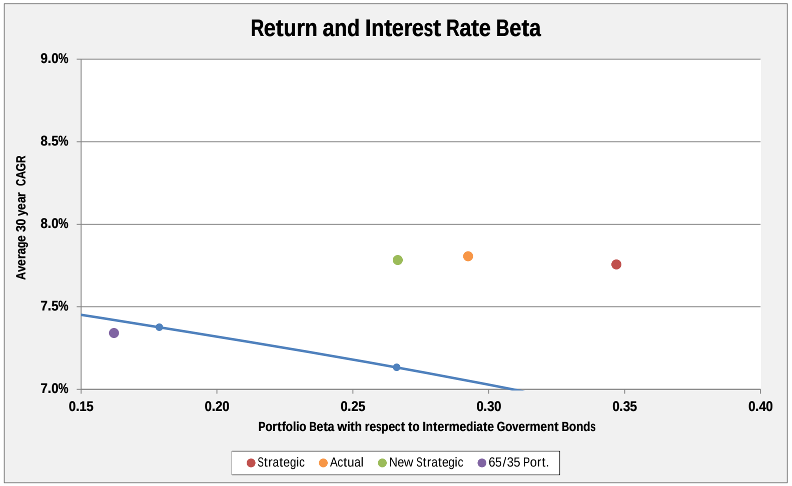
Return and Interest Rate Beta Curve – TSERS





	Portfolio Beta with respect to Inter. Gvt Bonds	Average 30 year CAGR
Strategic	0.347	7.8%
Actual	0.292	7.8%
New Strategic	0.267	7.8%
65%/35% Portfolio	0.162	7.3%

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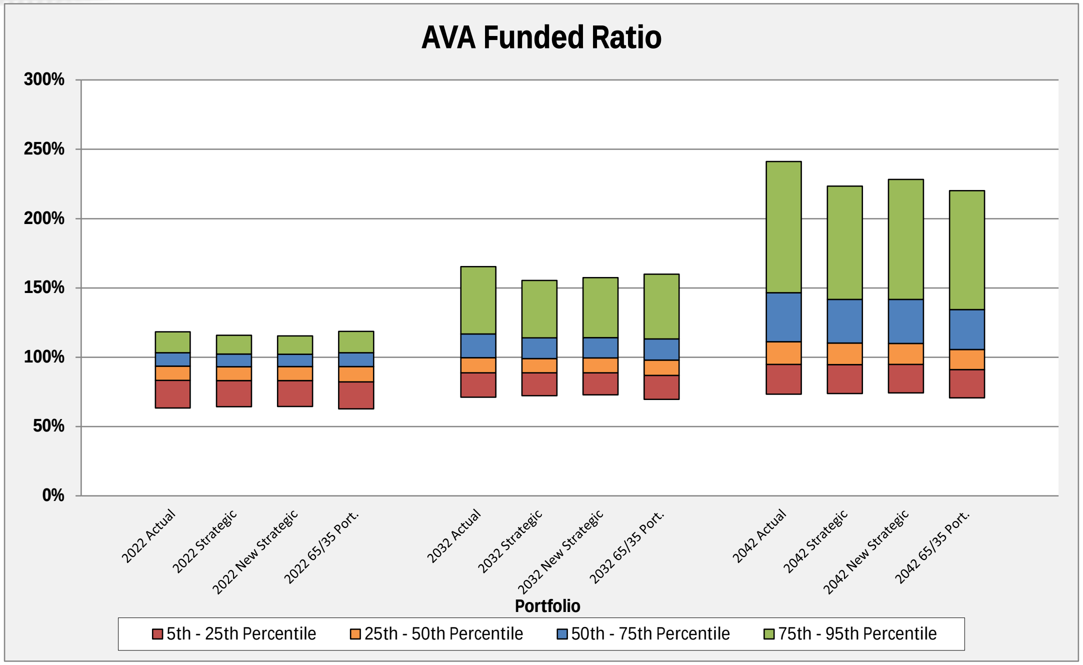
AVA Funded Ratio – TSERS

AVA Funded Ratio as of 12/31/2012 was 94.2%



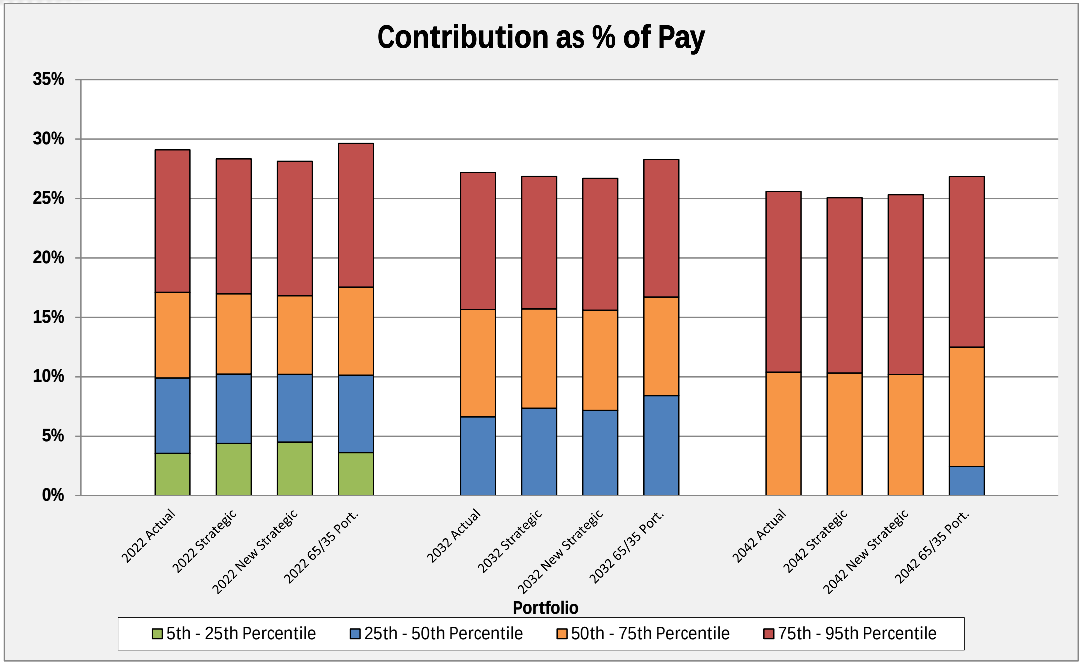
AVA Funded Ratio

	2022				2032			
	Actual	Strategic	New Strategic	65%/35% Port.	Actual	Strategic	New Strategic	65%/35% Port.
95th percentile	118.4%	115.8%	115.4%	118.6%	165.4%	155.3%	157.4%	160.0%
75th percentile	103.3%	102.3%	102.1%	103.3%	116.8%	114.0%	114.2%	113.3%
50th percentile	93.6%	93.1%	93.3%	93.3%	99.7%	99.1%	99.4%	98.0%
25th percentile	83.2%	83.2%	83.2%	82.3%	88.8%	88.8%	88.8%	86.8%
5th percentile	63.4%	64.4%	64.5%	62.8%	71.1%	72.3%	72.9%	69.6%

	2042			
	Actual	Strategic	New Strategic	65%/35% Port.
95th percentile	241.2%	223.5%	228.2%	220.2%
75th percentile	146.6%	141.7%	141.8%	134.4%
50th percentile	111.1%	110.2%	110.0%	105.5%
25th percentile	94.8%	94.7%	94.8%	91.2%
5th percentile	73.3%	73.8%	74.4%	70.7%

Contributions as % of Pay – TSERS

Contribution as % of Pay determined as of 12/31/2012 was 8.76%

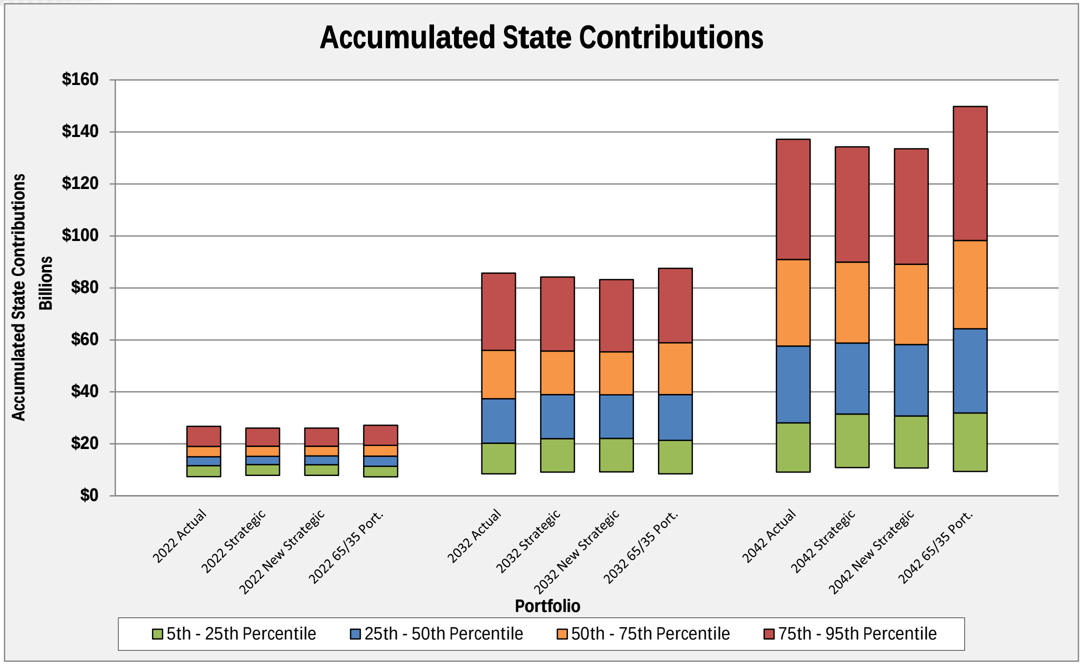


Contributions as a % of Pay

	2022				2032			
	Actual	Strategic	New Strategic	65%/35% Port.	Actual	Strategic	New Strategic	65%/35% Port.
95th percentile	29.1%	28.3%	28.1%	29.6%	27.2%	26.9%	26.7%	28.3%
75th percentile	17.1%	17.0%	16.8%	17.5%	15.7%	15.7%	15.6%	16.7%
50th percentile	9.9%	10.2%	10.2%	10.1%	6.6%	7.4%	7.2%	8.4%
25th percentile	3.6%	4.4%	4.5%	3.6%	0.0%	0.0%	0.0%	0.0%
5th percentile	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

	2042			
	Actual	Strategic	New Strategic	65%/35% Port.
95th percentile	25.6%	25.1%	25.3%	26.8%
75th percentile	10.4%	10.3%	10.2%	12.5%
50th percentile	0.0%	0.0%	0.0%	2.4%
25th percentile	0.0%	0.0%	0.0%	0.0%
5th percentile	0.0%	0.0%	0.0%	0.0%

Accumulated State Contributions – TSERS

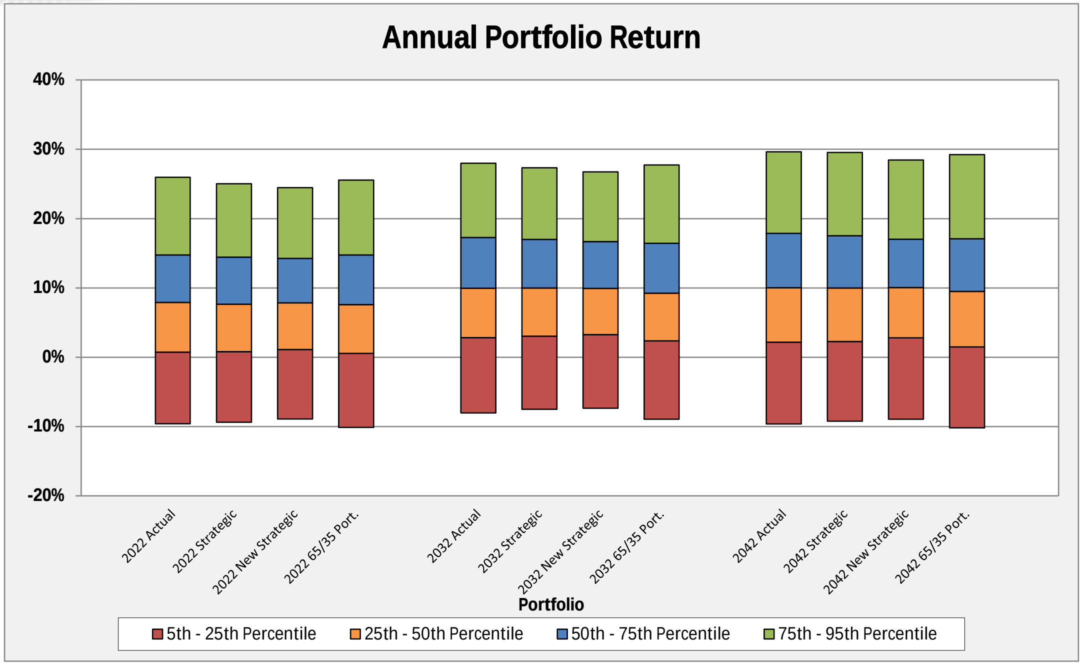


Accumulated State Contributions

	2022				2032			
	Actual	Strategic	New Strategic	65%/35% Port.	Actual	Strategic	New Strategic	65%/35% Port.
95th percentile	26.7	26.1	26.1	27.2	85.7	84.2	83.2	87.5
75th percentile	19.0	19.1	19.1	19.5	55.9	55.8	55.4	58.9
50th percentile	15.0	15.2	15.4	15.3	37.4	39.0	38.9	39.0
25th percentile	11.6	12.1	11.9	11.4	20.3	22.0	22.1	21.4
5th percentile	7.4	7.9	7.9	7.3	8.5	9.1	9.2	8.5

	2042			
	Actual	Strategic	New Strategic	65%/35% Port.
95th percentile	137.2	134.3	133.5	149.8
75th percentile	90.9	90.0	89.1	98.3
50th percentile	57.6	58.8	58.2	64.3
25th percentile	28.1	31.5	30.8	31.9
5th percentile	9.1	10.9	10.7	9.4

Annual Portfolio Return – TSERS

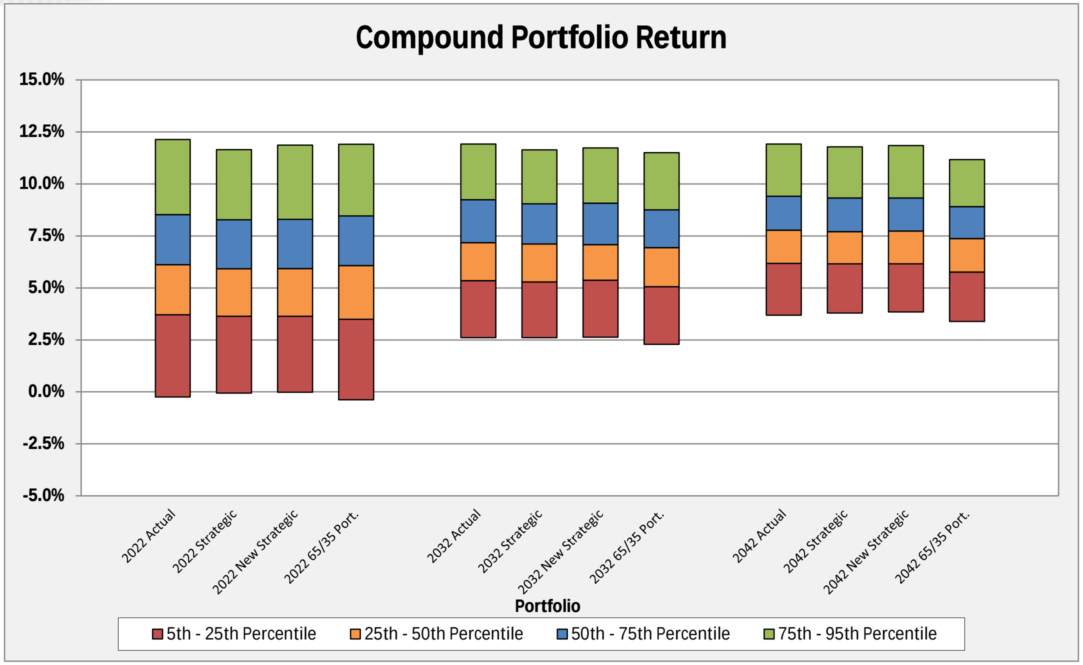


Annual Portfolio Return

	2022				2032			
	Actual	Strategic	New Strategic	65%/35% Port.	Actual	Strategic	New Strategic	65%/35% Port.
95th percentile	26.0%	25.0%	24.5%	25.6%	28.0%	27.3%	26.7%	27.7%
75th percentile	14.8%	14.4%	14.3%	14.7%	17.3%	17.0%	16.7%	16.4%
50th percentile	7.9%	7.7%	7.8%	7.6%	10.0%	10.0%	9.9%	9.2%
25th percentile	0.8%	0.8%	1.1%	0.5%	2.8%	3.1%	3.3%	2.3%
5th percentile	-9.6%	-9.4%	-8.9%	-10.1%	-8.0%	-7.5%	-7.4%	-9.0%

	2042			
	Actual	Strategic	New Strategic	65%/35% Port.
95th percentile	29.6%	29.5%	28.4%	29.2%
75th percentile	17.9%	17.5%	17.0%	17.1%
50th percentile	10.0%	10.0%	10.1%	9.5%
25th percentile	2.2%	2.3%	2.8%	1.5%
5th percentile	-9.6%	-9.2%	-8.9%	-10.2%

Compound Portfolio Return – TSERS



Compound Portfolio Return

	2022				2032			
	Actual	Strategic	New Strategic	65%/35% Port.	Actual	Strategic	New Strategic	65%/35% Port.
95th percentile	12.1%	11.7%	11.9%	11.9%	11.9%	11.6%	11.7%	11.5%
75th percentile	8.5%	8.3%	8.3%	8.5%	9.2%	9.0%	9.1%	8.8%
50th percentile	6.1%	5.9%	5.9%	6.1%	7.2%	7.1%	7.1%	6.9%
25th percentile	3.7%	3.6%	3.6%	3.5%	5.4%	5.3%	5.4%	5.1%
5th percentile	-0.2%	-0.1%	0.0%	-0.4%	2.6%	2.6%	2.6%	2.3%

	2042			
	Actual	Strategic	New Strategic	65%/35% Port.
95th percentile	11.9%	11.8%	11.8%	11.2%
75th percentile	9.4%	9.3%	9.3%	8.9%
50th percentile	7.8%	7.7%	7.7%	7.4%
25th percentile	6.2%	6.2%	6.2%	5.8%
5th percentile	3.7%	3.8%	3.8%	3.4%

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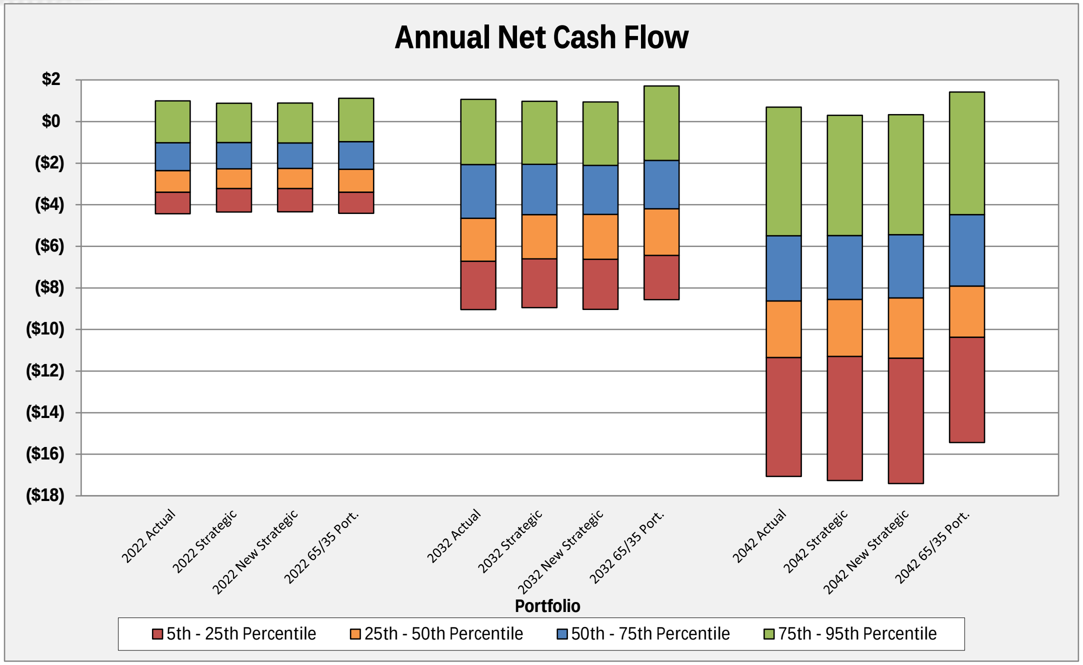
Annual Net Cash Flow ($) – TSERS

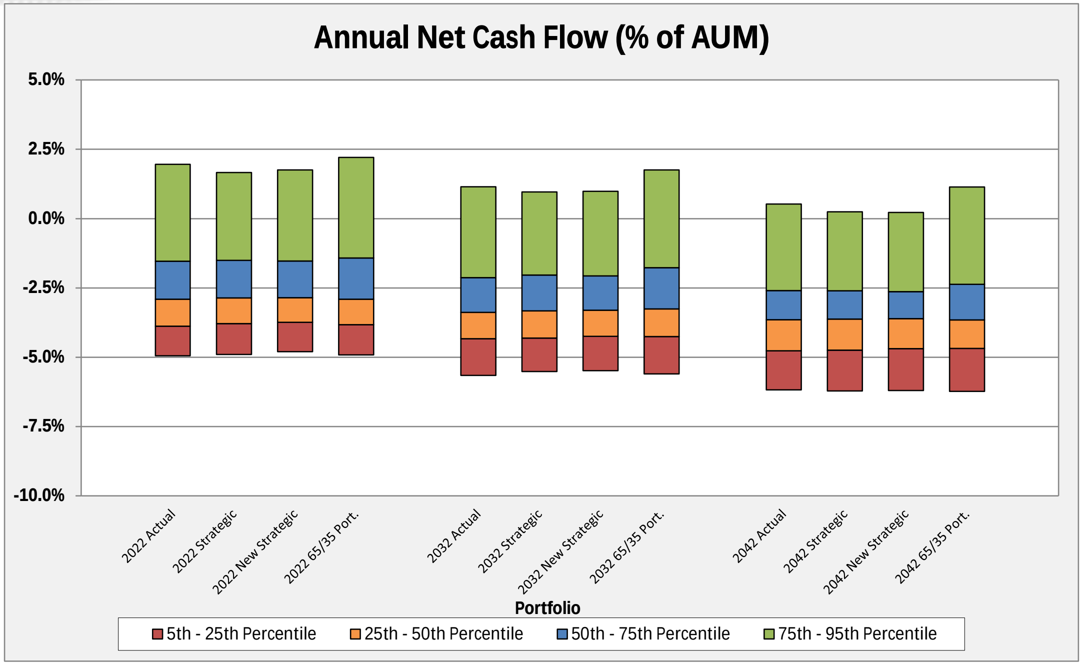


Annual Net Cash Flow

	2022				2032			
	Actual	Strategic	New Strategic	65%/35% Port.	Actual	Strategic	New Strategic	65%/35% Port.
95th percentile	1.0	0.9	0.9	1.1	1.1	1.0	0.9	1.7
75th percentile	(1.0)	(1.0)	(1.0)	(1.0)	(2.1)	(2.1)	(2.1)	(1.9)
50th percentile	(2.4)	(2.3)	(2.3)	(2.3)	(4.7)	(4.5)	(4.5)	(4.2)
25th percentile	(3.4)	(3.2)	(3.2)	(3.4)	(6.7)	(6.6)	(6.6)	(6.4)
5th percentile	(4.4)	(4.3)	(4.3)	(4.4)	(9.0)	(9.0)	(9.0)	(8.6)

	2042			
	Actual	Strategic	New Strategic	65%/35% Port.
95th percentile	0.7	0.3	0.3	1.4
75th percentile	(5.5)	(5.5)	(5.4)	(4.5)
50th percentile	(8.6)	(8.6)	(8.5)	(7.9)
25th percentile	(11.3)	(11.3)	(11.4)	(10.4)
5th percentile	(17.1)	(17.3)	(17.4)	(15.4)

Annual Net Cash Flow (% of AUM) – TSERS



Annual Net Cash Flow (% of AUM)

	2022				2032			
	Actual	Strategic	New Strategic	65%/35% Port.	Actual	Strategic	New Strategic	65%/35% Port.
95th percentile	2.0%	1.7%	1.8%	2.2%	1.1%	1.0%	1.0%	1.8%
75th percentile	-1.5%	-1.5%	-1.5%	-1.4%	-2.1%	-2.0%	-2.1%	-1.8%
50th percentile	-2.9%	-2.9%	-2.9%	-2.9%	-3.4%	-3.3%	-3.3%	-3.3%
25th percentile	-3.9%	-3.8%	-3.7%	-3.8%	-4.3%	-4.3%	-4.2%	-4.3%
5th percentile	-4.9%	-4.9%	-4.8%	-4.9%	-5.7%	-5.5%	-5.5%	-5.6%

	2042			
	Actual	Strategic	New Strategic	65%/35% Port.
95th percentile	0.5%	0.2%	0.2%	1.1%
75th percentile	-2.6%	-2.6%	-2.6%	-2.4%
50th percentile	-3.6%	-3.6%	-3.6%	-3.7%
25th percentile	-4.8%	-4.7%	-4.7%	-4.7%
5th percentile	-6.2%	-6.2%	-6.2%	-6.2%

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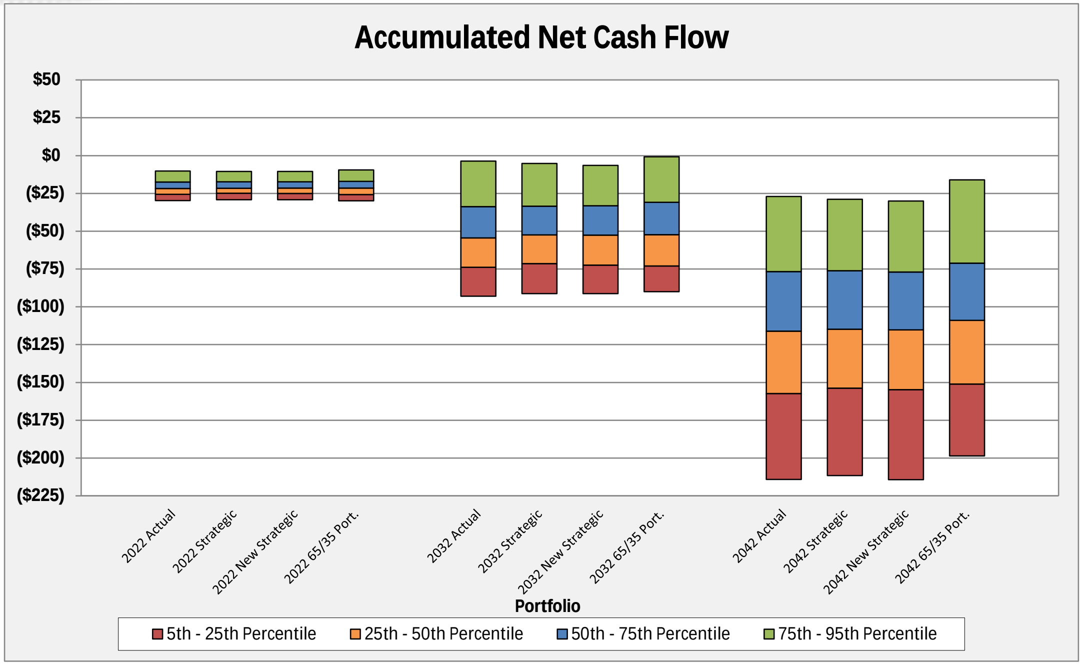
Accumulated Net Cash Flow – TSERS



Accumulated Net Cash Flow

	2022				2032			
	Actual	Strategic	New Strategic	65%/35% Port.	Actual	Strategic	New Strategic	65%/35% Port.
95th percentile	(10.1)	(10.4)	(10.5)	(9.6)	(3.6)	(5.2)	(6.4)	(0.7)
75th percentile	(17.5)	(17.3)	(17.4)	(17.0)	(33.7)	(33.5)	(33.2)	(30.9)
50th percentile	(21.8)	(21.6)	(21.5)	(21.5)	(54.4)	(52.4)	(52.6)	(52.3)
25th percentile	(25.5)	(24.9)	(25.0)	(25.7)	(73.9)	(71.4)	(72.4)	(73.0)
5th percentile	(29.7)	(29.2)	(29.2)	(29.9)	(92.9)	(91.3)	(91.2)	(89.9)

	2042			
	Actual	Strategic	New Strategic	65%/35% Port.
95th percentile	(27.1)	(28.8)	(30.1)	(16.0)
75th percentile	(76.7)	(76.1)	(77.0)	(71.2)
50th percentile	(116.1)	(114.7)	(115.2)	(109.0)
25th percentile	(157.4)	(153.8)	(154.7)	(151.1)
5th percentile	(214.2)	(211.6)	(214.2)	(198.6)

Performance Metrics Summary

	Strategic	Actual	New Strategic	65%/35% Portfolio
Expected Return - 10 yr	6.0%	6.2%	6.1%	6.0%
Expected Volatility - 10 yr	10.5%	10.9%	10.3%	11.0%
Expected Return - 20 yr	7.2%	7.3%	7.3%	7.0%
Expected Volatility - 20 yr	10.7%	11.1%	10.5%	11.2%
Expected Return - 30 yr	7.8%	7.8%	7.8%	7.3%
Expected Volatility - 30 yr	10.8%	11.2%	10.6%	11.2%
Equity Beta	0.578	0.618	0.577	0.641
Inflation Beta	0.194	0.187	0.251	0.112
Interest Rate Beta	0.347	0.292	0.267	0.162
Average PV of Contributions at time 30	41.2	40.5	41.0	42.7
CTE 25th Percentile at time 30	72.4	72.8	72.3	75.3
Frequency of Contribution Rate Increase > 3%	0.054	0.056	0.053	0.061
Probability Rolling 3 year CAGR < 0.00%	0.110	0.117	0.107	0.126
Probability 30 year CAGR ≥7.25%	0.594	0.608	0.600	0.533
AVA Funded Ratio 50th Percentile at time 30	110.2%	111.1%	110.0%	105.5%
AVA Funded Ratio 5th Percentile at time 5	72.7%	72.5%	73.2%	71.8%

North Carolina Department of State Treasurer
Investment Management Division

Investment Strategy Discussion

Investment Advisory Committee Meeting

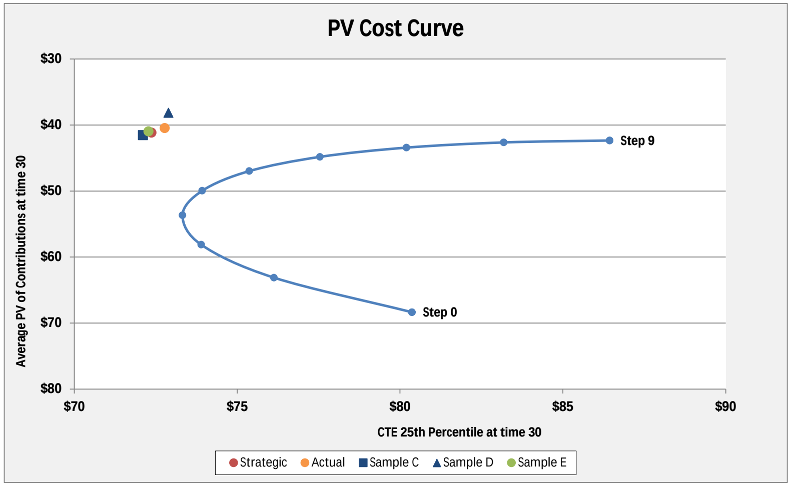
Revised Actual and Sample E with Graphs and Summary

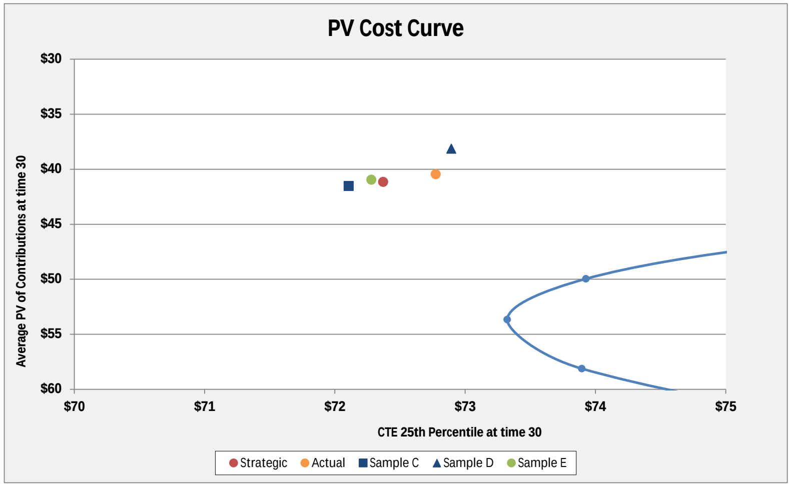
January 29, 2014

Alternative Strategies – TSERS

12/31/2013 Data	*Strategic*	*Actual*	*Sample C*	*Sample D*	*Sample E*
Long-Only Public Equity	40.50%	48.06%	35.00%	50.00%	39.00%
Hedged Equity	0.00%	0.17%	4.00%	2.00%	3.00%
Private Equity	6.50%	4.17%	6.00%	6.50%	6.00%
Non IG Credit	4.50%	4.75%	7.00%	7.00%	7.00%
Non Core Real Estate	4.32%	4.58%	4.86%	3.50%	3.00%
Government	14.40%	10.60%	7.83%	8.00%	7.56%
RMBS	9.00%	8.03%	9.14%	5.00%	8.82%
IG Credit	12.60%	11.13%	9.14%	7.00%	8.82%
Cash (total fund and tactical in LTIF)	0.00%	1.44%	3.90%	0.50%	3.80%
Short-Term TIPS	0.00%	0.00%	3.00%	0.00%	2.00%
Publicly Traded Commodities	2.70%	1.71%	1.00%	0.50%	1.00%
Private Natural Resources (incl Timber)	1.80%	2.09%	2.50%	5.00%	3.00%
Core Real Estate	2.88%	2.35%	3.24%	3.50%	4.00%
REITS	0.80%	0.60%	0.90%	0.00%	1.00%
Multi-Strategy	0.00%	0.33%	2.50%	1.50%	2.00%
Growth Oriented	55.82%	61.73%	56.86%	69.00%	58.00%
Rates & Liquidity	36.00%	31.20%	30.00%	20.50%	29.00%
Inflation Sensitive and Diversifiers	8.18%	6.75%	10.64%	9.00%	11.00%
Multi-Strategy	0.00%	0.33%	2.50%	1.50%	2.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Cost Curve – TSERS





	CTE 25th Percentile at time 30 ($Billions)	Average at time 30 ($Billions)
Strategic	72.4	41.2
Actual	72.8	40.5
Sample C	72.1	41.5
Sample D	72.9	38.1
Sample E	72.3	41.0

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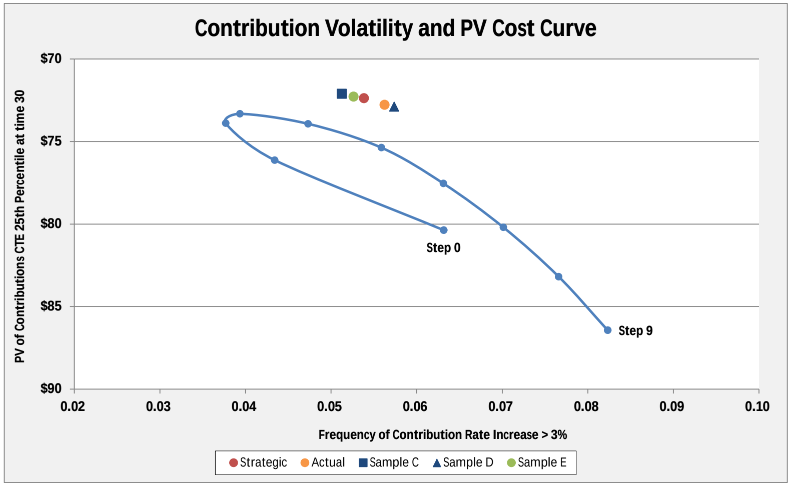
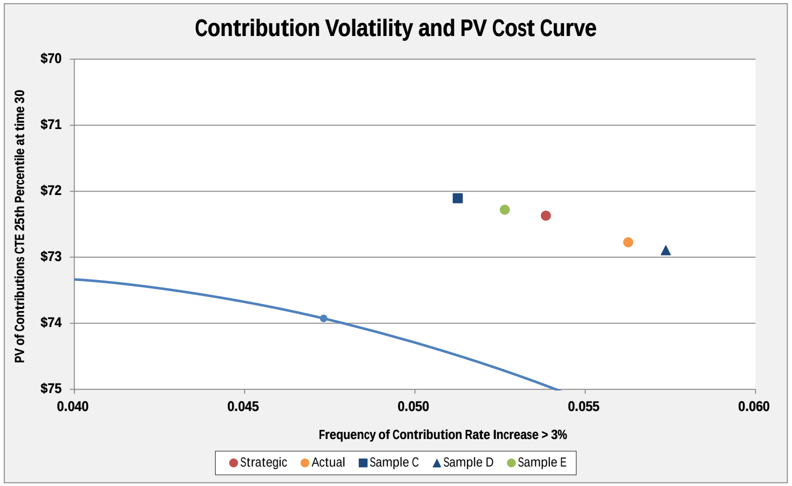
Cost Curve – TSERS





	Frequency of Contribution Rate Increase > 3%	CTE 25th Percentile at time 30 ($Billions)
Strategic	0.054	72.4
Actual	0.056	72.8
Sample C	0.051	72.1
Sample D	0.057	72.9
Sample E	0.053	72.3

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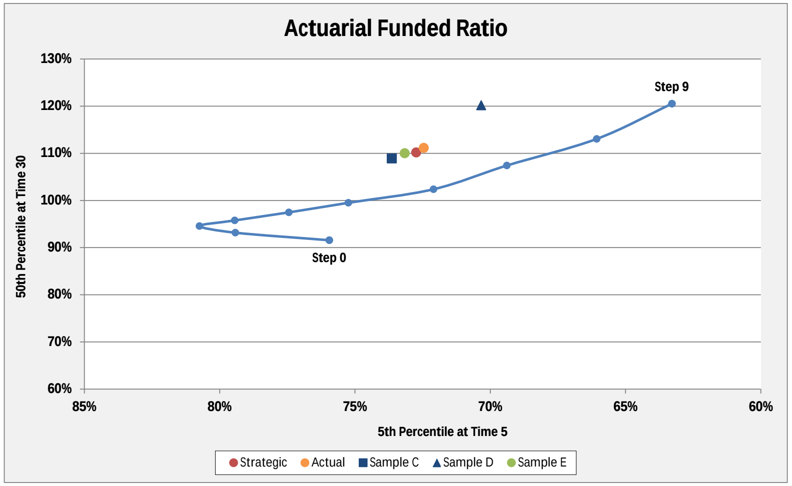
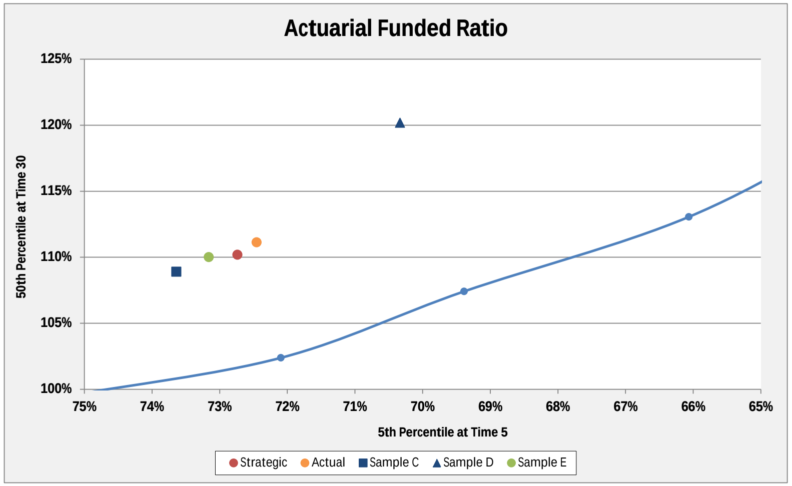
AVA Funded Ratio Curve – TSERS

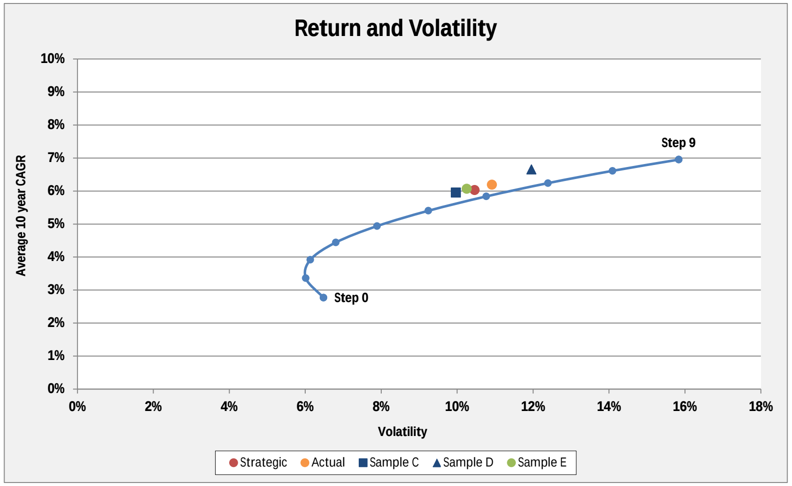


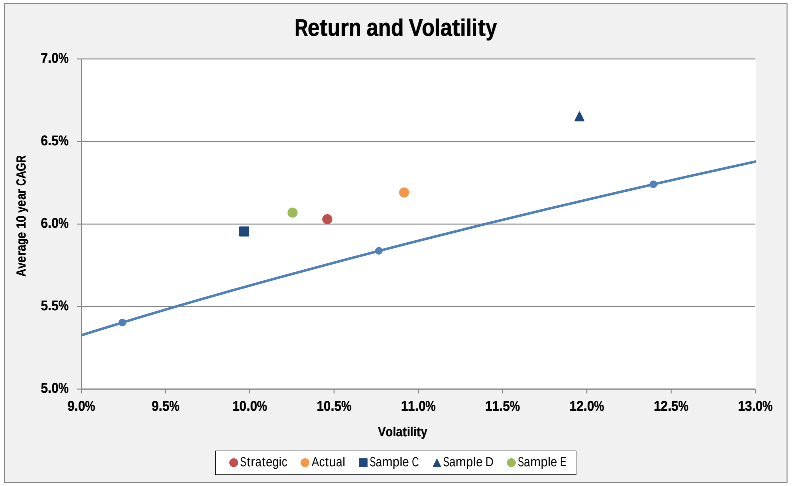


	5th Percentile at time 5	50th Percentile at time 30
Strategic	72.7%	110.2%
Actual	72.5%	111.1%
Sample C	73.6%	108.9%
Sample D	70.3%	120.2%
Sample E	73.2%	110.0%

Return and Volatility Curve – TSERS

10 Year Horizon





	Average 10 year CAGR	Volatility
Strategic	6.0%	10.5%
Actual	6.2%	10.9%
Sample C	6.0%	10.0%
Sample D	6.7%	12.0%
Sample E	6.1%	10.3%

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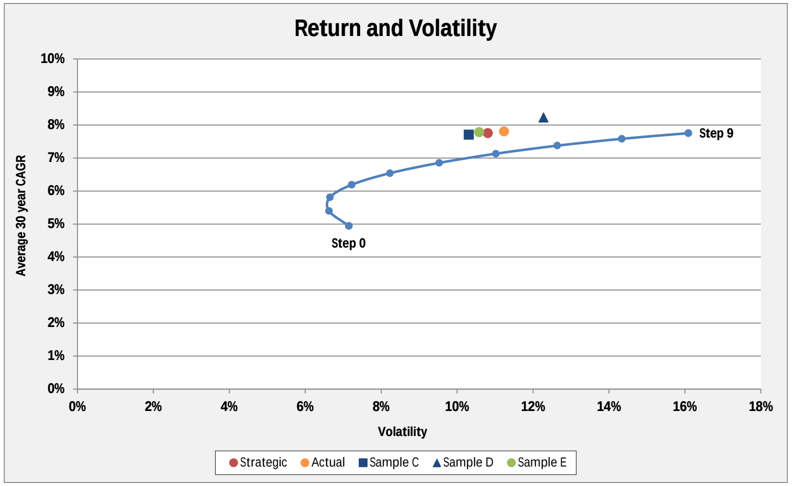
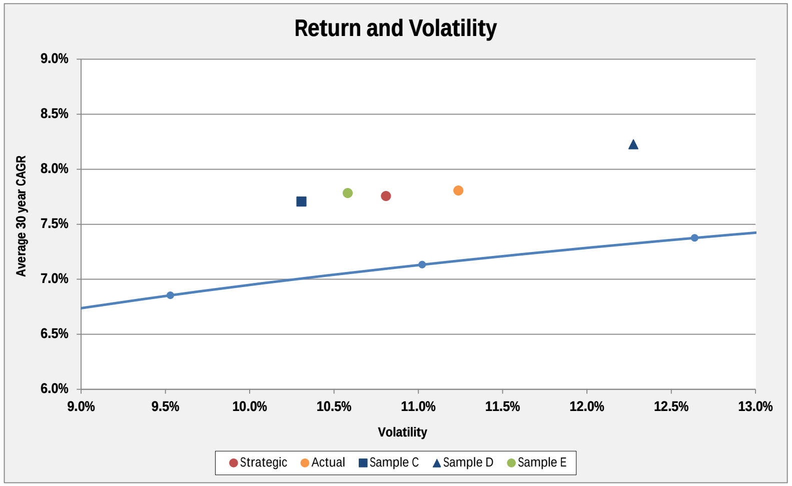
Return and Volatility Curve – TSERS

30 Year Horizon





	Average 30 year CAGR	Volatility
Strategic	7.8%	10.8%
Actual	7.8%	11.2%
Sample C	7.7%	10.3%
Sample D	8.2%	12.3%
Sample E	7.8%	10.6%

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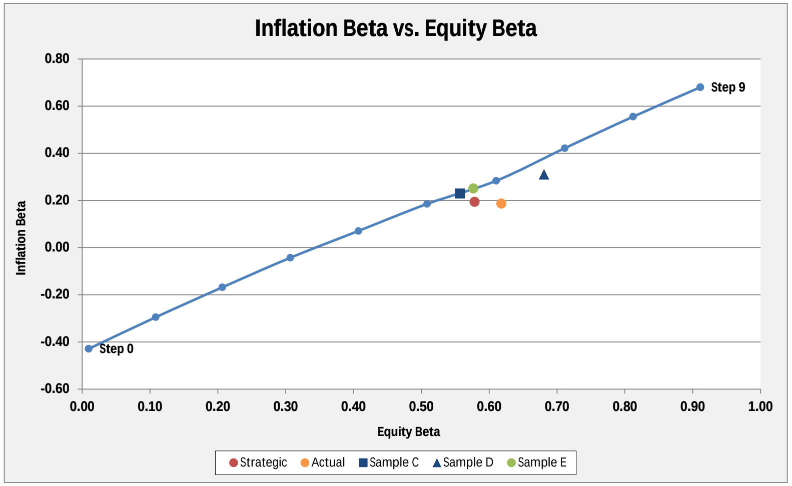
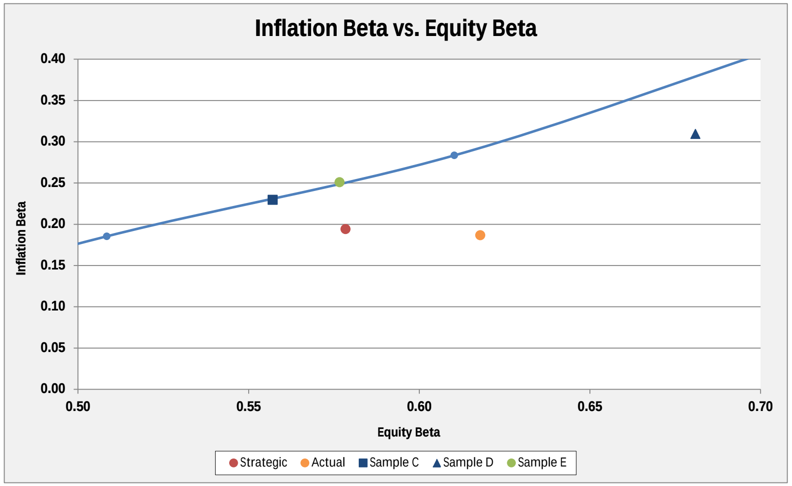
Inflation and Equity Beta Curve – TSERS





	Equity Beta	Inflation Beta
Strategic	0.578	0.194
Actual	0.618	0.187
Sample C	0.557	0.230
Sample D	0.681	0.309
Sample E	0.577	0.251

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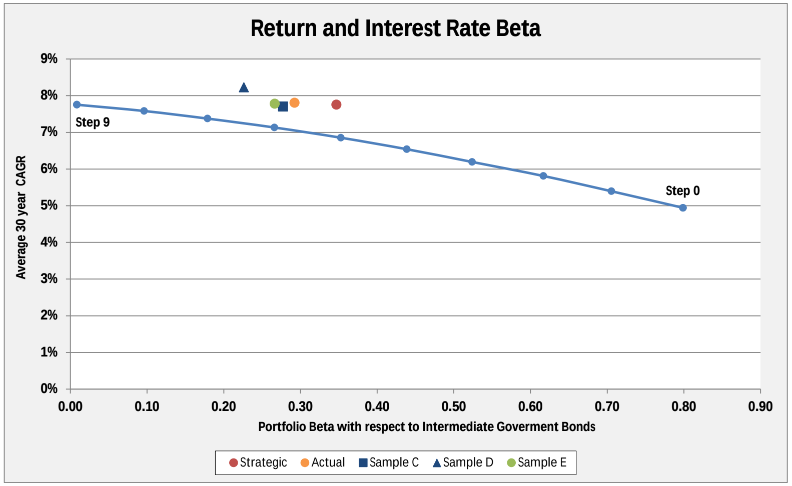
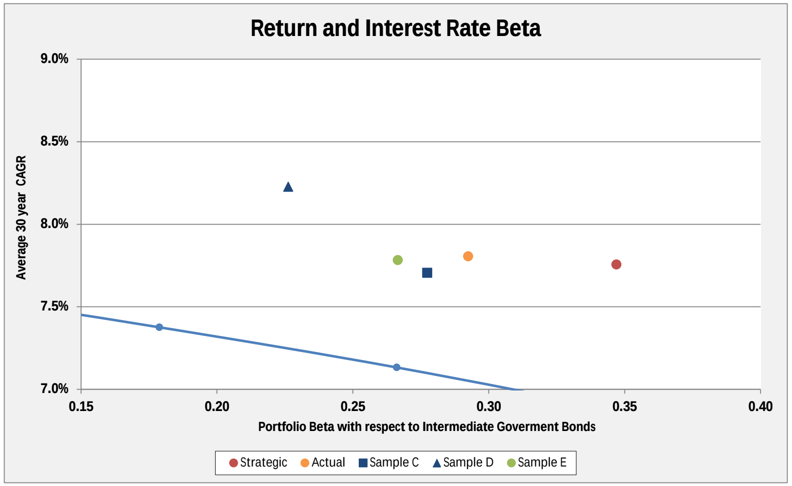
Return and Interest Rate Beta Curve – TSERS





	Portfolio Beta with respect to Inter. Gvt Bonds	Average 30 year CAGR
Strategic	0.347	7.8%
Actual	0.292	7.8%
Sample C	0.277	7.7%
Sample D	0.226	8.2%
Sample E	0.267	7.8%

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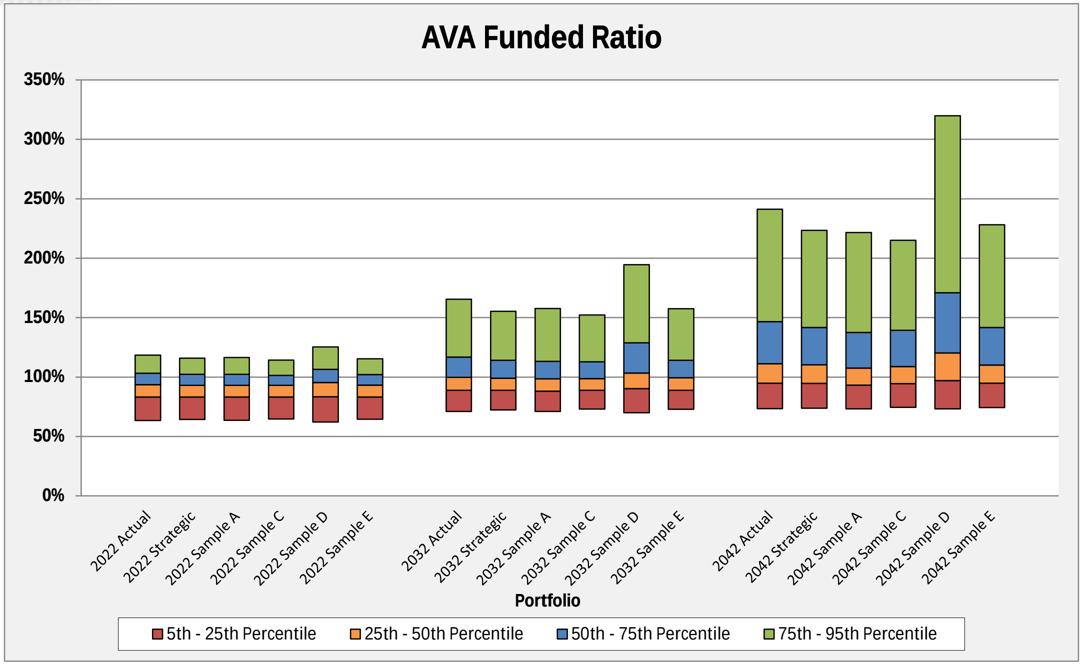
AVA Funded Ratio – TSERS

AVA Funded Ratio as of 12/31/2012 was 94.2%



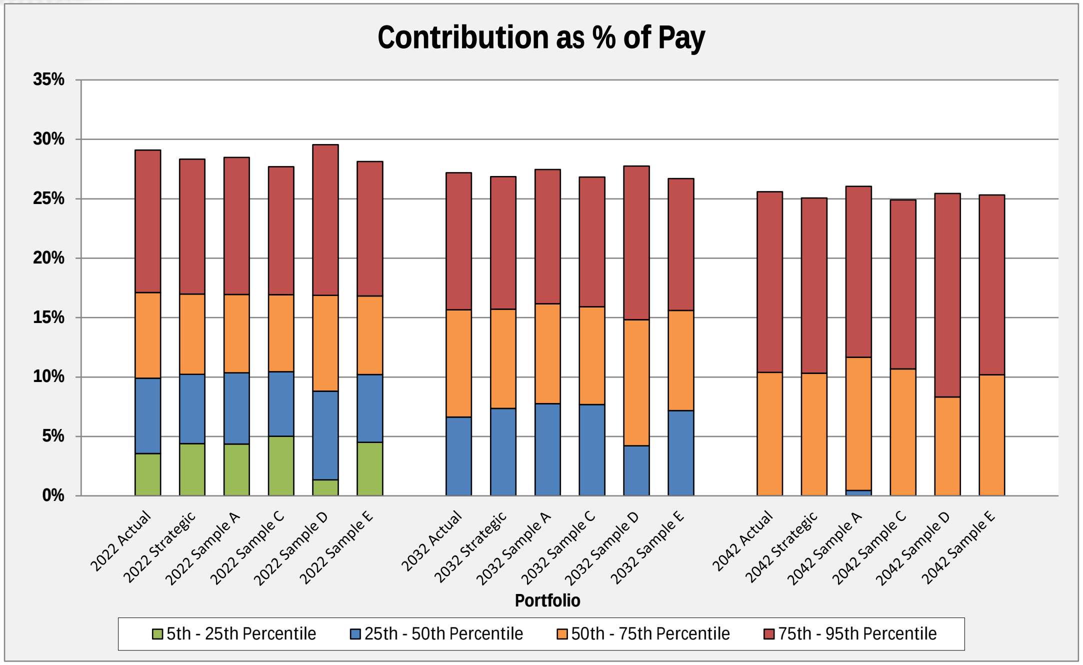
AVA Funded Ratio

	2022						2032					
	Actual	Strategic	Sample A	Sample C	Sample D	Sample E	Actual	Strategic	Sample A	Sample C	Sample D	Sample E
95th percentile	118.4%	115.8%	116.5%	114.2%	125.3%	115.4%	165.4%	155.3%	157.7%	152.3%	194.6%	157.4%
75th percentile	103.3%	102.3%	102.3%	101.4%	106.5%	102.1%	116.8%	114.0%	113.1%	112.8%	128.9%	114.2%
50th percentile	93.6%	93.1%	93.1%	93.0%	95.3%	93.3%	99.7%	99.1%	98.4%	98.6%	103.3%	99.4%
25th percentile	83.2%	83.2%	83.2%	83.1%	83.3%	83.2%	88.8%	88.8%	88.0%	88.8%	90.3%	88.8%
5th percentile	63.4%	64.4%	63.6%	64.8%	62.2%	64.5%	71.1%	72.3%	71.1%	73.1%	70.0%	72.9%

	2042					
	Actual	Strategic	Sample A	Sample C	Sample D	Sample E
95th percentile	241.2%	223.5%	221.6%	215.1%	319.9%	228.2%
75th percentile	146.6%	141.7%	137.5%	139.4%	171.0%	141.8%
50th percentile	111.1%	110.2%	107.6%	108.9%	120.2%	110.0%
25th percentile	94.8%	94.7%	93.2%	94.4%	97.0%	94.8%
5th percentile	73.3%	73.8%	73.2%	74.6%	73.3%	74.4%

Contributions as % of Pay – TSERS

Contribution as % of Pay determined as of 12/31/2012 was 8.76%

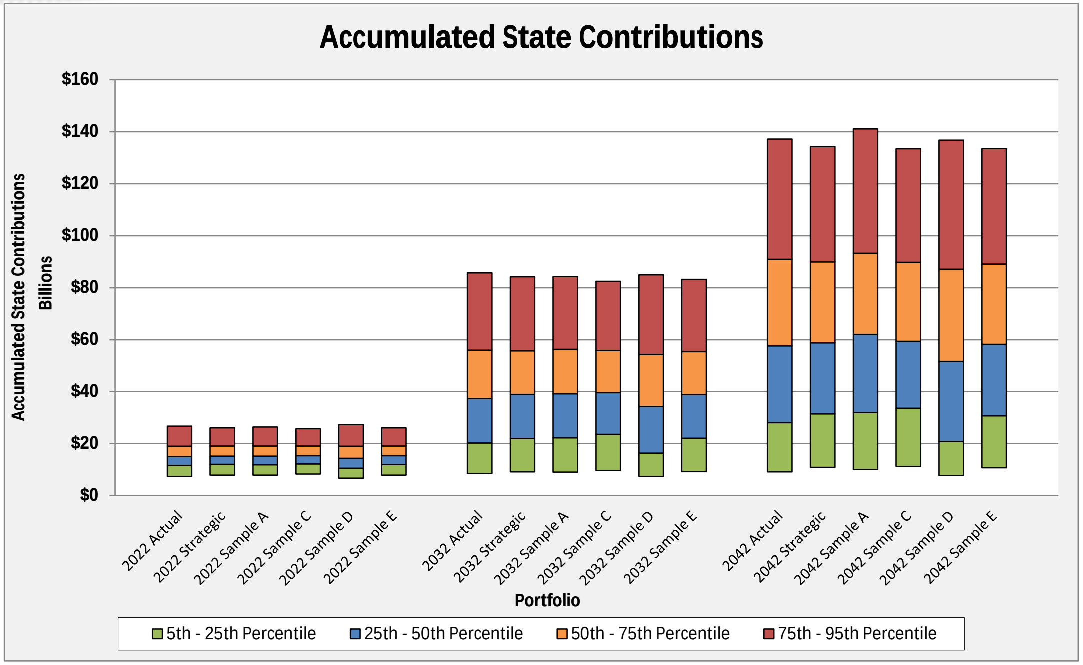


Contributions as a % of Pay

	2022						2032					
	Actual	Strategic	Sample A	Sample C	Sample D	Sample E	Actual	Strategic	Sample A	Sample C	Sample D	Sample E
95th percentile	29.1%	28.3%	28.5%	27.7%	29.6%	28.1%	27.2%	26.9%	27.5%	26.8%	27.8%	26.7%
75th percentile	17.1%	17.0%	17.0%	16.9%	16.9%	16.8%	15.7%	15.7%	16.2%	15.9%	14.8%	15.6%
50th percentile	9.9%	10.2%	10.3%	10.5%	8.8%	10.2%	6.6%	7.4%	7.8%	7.7%	4.2%	7.2%
25th percentile	3.6%	4.4%	4.4%	5.0%	1.3%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5th percentile	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

	2042					
	Actual	Strategic	Sample A	Sample C	Sample D	Sample E
95th percentile	25.6%	25.1%	26.1%	24.9%	25.5%	25.3%
75th percentile	10.4%	10.3%	11.7%	10.7%	8.3%	10.2%
50th percentile	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%
25th percentile	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5th percentile	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Accumulated State Contributions – TSERS

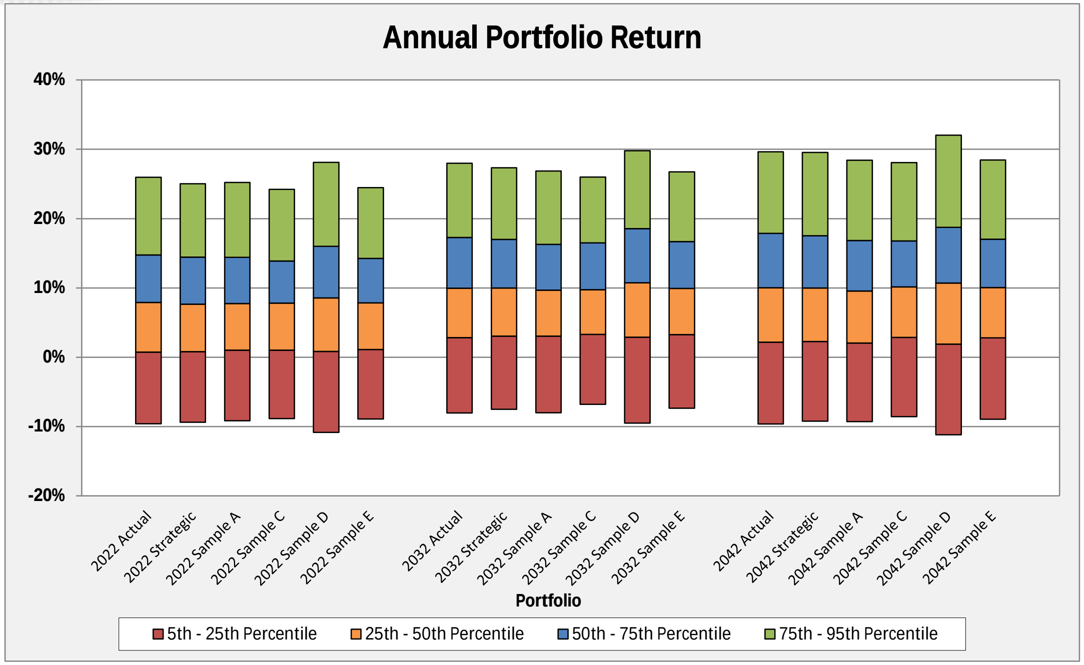


Accumulated State Contributions

	2022						2032					
	Actual	Strategic	Sample A	Sample C	Sample D	Sample E	Actual	Strategic	Sample A	Sample C	Sample D	Sample E
95th percentile	26.7	26.1	26.4	25.8	27.3	26.1	85.7	84.2	84.3	82.5	84.9	83.2
75th percentile	19.0	19.1	19.1	19.1	19.0	19.1	55.9	55.8	56.3	55.8	54.3	55.4
50th percentile	15.0	15.2	15.2	15.4	14.4	15.4	37.4	39.0	39.2	39.6	34.3	38.9
25th percentile	11.6	12.1	11.9	12.2	10.6	11.9	20.3	22.0	22.3	23.6	16.3	22.1
5th percentile	7.4	7.9	7.9	8.3	6.7	7.9	8.5	9.1	9.1	9.7	7.4	9.2

	2042					
	Actual	Strategic	Sample A	Sample C	Sample D	Sample E
95th percentile	137.2	134.3	141.1	133.4	136.8	133.5
75th percentile	90.9	90.0	93.3	89.8	87.1	89.1
50th percentile	57.6	58.8	62.1	59.4	51.7	58.2
25th percentile	28.1	31.5	31.9	33.6	20.9	30.8
5th percentile	9.1	10.9	10.1	11.2	7.7	10.7

Annual Portfolio Return – TSERS

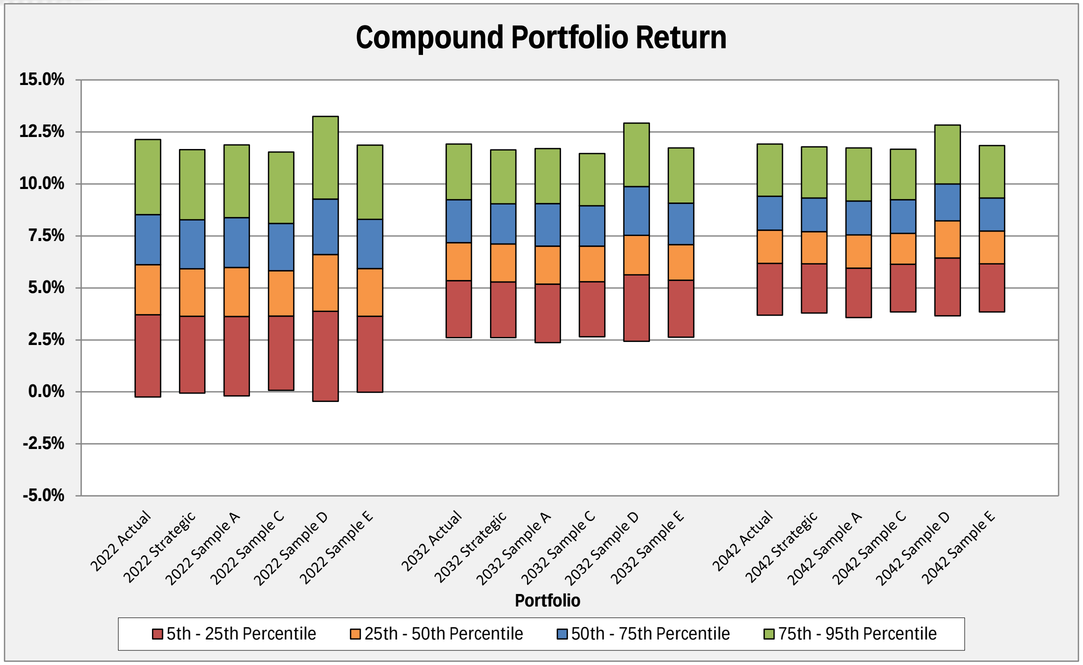


Annual Portfolio Return

	2022						2032					
	Actual	Strategic	Sample A	Sample C	Sample D	Sample E	Actual	Strategic	Sample A	Sample C	Sample D	Sample E
95th percentile	26.0%	25.0%	25.2%	24.2%	28.1%	24.5%	28.0%	27.3%	26.9%	26.0%	29.8%	26.7%
75th percentile	14.8%	14.4%	14.4%	13.9%	16.0%	14.3%	17.3%	17.0%	16.3%	16.5%	18.5%	16.7%
50th percentile	7.9%	7.7%	7.7%	7.8%	8.6%	7.8%	10.0%	10.0%	9.7%	9.8%	10.7%	9.9%
25th percentile	0.8%	0.8%	1.0%	1.0%	0.8%	1.1%	2.8%	3.1%	3.0%	3.3%	2.9%	3.3%
5th percentile	-9.6%	-9.4%	-9.2%	-8.8%	-10.8%	-8.9%	-8.0%	-7.5%	-8.0%	-6.8%	-9.5%	-7.4%

	2042					
	Actual	Strategic	Sample A	Sample C	Sample D	Sample E
95th percentile	29.6%	29.5%	28.4%	28.1%	32.0%	28.4%
75th percentile	17.9%	17.5%	16.8%	16.8%	18.7%	17.0%
50th percentile	10.0%	10.0%	9.6%	10.1%	10.7%	10.1%
25th percentile	2.2%	2.3%	2.0%	2.9%	1.9%	2.8%
5th percentile	-9.6%	-9.2%	-9.3%	-8.6%	-11.2%	-8.9%

Compound Portfolio Return – TSERS

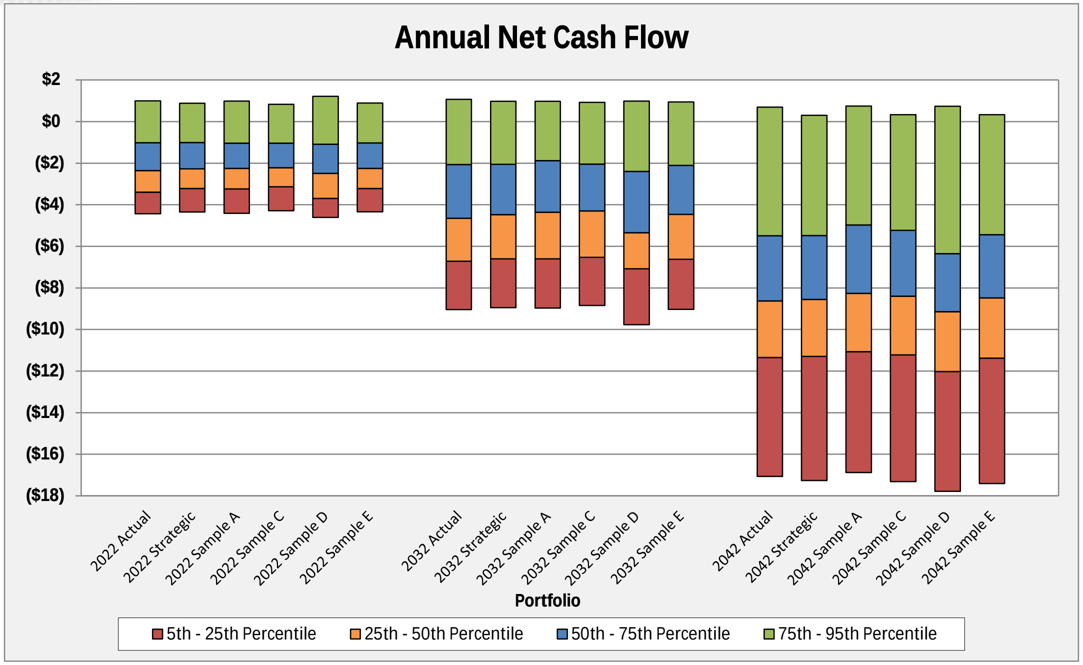


Compound Portfolio Return

	2022						2032					
	Actual	Strategic	Sample A	Sample C	Sample D	Sample E	Actual	Strategic	Sample A	Sample C	Sample D	Sample E
95th percentile	12.1%	11.7%	11.9%	11.5%	13.2%	11.9%	11.9%	11.6%	11.7%	11.5%	12.9%	11.7%
75th percentile	8.5%	8.3%	8.4%	8.1%	9.3%	8.3%	9.2%	9.0%	9.1%	9.0%	9.9%	9.1%
50th percentile	6.1%	5.9%	6.0%	5.8%	6.6%	5.9%	7.2%	7.1%	7.0%	7.0%	7.5%	7.1%
25th percentile	3.7%	3.6%	3.6%	3.6%	3.9%	3.6%	5.4%	5.3%	5.2%	5.3%	5.6%	5.4%
5th percentile	-0.2%	-0.1%	-0.2%	0.1%	-0.4%	0.0%	2.6%	2.6%	2.4%	2.7%	2.4%	2.6%

	2042					
	Actual	Strategic	Sample A	Sample C	Sample D	Sample E
95th percentile	11.9%	11.8%	11.7%	11.7%	12.8%	11.8%
75th percentile	9.4%	9.3%	9.2%	9.2%	10.0%	9.3%
50th percentile	7.8%	7.7%	7.6%	7.6%	8.2%	7.7%
25th percentile	6.2%	6.2%	5.9%	6.1%	6.4%	6.2%
5th percentile	3.7%	3.8%	3.6%	3.8%	3.7%	3.8%

Annual Net Cash Flow ($) – TSERS



Annual Net Cash Flow

	2022						2032					
	Actual	Strategic	Sample A	Sample C	Sample D	Sample E	Actual	Strategic	Sample A	Sample C	Sample D	Sample E
95th percentile	1.0	0.9	1.0	0.8	1.2	0.9	1.1	1.0	1.0	0.9	1.0	0.9
75th percentile	(1.0)	(1.0)	(1.0)	(1.0)	(1.1)	(1.0)	(2.1)	(2.1)	(1.9)	(2.0)	(2.4)	(2.1)
50th percentile	(2.4)	(2.3)	(2.3)	(2.2)	(2.5)	(2.3)	(4.7)	(4.5)	(4.4)	(4.3)	(5.3)	(4.5)
25th percentile	(3.4)	(3.2)	(3.2)	(3.1)	(3.7)	(3.2)	(6.7)	(6.6)	(6.6)	(6.5)	(7.1)	(6.6)
5th percentile	(4.4)	(4.3)	(4.4)	(4.3)	(4.6)	(4.3)	(9.0)	(9.0)	(9.0)	(8.8)	(9.8)	(9.0)

	2042					
	Actual	Strategic	Sample A	Sample C	Sample D	Sample E
95th percentile	0.7	0.3	0.7	0.3	0.7	0.3
75th percentile	(5.5)	(5.5)	(5.0)	(5.2)	(6.4)	(5.4)
50th percentile	(8.6)	(8.6)	(8.3)	(8.4)	(9.1)	(8.5)
25th percentile	(11.3)	(11.3)	(11.1)	(11.2)	(12.0)	(11.4)
5th percentile	(17.1)	(17.3)	(16.9)	(17.3)	(17.8)	(17.4)

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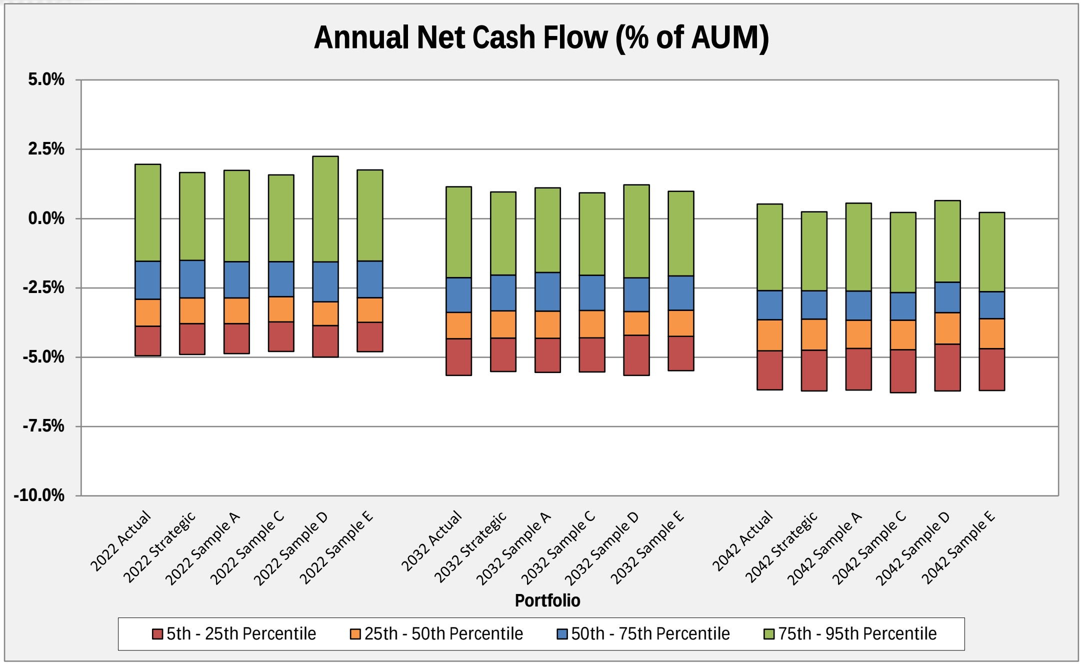
Annual Net Cash Flow (% of AUM) – TSERS



Annual Net Cash Flow (% of AUM)

	2022						2032					
	Actual	Strategic	Sample A	Sample C	Sample D	Sample E	Actual	Strategic	Sample A	Sample C	Sample D	Sample E
95th percentile	2.0%	1.7%	1.7%	1.6%	2.2%	1.8%	1.1%	1.0%	1.1%	0.9%	1.2%	1.0%
75th percentile	-1.5%	-1.5%	-1.6%	-1.6%	-1.6%	-1.5%	-2.1%	-2.0%	-1.9%	-2.0%	-2.1%	-2.1%
50th percentile	-2.9%	-2.9%	-2.9%	-2.8%	-3.0%	-2.9%	-3.4%	-3.3%	-3.3%	-3.3%	-3.4%	-3.3%
25th percentile	-3.9%	-3.8%	-3.8%	-3.7%	-3.9%	-3.7%	-4.3%	-4.3%	-4.3%	-4.3%	-4.2%	-4.2%
5th percentile	-4.9%	-4.9%	-4.9%	-4.8%	-5.0%	-4.8%	-5.7%	-5.5%	-5.5%	-5.5%	-5.7%	-5.5%

	2042					
	Actual	Strategic	Sample A	Sample C	Sample D	Sample E
95th percentile	0.5%	0.2%	0.6%	0.2%	0.6%	0.2%
75th percentile	-2.6%	-2.6%	-2.6%	-2.7%	-2.3%	-2.6%
50th percentile	-3.6%	-3.6%	-3.7%	-3.7%	-3.4%	-3.6%
25th percentile	-4.8%	-4.7%	-4.7%	-4.7%	-4.5%	-4.7%
5th percentile	-6.2%	-6.2%	-6.2%	-6.3%	-6.2%	-6.2%

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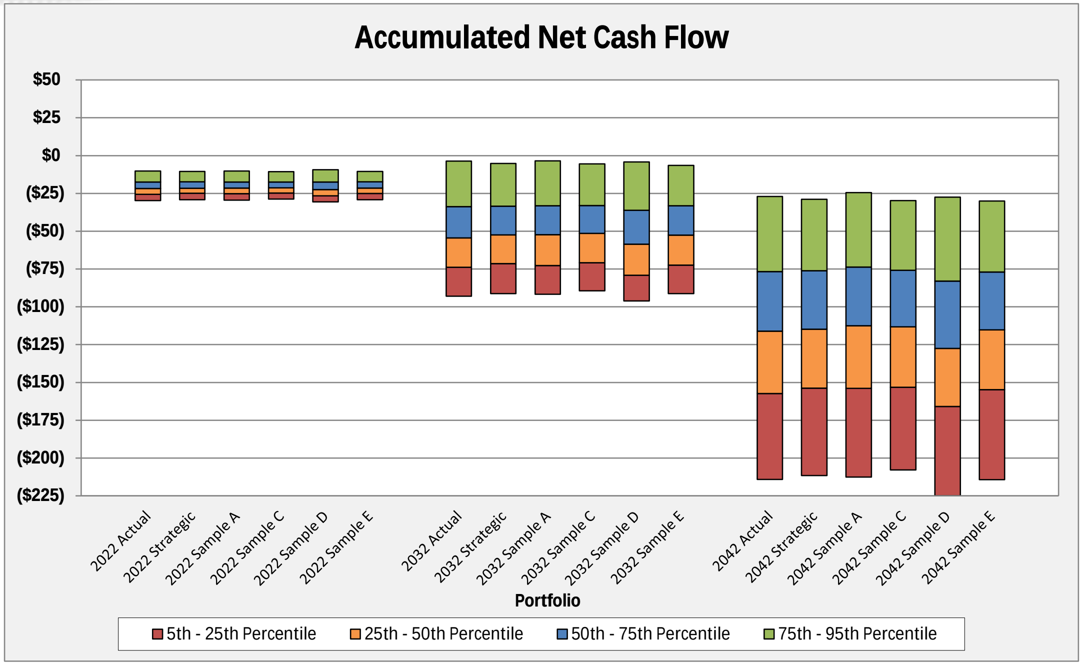
Accumulated Net Cash Flow – TSERS



Accumulated Net Cash Flow

	2022						2032					
	Actual	Strategic	Sample A	Sample C	Sample D	Sample E	Actual	Strategic	Sample A	Sample C	Sample D	Sample E
95th percentile	(10.1)	(10.4)	(10.2)	(10.6)	(9.3)	(10.5)	(3.6)	(5.2)	(3.4)	(5.4)	(4.2)	(6.4)
75th percentile	(17.5)	(17.3)	(17.4)	(17.5)	(17.5)	(17.4)	(33.7)	(33.5)	(33.1)	(33.0)	(36.1)	(33.2)
50th percentile	(21.8)	(21.6)	(21.5)	(21.4)	(22.4)	(21.5)	(54.4)	(52.4)	(52.3)	(51.4)	(58.6)	(52.6)
25th percentile	(25.5)	(24.9)	(25.2)	(24.7)	(26.6)	(25.0)	(73.9)	(71.4)	(72.7)	(70.8)	(79.1)	(72.4)
5th percentile	(29.7)	(29.2)	(29.5)	(28.7)	(30.6)	(29.2)	(92.9)	(91.3)	(91.7)	(89.5)	(96.1)	(91.2)

	2042					
	Actual	Strategic	Sample A	Sample C	Sample D	Sample E
95th percentile	(27.1)	(28.8)	(24.5)	(29.7)	(27.5)	(30.1)
75th percentile	(76.7)	(76.1)	(73.6)	(75.9)	(82.9)	(77.0)
50th percentile	(116.1)	(114.7)	(112.5)	(113.3)	(127.6)	(115.2)
25th percentile	(157.4)	(153.8)	(154.0)	(153.1)	(165.8)	(154.7)
5th percentile	(214.2)	(211.6)	(212.5)	(207.8)	(225.0)	(214.2)

Performance Metrics Summary

	Strategic	Actual	Sample A	Sample C	Sample D	Sample E
Expected Return - 10 yr	6.0%	6.2%	6.0%	6.0%	6.7%	6.1%
Expected Volatility - 10 yr	10.5%	10.9%	10.5%	10.0%	12.0%	10.3%
Expected Return - 20 yr	7.2%	7.3%	7.1%	7.2%	7.8%	7.3%
Expected Volatility - 20 yr	10.7%	11.1%	10.7%	10.2%	12.2%	10.5%
Expected Return - 30 yr	7.8%	7.8%	7.6%	7.7%	8.2%	7.8%
Expected Volatility - 30 yr	10.8%	11.2%	10.8%	10.3%	12.3%	10.6%
Equity Beta	0.578	0.618	0.601	0.557	0.681	0.577
Inflation Beta	0.194	0.187	0.314	0.230	0.309	0.251
Interest Rate Beta	0.347	0.292	0.173	0.277	0.226	0.267
Average PV of Contributions at time 30	41.2	40.5	42.0	41.5	38.1	41.0
CTE 25th Percentile at time 30	72.4	72.8	74.3	72.1	72.9	72.3
Frequency of Contribution Rate Increase > 3%	0.054	0.056	0.057	0.051	0.057	0.053
Probability Rolling 3 year CAGR < 0.00%	0.110	0.117	0.115	0.104	0.125	0.107
Probability 30 year CAGR ≥7.25%	0.594	0.608	0.566	0.582	0.654	0.600
AVA Funded Ratio 50th Percentile at time 30	110.2%	111.1%	107.6%	108.9%	120.2%	110.0%
AVA Funded Ratio 5th Percentile at time 5	72.7%	72.5%	72.8%	73.6%	70.3%	73.2%

DEPARTMENT OF STATE TREASURER
INVESTMENT MANAGEMENT DIVISION

INVESTMENT POLICY STATEMENT
FOR NORTH CAROLINA RETIREMENT SYSTEMS

DST Reference:	IMD-POL-1000-ALL
Title:	Investment Policy Statement for North Carolina Retirement Systems
Current Effective Date:	March/April XYZ, 2014
Version/Revision:	2.0
Revision History:	Second version
Original Effective Date:	November 26, 2012

TABLE OF CONTENTS

PROVISIONS FOR THE OVERALL PENSION FUND INVESTMENT PROGRAM

I. INTRODUCTION AND PURPOSE

A. Program Overview

Pursuant to North Carolina General Statute ("NCGS") §147-69.2(b)(8), the North Carolina Retirement Systems include the Teachers' and State Employees' Retirement System, the Consolidated Judicial Retirement System, the Firemen's and Rescue Workers' Pension Fund, the Local Governmental Employees' Retirement System, the Legislative Retirement System, the North Carolina National Guard Pension Fund and the Retiree Health Benefit Fund (collectively, the "Retirement Systems" or the "NCRS"). The Treasurer of the State of North Carolina ("Treasurer") maintains the investment program for assets of the Retirement Systems (the "Fund" or "Pension Fund Program"). The Investment Management Division (the "IMD") of the North Carolina Department of State Treasurer (the "DST") serves as the investment arm of the Treasurer. Under the direction of the Treasurer, IMD manages the Fund and ancillary programs.

B. Purpose of This Policy

The Treasurer sets forth this Statement of Investment Policy (the "Policy" or the "Investment Policy"), which states the long-term objectives and guidelines for the IMD with respect to investing the Fund. The Policy's purpose is to capture strategic considerations for the total Fund and individual asset classes. The IMD staff shall recommend revisions to this Policy to the Treasurer on an as needed basis, and will review the Policy no less frequently than annually.

C. Related Laws and Policies

Article 5, Section 6.(2) of the North Carolina Constitution reflects the establishment of the pension funds. NCGS §147-69.2 prescribes eligible investments for the Fund and sets maximum percentages certain types of investments can comprise of total invested assets of the Fund. NCGS §147-69.3 contains certain provisions regarding administration of the investment programs of the Treasurer, including the Pension Fund Program.

The Treasurer is the sole statutory fiduciary with respect to investment of the Fund, and the Treasurer is obligated to discharge his or her duties solely in the interest of the participants and beneficiaries of the Retirement Systems and in accordance with NCGS §147-69.7. The Treasurer has adopted a Signatory Authority Policy (as amended from time to time, the "Signatory Authority Policy") that sets forth the authorizations for IMD staff to act on behalf of the State Treasurer with regard to investment-related matters. The Signatory Authority Policy defines what authority the Treasurer has delegated and what authority the Treasurer has retained. Notwithstanding anything in this Policy to the contrary, any action by IMD staff under this Policy shall be subject to compliance with the Signatory Authority Policy, including execution of documents by the Treasurer and/or such person designated under the Signatory Authority Policy.

This Policy and the Signatory Authority Policy, taken together, are intended to cover all general matters concerning investment of the Fund. This Policy replaces all the prior general investment policy statements for NCRS investments. Additional policies, procedures, or desktop guides document certain matters which are highly specialized or routine in nature.[1] If a conflict appears to exist between this Policy and any other policy, rule, procedure, or desktop guide, staff must contact the Chief Investment Officer and the Department's in-house legal counsel.

II. ROLES AND RESPONSIBILITIES

The statutory fiduciary responsibility to manage the Fund in a prudent manner rests with the Treasurer. The Treasurer may authorize IMD to perform certain activities with respect to the administration, management, and operation of the Pension Fund Program as outlined in the roles and responsibilities below.

A. State Treasurer

1. The Treasurer is a named fiduciary of the Fund under statute
2. Select, monitor, evaluate, and terminate the Chief Investment Officer
3. Appoint an Investment Advisory Committee ("IAC"), establish its written charter, and chair the IAC
4. Recommend statutory revisions to the General Assembly
5. Approve all investment policies and any revisions thereto
6. Monitor compliance with all policies
7. Approve asset allocation targets and benchmarks as recommended by the IMD or IAC
8. Approve and terminate investment managers as recommended by the IMD
9. Approve recommendations that improve the cost effectiveness of the Fund
10. Review the risk analytics of the Fund over various time periods
11. Approve selection and retention of custodial bank
12. Approve selection and retention of consultants and third party service providers as recommended by the IMD
13. Review performance, portfolio positioning, and risk reports
14. Consult with legal counsel regarding documents, securities litigation, and other legal matters

B. Investment Advisory Committee

1. Act in accordance with NCGS §147-69.2(b1) which, in part, states that the IAC "shall have advisory powers only"
2. Assist in selection and evaluation of the Chief Investment Officer
3. Review and recommend investment policies
4. Review asset allocations
5. Review and comment on investment management structure
6. Review and evaluate the selection and monitoring of investment managers
7. Review performance
8. Review and evaluate the custodian arrangement
9. Evaluate the selection of investment consultants
10. Review statutory revisions being recommended to the General Assembly
11. Annually perform a self-assessment of the IAC's function and compliance with its charter
12. Provide advice on other investment matters as requested by the Treasurer

[1] This Policy does not displace DST's provisions in the North Carolina Administrative Code. However, staff should take care when interpreting Administrative Code provisions to ensure that those Code provisions have not been repealed or made obsolete due to changes in the applicable statutes.

C. Investment Management Division

1. Act as a fiduciary in the responsibilities assigned to it
2. Have clearly defined responsibilities for the Chief Investment Officer and other team members
3. Recommend statutory revisions to the Treasurer
4. Draft and make recommendations to the Investment Policy
5. Monitor compliance with policies and guidelines for all investment related activities and third party service providers
6. Research and recommend asset allocation targets and benchmarks
7. Source and conduct due diligence on attractive investment opportunities; Make investment manager hire and termination recommendations to the Treasurer
8. Give recommendations that improve the cost-effectiveness of the Fund
9. Generate and review the risk analytics of the Fund at various time periods
10. Manage and monitor the custodial bank relationship
11. Review resources and make recommendations for the retention of investment consultants and third party service providers
12. Prepare performance, portfolio positioning summary, and risk reports for Treasurer and IAC
13. Consult with legal counsel regarding documents, policy, securities litigation, and other legal matters
14. Prepare data and presentations for the IAC
15. Assist the Treasurer with respect to all matters related to the Pension Fund Program, including: requests from the Retirement Board of Trustees and considerations of the Financial Operations Division
16. Provide advice on other investment matters as requested by the Treasurer

III. INVESTMENT OBJECTIVES

It is the policy of the Treasurer to invest consistent with the following objectives:

A. Provide investment returns sufficient for the Fund to make timely payment of statutory benefits to current and future members and keep contribution rates at a reasonable level over the long-term. To achieve this, long-term projected investment returns should be generally consistent with the actuarial assumed rate of return, unless otherwise determined by the Treasurer.[2]
B. Avoid excessive volatility in contribution rates over the intermediate-term by maintaining a moderate risk profile and diversifying with respect to economic and financial risk factors. It is acceptable to limit the use of return-seeking strategies in order to avoid excessive volatility.
C. Additionally:

 1. Achieve cost-efficiency in the overall investment program
 2. Exceed composite benchmark returns for the Fund and broad categories of investments within reasonable risk limits and over market cycles
 3. Ensure sufficient liquidity to meet the Fund's obligations over all time periods
 4. Comply with all governing statutes as consistent with fiduciary obligations

IV. STRATEGIC ASSET ALLOCATION AND PORTFOLIO CONSTRUCTION

In order to meet the investment objectives, a "Strategic Asset Allocation" is established through consideration of the Fund's projected actuarial liabilities, liquidity needs, risk tolerance, and the role that different asset categories and strategies are expected to play in the overall portfolio construction. The Strategic Asset Allocation will be reviewed no less than annually and a detailed asset-liability study will be

[2] The Retirement Systems' actuary advises the applicable Retirement Boards of Trustees with respect to setting the actuarial assumed rate of return and annual required contributions. The Retirement Boards of Trustees have been granted the authority by the legislature to set the actuarial assumed rate of return for the Fund, which is currently 7.25%.

conducted no less than triennially, assuming that benefit design and funding policy is unchanged. The current Strategic Asset Allocation, consisting of targets and authorized ranges, is detailed in Table 1.

Table 1: Strategic Asset Allocation Targets and Policy Ranges

	Minimum	Target	Maximum
Rates and Liquidity	**24%**	**29%**	**42%**
Investment Grade Fixed Income	*24%*	*28%*	*32%*
Cash	*0%*	*1%*	*10%*
Growth	**37%**	**58%**	**71%**
Global Public Equity	*37%*	*42%*	*47%*
Private Equity	*0%*	*6%*	*8.75%*
Non-Core Real Estate	*0%*	*3%*	*8%*
Opportunistic Fixed Income	*0%*	*7%*	*7.5%*
Inflation Sensitive and Diversifiers	**4%**	**11%**	**16%**
Inflation Sensitive	*2%*	*6%*	*7.5%*
Core Real Estate	*2%*	*5%*	*10%*
Multi-Strategy	**0%**	**2%**	**4%**

Note: Rebalancing procedures are in Section V, Paragraph B. Statutory compliance limitations and considerations are described below in Section V, Paragraph E and Appendix 3.

The foundations of the Strategic Asset Allocation are the broad categories labeled: Rates and Liquidity, Growth, Inflation Sensitive and Diversifiers, and Multi-Strategy. Appendix 1 describes the "Role-in-the-Portfolio" each are expected to play given the intermediate- and long-term economic and financial market outlook. The "Portfolios" are key groupings one level lower comprised of distinct assets and strategies with specific risk characteristics. Table 2 contains qualitative expectations of the Portfolios' risk characteristics.

Table 2: Long-Term Qualitative Portfolio Risk Expectations

Portfolios	Volatility	Equity Beta	Inflation Beta	Bond Beta	Liquidity	Active Risk
Rates and Liquidity						
Cash	Low	Low	Moderate	High	High	Low
Investment Grade Fixed Income	Low	Low	Negative	High	High	Low
Growth						
Global Public Equity	High	High	Low	Low	High	Low
Private Equity	High	High	Low	Low	Low	High
Non-Core Real Estate	High	Moderate	Moderate	Low	Low	High
Opportunistic Fixed Income	Moderate	Moderate	Low	Moderate	Moderate	High
Inflation Sensitive and Diversifiers						
Inflation Sensitive	Moderate	Low	High	Moderate	Moderate	High
Core Real Estate	Moderate	Low	Moderate	Low	Moderate	Low
Multi-Strategy	Moderate	Moderate	Low	Low	Moderate	High

Note: Volatility, the annualized standard deviation of returns, is a basic summary measure of investment risk. Beta measures systematic risk relative to a market or risk factor. Active Risk or Tracking Error is the volatility of the difference between managed and benchmark returns and reflects the potential for market beating or lagging returns.

Table 3 shows the projected outcomes of the Fund's annualized returns over various horizons given a passive implementation of the targets in the Strategic Asset Allocation. The projections are based on year-by-year economic and financial simulations. They illustrate the broad range of possible outcomes, but support the long-term consistency of the Strategic Asset Allocation and the 7.25% actuarial assumed rate of return. However, over the next 10-years, the Fund is unlikely to achieve the 7.25% return. Some of these projected lower returns are expected to be offset by low inflation and active investment management strategies. Moreover, targeting a 7.25% return over the next ten years would require increasing the Fund's volatility by more than 30% and risk large contribution rate increases.

Table 3: Projected Ranges of Annualized Compound Passive Investment Returns

Horizon	5th Percentile	25th Percentile	Expected (Average)	75th Percentile	95th Percentile
10 Years	0.0%	3.6%	6.1%	8.3%	11.9%
20 Years	2.6%	5.4%	7.3%	9.1%	11.7%
30 Years	3.8%	6.2%	7.8%	9.3%	11.8%

Source: IMD and Buck Consultants as of December 2013

V. RISK MANAGEMENT AND CONTROLS

Risk management of the Fund is intended to promote the likelihood of achieving the investment objectives over the long-term. To do so, IMD will identify, monitor, and control/mitigate key investment and operational risks through regular compliance activities. The following describes primary aspects of the investment risk management program:

A. Risk Standards and Metrics. To help achieve the investment objectives, IMD will monitor risk measurements against certain standards over various time horizons. Monitoring will occur with ex post and ex ante measurements utilizing various risk systems and vendors. It is understood that there will be periods during which the Fund's risk profile will deviate from the standards due to market events and/or active positioning. An IMD Risk Budget Policy will be adopted by the Treasurer to further define monitoring standards, escalation standards, and escalation processes, including, but not limited to the following:

1. Annual volatility of Fund returns of 10%
2. Sensitivity of annual Fund returns to global stock market returns; i.e., equity beta of 0.60
3. Sensitivity of annual Fund returns to inflation; i.e., inflation beta of 0.30
4. Sensitivity of annual Fund returns to intermediate-term bond returns; i.e., intermediate U.S. Treasury bond return beta of 0.30
5. Net of fees risk-adjusted returns; i.e., sharpe ratio of 0.40 and information ratio of 0.30
6. Net employer and employee contributions as a ratio of Fund assets of -3%
7. Level 1 liquidity; i.e., investments that take 3 days or less to exit have value equal to 70% of Fund
8. Fund tracking error or active risk (TBD in Risk Budget Policy)

B. Fund Rebalancing. A disciplined rebalancing policy is an important investment risk management tool that can occur through the ongoing natural cash flows of the Fund, relative valuation changes, and asset liquidations and transfers.

1. Interim Rebalancing. Should the Portfolio allocation for either Investment Grade Fixed Income or Global Public Equity fall below or exceed a boundary of +/- 2% relative to its Target Allocation in Table 1 for a period exceeding five (5) business days, IMD shall produce and provide to the Treasurer a written memorandum describing a proposed rebalancing action. Outside Policy Range. Investment strategies or market conditions which result in a Portfolio allocation beneath the minimum or above the maximum listed in Table 1 for a period exceeding five (5) consecutive business days shall be reported to the Treasurer, together with a review of conditions causing the

persistent deviation and a recommendation for subsequent investment action. In such a case, the Treasurer shall approve a transition plan for an orderly rebalancing.

2. Suspensions of Rebalancing. On occasion, it may not be prudent to immediately initiate rebalancing; for example, due to concerns about losses resulting from liquidation of investments or concerns that exceptional market volatility might require reversal of the action. Therefore, notwithstanding any other provision of this Policy, the Treasurer may authorize in writing a suspension of rebalancing. Any such written authorization shall cover a time period no more than 6 months long. At the end of that period, the Treasurer may authorize another 6 month suspension period if circumstances warrant.
3. IMD may utilize physical securities and derivatives, including options, to accomplish rebalancing to the extent otherwise consistent with applicable statutes and this Policy.

C. Cost-effectiveness. Cost-effectiveness will be proactively managed. IMD will regularly monitor the cost-effectiveness of the Fund's internal and external costs and expenses. Cost-effectiveness will be assessed relative to investment objectives, peers, industry benchmarks, and realized investment performance.

D. Liquidity. The liquidity of the Fund, including, but not limited to marketability of investments, cash flow from investments, net employer and employee contributions, capital commitments, and potential commitments will be regularly monitored. The holding periods and cash flows for the various investment vehicles may range widely. It is recognized that non-public market strategies are typically highly illiquid, in general only offering liquidity upon the realization or partial realization of an investment. The Fund will be diversified among investments with different degrees of liquidity.

E. Portfolio Allocations and Guidelines. Each Portfolio comprising the Fund has authorized allocations and guidelines to govern their operation and help manage risk and these are set out in Appendix 2.
1. IMD shall periodically review the Portfolio allocations and guidelines. Adjustments can be based on various factors including changing investment objectives, peer practice, market conditions, policy benchmarks, statutory revisions, expected returns/risks, and liquidity.
2. Due to market movements, active positioning, or exogenous factors, a Portfolio may deviate from authorized allocation ranges and will be rebalanced to the extent practicable and warranted by market conditions and/or active positioning. Compliance with ranges will be monitored by IMD.

F. Compliance. IMD will implement regular and independent compliance procedures to ensure ongoing adherence with the requirements of NCGS §147-69.2, this Policy, other IMD policies, procedures, and guidelines and contractual guidelines. Statutory compliance requirements are detailed in Appendix 3.

VI. ASSET VALUATION

The custodian will value securities held in accounts subject to investment management agreements each trading day using market prices from a nationally recognized third-party vendor. Short-term cash investments will be carried at amortized cost as established by the custodian, but differences from market value will be periodically reviewed. Generally, IMD will rely on the valuation of investments as reported by the investment managers for commingled and non-public market vehicles. IMD shall seek to comply with industry best practices with respect to monitoring the asset valuation policy and practices used by investment managers. Investment managers shall be contractually obligated to provide annual financial statements audited to be compliant with United States generally accepted accounting principles ("GAAP"), or similar principles if there are vehicles with significant foreign assets, preferably by a nationally recognized audit firm. Investment managers will also be obligated to provide unaudited quarterly financial statements. If the investment manager is not fulfilling its obligation to provide compliant statements in a timely manner, the IMD staff may engage special service providers in assessment of current fair market value.

VII. BENCHMARKING AND REPORTING REQUIREMENTS

IMD's custodian shall independently calculate rates of return, in compliance with industry standards, and maintain various performance benchmarks and historical data to reasonably assess Fund performance. Custodian, staff, and consultant reports shall regularly compare net of fees managed rates of return to performance benchmarks and returns of peers, as applicable. Such reports shall be designed to facilitate monitoring risk factors and to evaluate compliance with asset allocation targets, asset valuation, portfolio guidelines, statutory requirements, and performance for the Fund and subcomponents.

Two total plan performance benchmarks will be used to measure the relative performance of the Fund and its risk-adjusted returns. They are:

A. The Long-Term Policy Benchmark has roughly equivalent projected volatility as the Strategic Asset Allocation according to the 2013 Asset Liability Study. It will be comprised of:

   1. 57% MSCI All Country World Investable Market Index, in dollar terms, net of withholding taxes on non-resident institutional investors
   2. 33% Bank of America Merrill Lynch 5+ Years U.S. Treasury Index
   3. 6% Dow Jones-UBS Commodities Index
   4. 4% Bank of America Merrill Lynch 1-3 Years U.S. Inflation-Linked Treasury Index.

B. The Implementation Benchmark will measure how well the Portfolios are being invested in aggregate relative to their structure and guidelines. It will be a weighted performance of the Portfolios' individual benchmarks, as described below, using the Target Allocations from Table 1.

   1. Cash. iMoneyNet First Tier Institutional Money Market Funds Net Index.
   2. Investment Grade Fixed Income. A custom index comprised 10% iMoneyNet First Tier Institutional Money Market Funds Net Index and 90% custom BOAML Core Investment Grade Index. The custom BOAML core index comprised of the following weightings: 30% BOAML 5+ Years Governments, 35% BOAML 5+ Years Investment Grade Corporates, and 35% BOAML Mortgage Master. BOAML signifies: Bank of America Merrill Lynch indices.
   3. Global Public Equity. A custom index comprised of a dynamically weighted combination of two components including MSCI All Country World Investable Market Index (MSCI ACWI IMI), in dollar terms, net of withholding taxes on non-resident institutional investors and a beta adjusted MSCI ACWI IMI Index. MSCI signifies: Morgan Stanley Capital International
   4. Private Equity. A custom index, net of all fees and expenses, comprised of the following Cambridge Associates LLC indices: U.S. Private Equity Buyouts and Growth Equity, U.S. Venture Capital, Global (Ex. U.S.) PE and VC, Distressed Securities, Secondaries and Fund-of-Funds
   5. Non-Core Real Estate. Courtland Non-Core Real Estate Fund index.
   6. Opportunistic Fixed Income. A custom index, net of all fees and expenses, comprised of 50% HFRX Distressed Securities Index, 20% HFRX Relative Value Index, 15% Credit Suisse Leveraged Loan Index, and 15% BOAML High Yield Index.
   7. Inflation Sensitive and Diversifiers. A custom index, net of all fees and expenses, consisting of 33.0% Bank of America Merrill Lynch 1-3 Years U.S. Inflation-Linked Treasury Index, 17% Dow Jones-UBS Commodities Index, and 40% of the dynamically weighted combination of Cambridge Energy Private Equity Index and NCREIF Timberland Index.
   8. Core Real Estate. A custom index comprised of 80% weighting of the National Council of Real Estate Investment Fiduciaries Open-End Diversified Core Equity Fund Index ("NCREIF ODCE Index"), net of all fees and expenses, and 20% weighting of the Financial Times and London Stock Exchange ("FTSE") European Public Real Estate Association ("EPRA") and the National Association of Real Estate Investment Trusts ("NAREIT") Global Index ("FTSA/EPRA/NAREIT Global Index").

9. Multi-Strategy. A custom index comprised of a dynamically weighted combination of the HFRX Multi-Strategy Hedge Fund Index, net of fees, and the market value weighted benchmarks for any other total fund strategies within the Portfolio.

VIII. OTHER PROGRAMMATIC INITIATIVES

A. Small and Emerging Investment Managers. Small and Emerging Managers (SEMS) are typically characterized by entrepreneurial general partners that are earlier in their fund-raising lifecycle, have highly focused organizational resources, and/or smaller assets under management (e.g., between $100 million and $2 billion). IMD believes such firms have a strong probability of achieving enhanced results if they can demonstrate differentiated deal-flow, unique insights, strong financial, operational, and investment expertise and resources, a high performing culture, a transparent and repeatable investment process, and alignment with investors. SEMS are also characterized by elevated business risk and greater dispersion of returns than larger more established investment managers. IMD will endeavor to invest with SEMS for actively managed mandates in each Portfolio so long as all fiduciary requirements are met. The long-term goal will be to achieve superior performance and preferential fees and terms as successful organizations grow and mature over time, while maintaining the discipline to eliminate poor performing relationships.[3] Aggregate Fund assets invested with SEMS will vary over time, but will be monitored against a $1.5 billion standard for actively managed investment strategies.

B. Corporate Governance. The Treasurer will approve a separate policy addressing proxy voting, shareholders resolutions, engagement with corporate leaders and regulatory agencies, and collaboration with other institutional investors to create long term value for portfolio companies. IMD will annually review such policy. Corporate Governance strategic objectives include:
   1. Financial regulatory reform n Board diversity
   2. Sustainability
   3. Company engagement
   4. Board Diversity

C. Innovation Fund. The Treasurer will adopt a separate policy to guide the implementation of an Economically Targeted Investment fund that is authorized to commit from time to time up to $250 million in investment opportunities with significant operations in, or significant connections with North Carolina (“Innovation Fund”). The primary objective of the Innovation Fund is to achieve a competitive risk-adjusted rate of return for the Private Equity Portfolio. The collateral objective of the Innovation Fund is to support the economic well-being of the state of North Carolina.

IX. IMPLEMENTATION GUIDELINES

A. Interim Capital Allocation. Over time, IMD will allocate Fund assets within and between Rates and Liquidity, Growth, Inflation Sensitive and Diversifiers, and Multi-Strategy to reflect the prevailing and intermediate-term expected market and economic environments, relative valuations, available vehicles and capacity, cost, and resourcing considerations. Through an internal Investment Committee, whose charter will be approved by the Treasurer, IMD will utilize a team-oriented approach for capital allocation to improve collaboration, portfolio construction, and resourcing.

[3] Under NCGS§147-69.7 the Treasurer is to invest and manage the entrusted funds in a manner consistent with statutes, regulations, policies, and is required to manage the program solely in the interest of the participants and beneficiaries of the NCRS. This statute also provides that, in discharging the Treasurer’s fiduciary duties in managing the assets of the NCRS, the Treasurer may consider benefits created by the investment in addition to investment return only if the Treasurer determines that the investment providing these collateral benefits would be prudent even without collateral benefits. A potential collateral benefit of the SEMS Program is supporting the guiding principles of the State of North Carolina to increase efforts to develop Historically Underutilized Businesses as defined in NCGS §143-128.2(g)(1)(2)(3) without compromising performance.

B. Active Management. All Portfolios shall be invested to achieve or exceed the return on their respective benchmarks over a long period of time, but, in recognition that investment skill is rare:
   1. Public market Portfolios will be well diversified with respect to their benchmarks and will scale their reliance on active strategies according to the degree of efficiency in underlying securities markets, capacity in effective active strategies, and ongoing total fund liquidity requirements.
   2. Non-public market Portfolios will utilize a prudent process to maximize long-term access to cost-effective and attractive risk-adjusted investment opportunities through use of business partners with appropriate:
      a. Financial, operational, and investment expertise and resources
      b. Alignment of interests
      c. Transparency and repeatability of investment process
      d. Controls on leverage

C. Internal and External Management. IMD will manage certain portions of the Fund internally and the remainder through external investment managers. IMD's reliance on internal versus external management will change over time depending on the investment environment, resources, economies of scale, and other factors.

   1. Internal Management. The benefits of internal investment management include lower investment costs, liquidity, control, and transparency. However, given limited resources relative to external managers, the Fund's primary internal investment management will be in passive and low-active risk public market securities portfolios. Currently, IMD has statutory authority to manage cash, investment grade fixed income, and passive public equity internally for the Fund. Consistent with the Signatory Authority Policy, Investment Directors responsible for internally managed portfolios will operate within an established set of guidelines with the objective of achieving or exceeding their specific benchmark, net of fees and expenses, within reasonable risk parameters. Directors' retain general discretion to pursue their investment strategy within each internal portfolio's stated guidelines.

   2. External Management. All external managers will have a fiduciary responsibility with respect to the Fund assets under management. The terms and conditions of the investment relationship will be governed by the set of investment documents specific to the investment. The external managers will operate within an established set of guidelines with the objective of achieving or exceeding their specific benchmark, net of fees and expenses, within reasonable risk parameters.

D. Selection and Monitoring of Investment Managers. Selection, monitoring, and termination of investment managers shall occur according to a diligent and methodical process defined in separate policies approved by the Treasurer.

   1. IMD will develop a policy to govern the sourcing and selection of all external investment managers. IMD will document the basis for each external investment manager selection or funding.
   2. IMD will develop an investment manager monitoring, retention, and termination policy applicable to both external investment managers and internal portfolios. IMD will document the basis for any defunding or termination decisions.

E. General Guidelines for Portfolios. The following are general guidelines that apply to each Portfolio for risk management purposes and to implement certain core beliefs. Specific guidelines are in Exhibit 2.

   1. Investment Vehicles. Fund investments may be made through any structure permitted by statute, including investment management agreements, separately managed limited partnerships, commingled limited partnerships, limited liability companies or other limited liability investment vehicles, or open and closed-end commingled investment vehicles. Fund-of-fund vehicles may be utilized, but typically only due to limited resources, access constraints, or specialized mandates.

2. Contracts. Each investment will be governed by a set of legal agreements that are specific to the vehicle. For each external investment manager, permissible investments, and objectives will be clearly defined through such legal agreements. IMD will endeavor to obtain the best fees and terms available and will monitor the investment manager's performance to ensure the manager is adhering to the guidelines set out in the legal agreement. IMD may restrict any investment manager from making certain investments based on state or federal law, state policy, or IMD directives.
3. Investor Protections, Transparency, and Alignment. IMD shall seek protections, transparency, and alignment by negotiating preferred terms with investment managers and using customized vehicles wherever prudent. Choice of vehicle structures should be based on cost effectiveness, mitigating the risk of misalignment, ensuring the safekeeping of assets, and providing accurate, timely, and transparent valuation and monitoring of assets and performance. IMD acknowledges that the nature of most non-public market investments severely limits discretionary control over such investments. In exceptional circumstances, IMD may seek to gain liquidity through the sale of interests in the secondary market or may act to dissolve a partnership or other investment vehicle in the event the contractual agreements are violated.
4. Diversification. Diversification is important in managing portfolio risk and achieving superior risk-adjusted returns across financial market environments. However, given the size of the Fund it is possible to over-diversify and incur substandard performance. IMD will endeavor to thoughtfully diversify across asset categories, strategies, systematic risk exposures, and investment managers, unless otherwise prudent, by considering the marginal impact of new investment allocations on cost, risk, and risk-adjusted returns. IMD will regularly source and evaluate new investments which may offer diversification benefits.
5. Geography. Unless otherwise prohibited, the Fund may invest wherein the issuer, vehicle, or strategy is domiciled in the U.S. and/or outside the U.S.; provided the management team has a demonstrated ability to be successful in meeting the intended investment strategy's objectives.
6. Leverage. Leverage is an important risk factor at the portfolio company level and at the vehicle level. Where authorized, IMD shall review and monitor the use of leverage to determine reasonableness in the context of investment strategy and contribution to risk.
7. Investment Firm Concentration. No external firm shall actively manage more than 25% of a Portfolio on an allocation basis at the time of initial investment, unless specifically approved by the Treasurer.
8. Investment Strategy Concentration. No individual external active investment strategy shall exceed 10% of a Portfolio on an allocation basis at time of initial investment, unless specifically approved by the Treasurer.
9. Fund Concentration. IMD shall consider external firm level risk in sizing an investment/commitment to invest for a given opportunity. Ordinarily, a Portfolio's assets shall constitute less than a 25% economic interest of a given investment vehicle at the time of making the investment/commitment. This limitation does not apply to customized investment programs where the Fund is the sole or principal investor other than the investment manager or its affiliate.
10. Vintage Year. IMD will endeavor to diversify capital commitments across vintage years and, correspondingly, economic, and financial market cycles, to help protect the portfolio from concentration risk in any one year-absent compelling reasons to not diversify. Annual investment work plans will be used to develop a multi-year forward calendar and indicative commitment pacing for Portfolios.
11. Securities Lending. The Cash Portfolio, Investment Grade Fixed Income Portfolio, and Global Public Equity Portfolio may maintain a securities lending program(s) designed to earn incremental income by taking advantage of the market demand for securities held in this portfolio. The incremental income can help offset custodial costs and improve the overall return on Fund assets. Securities Lending will be governed by a separate policy approved by the Treasurer. IMD will review such policy no less frequently than triennially.
12. Transition management. IMD will maintain and periodically update a pool of firms that are able to evaluate and conduct asset transitions. IMD may also utilize such firms or specialists to manage and transact in-kind distributions.

APPENDICES

APPENDIX 1: STRATEGIC ASSET ALLOCATION AND "ROLE-IN-PORTFOLIO" APPROACH

The Strategic Asset Allocation is developed in the context of an intermediate- and long-term economic and financial market outlook and certain core investment beliefs. An expression of the latter is a view as to the role that various risk-reducing assets, return-seeking assets, and skill-based strategies serve in the portfolio to help mitigate the likelihood and severity of not achieving the investment objectives.

As of February 2014, the baseline economic and financial market outlook over the intermediate- to long-term includes:

A. Initially very low interest rates, moderately rising over the intermediate-term
B. Moderately rising inflation
C. Modest public equity market returns by long-term historical standards for the intermediate-term
D. Some benefits to diversification, but all investment approaches are impacted by the low return environment

Fragility due to continued high reliance on global policy makers in face of unprecedented fiscal and monetary interventions, cyclical headwinds, and structural imbalances create two distinct risk scenarios as alternative outcomes to the baseline:

A. U.S. economy has less momentum than expected. Emerging-market balance of payment issues and delayed European normalization. Susceptibility to systemic shocks.
B. Global growth surprises on upside. Inflation rises more than expected. Susceptibility to supply shocks.

The foundations of the Strategic Asset Allocation are the categories labeled: Rates and Liquidity, Growth, Inflation Sensitive and Diversifiers, and Multi-Strategy. The following describe their expected roles-in-the-portfolio and principal risks.

A. Rates and Liquidity

   1. Role in Portfolio. Provide capital preservation, low year-to-year volatility of returns, liquidity, and modest incremental returns above normal return premiums through security selection, interest rate anticipation, yield curve positioning, and sector allocations. With inflation and interest rates expected to rise gradually over the 10 to 15 year period, long duration fixed income is projected to provide low but acceptable returns, particularly on a risk-adjusted basis relative to other investments. Cash returns are expected to increase over time in line with changes in U.S. monetary policy. Long duration fixed income should continue to function as a natural hedge to liabilities. Finally, provide protection in certain risk scenarios involving deflation, systemic risk, and socio-political risk episodes, and facilitate opportunistic investments during market dislocations.

   2. Principal Risks. Nominal investment returns are not sufficient at current yields to achieve Fund investment objectives. High and unanticipated inflation would depress real returns on the longer duration investments. A severe recession could cause corporate bond defaults and capital losses. Liquidity of corporate and asset backed bonds may suffer with systemic stress.

B. Growth

   1. Role in Portfolio. Provide long-term capital growth, with secondary consideration of current income, principally through equity-like investments that are a claim on real income streams. Participation in global economic growth, including emerging markets, through low cost and liquid public equity exposure. Material incremental returns, in excess of long-term risk premiums, due to providing longer duration capital commitments, making operationally

intensive non-public investments involving control, restructuring, or day-to-day management, and exploiting market dislocations through opportunistic allocations. To a lesser extent, earning modest incremental returns by accessing security selection, trading, and hedging skill. Partial diversification of equity risk through use of opportunistic fixed income strategies, non-core real estate, and hedged equity strategies.

2. Principal Risks. The realized equity risk premium is volatile over relatively long periods of time (e.g., 15 years). High and unanticipated inflation could depress real returns on the longer duration opportunistic fixed income investments and non-public market investments utilizing leverage. A recession would cause corporate defaults, equity market underperformance, and capital losses in opportunistic fixed income and non-core real estate. Active investment managers may underperform broad market indices for extended periods of time due to concentrated portfolios, elevated idiosyncratic risk, or poor execution. Publicly traded equity markets are highly efficient. Certain non-public market investment managers may utilize leverage and illiquid structures, which can increase the risk and size of investment loss. There is a high dispersion of active investment manager returns.

C. Inflation Sensitive and Diversifier

1. Role in Portfolio. Provide a balance of capital appreciation and current income with a positive relationship to inflation through explicit indexing, contracted escalators, and participation in economic sectors that benefit from periodic supply constraints, cost-push, or monetary policy-induced inflationary pressures. Provide inflation-adjusted capital preservation through real asset-based lending and equity investments. Modest incremental returns due to providing longer duration capital commitments, making operationally intensive non-public investments involving control or day-to-day management, accessing trading and market-timing skill, including hedging individual securities and commodities and exploiting market dislocations through opportunistic allocations. Partial diversification of equity risk and protection in certain risk scenarios involving heightened systemic risk and socio-political risk.

2. Principal Risks. Nominal investment returns are expected to be lower than growth-oriented investments due to inflation hedging aspects. Investments will have exposure to other systematic risk factors that could negate or mitigate their inflation sensitive qualities over various horizons. Inflation may increase materially in the short-run, with limited or delayed repricing of investments because of underlying operating contracts. A severe recession could cause loan defaults and capital losses. Active investment managers may underperform markets and peers for extended periods of time due to concentrated portfolios, elevated idiosyncratic risk, or poor execution. Certain investment managers may utilize leverage and illiquid structures, which can increase the risk and size of investment loss. There is a high dispersion of active investment manager returns.

D. Multi-Strategy

1. Role in Portfolio. To increase investment flexibility across different asset categories and strategies, including during episodes of heightened macroeconomic risk and systemic risk. Provide efficient compounding of capital through trading and market-timing skill, including hedging individual securities and commodities and exploiting market dislocations through opportunistic allocations. To facilitate hedging of Fund-level risks, as might be prudent, from time to time.

2. Principal Risks. The underlying strategies will have exposure to systematic risk factors found elsewhere in the Fund. Flexible strategies have an implicit market-timing component. Certain investment managers may utilize leverage and illiquid structures, which can increase the risk and size of investment loss. There is a high dispersion of active investment manager returns.

APPENDIX 2: PORTFOLIO INVESTMENT STRATEGY AND GUIDELINES

CASH PORTFOLIO

I. INTRODUCTION

The Cash Portfolio ("Portfolio") is internally managed through the Short Term Investment Fund ("STIF"). The STIF is internally managed and consists of highly diversified liquid money market instruments and short to intermediate Treasuries, Agencies, and AAA-rated corporate obligations.

II. INVESTMENT OBJECTIVES

The Fund is investing in cash to accomplish the following objectives:

A. Preservation of capital. The selection of security types should maintain a focus on the safeguarding of assets.

B. Liquidity. Make investments in securities that maintain a strong liquidity profile.

C. Competitive relative returns. Invest to achieve or exceed the return on the performance benchmark over a long period of time, within reasonable risk parameters.

III. INVESTMENT STRUCTURE

The Portfolio will invest only in STIF.

IV. SPECIFIC INVESTMENT GUIDELINES

In addition to the general guidelines and other requirements of this Policy, the following specific guidelines apply to the Portfolio.

A. Types of Fixed Income Investments

1. General Statute §147-69.1 governs the security types that are eligible for purchase in STIF.
2. The STIF Portfolio can invest in maturities ranging from overnight to five years.

B. Liquidity. The portfolio will be managed with a laddering strategy out to one year that is designed to provide consistent liquidity for short-term cash needs, but allows the portfolio manager to take advantage of investing out the yield curve with a portion of the assets.

C. Leverage. No leverage is allowed

D. Diversification. The table below outlines the diversification guidelines by maturity and asset type.

Maturity Guidelines

	Minimum	Maximum
0 - 1 Year	40%	100%
1 – 3 Years	0%	40%
3 – 5 Years	0%	40%

Security Type Guidelines

	Minimum	Maximum
Repurchase Agreements	0%	40%
US Treasury	25%	100%
US Agencies	0%	75%
Corporate Notes	0%	15%
Other Eligible Securities	0%	10%

If unanticipated and abnormal flows leave the STIF portfolio outside the guidelines, IMD will initiate a rebalancing plan to achieve compliance.

V. PERFORMANCE AND REPORTING GUIDELINES

The benchmark for the Cash Portfolio is the iMoneyNet First Tier Institutional Money Market Funds Net Index. STIF and the benchmark are measured on a cash rate of return or current yield following money market conventions.

INVESTMENT GRADE FIXED INCOME PORTFOLIO

I. INTRODUCTION

The Investment Grade Fixed Income Portfolio ("Portfolio") invests in a highly diversified mix of publicly traded investment grade fixed income securities. The majority of the exposure will be through an internally managed long duration core fixed income account that has exposure across multiple fixed income asset types, including Treasury, agency, corporate and mortgage securities. The Portfolio will have a policy allocation to the Short Term Investment Fund ("STIF") to create a quasi-barbell structure as determined in the 2013 asset liability study. STIF is also internally managed and consists of high quality short-term Treasury, Agency and AAA rated corporate obligations. The Portfolio may include investment grade non-core exposure depending on liquidity needs and/or market environment. The non-core allocation may include more concentrated strategies than core.

II. INVESTMENT OBJECTIVES

The Fund is investing in public high quality fixed income to accomplish the following objectives:

A. Diversification. Exposure to fixed income provides significant diversification to the total Fund due to differences in correlation with other asset types. Fixed Income assets historically have the lowest volatility among statutory eligible asset types. As such, the exposure to the asset class will lower total pension risk over the long term.

B. Capital preservation. Exposure to Treasuries and other very high quality investment grade fixed income assets have historically provided limited risk of principal loss.

C. Liquidity. Provide a source of liquidity to the Fund and other asset classes through the high quality and publicly traded asset types.

D. Competitive relative returns. Invest to achieve or exceed the return on the performance benchmark over a long period of time, within reasonable risk parameters.

E. Deflation protection. The structure of fixed income assets should provide a direct hedge against deflation.

III. INVESTMENT STRUCTURE

The Portfolio will have three major subcomponents.

A. Core Fixed Income. The primary means for fixed income exposure will be an internally managed core fixed income portfolio that strives to provide superior returns at much lower costs than an external account. The expected total costs for managing core fixed income assets are 1-3 basis points. The internally managed Short Term Investment Fund ("STIF") will be the cash vehicle for the core portfolio.

B. Non-Core Fixed Income. Any non-core exposures are expected to be through external investment managers utilizing separate accounts.

C. Non-Core Cash held in the form of STIF.

IV. SPECIFIC INVESTMENT GUIDELINES

In addition to the general guidelines and other requirements of this Policy, the following specific guidelines apply to the Portfolio:

A. Types of Fixed Income Investments

1. U.S. Treasuries
2. U.S. Agencies (FNMA, FHLMC, FHLB, FFCB, GNMA, etc.)
3. Corporate securities
4. Asset backed securities, including mortgage pass through securities
5. Other securities as defined by NCGS § 147-69.2(b)(1) through (b)(6b)

B. Quality. Securities shall bear an investment grade rating at the time of purchase by at least one nationally recognized rating agency as outlined in the statutes.

C. Leverage. No leverage is allowed in the Portfolio

D. Allocation. Authorized ranges and targets by asset type

Total Investment Grade Fixed Income

	Minimum	**Target**	**Maximum**
Core Fixed Income	85%	90%	95%
Non-Core Fixed Income	0%	0%	15%
Non-Core Cash (STIF)	5%	10%	15%

Core Fixed Income

	Minimum	**Target**	**Maximum**
Government (U.S. Treasury & Agency)	25%	30%	35%
Corporate	30%	35%	40%
Mortgage	30%	35%	40%
Cash	0%	0%	5%

E. Duration. The duration of the Portfolio is expected to be approximately five to ten years as reflected by the structure of the performance benchmark. The Portfolio should be within one year (+/-) of the performance benchmark duration. The Core Fixed Income subcomponent should be within one year (+/-) of the performance benchmark duration, excluding cash.

F. Currency. While geographic exposures may be global, all the securities will be U.S. dollar denominated.

V. PERFORMANCE AND REPORTING GUIDELINES

The Portfolio's benchmark is a custom index comprised of longer duration investment grade government, corporate, and mortgage securities and a cash allocation. The benchmark is a custom index comprised of 10% iMoneyNet First Tier Institutional Money Market Funds Net Index and 90% custom BOAML Core Investment Grade Index. The custom BOAML core index comprised of the following weightings: 30% BOAML 5+ years Governments, 35% BOAML 5+ years Investment Grade Corporates, and 35% BOAML Mortgage Master. BOAML signifies: Bank of America Merrill Lynch indices.

GLOBAL PUBLIC EQUITY PORTFOLIO

I. INTRODUCTION

The Global Public Equity Portfolio (“Portfolio”) invests in a highly diversified mix of publicly traded global equities. Any common stock, preferred stock, or other equity-related securities may be utilized (i.e., regardless of market capitalization, style categories, currency denomination, and domicile of issuer), with the exception that a manager may be restricted from purchasing certain securities based on state or federal law, state policy, or Treasurer directives. The portfolio may include internally and externally managed portfolios of publicly traded equity securities. The externally managed portfolios include both active and passive equity managers, and hedge funds which invest primarily in publicly traded equity securities.

II. INVESTMENT OBJECTIVES

The Fund is investing in public equities to accomplish the following objectives:

A. Attractive absolute returns. Achieve long-term equity market returns in a low cost manner with downside risk mitigation. Hedged equity strategies are expected to reduce downside risk of the global equity portfolio.

B. Competitive relative returns. Achieve or exceed the return on the performance benchmark over a long period of time, within reasonable risk parameters.

C. Diversification. Use publicly traded equity to access a wide range of investible global markets and enhance the diversification of the Fund.

D. Liquidity. Provide a source of liquidity to the Fund through the publicly traded asset types in the portfolio held in the long-only vehicles.

III. INVESTMENT STRUCTURE

The Portfolio will have two major subcomponents:

A. Long-Only Public Equity. This subcategory may include internally and externally managed portfolios of publicly traded U.S. equity, non-U.S. Equity, and global equity securities held in long-only vehicles. Investment managers may have mandates that cover one or more of market capitalization: large-cap, mid-cap, and small cap; style categories: growth and value; and regions to include but not limited to: U.S., Developed Non-U.S., Emerging Market, etc. The externally managed portfolios include both active and passive equity managers. However, the internally managed portfolios may only include passive mandates.

B. Hedged Equity. This subcomponent is limited to various equity-based hedge fund strategies implemented through externally managed investment vehicles.

IV. SPECIFIC INVESTMENT GUIDELINES

In addition to the general guidelines and other requirements of this Policy, the following specific guidelines apply to the Portfolio.

A. Allocation. Authorized ranges and targets for the subcomponents of the Portfolio.

Subcomponent	Minimum	Target	Maximum
Long-Only	88%	93%	100%
Hedged Equity	0%	7%	12%

B. Leverage. Leverage is only allowed within the Hedged Equity subcomponent of the Portfolio. IMD shall review the use of leverage to determine the reasonableness in the context of investment strategy.

C. Acknowledgement of Market Efficiency. The Portfolio shall have a reliance on low cost passive strategies scaled according to the degree of efficiency in underlying securities markets, capacity in effective active strategies, and ongoing Fund liquidity requirements.

V. PERFORMANCE AND REPORTING GUIDELINES

The Long-Only Public Equity subcomponent of the Portfolio will be benchmarked to the Morgan Stanley Capital International All Country World Investable Market Index (MSCI ACWI IMI), in dollar terms, net of withholding taxes on non-resident institutional investors. Notwithstanding the foregoing, within such subcomponent, the U.S. Equity portion is to be designed to achieve a rate of return in excess of the Russell 3000 Index; the Non-U.S. Equity portion is to be designed to achieve a rate of return in excess of the Morgan Stanley Capital International All Country Investible Market Index ex-U.S. ("MSCI ACWI Ex-U.S. IMI"); and the Global Equity portion is to be designed to achieve a rate of return in excess of the MSCI ACWI World Index. The Hedged Equity subcomponent of the Portfolio will be benchmarked to a beta adjusted ACWI IMI Index.

The Custom Global Public Equity Benchmark shall consist of a dynamically weighted combination of two components including the MSCI ACWI IMI Index and the custom hedged equity benchmark.

PRIVATE EQUITY PORTFOLIO

I. INTRODUCTION

The Private Equity Portfolio ("Portfolio") invests in a reasonably diversified mix of buyout, venture capital, growth equity, and private special situations vehicles through external managers. The Portfolio will consist of vehicles that primarily invest in corporate buyout transactions or other private equity transactions, including securities that are not publicly traded, such as preferred stock or common stock. Investments by such vehicles may also be made into public companies, where a private investment allows an investment manager to implement their investment strategies.

II. INVESTMENT OBJECTIVES

The Fund is investing in private equity to accomplish the following objectives:

A. Attractive absolute returns. Long-term returns in excess of public market equity returns, sufficient to compensate the Fund for the higher degree of idiosyncratic risk, smaller company equity exposure, and higher portfolio company leverage.

B. Competitive relative returns. Achieve or exceed the return on the performance benchmark over a long period of time, within reasonable risk parameters.

C. Diversification. Utilize certain components of private equity to enhance the diversification of the Fund (e.g., special situations).

III. INVESTMENT STRUCTURE

The Portfolio will have three major subcomponents:

A. Growth. Inclusive of venture capital and growth equity strategies. Growth equity investments, most often minority investments, are in relatively mature companies that are looking for capital to expand or restructure operations, enter new markets or finance a major acquisition without a change of control of the business. Venture capital refers to equity investments made, typically in less mature companies, for the launch of a seed or start-up company, early stage development, or expansion of a less mature business. Venture capital may target the application of new technology, new marketing concepts, and new products that have no or limited track record or stable revenue streams.

B. Buyout. Buyout refers to a strategy of making control investments as part of a transaction in which a company, business unit, or business assets are acquired from the current owners typically with the use of financial leverage. Buyout strategies attempt to create value by using their ownership position to improve the operations, governance, capital structure, and/or strategic position of the companies in which they invest. The companies involved in these transactions are more often mature and generate operating cash flows, but some strategies acquire several similar businesses to create economies of scale and pricing power.

C. Special Situations. A broad set of strategies inclusive of distressed for control, secondary strategies, co-investment, and other strategies not classified into buyout or growth. Secondaries are typically purchased to provide the Portfolio with additional diversification, provide access to certain investment managers, and improve the risk-adjusted returns of the Portfolio; other benefits include blind pool risk-mitigation, J-Curve mitigation, immediate exposure, and accelerated distributions.

IV. SPECIFIC INVESTMENT GUIDELINES

In addition to the general guidelines and other requirements of this Policy, the following specific guidelines apply to the Portfolio.

A. Allocation. Authorized ranges and targets for the subcomponents of the Portfolio are in the following table.

Subcomponents	Minimum	Target	Maximum
Growth	10.0%	20.0%	30.0%
Buyout	35.0%	50.0%	65.0%
Special Situations	15.0%	30.0%	45.0%

B. Leverage. Leverage is authorized within debt-oriented funds, but must be regularly monitored to determine the reasonableness in the context of investment strategy. IMD acknowledges that vehicles utilized will primarily provide discretion to the general partners and managing members for individual vehicles' leverage levels.

V. PERFORMANCE & REPORTING GUIDELINES

The Portfolio's custom benchmark shall be derived from the Cambridge Associates LLC benchmark, net of all fees and expenses (the "Custom Private Equity Benchmark"), comprised of the following: U.S. Private Equity Buyouts and Growth Equity, U.S. Venture Capital, Global (Ex. U.S.) PE and VC, Distressed Securities, Secondaries, and Fund-of-Funds. In addition, the performance of investments may be measured relative to the performance of investment managers employing similar investment strategies, using data provided by reputable sources.

NON-CORE REAL ESTATE PORTFOLIO

I. INTRODUCTION

The Non-Core Real Estate Portfolio invests in a reasonably diversified mix of global equity and debt investments in commercial or residential real estate through external investment managers and vehicles. The Portfolio equity interests may be direct undivided, or financed, ownership in real estate assets, joint ventures, operating companies, publicly traded entities and other private entities. Debt interests may be related to mortgages, participating debt, or mezzanine loans, and would not typically be related to securities. The primary purpose of the investments should be to own real estate or related debt financing.

II. INVESTMENT OBJECTIVES

The fund is investing in the Non-Core Real Estate Portfolio to accomplish the following objectives:

A. Attractive absolute returns. Long-term returns (including appreciation and income returns) that are competitive with long-term public market equity returns and sufficient to compensate the Fund for the higher degree of idiosyncratic real estate risks, leverage, and illiquidity. This objective includes investing opportunistically and with market cycle sensitivity over the long-term.

B. Competitive relative returns. Achieve or exceed the return on the performance benchmark over a long period of time, within reasonable risk parameters.

C. Diversification. Use the investments to enhance the diversification of the Fund given historically low correlations with fixed income and as a result of accessing international real estate markets.

III. INVESTMENT STRUCTURE

The Portfolio will have two major subcomponents:

A. Value. Primarily equity strategies related to properties that are functional, high quality assets with specific property issues, such as high vacancy, significant upcoming lease expirations, or below market rents. Value properties tend to be under-managed and/or underperforming and have some current income from existing leases. Through management and repositioning, there is significant appreciation potential. Value investments have varying degrees of leverage typically ranging from 40% to 65%.

B. Opportunistic. Primarily equity strategies that seek to exploit inefficiencies in the capital and real estate markets and can involve financing, acquisition, restructuring, or development/formation of real estate assets, real estate operating companies (REOC), portfolios of real estate assets, public and private Real Estate Investment Trusts (REIT), and non-traditional property types. Most of the return is expected to be generated from capital appreciation as investments may be originated with minimal income in place. Some opportunistic investments may have a higher level of leverage than value investments, but others may have a low reliance on leverage.

C. Special Situations. Strategies that do not fit either of the other subcomponents, but have non-core-like risk, including those that are primarily public or private commercial real estate debt, preferred, or hybrid strategies related to non-core real estate property or risk exposures. May also include combinations of the above subcomponents and strategies.

IV. SPECIFIC INVESTMENT GUIDELINES

In addition to the general guidelines and other requirements of this Policy, the following specific guidelines apply to the Portfolio:

A. Allocation. Authorized ranges and targets for the subcomponents of the Portfolio are in the following table.

Subcomponent	Minimum	Target	Maximum
Value	30.0%	50.0%	70.0%
Opportunistic	30.0%	50.0%	70.0%
Special Situations	0.0%	0.0%	30.0%

B. Leverage. Leverage is authorized within the Portfolio. Leverage shall be monitored against the following standards, recognizing that the standards are assessed against the composite of all members of the subcomponent and commingled vehicles utilized will primarily provide discretion to the general partners and managing members for individual vehicles' leverage levels.

Subcomponent	Leverage Monitoring Standard
Value	60.0%
Opportunistic	75.0%
Special Situations	50.0%

C. Diversification. The Portfolio is not expected to be highly diversified, but certain exposures shall be monitored to ensure reasonable diversification: property sectors, geographic allocations (i.e., U.S. regions, and non-U.S.), and stages of the land, development, operating/stabilized, restructure/rehabilitate, and redevelopment lifecycle. Each of the foregoing has materially different risks and returns over the market and economic cycle.

V. PERFORMANCE & REPORTING GUIDELINES

The Portfolio's benchmark is the Courtland Property Non Core Index. In addition, the performance of investments may be measured relative to the performance of investment managers employing similar investment strategies, using data provided by reputable sources.

OPPORTUNISTIC FIXED INCOME PORTFOLIO

I. INTRODUCTION

The Opportunistic Fixed Income Portfolio ("Portfolio") invests through external investment managers in a broadly diversified mix of non-investment grade or unrated obligations, debt securities and asset-backed securities including, but not limited to bank loans, high yield, mortgage-backed securities, convertibles, whole loans, mezzanine debt, credit default swaps, collateralized debt obligations, and sovereign debt. Investment managers will primarily invest in assets that are not authorized for the Investment Grade Fixed Income Portfolio and not for the purpose of investing in or owning real estate or related debt financing, excluding asset-backed financing.

II. INVESTMENT OBJECTIVES

The Fund is investing in opportunistic fixed income to accomplish the following objectives:

A. Attractive absolute returns. Long-term returns that are competitive with long-term public equities, after consideration of lower downside risk, due to opportunistic investments, longer duration private investments, restructurings, leverage, hedging, and trading skill.

B. Competitive relative returns. Achieve or exceed the return on the performance benchmark over a long period of time, within reasonable risk parameters.

C. Diversification. Enhance the diversification of the Fund relative to public equity and investment grade fixed income.

D. Capital Preservation. Protect capital through credit-oriented investments and trading strategies that are designed to minimize downside risk.

E. Deflation Protection. The structure of certain fixed income assets may provide protection against the detrimental effects of deflation.

III. INVESTMENT STRUCTURE

The Portfolio will have four major subcomponents:

A. Traditional Corporate Credit. Strategies that invest in high yield bonds and bank loans.

B. Distressed Debt. Predominantly strategies that trade distressed debt, but occasionally actively participate in restructurings and seek control post-reorganization of target issuers. These strategies may have equity exposure.

C. Hedged Fixed Income. Includes hedged implementations of market neutral strategies, relative value strategies, and multi-strategy (i.e., predominantly fixed income) utilizing non-investment grade instruments.

D. Special Situations. Includes mezzanine, direct lending, and structured credit. The latter can include mortgage- and other asset-backed securities and financings.

IV. SPECIFIC INVESTMENT GUIDELINES

In addition to the general guidelines and other requirements of this Policy, the following specific guidelines apply to the Portfolio.

A. Allocation. Authorized ranges and targets for the subcomponents of the Portfolio are in the following table.

Subcomponents	Minimum	Target	Maximum
Traditional Corporate Credit	0.0%	15.0%	50.0%
Distressed Credit	0.0%	25.0%	50.0%
Hedged Fixed Income	0.0%	45.0%	75.0%
Special Situations	0.0%	15.0%	75.0%

B. Duration. Longer duration fixed rate investments may be affected by interest rate movements. The Portfolio will diversify among various types of investments to reduce duration risk.

C. Diversification. The opportunistic nature of the Portfolio may lead to concentrated and illiquid risk exposures from time to time. To mitigate this potential concentration, IMD will attempt to diversify the portfolio among various vehicles based on their liquidity structures and between income- and appreciation-based investments and strategies.

D. Leverage. Leverage is authorized within the Portfolio, but must be regularly monitored to determine the reasonableness in the context of investment strategy. IMD acknowledges that vehicles utilized will primarily provide discretion to the general partners and managing members for individual vehicles' leverage levels.

V. PERFORMANCE & REPORTING GUIDELINES

The Portfolio's custom benchmark is comprised of 50% HFRX Distressed Securities Index, 20% HFRX Relative Value Index, 15% Credit Suisse Leveraged Loan Index, and 15% Merrill Lynch High Yield Index. In addition, the performance of investments may be measured relative to the performance of investment managers employing similar investment strategies, using data provided by relevant, reputable sources.

INFLATION SENSITIVE PORTFOLIO

I. INTRODUCTION

The Inflation Sensitive Portfolio ("Portfolio") invests primarily in a highly diversified mix of assets including commodities-related instruments, Treasury Inflation Protected Securities ("TIPS"), non-U.S. inflation linked bonds, real assets, natural resources equity and debt, infrastructure, floating rate debt securities, and other investments whose primary purpose is providing protection against risks associated with inflation. Internally- and externally-managed portfolios of investments may be utilized with externally managed portfolios including active long-only managers, hedged strategies, and closed-end funds.

II. INVESTMENT OBJECTIVES

The Fund is investing in inflation sensitive assets to accomplish the following objectives:

A. Inflation protection. Provide some degree of protection against the risks associated with inflation.

B. Attractive absolute returns. Provide an attractive return over the long-term by making investments that provide a nominal total return that rises with inflation.

C. Competitive relative returns. Achieve or exceed the return on the performance benchmark over a long period of time, within reasonable risk parameters.

D. Diversification. Enhance the diversification of the Fund's total investment portfolio relative to public equity and nominal fixed income.

E. Liquidity. Provide a source of liquidity to the Fund when other Portfolios are experiencing lower returns due to unanticipated inflation.

III. INVESTMENT STRUCTURE

The Portfolio will have four major subcomponents:

A. Inflation Linked Bonds. Strategies that invest in Treasury Inflation Protected Securities, non U.S. inflation linked bonds, or floating rate debt.

B. Publicly Traded Natural Resources. Strategies that invest in commodity and natural resource public equity and public debt using long-only or hedged implementations.

C. Private Natural Resources. Strategies making non-public market equity or debt investments in timberland, energy, agriculture, and other natural resources implementations.

D. Other Real Assets and Diversifiers. Strategies including infrastructure, real assets (e.g., ships, airplanes, rail cars, mines, real estate, etc.), royalties, and combinations of any of this and the other subcomponents whose primary purpose is providing protection against risks associated with inflation.

IV. SPECIFIC INVESTMENT GUIDELINES

In addition to the general guidelines and other requirements of this Policy, the following specific guidelines apply to the Portfolio.

A. Allocation. Authorized ranges and targets for the subcomponents of the Portfolio are in the following table.

Subcomponents	Minimum	Target	Maximum
Inflation Linked Bonds	0.0%	33.0%	75.0%
Publicly Traded Natural Resources	0.0%	17.0%	50.0%
Private Natural Resources	0.0%	40.0%	75.0%
Other Real Assets and Diversifiers	0.0%	10.0%	50.0%

B. Duration. Longer duration fixed rate investments may be affected by interest rate movements. The Portfolio will diversify among various types of investments to reduce duration risk.

C. Diversification. To allow the Fund to raise liquidity from the Portfolio when inflation negatively impacts other Portfolios, IMD will attempt to diversify the portfolio among various vehicles based on their liquidity structures and between income- and appreciation-based investments and strategies.

D. Leverage is authorized within the Portfolio, but must be regularly monitored to determine the reasonableness in the context of investment strategy. IMD acknowledges that certain vehicles utilized will primarily provide discretion to the general partners and managing members for individual vehicles' leverage levels.

V. PERFORMANCE & REPORTING GUIDELINES

The Portfolio's custom benchmark consists of 33.0% Bank of America Merrill Lynch 0-3 Years U.S. Inflation-Linked Treasury Index, 17% Dow Jones-UBS Commodities Index, and 40% of the dynamically weighted combination of Cambridge Energy Private Equity Index and NCREIF Timberland Index. In addition, the performance of investments may be measured relative to the performance of investment managers employing similar investment strategies and using data provided by relevant, reputable sources.

CORE REAL ESTATE PORTFOLIO

I. INTRODUCTION

The Core Real Estate Portfolio ("Portfolio") invests in a diversified mix of predominantly U.S. domiciled equity and debt investments in core commercial real estate through external investment managers and vehicles. Equity interests may be direct undivided (i.e., wholly owned), or financed, ownership in real estate assets, joint ventures, operating companies, publicly traded entities and other private entities, including in pooled vehicles. Debt interests may be secured by first liens (i.e., mortgages or deeds of trust) on real property and other senior debt financing related to real estate, although not typically securities.

II. INVESTMENT OBJECTIVES

The fund is investing in core real estate to accomplish the following objectives:

A. Attractive absolute returns. Provide an attractive total return over the long term through a high cash yield relative to fixed income securities and the potential for returns from active asset management.

B. Inflation Protection. Make real estate investments that are likely to provide a reasonable hedge against price inflation.

C. Competitive relative returns. Achieve or exceed the return on the performance benchmark over a long period of time, within reasonable risk parameters.

D. Capital Preservation. Make real estate investments that are designed to preserve investment capital through structures that minimize downside risk and provide an acceptable level of current cash flows.

E. Diversification. Use real estate to enhance the diversification of the Funds given the low return correlations historically of real estate with other asset classes (e.g., fixed income).

III. INVESTMENT STRUCTURE

The Portfolio will have three major subcomponents:

A. Private Equity Core Real Estate. Equity strategies that primarily invest in stabilized, institutional quality Class A or B commercial real estate properties in good to excellent condition, well located within their local and regional markets, and of high-quality design and construction. Occupancy in core properties is at market level, there is little upcoming tenant rollover, and the properties have a strong current income constituting 70% to 90% of the total return. Leverage is generally 50% or below.

B. Public Equity Real Estate Securities. Strategies that primarily make core-oriented investments in publicly traded equity securities such as real estate investment trusts (REIT) and real estate operating companies (REOC) using a long-only or hedged implementation.

C. Special Situations. Strategies that do not fit either of the other subcomponents, but have core-like risk, including those that are primarily public or private commercial senior real estate debt, preferred, or hybrid strategies related to core real estate property or risk exposures. May also include combinations of the above subcomponents and strategies.

IV. SPECIFIC INVESTMENT GUIDELINES

In addition to the general guidelines and other requirements of this Policy, the following specific guidelines apply to the Portfolio.

A. Allocation. Authorized ranges and targets for the subcomponents of the Portfolio are in the following table.

Subcomponents	**Minimum**	**Target**	**Maximum**
Private Equity Core Real Estate	50.0%	80.0%	90.0%
Public Equity Real Estate Securities	10.0%	20.0%	40.0%
Special Situations	0.0%	0.0%	30.0%

A. Income and Appreciation Return Mix. The Portfolio will not be dependent on appreciation within the Private Equity Core subcomponent for total returns over the market cycle. Real Estate investment risk is categorized by the balance between income and appreciation expectations of each investment. The higher the income projected, the lower the risk.

B. Geography. The Portfolio may invest in opportunities wherein the vehicle or strategy is domiciled in the U.S. and/or outside the U.S.; provided the management team has demonstrated ability to be successful in meeting the intended investment strategy objectives. The Private Equity Core subcomponent of the Portfolio will invest in various geographies to take advantage of relative value opportunities and diversify the portfolio. Diversification of that subcomponent will be monitored relative to the ODCE NCREIF Regional allocations +/- 15%.

C. Sector. Property type diversification is one of the most important diversification features in terms of impact on returns. The property sectors have historically performed differently over the market and economic cycles and the Private Equity Core subcomponent of the Portfolio should be diversified by property sector. Diversification of that subcomponent will be monitored relative to the ODCE NCREIF property type allocations +/- 15%.

D. Other diversification. The Public Equity subcomponent will be well diversified versus its public equity benchmark evidenced by moderate active risk over the market cycle. Other exposures shall be monitored to ensure reasonable diversification: major U.S. metropolitan markets, individual asset gross value in excess of $150 million. Each of the foregoing has materially different risks and returns over the market and economic cycle.

E. Liquidity. Traditionally real estate is an illiquid asset class with the exception of investment structures such as public real estate securities and open-end fund vehicles that provide liquidity subject to queues. The Portfolio will diversify among the various liquidity vehicles but seeks to have at least 20% of the Portfolio in Level 1 liquid structures and 20% in Level 2 liquid structures.

F. Leverage. Leverage is authorized for the Portfolio. Leverage shall be monitored against standards in the following table, recognizing that the standards are assessed against the composite of all members of the subcomponent and that commingled vehicles utilized will primarily provide discretion to the general partners and managing members for individual vehicles' leverage levels.

Subcomponent and Vehicle Type	Leverage Monitoring Standard
Private Equity Core, Pooled Vehicles	40.0%
Private Equity Core, Separate Accounts	40.0%
Public Equity Real Estate (underlying REITS)	50.0%

G. Investor Control. Over time, the Portfolio will endeavor to invest consistent with the following table for the Private Equity Core subcomponent:

Investment Vehicle	Investor Control	Target
Commingled Funds	Passive	40%
Separate Accounts/ Direct Investments	Investor Control	60%

V. PERFORMANCE & REPORTING GUIDELINES

The Real Estate Portfolio's custom benchmark is static-weighted. It is comprised of 80% weighting of the National Council of Real Estate Investment Fiduciaries Open-End Diversified Core Equity Fund Index ("NCREIF ODCE Index"), net of all fees and expenses, and 20% weighting of the Financial Times and London Stock Exchange ("FTSE") European Public Real Estate Association ("EPRA") and the National Association of Real Estate Investment Trusts ("NAREIT") Global Index ("FTSA/EPRA/NAREIT Global Index"). In addition the performance of each investment may be measured relative to the performance of investment managers employing similar investment strategies and using data provided by relevant and reputable sources.

MULTI-STRATEGY PORTFOLIO

VI. INTRODUCTION

The Multi-Strategy Portfolio (“Portfolio”) invests in externally managed vehicles that have the flexibility to invest across markets, asset classes, commodities, and currencies, including hedging. Strategies may include opportunistic, event-driven, and relative value multi-strategy, global macro, rebalancing, tail hedging and overlays.

VII. INVESTMENT OBJECTIVES

The Fund is investing in multi-strategy vehicles to accomplish the following objectives:

A. Attractive absolute returns. Provide efficient compounding of capital through trading and market-timing skill, including hedging individual securities and commodities and exploiting market dislocations through opportunistic allocations.

B. Competitive relative returns. Achieve or exceed the return on the performance benchmark over a long period of time, within reasonable risk parameters.

C. Diversification. To increase investment flexibility across different asset categories and strategies, including during episodes of heightened macroeconomic risk and systemic risk, and to facilitate hedging of Fund-level risks, as might be prudent, from time to time.

VIII. INVESTMENT STRUCTURE

The Portfolio will have no subcomponents.

IX. SPECIFIC INVESTMENT GUIDELINES

In addition to the general guidelines and other requirements of this Policy, the following specific guidelines apply to the Portfolio.

A. Diversification. To allow the Fund to raise liquidity from the Portfolio when other markets are volatile, IMD will attempt to diversify the portfolio among various vehicles based on their liquidity structures and between income- and appreciation-based investments and strategies.

B. Leverage is authorized within the Portfolio, but must be regularly monitored to determine the reasonableness in the context of investment strategy. IMD acknowledges that certain vehicles utilized will primarily provide discretion to the general partners and managing members for individual vehicles’ leverage levels.

X. PERFORMANCE & REPORTING GUIDELINES

A custom index comprised of a dynamically weighted combination of the HFRX Multi-Strategy Hedge Fund Index, net of fees, and the market value weighted benchmarks for any other total fund strategies within the Portfolio. In addition, the performance of investments may be measured relative to the performance of investment managers employing similar investment strategies, using data provided by relevant and reputable sources.

APPENDIX 3: STATUTORY COMPLIANCE PROCEDURES

I. STATUTORY MINIMUM AND MAXIMUM ALLOCATIONS.

Section 147-69.2(b) of the North Carolina General Statutes requires that the Fund be managed consistent with minimum and maximum percentages for certain classifications of investments. Table A3-1 summarizes these statutory requirements.

Table A3-1: Statutory Minimum and Maximum Allocations

	Statutory Citation	Minimum or Maximum Percentage of Fund
1	NCGS §§ 147-69.1(c) and 147-69.2(b)(1)-(6b) for fixed income and cash	At least 20%
2	NCGS § 147-69.2(b)(8) for public equity	No more than 65%
3	NCGS § 147-69.2(b)(8)(b.) for public equity limited liability investment	No more than 8.5%
4	NCGS § 147-69.2(b)(6c) for other fixed income	No more than 7.5%
5	NCGS § 147-69.2(b)(7) for real estate	No more than 10%
6	NCGS § 147-69.2(b)(9) for private equity and other alternatives	No more than 8.75%
7	NCGS § 147-69.2(b)(9a) for inflation protection	No more than 7.5%
8	NCGS § 147-69.2(b)(10a) for the 35% aggregate portfolio limit	The sum of rows 3 to 7; No more than

Effective August 23, 2013, as amended by N.C. Session Law 2013-398.

Pursuant to the Chief Investment Officer's August 13, 2013 letter to the General Assembly, in the event of any perceived ambiguity in the statute, the lowest and most restrictive limits specified in the statute will apply. These limits are set out above in Table A3-1.

II. STATUTORY INVESTMENT CLASSIFICATIONS AND INVESTMENT POLICY STATEMENT PORTFOLIO DEFINITIONS

The General Statutes' limits, summarized in Table A3-1, utilize a series of broad classifications. The Portfolios described in this Policy will in most cases be sub-divisions of the broad investment classifications described in the General Statutes, but may contain investments from multiple General Statute classifications. Table A3-2, below, compares the General Statutes classifications to the Portfolio definitions found in the Investment Policy Statement.

Table A3-2: Comparison between Statutory Classifications and Investment Policy Statement Portfolios

Investment Policy Statement Portfolios	Relevant Subsection of General Statutes
Investment Grade Fixed Income	NCGS §§ 147-69.1(c), 147-69.2(b)(1)-(6b)
Cash	NCGS § 147-69.1(c)
Global Public Equity (Long-Only Subcomponent)	NCGS § 147-69.2(b)(8)(a.),(c.)
Global Public Equity (Hedged Equity Subcomponent)	NCGS § 147-69.2(b)(8)(b.)
Private Equity	NCGS § 147-69.2(b)(9)
Non-Core Real Estate	NCGS § 147-69.2(b)(7) ***OR*** NCGS § 147-69.2(b)(8)(a.),(c.)
Opportunistic Fixed Income	NCGS § 147-69.2(b)(6c)
Inflation Sensitive	NCGS § 147-69.2(b)(9a)
Core Real Estate	NCGS § 147-69.2(b)(7) ***OR*** NCGS § 147-69.2(b)(8)(a.),(c.)
Multi-Strategy	NCGS § 147-69.2(b)(9) ***OR*** NCGS § 147-69.2(b)(8)(b.)

III. STATUTORY COMPLIANCE MONITORING

A. Classification of Investments' Statutory Classification. To ensure ongoing compliance, classification of new investments for these purposes will be determined through investment and legal analysis prior to executing any related contract. Within 60 days of the end of each fiscal year following the effective date of this Policy, IMD will prepare for the Treasurer's approval a certification of the statutory classification for all outstanding investments.

B. Ongoing Monitoring. Compliance with the requirements and limitations of NCGS § 147-69.2, including maximum and minimum allocations to certain statutory classifications of investments, will be monitored by IMD on an ongoing basis, and IMD will prepare a quarterly report for review by the Treasurer within 45 days of the end of each fiscal quarter. As required by NCGS § 147-69.2(b), for purposes of computing market values for the statutory percentage limitations, all investments shall be valued as of the last date of the most recent fiscal quarter.

C. Prohibition on New Investments If Outside Statutory Limits. IMD may not recommend to the Treasurer any investment or commitment to an investment vehicle, if such investment or commitment would reasonably cause the Fund to violate any statutory classification limit or other statutory requirement as summarized in Table A3-1.

D. Managing Existing Investments If Investments Fall Outside Statutory Authorizations and Limits. As provided by NCGS § 147-69.2(b), the Treasurer has discretion to manage existing investments should events occur that create non-compliance with statutory requirements after an authorized investment is made.[4] On a monthly basis, all such instances of non-compliance will be reported to the Treasurer and, at least annually, IMD will recommend an action plan to the Treasurer to address the non-compliance.

[4] NCGS § 147-69.2(b) states, in part: "If an investment was authorized by this subsection at the time the investment was made or contractually committed to be made, then that investment shall continue to be authorized by this subsection, and none of the percentage or other limitation on investments set forth in this subsection shall be construed to require the State Treasurer to subsequently dispose of the investment or fail to honor any contractual commitments as a result of changes in market values, ratings, or other investment qualifications."

GLOSSARY

Absolute: can refer to the performance or volatility of an investment and is measured on a standalone basis

Beta: systematic risk, of a security, portfolio, or Fund measured relative to a market or risk factors

Ex-Ante: expected returns or expected volatility

Ex-Post: realized returns or realized volatility

Information Ratio: a risk-adjusted return that is measured by dividing active return (i.e., portfolio return – benchmark return) by the tracking error

Relative: the performance or volatility of an investment measured versus a stated benchmark or reference portfolio

Sharpe Ratio: a risk-adjusted return that is measured by dividing investment return less the risk free rate by the standard deviation of the investment

Tracking Error or Active Risk: the standard deviation of relative returns (portfolio returns – benchmark returns) over some period

APPROVAL

Approved by State Treasurer Janet Cowell on___________________.

REVISION HISTORY

Version/Revision	Date Approved	Description of Changes
1.0	November 26, 2012	Initial version
2.0		Revision and Restatement

DEPARTMENT OF STATE TREASURER
INVESTMENT MANAGEMENT DIVISION

INVESTMENT POLICY STATEMENT FOR NORTH CAROLINA RETIREMENT SYSTEMS

DST Reference:	IMD-POL-1000-ALL
Title:	Investment Policy Statement for North Carolina Retirement Systems
Current Effective Date:	November 26, 2012
Version/Revision:	1.0
Revision History:	Initial version
Original Effective Date:	November 26, 2012

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I. INTRODUCTION AND PURPOSE

A. Program Overview

The North Carolina Retirement Systems include the Teachers' and State Employees' Retirement System, the Consolidated Judicial Retirement System, the Firemen's and Rescue Workers' Pension Fund, the Local Governmental Employees' Retirement System, the Legislative Retirement System, and the North Carolina National Guard Pension Fund (collectively, the "Retirement Systems" or the "NCRS"). The Treasurer of the State of North Carolina ("Treasurer") maintains the investment program for the Retirement Systems (the "Fund" or "Pension Fund Program"). The Investment Management Division (the "IMD") of the North Carolina Department of State Treasurer (the "DST") serves as the investment arm of the State Treasurer. Under the direction of the Treasurer, IMD manages the Fund and ancillary programs.

B. Purpose of This Policy

The Treasurer sets forth this Statement of Investment Policy (the "Policy" or the "Investment Policy"), which states the long term objectives and guidelines for the IMD with respect to Fund investment portfolio management. The Policy's purpose is to capture strategic considerations for the total Fund and individual asset classes. The IMD staff shall recommend revisions to this Policy to the Treasurer on an as needed basis, but will review the Policy no less frequently than annually.

C. Related Laws and Policies

Article 5, Section 6. (2) of the North Carolina Constitution reflects the establishment of pension funds. North Carolina General Statute ("NCGS") §147-69.2 prescribes eligible investments for Fund assets and sets maximum percentages certain asset classes can comprise of total invested assets of the Fund. North Carolina General Statute §147-69.3 contains certain provisions regarding administration of the investment programs of the Treasurer, including the Pension Fund Program.

The investments of the Pension Fund Program include investments pursuant to (i) NCGS §147-69.2(b)(8) (the "Public Equity Portfolio"), (ii) NCGS §147-69.2(b)(1) through (b)(6b) (the "Fixed Income Portfolio"), (iii) NCGS §147-69.2(b)(7) (the "Real Estate Portfolio"), (iv) NCGS §147-69.2(b)(6c) (the "Credit Strategies Portfolio"), (v) NCGS §147-69.2(b)(9a) (the "Inflation Protection Portfolio"), and (vi) NCGS §147-69.2(b)(9) (the "Alternative Investment Portfolio"). Collectively, the systems and funds constituting the Retirement Systems each have a proportionate share of these portfolios.

The Treasurer is the sole fiduciary with respect to investment of the assets of the Fund, and the Treasurer is obligated to discharge his or her duties solely in the interest for the participants and beneficiaries of the Retirement Systems and otherwise in accordance with NCGS §147-69.7. The Treasurer has adopted a Signatory Authority Policy (revised effective November 22, 2011) that sets forth the authorizations for IMD staff to act on behalf of the State Treasurer with regard to investment-related matters. The Signatory Authority Policy defines what authority the State Treasurer has delegated and what authority the State Treasurer has retained. Notwithstanding anything in this Policy to the contrary, any action by IMD staff under this Policy shall be subject to compliance with the Signatory Policy, including execution of documents by the Treasurer and/or such person designation under the Signatory Policy.

This Policy and the Signatory Authority Policy, taken together, are intended to cover all general matters concerning investment of NCRS funds. This Policy replaces all the prior general investment policy statements for NCRS investments. Additional policies, procedures, or desktop guides document certain matters which are highly specialized or routine in nature.[*] If a conflict appears to exist between this Policy and any other policy, rule, procedure, or desktop guide, staff must contact the Chief Investment Officer and the Department's in-house legal counsel.

II. ROLES AND RESPONSIBILITIES

The fiduciary responsibility to manage the plan assets in a prudent manner rests with the State Treasurer and IMD. The Treasurer may delegate certain investment responsibilities to the IMD as outlined in the roles and responsibilities below.

In addition, the State Treasurer will be advised by the Investment Advisory Committee ("IAC"), which was established by state law to provide guidance with respect to NCRS investments. The statute states that the IAC "shall have advisory powers only." NCGS §147-69.2(b1). The roles and responsibilities of the IAC are outlined in this section.

A. Investment Advisory Committee

- i. Advise and provide oversight of the Fund's fiduciaries
- ii. Assist in selection and evaluation of the Chief Investment Officer
- iii. Review statutory revisions being recommended to the General Assembly
- iv. Review and provide comments on all Investment Policies
- v. Review and advise on asset allocations and benchmarks
- vi. Review and evaluate the process for the selection and monitoring of investment managers
- vii. Monitor the implicit and explicit costs of the Fund
- viii. Evaluate the risk analytics of the Fund over various time periods
- ix. Review the selection and retention of the custodial bank
- x. Review and evaluate the use of investment consultants and third party service providers
- xi. Review and comment on performance, portfolio summary and risk reports

B. State Treasurer

- i. The Treasurer serves as the sole fiduciary of the Fund
- ii. Select and evaluate the Chief Investment Officer
- iii. Recommend statutory revisions to the General Assembly
- iv. Approve all Investment Policies and any revisions thereto; Ensure all policies are followed
- v. Approve asset allocation targets and benchmarks as recommended by the IMD/IAC
- vi. Approve and terminate investment managers as recommended by the IMD
- vii. Approve investment recommendations that maximize the cost effectiveness of the Fund
- viii. Review the risk analytics of the Fund over various time periods
- ix. Approve selection and retention of custodial bank

[*] This Policy does not displace DST's provisions in the North Carolina Administrative Code. However, staff should take care when interpreting Administrative Code provisions to ensure that those Code provisions have not been repealed or made obsolete due to changes in the applicable statutes.

x. Approve selection and retention of consultants and third party service providers as recommended by the IMD
xi. Review performance, portfolio summary and risk reports
xii. Consult with legal regarding documents, securities litigation, and other legal matters
xiii. Appoint IAC members and chair the committee

C. Investment Management Division

i. IMD assumes a fiduciary duty in its role of Fund management
ii. Have clearly defined responsibilities for the Chief Investment Officer and other team members
iii. Recommend statutory revisions to the Treasurer
iv. Draft and make recommendations to the Investment Policy; Ensure compliance with polices and guidelines for all investment related activities and third party service providers
v. Research and recommend asset allocation targets and benchmarks
vi. Source and conduct due diligence on attractive investment opportunities; Make investment manager hire and termination recommendations to the Treasurer
vii. Give investment recommendations that maximize the cost effectiveness of the Fund
viii. Generate and review the risk analytics of the Fund at various time periods
ix. Manage and monitor the custodial bank relationship
x. Review resources and make recommendations for the retention of investment consultants and third party service providers
xi. Prepare performance, portfolio summary and risk reports for Treasurer and IAC
xii. Consult with legal regarding documents, policy, securities litigation, and other legal matters
xiii. Prepare data and presentations for the IAC
xiv. Assist the Treasurer with respect to all matters related to the Pension Fund Program, including: requests from the Board of Trustees and considerations of the Financial Operations Division

III. INVESTMENT OBJECTIVES

It is the policy of the Treasurer to invest in a manner which is designed to:

A. Primary focus on principal protection through diversification
B. Stability and consistency of returns is paramount; avoid extreme portfolio losses
C. Determine an appropriate level of risk for Fund investments
D. Maximize Fund investment returns for the stated level of risk
E. Ensure returns meet or exceed the actuarial assumption over a long time horizon
F. Exceed composite benchmark return for the total Fund and individual asset classes
G. Ensure sufficient liquidity to meet the Fund’s obligations
H. Comply with all governing statutes

IV. PENSION FUND PROGRAM DESIGN AND IMPLEMENTATION

A. Liabilities

It is the primary objective of the Fund to ensure that all liability payments and obligations are met. The Retirement Systems’ actuary advises the Retirement Systems’ Board of Trustees with respect to setting the actuarial rate of return and annual required contributions. The Board of Trustees has been granted the authority by the legislature to set the actuarial rate of return for the Fund, which is currently 7.25%.

B. Asset Allocation and Rebalancing

i. Asset Allocation Target and Ranges

It is the desire of the Fund to maintain stable contribution rates and benefit levels by providing consistent risk-adjusted returns through a diversified investment approach. The strategic asset allocation will be developed based on an analysis of optimized portfolios, utilizing risk and return characteristics of eligible asset classes, and selecting the most efficient portfolio for a given level of risk. Careful consideration will be given to the Fund's liabilities, liquidity needs, risk tolerance and return objective. Each asset class will have a targeted percentage of total Fund assets. The optimal asset mix is not necessarily the one that produces the highest absolute return, but rather the optimal asset mix attempts to achieve the least amount of risk given the desired level of return and other objectives of the Fund.

The strategic asset allocation will be reviewed no less than annually with a detailed analysis conducted triennially. The current strategic asset allocation targets are detailed below.

Asset Class	Target
Fixed Income	36.0%
Global Equity	40.5%
Real Estate	8.0%
Alternatives	6.5%
Credit	4.5%
Inflation Protection	4.5%

ii. Portfolio Rebalancing

In order to maintain the proper asset allocation ranges over time, a sound rebalancing plan is essential. The IMD staff anticipates that the ongoing natural cash flows of the Fund (contributions and withdrawals) will be the initial and most cost effective way to maintain the asset allocation of the Fund within policy guidelines under most market conditions. However, when a liquid asset class falls below or exceeds a boundary of +/- 2.5% relative to its target weight, the IMD Staff will initiate rebalancing and rebalance the portfolio as soon as practicable. The IMD Staff may utilize physical securities and derivatives, including options, to accomplish rebalancing to the extent otherwise consistent with applicable statutes and this Policy.

C. Total Plan Policy Benchmark

The total plan policy benchmark will be used to measure the relative performance of the Fund as a whole and the Fund's total risk-adjusted returns. The total plan policy benchmark will be comprised of the weighted performance of the individual asset class benchmarks. Individual benchmarks for asset classes will be outlined in each respective section later in this document.

D. Risk Management

i. Return Volatility

The investment risk of the Fund is measured by return volatility, which is the annualized standard deviation of returns. The volatility of returns is expected to be consistent with the overall mix of assets within the Fund and risks inherent in the various investment strategies employed. Utilizing the Fund's risk management system, volatility will be measured ex-ante and ex-post both on an absolute and relative basis. Risk-adjusted returns are measured primarily by the Sharpe and Information Ratios. The table below illustrates the IMD's expectation with regard to absolute risk for each asset class.

Asset Class	**Relative Volatility**
Fixed Income	Low
Global Equity	High
Real Estate	Moderate to High
Alternatives	Moderate to High
Credit	Low to Moderate
Inflation Protection	Moderate to High

ii. Diversification

Diversification is important in reducing portfolio risk and accomplishing superior risk-adjusted returns. The impact of investments on portfolio diversification, portfolio risk, and risk-adjusted returns shall be considered when evaluating prospective investments. The Fund will be properly diversified across asset classes, systematic risk exposures and external investment managers. The IMD will continually source and evaluate new investments which may offer diversification benefits.

iii. Liquidity

The Fund will maintain a liquidity profile that will allow it to meet cash flow needs and obligations. The liquidity profile will be monitored regularly and evaluated annually.

iv. Risk Metrics

While achieving the return objectives, the Fund will target certain levels of risk which include:

a. A long-term total fund volatility (standard deviation of total returns) of 10% or less, which will be targeted through the Fund's asset allocation. There may be periods in which the total Fund's volatility exceeds 10% due to tracking error (active risk) from the various asset classes or extreme market events.

b. A long-term total fund tracking error (standard deviation of the total Fund's returns relative to the total Fund custom benchmark returns) of 2% or less, which will be targeted through a total fund risk budgeting process.

c. The Fund will be measured against various risk/return ratios to evaluate the risk-adjusted returns and the effectiveness of it portfolio construction. The primary ratios will include the Sharpe and Information Ratio, and will be evaluated on a rolling three year basis.

E. Investment Structures

Investments within the Fund may be made through any structure permitted by statute, including, without limitation, separately managed accounts, single investor limited partnerships and limited liability companies, or open and closed-end commingled investment vehicles. Each investment will be governed by a set of legal agreements that are specific to the investment structure.

F. Internal and External Investment Management

i. Internal Investment Management

The IMD will manage certain portions of the portfolio internally with the objective of outperforming the asset class policy benchmark in accordance with established risk parameters and at a reduced investment management cost. The benefits of internal investment management include lower investment costs, liquidity and transparency. Given the operational complexity of managing many strategies as permitted by statute, including illiquid strategies, the Fund will only manage public market securities internally. Currently, the Fund has statutory authority to manage investment grade fixed income and passive public equity internally. The Investment Director of the respective asset class retains the ability to pursue their investment strategy within their portfolio's stated guidelines.

ii. External Investment Management

The IMD Staff will utilize external investment managers to manage certain portions of the Fund's portfolio. All external managers will have a fiduciary responsibility with respect to the assets under management. The terms and conditions of the investment relationship will be governed by the set of investment documents specific to the investment. External investment management will reside primarily in the active portions of the Fund including active global equity, alternatives, real estate, credit and inflation. The external managers will operate within an established set of guidelines with the objective of outperforming their specific benchmark. The IMD will identify, perform due diligence and monitor the external investment managers.

G. Selection and Monitoring of Investment Managers

IMD Staff will strive to source managers to recommend to the Treasurer through all means possible, including: manager database searches, publications, professional referrals, consultants, conferences, and published requests for information. By utilizing all sources and considering all managers, IMD Staff will be able to best ensure that only the managers offering the best combination of risk and reward are being utilized for the fund. Because the nature of the investment mandates for each portion of the portfolio are so different, preparing a comprehensive, Fund-wide policy for the sourcing and selection of managers is not feasible. In lieu of a Fund-wide policy, IMD Staff will document the basis for each manager selection on a search by search basis.

Each manager selected to manage assets on behalf of the Fund will be evaluated and monitored on an ongoing basis. Review frequency for each manager will be dependent on the nature of the investment; however, a comprehensive review will be done no less frequently than annually. In-person reviews in either the IMD offices or managers' offices are always preferred to the extent possible, given staffing levels and budget considerations. It will be the policy of IMD Staff to see removal of managers when feasible whenever there has been a material change in the original investment thesis or confidence is lost in the ability of the manager to perform.

V. REPORTING REQUIREMENTS

While monthly data will be maintained internally, our custodian shall calculate, in compliance with industry standards, quarterly performance measurement reports which reasonably describe the Total Fund performance, compared to the benchmarks previously outlined. The quarterly reports shall compare benchmarks established for the portfolio and investments to actual performance, with a focus on performance variances. Quarterly reports shall monitor the risk factors previously described and evaluate compliance with portfolio guidelines including asset allocation targets, asset valuation, and performance and portfolio statistics for the Fund and individual asset classes and strategies.

PROVISIONS FOR PARTICULAR ASSET CLASSES

PUBLIC EQUITY

I. INTRODUCTION

The Public Equity Portfolio is categorized into four major categories: U.S. Equity, Non-U.S. Equity, Global Equity, and Hedged Equity. The portfolio may include internally and externally managed portfolios of publicly traded equity securities. The externally managed portfolios include both active and passive equity managers, and hedge funds which invest primarily in publicly traded equity securities.

II. INVESTMENT OBJECTIVES

The Fund is investing in public equities to accomplish the following objectives:

A. Attractive Returns. Provide an attractive equity return over the long term by making investments with expected returns commensurate with their respective risk levels. Achieving attractive returns commensurate with an appropriate level of risk should be accomplished using both long-only and hedged equity strategies. Hedged equity strategies are expected to reduce downside risk of the global equity portfolio while achieving equity-like returns.

B. Portfolio Diversification. Use publicly traded equity to enhance the diversification of the Fund's total investment portfolio.

C. Liquidity. Provide a source of liquidity to the pension fund and other asset classes through the publicly traded asset types in the portfolio.

III. INVESTMENT STRUCTURES

A. Investment Vehicles and Contracts. The Public Equity investment vehicles and contractual arrangements should be based on achieving the most cost effective structure that ensures the safekeeping of assets while providing accurate, timely, and transparent valuation of assets. These structures can include: separately managed accounts, commingled accounts of the custodian/trustee, limited partnership interests in a limited partnership or any other vehicle or contractual arrangement permitted by statute. Investments can be made directly to single strategy or indirectly to multiple strategies via a "fund of funds" structure.

B. Types of Equity Securities. The Public Equity Portfolio can be divided into subcategories based on market capitalization: large-cap, mid-cap, and small cap; style categories: growth and value; and regional categories to include but not limited to: U.S., Developed Non-U.S., Emerging Market, etc. Each of these subcategories can include passive or active strategies. The Public Equity Portfolio can also include various equity-based hedge fund strategies.

The IMD staff shall periodically review the actual portfolio structure and compare to the policy benchmarks. Adjustments can be based on various factors including materiality of the variance, market conditions, and expectations of future market returns for different categories and liquidity.

C. Restricted Securities. A manager may be restricted from purchasing certain securities based on state or federal legislation, state policy, or Treasurer directives.

   For each external investment manager, permissible investments and objectives will be clearly defined in the investment management agreement or governing agreements of the investment vehicle. IMD staff will monitor the investment manager's performance to ensure the manager is adhering to the guidelines.

IV. INVESTMENT GUIDELINES

The portfolio management and monitoring of the Public Equity Portfolio shall be consistent with the following guidelines:

A. Return Volatility. An investment's risk exposure is generally defined by return volatility. The volatility of returns is expected to be consistent with the investment strategy employed and relative to other investment managers with similar investment objectives.

B. Total Return Mix. The publicly traded equity investments offer varying proportions of expected income and appreciation returns depending on their strategy.

C. Diversification. Diversification is important in reducing risk in the Public Equity Portfolio and accomplishing superior risk-adjusted returns. The impact of investments on portfolio diversification, portfolio risk, and risk-adjusted returns shall be considered when evaluating prospective investments.

D. Investment Firm Concentration. No firm shall manage more than 25% of the total Public Equity Portfolio on an allocation basis at the time of initial investment, unless specifically approved by the Treasurer.

E. Investment Manager Concentration. No individual investment manager shall exceed 10% of the Public Equity Portfolio on an allocation basis at time of initial investment, unless specifically approved by the Treasurer. This limitation does not apply to passive investment strategies.

F. Fund Concentration. IMD staff shall consider firm level risk in sizing an investment/commitment to invest for a given opportunity. Ordinarily, the Public Equity Portfolio's investment in a vehicle shall constitute less than a 25% economic interest of the vehicle at the time of making the investment/commitment. This limitation does not apply to customized investment programs where the Fund is the sole investor other than the investment manager or its affiliate.

V. PERFORMANCE AND REPORTING GUIDELINES

The U.S. Equity portion of the Global Equity Portfolio is to be designed to achieve a rate of return in excess of the U.S. equity market as measured by the Russell 3000. The Non-U.S. Equity portion of the Global Equity Portfolio is to be designed to achieve a rate of return in excess of the international equity market as measured by the Morgan Stanley Capital International All Country Investible Market Index ex-U.S. ("MSCI ACWI Ex-U.S. IMI"). The Global Equity portion of the Global Equity Portfolio is to be designed to achieve a rate of return in excess of the MSCI ACWI World Index. The Hedged Equity portion of the fund portfolio is to be designed to achieve a rate of return comparable to the policy return for the U.S. and Non-U.S. long-only portion of the portfolio however at lower volatility.

The Custom Equity Benchmark shall consist of a dynamically weighted combination of four components including the Russell 3000 Index, MSCI ACWI Ex-U.S. IMI Index, MSCI ACWI Index, and custom hedged equity benchmark.

Monthly, the IMD staff will review the absolute and relative return performance of the Global Equity Portfolio. The performance analysis will be calculated in compliance with industry standards and compared to the benchmarks previously outlined. In addition, the Staff will review various risk factors associated with the Global Equity Portfolio. These can include volatility, stock, sector and country allocations.

VI. VALUATION POLICY

Generally, for publicly traded equity securities, the IMD will rely on the valuation of investments as reported by the custodian or third party administrator based on market prices. These third party vendors are used to provide a variety of Pension Fund Program services including independent valuation and return calculations for total Fund assets.

VII. OTHER

A. Proxy Voting

Due to the significant volume of proxies and numerous issues for each proxy, research and voting activities for U.S. proxies are performed by a third party vendor. For Non-U.S. proxies, the investment managers are responsible for performing this activity.

B. Securities Lending

The Public Equity portfolio may maintain a securities lending program designed to earn incremental income by taking advantage of the market demand for securities held in the Public Equity Portfolio. The incremental income can help offset custodial costs and improve the overall return on Fund assets. Securities Lending will be governed by a separate policy adopted by the Treasurer.

FIXED INCOME

I. INTRODUCTION

The Fixed Income Portfolio is comprised of publicly traded investment grade fixed income securities. The majority of the exposure will be through an internally managed core fixed income portfolio. A core portfolio is defined as a diversified investment grade portfolio that has exposure across multiple fixed income asset types, including Treasury, agency, corporate and mortgage securities. The fixed income allocation may also include investment grade non-core exposure used based on liquidity needs and/or market environment. Non-core allocation may include more concentrated strategies than core, as well as allocations to the internally managed Short Term Investment Fund (STIF). The STIF portfolio is a high quality short term fixed income portfolio consisting primarily of Treasury, Agency and AAA rated corporate obligations.

II. INVESTMENT OBJECTIVES

The Fund is investing in public fixed income to accomplish the following objectives:

A. Diversification. Exposure to fixed income provides significant diversification to the total Fund due to differences in correlation with other asset types. Fixed Income assets historically have the lowest volatility among statutory eligible asset types. As such, the exposure to the asset class will lower total pension risk over the long term.

B. Capital Preservation. Exposure to Treasuries and other investment grade fixed income assets have historically provided limited risk of principal loss.

C. Liquidity. Provide a source of liquidity to the Fund and other asset classes through the high quality and publicly traded asset types in the portfolio.

D. Attractive returns. Enhance total Fund returns by making investments in a diversified portfolio of fixed income securities with attractive risk adjusted returns.

E. Deflation protection. The structure of fixed income assets should provide a direct hedge against deflation.

III. INVESTMENT STRUCTURE

A. Investment Structures

i. Core Fixed Income. The primary means for fixed income exposure will be an internally managed cored fixed income portfolio that strives to provide superior returns at much lower costs than an external account. The expected total costs for managing core fixed income assets are 1-3 basis points. The internally managed Short Term Investment Portfolio ("STIF") will be the cash vehicle for the core portfolio.

ii. Non-Core Fixed Income. Any non-core exposure would be through the STIF portfolio and/or separately managed external accounts.

B. Types of Fixed Income Investments

i. U.S. Treasuries

ii. U.S. Agencies (FNMA, FHLMC, FHLB, FFCB, GNMA, etc.)

iii. Corporate securities

iv. Asset backed securities, including Mortgage pass through securities

v. Other securities as defined by N.C.G.S. § 147-69.2(b)(1) through (b)(6b)

IV. INVESTMENT GUIDELINES

A. Quality. Securities shall bear an investment grade rating at the time of purchase by at least one nationally recognized rating agency as outlined in the statutes.

B. Return Volatility. An investment's risk exposure is generally defined by the return volatility. The volatility of the return is expected to be consistent with the investment strategy for core fixed income assets.

C. Leverage. No leverage is allowed in the fixed income allocation

D. Allocation. Guidelines by asset type for Core Fixed Income (excluding cash)

	Min	**Target**	**Max**
Government (U.S. Treasury & Agency)	35.0%	40.0%	45.0%
Corporate	30.0%	35.0%	40.0%
Mortgage	20.0%	25.0%	30.0%

E. Duration. The duration target for the core fixed income is expected to be approximately five to ten years to hedge against interest rate risk from the NCRS's long term liabilities. The core portfolio should be within one year (+/-) of the benchmark duration.

F. Currency. While geographic exposures may be global, all the securities will be U.S. dollar denominated.

V. PERFORMANCE AND REPORTING GUIDELINES

The benchmark for the Fixed Income portfolio is a custom Bank of America Merrill Lynch (BOAML) Index comprised of 5+ year maturity Investment Grade Government, Corporate and Mortgage securities. The benchmark is comprised of the following weightings: 40% BOAML 5+ years Governments, 35% BOAML 5+ years Investment Grade Corporates, and 25% BOAML Mortgage Master.

Monthly performance measurement reports, which reasonably describe the Fixed Income Portfolio performance, shall be calculated in compliance with industry standards and compared to the benchmarks previously outlined.

VI. VALUATION POLICY

The securities in the fixed income allocation are priced by the custodian based on market prices using a nationally recognized pricing vendor.

VII. OTHER

A. Securities Lending

The Fixed Income portfolio may maintain a securities lending program designed to earn incremental income by taking advantage of the market demand for securities held in this portfolio. The incremental income can help offset custodial costs and improve the overall return on Fund assets. Securities Lending will be governed by a separate policy adopted by the Treasurer.

REAL ESTATE

I. INTRODUCTION

The Real Estate Portfolio may include global investments in real estate, including certain timber and agricultural assets. All investments are externally managed as mandated by general statutes.

II. INVESTMENT OBJECTIVES

The fund is investing in the Real Estate Portfolio to accomplish the following objectives:

A. Attractive Returns. Provide an attractive total return over the long term by making investments with expected returns commensurate with their respective risk levels. Also, make investments which provide reasonable levels of income return as a percentage of the total return. Overall the Real Estate Portfolio is expected to achieve core plus returns.

B. Inflation Protection. Make real estate investments that are likely to provide a reasonable hedge against price inflation.

C. Capital Preservation. Make real estate investments that are designed to preserve investment capital through structures that minimize downside risk and provide an acceptable level of current cash flows.

D. Portfolio Diversification. Use real estate to enhance the diversification of the Funds' total investment portfolio given the low or negative return correlations historically of real estate with other asset classes (e.g., fixed income). Portfolio diversification should reduce volatility.

III. INVESTMENT STRUCTURE

A. Investment Vehicles

The investment vehicle and structure shall be used to mitigate portfolio risk by enhancing portfolio liquidity. The Real Estate Portfolio may invest through open-end or closed-end funds or fund- of- funds. The vehicle may be structured as a direct limited partnership, limited liability company, real estate investment trust (REIT), real estate operating company (REOC), investment management agreement, co-investment account, separate account, and/or other vehicles or arrangements determined to be consistent with the portfolio's investment objectives and permitted by statute,.

REITs and REOCs can be structured as either a public security or a private entity. The primary difference between the two entities whether public or private is that a REIT structure must distribute 90% of its earnings to its unit holders to have a lower corporate tax structure. A REOC invests directly into real estate and reinvests its earnings back into the business. The reduction of distribution concern allows a REOC to invest in value opportunities, while REITs are typically core-oriented.

B. Types of Real Estate Investments

Private Equity	Private Debt
• Core • Value-added • Opportunistic	• Core • Value-added • Opportunistic
Public Equity (REITs, REOCs)	**Public Debt**
• Core • Value-added	• Core • Value-added • Opportunistic

Risk/Returns. The risk/return categories utilized to classify investment risk/return levels are:

i. Core. Investment in operating and substantially-leased institutional quality real estate in the traditional property types (Office, Retail, Industrial, and Residential). Returns historically have been in the 4% to 7% range (inflation-adjusted and net of fees or 8% to 11% on a nominal and gross of fees basis) and are typically comprised of greater levels of income (65 to 90% of total returns) with appreciation matching or exceeding inflation. This greater level of income return reduces risk by providing a higher degree of certainty and stability of return. Core investments typically have a lower level of leverage, ranging from 0% to 50%.

ii. Value. Value investments typically require rehabilitation, redevelopment, development, lease-up, or repositioning. Net returns historically have been in the 7% to 11% range (inflation-adjusted and net of fees or 12% to 16% on a nominal and gross of fees basis). Investments may also include non-traditional property types which may contain greater risk. Value investments typically have a higher level of leverage than core investments, ranging up to 70%.

iii. Opportunistic. Opportunistic investments involve significant investment risk. Risk may include real estate, financial restructuring, operating company, and non-real estate risk. Net returns have been in the 12% or higher range (inflation adjusted and net of fees or 18% on a nominal and gross of fees basis). Investments may also include non-traditional property types which typically contain greater risk. Opportunistic returns typically require even greater appreciation returns than value and in many cases are originated with minimal income in place. Opportunistic investments typically have a higher level of leverage than value investments, ranging up to 75%.

IV. INVESTMENT GUIDELINES

The portfolio management and monitoring of the Real Estate Portfolio shall be consistent with the following guidelines:

A. Return Volatility. Private equity real estate investments are typically valued through regularly scheduled appraisals. As a result, private equity returns are less volatile than public equity real estate returns, which are based on daily market valuations. Return volatility is also influenced by the type of return generated by a given investment (i.e., income vs. appreciation returns) as well as the level of leverage.

B. Income and Appreciation Return Mix. Real Estate investment risk is categorized by the balance between income and appreciation expectations of each investment. The higher the income projected, the lower the risk. Core or low risk assets have return expectations largely driven by income. Value investments are expected to have a balance of income and appreciation. Opportunistic investments have return expectations based on property improvements or development whereby most of the return is expected to be generated from capital appreciation. The Real Estate Portfolio seeks a risk/return balance of a core-plus nature.

C. Geography. The Real Estate Portfolio may invest in opportunities wherein the vehicle or strategy is domiciled in the U.S. and/or outside the U.S.; provided the management team has demonstrated ability to be successful in meeting the intended investment strategy objectives. The portfolio will invest in various geographies to take advantage of relative value opportunities and diversify the portfolio.

NCREIF Regions	Ranges
West	20.0% - 45.0%
South	15.0% - 35.0%
Midwest	5.0% - 25.0%
East	20.0% - 40.0%
Foreign	0.0% - 50.0%

D. Sector. Property type diversification is one of the most important diversification features in terms of impact on returns. The property sectors have historically performed differently over the market and economic cycles. The following table provides a target range with respect to the Real Estate Portfolio property type diversification.

Property Type	Ranges
Office	10.0% - 45.0%
Retail	10.0% - 40.0%
Industrial	10.0% - 40.0%
Residential	10.0% - 40.0%

Hotel	0.0% - 15.0%
Other*	0.0% - 40.0%

*Denotes sectors such as senior housing, self storage, student housing, parking, medical office, debt, agriculture and timber.

E. Duration. The average investment holding period will be approximately five to ten years for Real Estate Portfolio investments. Some investments such as public securities and open-end fund holdings have more flexible durations. The Portfolio is expected to have a blend of both longer and shorter term investments.

F. Liquidity. Traditionally real estate is an illiquid asset class with the exception of investment structures such as public real estate securities and open-end fund vehicles that provide liquidity on-demand or within one quarter. The Portfolio will diversify among the various liquidity vehicles but seeks to have at least 20% of the Portfolio in liquid and/or modestly liquid structures at all times.

G. Leverage. The total Real Estate Portfolio leverage shall not exceed 55%.

H. Investor Control. Control is materially defined through the Fund's ability to exit or sell an investment. The IMD Staff acknowledges that the nature of real estate investing prohibits owning real estate directly and having direct discretion over decision-making. Therefore, all real estate investments are owned or managed through third party managers.

I. Investment Firm Concentration. No firm shall manage more than 25% of the total Real Estate Portfolio on an allocation basis at the time of initial investment, unless specifically approved by the Treasurer.

J. Investment Strategy Concentration. No individual investment strategy shall exceed 10% of the Real Estate Portfolio on an allocation basis at time of initial investment, unless specifically approved by the Treasurer.

K. Fund Concentration. IMD Staff shall consider firm level risk in sizing an investment/commitment to invest for a given opportunity. Ordinarily, the Real Estate portfolio's assets shall constitute less than a 25% economic interest of a given investment vehicle at the time of making the investment/commitment. This limitation does not apply to customized investment programs where the Fund is the sole investor other than the investment manager or its affiliate.

L. Vintage Year. The IMD staff will seek to diversify investment exposure across vintage year and, correspondingly, economic and credit cycles. The timing of investments during economic cycles can be a primary driver of real estate returns.

V. PERFORMANCE & REPORTING GUIDELINES

The Real Estate Portfolio's custom benchmark is static-weighted. It is comprised of 90% weighting of the National Council of Real Estate Investment Fiduciaries Open-End Diversified Core Equity Fund Index ("NCREIF ODCE Index") and 10% weighting of the Financial Times and London Stock Exchange ("FTSE") European Public Real Estate Association ("EPRA") and the National Association of Real Estate Investment Trusts ("NAREIT") Global Index ("FTSA/EPRA/NAREIT Global Index"). The portfolio's objective is to outperform this Custom Real Estate Benchmark over a three-to-five-year period. In addition the performance of each investment shall be measured relative to the performance of investment managers employing similar investment strategies and using data provided by relevant, reputable sources.

VI. VALUATION POLICY

Generally, the IMD will rely on the valuation of investments as reported by the investment managers and based on a combination of third party appraisals and internal valuations. IMD staff along with its real estate consultant shall seek to comply with industry best practices with respect to monitoring the valuation policy used by the investment managers. Investment managers shall be contractually obligated to provide annual financial statements audited to be compliant with United States generally accepted accounting principles ("GAAP"), or similar principles if there are vehicles with significant foreign assets, preferably by a nationally recognized audit firm. If the investment manager is not fulfilling its obligation to provide compliant statements to IMD staff in a contractually timely manner or within a reasonable period shortly thereafter, the Treasurer may engage special service providers to assist IMD staff in assessment of current fair market value.

ALTERNATIVE INVESTMENT PORTFOLIO

I. INTRODUCTION

The Alternative Investment Portfolio may include global investments in private equity (the "Private Equity Portfolio") and investments based on absolute return strategies (the "Absolute Return Portfolio"). The Alternative Investment Portfolio consists entirely of externally managed portfolios as required by statute. Under the applicable stature, the Alternatives Investment Portfolio may also include investments that do not expressly fit within any other category of authorized investments.

II. INVESTMENT OBJECTIVES

The Fund is investing in the Alternative Investment Portfolio to accomplish the following objectives:

A. Attractive Returns. Provide an attractive total return over the long term by making investments with expected returns commensurate with their respective risk levels.

B. Portfolio Diversification. Use private equity and absolute return strategies to enhance the diversification of the Fund's total investment portfolio.

III. INVESTMENT STRUCTURE

A. Investment Vehicles. The Alternative portfolio may include direct limited partnership, limited liability company, or other limited liability investment vehicles, standardized and customized funds of funds, co-investments, separate accounts, and/or other vehicles determined to be consistent with the investment objectives and permitted by statute.

B. Types of Alternative Investments. The Private Equity Portfolio will consist of vehicles that primarily invest in equity securities that are not publicly traded, such as preferred stock, common stock, or other equity-related investments. Investments by such private equity vehicles may also be made into public companies, where a private investment into public equity allows a fund manager to implement their investment strategies. Absolute return strategy investments could involve a broader range of exposure to investments through options, futures, short interests, ETFs, structured equity and debt securities, and public equity.

C. Subcategory Strategy. The Alternative Investment Portfolio includes strategic subcategory classifications in both private equity and absolute return strategies. The Private Equity Portfolio strategic subcategory classifications include buyout, growth (venture capital and growth equity), and special situations (distressed for control, secondary strategies, co-investment and other categories not classified into buyout or growth). The Absolute Return

Portfolio strategic subcategory classifications include multi-strategy, equity hedge, event driven, macro, relative value, and fund of hedge funds. The following table outlines these subcategory strategies and their respective ranges. The IMD staff shall periodically review policy range targets and portfolio structure for adjustments on an as-needed basis or due to statutory revisions. Due to market movements or exogenous factors, the portfolio may deviate from the below ranges and will be rebalanced accordingly as soon as practical.

Private Equity Subcategory	Target	Min	Max
Growth	25.0%	15.0%	35.0%
Buyout	50.0%	35.0%	65.0%
Special Situations	25.0%	15.0%	35.0%

Absolute Return Subcategory	Target	Min	Max
Diversified	0.0%	0.0%	100.0%

The IMD staff primarily recommends investments in direct limited liability investment vehicles; however, the IMD staff considers fund of funds investments due to limited resources and access constraints. Private Equity Portfolio fund of fund investments are subcategorized into growth, buyouts, and special situations based on the market value underlying investment strategy.

D. Secondary Investments. The Private Equity Portfolio may invest in primary funds and equity interests purchased from the owners thereof, otherwise known as “Secondaries.” Secondaries are typically purchased to provide the Private Equity Portfolio with additional diversification, provide access to certain investment managers, and improve the risk-adjusted returns of the Private Equity Portfolio.

E. Restricted Securities. IMD staff may restrict a manager from purchasing certain securities based on state or federal legislation, state policy, or IMD directives.

For each external investment manager, permissible investments and objectives will be clearly defined in the Investment Management Agreement. IMD staff will monitor the investment manager’s performance to ensure the manager is adhering to the guidelines.

IV. INVESTMENT GUIDELINES

The portfolio management and monitoring of the Alternative Investment portfolio shall be consistent with the following guidelines:

A. Return Volatility. An investment’s risk exposure is generally defined by return volatility. Due to the inclusion of illiquid investments, volatility guidelines are not well defined herein because of a lack of available information, particularly with respect to private investments.

B. Geography. The Portfolio may invest in opportunities wherein the vehicle or strategy is domiciled in the U.S. and/or outside the U.S.; provided the management team has a demonstrated ability to be successful in meeting the intended investment strategy's objectives.

C. Duration. The average investment holding period will be approximately ten to twelve years for the Private Equity Portfolio. The Absolute Return Strategy portfolio will generally maintain, at most, an annual liquidity schedule after a one to two year lock-up period. The range of holding periods for underlying investments may vary considerably across subcategory strategies. The portfolio will diversify among various types of investments to reduce duration risk.

D. Illiquidity. The holding period for the various alternative investment vehicles may range widely. Private equity strategies are highly illiquid, in general only offering liquidity upon the realization or partial realization of an investment. Absolute return strategies will generally maintain a monthly, quarterly, semi-annual, or annual liquidity after a one- to two-year lock-up period. Distressed Credit, Structured Credit, and Mezzanine investments may have holding periods generally ranging from five to twelve years. The portfolio will diversify among various liquidity vehicles.

E. Income and Appreciation Return Mix. Private equity and absolute return investments offer varying proportions of expected income and appreciation returns depending on their strategy. Growth and buyout investment returns are almost exclusively related to appreciation. The absolute return strategy portfolio is expected to provide an uncorrelated return stream that can act as a buffer for the overall portfolio during periods of dislocation in the equity or credit capital markets. The bulk of the return mix from the Absolute Return Portfolio is expected to come from appreciation rather than income. The IMD staff will attempt to appropriately balance the portfolio between income- and appreciation-based investments.

F. Leverage. Leverage is an important risk factor, particularly within the private equity buyout subcategory and across absolute return strategy subcategories. The IMD staff shall review the use of leverage to determine the reasonableness in the context of investment strategy.

G. Investor Control. Control is materially defined through the ability to exit or sell an investment. The IMD staff acknowledges that the nature of private equity investing severely limits discretionary control over such investments. In exceptional circumstances, the IMD staff may seek to gain liquidity through the sale of interests in the secondary market or may act to dissolve a partnership or other investment vehicle in the event the contractual agreements are violated.

H. Investment Firm Concentration. No firm shall manage more than 25% of the total Alternative Investment Portfolio on an allocation basis at the time of initial investment, unless specifically approved by the Treasurer.

I. Investment Strategy Concentration. No individual investment strategy shall exceed 10% of the Alterative Investment Portfolio on an allocation basis at time of initial investment, unless specifically approved by the Treasurer.

J. Fund Concentration. IMD staff shall consider firm level risk in sizing an investment/commitment to invest for a given opportunity. Ordinarily, the Alternative Investment Portfolio's assets shall constitute less than a 25% economic interest of a given investment vehicle at the time of making the investment/commitment. This limitation does not apply to customized investment programs where the Fund is the sole investor other than the investment manager or its affiliate.

K. Vintage Year. For closed end funds, the portfolio may diversify across vintage years to help protect the portfolio from concentration risk in any one year.

V. PERFORMANCE & REPORTING GUIDELINES

The total Private Equity Portfolio's custom benchmark shall be derived from the Cambridge Associates LLC benchmark, net of all fees and expenses (the "Custom Private Equity Benchmark"), comprised of the following: U.S. Private Equity Buyouts and Growth Equity, U.S. Venture Capital, Global (Ex. U.S.) PE and VC, Distressed Securities, and Fund-of-Funds. The total Absolute Return Portfolio's custom benchmark shall be the HFRI Fund-of-Funds Conservative Index, net of all fees and expenses (the "Custom Absolute Return Benchmark"). The combined Alternative Investment Portfolio's benchmark shall be dynamically weighted between the Custom Private Equity Benchmark and the Custom Absolute Return Benchmark.

Quarterly performance measurement reports, which shall reasonably describe the performance of the Alternative Investment Portfolio, shall be calculated in compliance with industry standards and compared to the benchmarks previously outlined.

VI. VALUATION POLICY

Generally, the IMD will rely on the valuation of investments as reported by the investment managers. IMD staff shall seek to comply with industry best practices with respect to monitoring the valuation policy used by the investment managers. Investment managers shall be contractually obligated to provide annual financial statements audited to be compliant with United States generally accepted accounting principles ("GAAP"), or similar principles if there are vehicles with significant foreign assets, preferably by a nationally recognized audit firm. If the investment manager is not fulfilling its obligation to provide compliant statements in a contractually timely manner or within a reasonable period shortly thereafter, the IMD staff may engage special service providers in assessment of current fair market value.

CREDIT STRATEGIES PORTFOLIO

I. INTRODUCTION

The Credit Strategies Portfolio may include externally managed portfolios of credit-oriented investments. The externally managed portfolios include active long-only managers, open-end funds, and private debt closed-end funds, which primarily invest in debt securities.

II. INVESTMENT OBJECTIVES

The Fund is investing in the Credit Strategies Portfolio to accomplish the following objectives:

A. Attractive Returns. Provide an attractive return over the long-term by making investments with expected returns commensurate with their respective risk levels.

B. Portfolio Diversification. Use credit-oriented investments to enhance the diversification of the Fund's total investment portfolio.

C. Capital Preservation. Protect investment capital through credit-oriented investments and investment activities that are designed to minimize downside risk.

D. Deflation Protection. The structure of fixed income assets may provide protection against the detrimental effects of deflation.

III. INVESTMENT STRUCTURE

A. Investment Vehicles and Arrangements. The Credit portfolio may include direct limited partnership, limited liability company, or other limited liability investment vehicles, standardized and customized funds of funds, co-investments, separate accounts, and/or other vehicles and contractual arrangements determined to be consistent with the investment objectives and permitted by statute.

B. Types of Credit Investments. The Credit portfolio invests primarily in non-investment grade debt instruments including bank loans, high yield, asset-backed securities, mortgage-backed securities, convertibles, whole loans, mezzanine debt, credit default swaps, collateralized debt obligations, and sovereign debt.

C. Subcategory Strategy. The Credit portfolio includes strategic subcategory classifications including traditional corporate credit (i.e., high yield bonds and bank loans), distressed credit, structured credit (i.e., mortgage- and asset-backed securities), mezzanine and direct lending, and credit focused open-end funds. The following table outlines these subcategory strategies and their respective ranges. The IMD staff shall periodically review policy range targets and portfolio structure for adjustments on an as-needed basis or due to statutory revisions.

Subcategory Strategy	Min	Max
Traditional Corporate Credit	0.0%	25.0%
Distressed Credit	0.0%	50.0%
Structured Credit	0.0%	25.0%
Mezzanine/Direct Lending	0.0%	25.0%
Credit Open End Fund	0.0%	60.0%
Other	0.0%	25.0%

D. Restricted securities. IMD staff may restrict a manager from purchasing certain securities based on state or federal legislation, state policy, or Treasurer directives.

For each external investment manager, permissible investments and objectives will be clearly defined in the Investment Management Agreement. IMD Staff will monitor the investment manager's performance to ensure the manager is adhering to the guidelines.

IV. INVESTMENT GUIDELINES

The portfolio management and monitoring of the Credit Strategies Portfolio shall be consistent with the following guidelines:

A. Return Volatility. An investment's risk exposure is generally defined by return volatility. Due to the inclusion of illiquid investments, volatility guidelines are not well defined herein due to a lack of available information, particularly with respect to private investments.

B. Geography. The portfolio may invest in opportunities wherein the vehicle or strategy is domiciled in the U.S. and/or outside the U.S.; provided the management team has a demonstrated ability to be successful in meeting the intended investment strategy's objectives. The portfolio will invest in various geographies to both take advantage of relative value opportunities and diversify the portfolio.

C. Duration. Various holdings in the Credit portfolio may be affected by interest rate movements. The portfolio will diversify among various types of investments to reduce duration risk.

D. Illiquidity. The holding period for the various credit investment vehicles may range widely. Traditional corporate credit in high yield and bank loans may offer daily to monthly liquidity. Open end funds will generally maintain a monthly, quarterly, semi-annual, or annual liquidity after a one- to two-year lock-up period. Distressed Credit, Structured Credit, and Mezzanine investments may have holding periods generally ranging from five to twelve years. The portfolio will diversify among various liquidity vehicles. The IMD staff will attempt to appropriately balance the portfolio among various vehicles based on their liquidity structures.

E. Income and Appreciation Return Mix. The credit-oriented investments offer varying proportions of expected income and appreciation returns depending on their strategy. The IMD Staff will attempt to appropriately balance the portfolio between income- and appreciation-based investments.

F. Leverage. Leverage is an important risk factor as it can significantly impact return volatility. The IMD staff shall continuously review the use of leverage to determine the reasonableness in the context of investment strategy.

G. Vintage Year. For closed end funds, the portfolio may diversify across vintage years to help protect the portfolio from concentration risk in any one year.

H. Investor Control. Control is materially defined through the Fund's ability to exit or sell an investment. The IMD staff acknowledges that the nature of investing in illiquid assets severely limits discretionary control over such investments. In exceptional circumstances, the IMD staff may seek to gain liquidity through the sale of interests in the secondary market or may act to dissolve a partnership or other investment vehicle in the event the contractual agreements are violated.

I. Investment Firm Concentration. No firm shall manage more than 25% of the total Credit Strategies Portfolio on an allocation basis at the time of initial investment, unless specifically approved by the Treasurer.

J. Investment Manager Concentration. No individual investment manager shall exceed 10% of the Credit Portfolio on an allocation basis at time of initial investment, unless specifically approved by the Treasurer.

K. Fund Concentration. IMD staff shall consider firm level risk in sizing an investment/commitment to invest for a given opportunity. Ordinarily, the Credit Portfolio's assets shall constitute less than a 25% economic interest of a given investment vehicle at the time of making the investment/commitment. This limitation does not apply to customized investment programs where the Fund is the sole investor other than the investment manager or its affiliate.

V. PERFORMANCE & REPORTING GUIDELINES

The Credit portfolio's custom benchmark is comprised of 50% HFRX Distressed Securities Index, 20% HFRX Relative Value Index, 15% Credit Suisse Leveraged Loan Index, and 15% Merrill Lynch High Yield Index (the "Custom Credit Benchmark"). The portfolio's objective is to outperform the Custom Credit Benchmark over a three- to five-year period. In addition, the performance of investments may be measured relative to the performance of investment managers employing similar investment strategies, using data provided by Hedge Fund Research, Barclays Capital, and other reputable sources.

Monthly performance measurement reports, which reasonably describe the Credit portfolio performance, shall be calculated in compliance with industry standards and compared to the benchmarks previously outlined.

VI. VALUATION POLICY

Generally, the IMD will rely on the valuation of investments as reported by the investment managers. IMD Staff shall seek to comply with industry best practices with respect to monitoring the valuation policy used by the investment managers. Investment managers shall be contractually obligated to provide annual financial statements audited to be compliant with United States generally accepted accounting principles ("GAAP") or similar principles if there are vehicles with significant foreign assets, preferably by a nationally recognized audit firm. If the investment manager is not fulfilling its obligation to provide compliant statements in a contractually timely manner or within a reasonable period shortly thereafter, the IMD Staff may engage special service providers in assessment of current fair market value.

INFLATION PROTECTION PORTFOLIO

I. INTRODUCTION

The Inflation Protection Portfolio may include externally managed portfolios of investments primarily focused on protecting against the detrimental effects of inflation. The externally managed portfolios include active long-only managers, open end funds, and closed-end funds.

II. INVESTMENT OBJECTIVES

The Fund is investing in the Inflation Protection Portfolio to accomplish the following objectives:

A. Inflation Protection. Provide supplemental protection against periods of inflation.

B. Attractive Returns. Provide an attractive return over the long-term by making investments with expected returns commensurate with their respective risk levels.

C. Portfolio Diversification. Use inflation protection investments to enhance the diversification of the Fund's total investment portfolio.

D. Capital Preservation. Protect investment capital through inflation protection investments and investment activities that are designed to add value during periods of inflation.

III. INVESTMENT STRUCTURE

A. Investment Vehicles. The Inflation Protection Portfolio may include direct limited partnership, limited liability company, or other limited liability investment vehicles, standardized and customized funds of funds, co-investments, separate accounts, and/or other vehicles determined to be consistent with the investment objectives and permitted by statute.

B. Types of Inflation Investments. The Inflation portfolio invests primarily in assets correlated to inflation including commodities-related instruments, Treasury Inflation Protected Securities ("TIPS"), real assets, natural resources equity, infrastructure, floating rate debt securities, and other investments that may be correlated with inflation.

C. Subcategory Strategy. The Inflation Protection Portfolio includes subcategory classifications including liquid strategies (e.g., commodities futures, swaps, TIPS, floating debt, and public equities), closed-end strategies (e.g., natural resources/energy, private equity, infrastructure, and real asset), and other inflation protection investments.

Subcategory Strategy	Min	Max
Liquid Strategies	20.0%	70.0%
Closed-end Strategies	30.0%	80.0%
Other Strategies	0.0%	25.0%

D. Restricted securities. IMD staff may restrict a manager from purchasing certain securities based on state or federal legislation, state policy, or Treasurer directives.

For each external investment manager, permissible investments and objectives will be clearly defined in the Investment Management Agreement. IMD staff will monitor the investment manager's performance to ensure the manager is adhering to the guidelines.

IV. INVESTMENT GUIDELINES

The portfolio management and monitoring of the Inflation Protection Portfolio shall be consistent with the following guidelines:

A. Return Volatility. An investment's risk exposure is generally defined by return volatility. Due to the inclusion of illiquid investments, volatility guidelines are not well defined herein due to a lack of available information, particularly with respect to private investments.

B. Geography. The Inflation Protection Portfolio may invest in opportunities wherein the vehicle or strategy is domiciled in the U.S. and/or outside the U.S.; provided the management team has a demonstrated ability to be successful in meeting the intended investment strategy's objectives. The portfolio will invest in various geographies to both take advantage of relative value opportunities and diversify the portfolio.

C. Duration. Various holdings in the Inflation Protection Portfolio may be affected by interest rate movements. The portfolio will diversify among various types of investments to reduce duration risk.

D. Illiquidity. The holding period for the various inflation investment vehicles may range widely. Commodities and TIPS may offer daily to monthly liquidity. Inflation-oriented open end funds will generally maintain monthly, quarterly, semi-annual, or annual liquidity after a one- to two-year lock-up period. Natural Resources equity investments may have holding periods generally ranging from five to fifteen years. The IMD staff will attempt to appropriately balance the portfolio among various vehicles based on their liquidity structures.

E. Income and Appreciation Return Mix. The inflation protection investments offer varying proportions of expected income and appreciation returns depending on their strategy. The IMD staff will attempt to appropriately balance the portfolio between income- and appreciation-based investments.

F. Leverage. Leverage is an important risk factor as it can significantly impact return volatility. The IMD staff shall continuously review the use of leverage to determine the reasonableness in the context of investment strategy.

G. Vintage Year. For closed end funds, the portfolio may diversify across vintage years to help protect the portfolio from concentration risk in any one year.

H. Investor Control. Control is materially defined through the Fund's ability to exit or sell an investment. The IMD staff acknowledges that the nature of investing in illiquid assets severely limits discretionary control over such investments. In exceptional circumstances, the IMD staff may seek to gain liquidity through the sale of interests in the secondary market or may act to dissolve a partnership or other investment vehicle in the event the contractual agreements are violated.

I. Investment Firm Concentration. No manager shall manage more than 25% of the total Inflation Protection Portfolio on an allocation basis at the time of initial investment, unless specifically approved by the Treasurer.

J. Investment Manager Concentration. No individual investment manager shall exceed 10% of the Inflation Portfolio on an allocation basis at time of initial investment, unless specifically approved by the Treasurer.

K. Fund Concentration. IMD Staff shall consider firm level risk in sizing an investment/commitment to invest for a given opportunity. Ordinarily, the Inflation Protection Portfolio's assets shall constitute less than a 25% economic interest of a given investment vehicle at the time of making the investment/commitment. This limitation does not apply to customized investment programs where the Fund is the sole investor other than the investment manager or its affiliate.

V. PERFORMANCE & REPORTING GUIDELINES

The Inflation Protection Portfolio's custom benchmark is a dynamically weighted return comprised of the Cambridge Energy Private Equity Index and the Dow Jones-UBS Commodities Index (the "Custom Inflation Benchmark"). The portfolio is expected to outperform the Custom Inflation Benchmark over a three- to five-year period. In addition, the performance of all investments shall be measured relative to the performance of investment managers employing similar investment strategies and using data provided by relevant, reputable sources.

Monthly performance measurement reports, which reasonably describe the Inflation portfolio performance, shall be calculated in compliance with industry standards and compared to the benchmarks previously outlined.

VI. VALUATION POLICY

Generally, the IMD will rely on the valuation of investments as reported by the investment managers. IMD Staff shall seek to comply with industry best practices with respect to monitoring the valuation policy used by the investment managers. Investment managers shall be contractually obligated to provide annual financial statements audited to be compliant with United States generally accepted accounting principles (“GAAP”), or similar principles if there are vehicles with significant foreign assets, preferably by a nationally recognized audit firm. If the investment manager is not fulfilling its obligation to provide compliant statements in a contractually timely manner or within a reasonable period shortly thereafter, the IMD Staff may engage special Service Providers to assist in assessment of current fair market value.

GLOSSARY

Absolute: can refer to the performance or volatility of an investment and is measured on a standalone basis

Ex-Ante: expected returns or expected volatility

Ex-Post: realized returns or realized volatility

Information Ratio: a measure of the active return (portfolio return – benchmark return) per unit of relative risk (tracking error volatility) and is measured by dividing active return by the tracking error volatility

Relative: the performance or volatility of an investment measured against a stated benchmark

Risk-Adjusted Returns: refers to the return of an investment and accounts for the volatility of the investment over the same period of time

Sharpe Ratio: a measure of active return (return – risk free rate) per unit of risk and is measured by dividing active return by the standard deviation of the investment

Tracking Error Volatility: the standard deviation of relative returns (portfolio returns – benchmark returns) over some period

APPROVAL

Approved by State Treasurer Janet Cowell on November 26, 2012.

REVISION HISTORY

Version/Revision	Date Approved	Description of Changes
1.0	November 26, 2012	Initial version

STATE OF NORTH CAROLINA
DEPARTMENT OF STATE TREASURER
Investment Management Division

JANET COWELL
TREASURER

KEVIN SIGRIST
CHIEF INVESTMENT OFFICER

Investment Advisory Committee
2014 Meeting Dates
325 North Salisbury Street, Raleigh, North Carolina 27603
Dawson Conference Room
10:00 a.m. to 2:00 p.m.

Second Quarter	Thursday, May 22, 2014
Third Quarter	Wednesday, September 24, 2014
Fourth Quarter	Wednesday, November 19, 2014