

The background features a stylized mountain range with multiple layers of peaks in varying shades of blue and dark grey. A thick, dark teal line curves across the lower portion of the image, resembling a valley or a path. A vertical gold line is positioned to the left of the text in the bottom right quadrant.

2016 Asset Liability Review

First Run – Model Output

Rhode Island Asset Liability Review Calendar

	Topic	Date	
1	Liabilities Briefing	May 25, 2016	<input checked="" type="checkbox"/>
	a. Review of liability profile and other actuarial considerations		
2	Benchmarking Briefing	June 22, 2016	<input checked="" type="checkbox"/>
	a. Peer institutional fund review		
	b. ERSRI Plan asset portfolio review		
	c. PCA Briefing on how the model works		
3	Risks and Risk Preferences	July 13, 2016	<input checked="" type="checkbox"/>
	a. Financial condition of plan		
	b. Risk sensitivities and definitions of success		
4	Translating Risk Appetite into Investment Constraints	Aug 1, 2016	<input checked="" type="checkbox"/>
	a. Define investment objectives and determine model variables		
	b. New concept review (asset class)		
5	Asset Class Modeling	Aug 1, 2016	<input checked="" type="checkbox"/>
	a. Role of assets		
	b. Capital market assumptions		
6	First Run of Model	Sept 8, 2016	<input checked="" type="checkbox"/>
	a. Model output review - SIC feedback		
	b. Issues for further review		
7	Second Run of Model	Sept 28, 2016	
	a. Model output review		
8	Adoption of Strategic Allocation	Sept 28, 2016	



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Recap of August 1, 2016 SIC meeting and SIC direction

High Level Conclusions

Model Inputs and Constraints

Preliminary Output from PCA's Simulation Modeling

Issues for Consideration

Next Steps

Setting Risk Preferences

Key Priorities from August 1, 2016 SIC meeting

Funding:

- Continue progress towards plan full funding (100%)
- Avoid funding level falling below 50% (current funding level 60%)

Contributions:

- Avoid employer contribution rising to > 30% of payroll

Simulation Modeling Process

Focus on the Board's primary concerns, PCA redefined the return/risk framework to reflect funding success / risk

- Success (**Goal**) = probability of a 100% funding ratio in 22 years
 - i.e., improving fund sustainability
- Risk (**Constraint**) = probability of breaching 50% funding level in the next 5 years
 - i.e., achieving a more stable return path
- The SIC's final policy allocation will reflect a balance of these two factors
- Optimizing these factors best incorporates the Board's viewpoints and concerns without impacting long-term return targets

The analysis will also examine how efficient portfolios score on other risk factors such as:

- Employer contribution rate as percent of payroll
- Average number of years with employer contribution rate > 30%
- Asset statistics: portfolio return, standard deviation, Sharpe ratio

High Level Conclusions

- All versions of simulation constraints produced improved results relative to the current portfolio and 60/40 portfolio
- The Current portfolio is relatively close to the ex-Crisis Risk Offset (CRO) efficient frontier
- Focusing on SIC's risk preferences results in materially different portfolios
- Primary consideration = inclusion or exclusion of new CRO class
- Sub-allocation differences = fine tuning rather than material differences

Review: Capital Markets Assumptions Summary

* Using GRS' Inflation Assumption of 2.75%

Strategic Classes	Sub-Classes	Assets Modeled	10-Year Expected Risk & Return		
			Arithmetic Return	Standard Deviation	Compound Return
Growth Class	US Equity	US Equity	9.00%	18.50%	7.62%
	NonUS Equity	NonUS Equity	10.00%	21.00%	8.24%
	Private Growth	Private Equity	12.60%	26.00%	10.00%
		Non-Core Real Estate	10.10%	20.80%	8.38%
		Opportunistic Private Credit	10.10%	20.80%	8.38%
Income Class	REITs	REITs	8.40%	20.00%	6.78%
	High Yield Infrastructure	High Yield Infrastructure	9.90%	25.00%	7.43%
	High Yield	High Yield	7.30%	15.30%	6.33%
	Private Credit	Private Credit	7.30%	15.30%	6.33%
Risk Reduction Class	Crisis Risk Offset	Treasury Duration	4.50%	18.00%	3.13%
		Systematic Trend Following	7.90%	18.00%	6.58%
		Alternative Return Capture	6.10%	12.00%	5.49%
	Inflation Protection	Bank Loans	6.80%	15.60%	5.79%
		Core Real Estate	6.10%	12.00%	5.49%
		Core Infrastructure	6.75%	9.25%	6.39%
		TIPS	3.65%	6.00%	3.49%
	Volatility Protection	IG Fixed Income	3.50%	4.00%	3.43%
		Absolute Return	5.35%	9.75%	4.95%
		Cash	2.50%	1.00%	2.50%

Review: Portfolio Structure for Optimization Purposes

<i>Strategic Classes</i>	<i>Classes/Assets for Optimization Purposes</i>	<i>Components of Optimization Classes/Assets</i>	
Growth Class	US Equity	= 100% US Equity	
	NonUS Equity	= 100% NonUS Equity	
	Private Growth	= 75% Private Equity 15% Non-Core Real Estate 10% Opportunistic Private Credit	
Income Class	Income Class	= 25% REITs 25% High Yield Infrastructure 25% High Yield 25% Private Credit	
Risk Reduction Class	Crisis Risk Offset	= 40% Treasury Duration 40% Systematic Trend Following 20% Alternative Return Capture	
	Inflation Protection	= 21% Bank Loans 37% Core Real Estate 18% Core Infrastructure 24% TIPS	
		IG Fixed Income	= 100% IG Fixed Income
		Absolute Return	= 100% Absolute Return
	Cash	= 100% Cash	

Nine Asset / Functional Classes to be Optimized



Review: CMAs and Preliminary Constraints

* Using GRS' Inflation Assumption of 2.75%

		10-Year Expected Risk & Return		
		Arithmetic Return	Standard Deviation	Compound Return
Growth Class	US Equity	9.00%	18.50%	7.62%
	NonUS Equity	10.00%	21.00%	8.24%
	Private Growth	11.47%	23.03%	9.39%
Income Class	Income Class	8.23%	16.97%	7.05%
Risk Reduction Class	Crisis Risk Offset	6.18%	10.84%	5.69%
	Inflation Protection	5.78%	5.88%	5.63%
	IG Fixed Income	3.50%	4.00%	3.43%
	Absolute Return	5.35%	9.75%	4.95%
	Cash	2.50%	1.00%	2.50%

Note:

- Equity Hedge funds not included in analysis
- Current Portfolio does not include Equity Hedge Funds (allocation assumed in public traded equity portfolio)

Modeling Simulation Process

- Load plan liability data
- Load model input – functional class / asset class expected return and risk
- Load model constraints

- Model first run with and without Crisis Risk Offset (CRO)
- Output 20 optimized portfolios (long-term funding ratio / avoid <50% funding ratio in next 5 years)

- Review output
 - Initial insights
 - Identify issues for further review
 - Run additional metrics

- Narrow number of portfolios for further review down to eight (4 without CRO and 4 including CRO) plus current policy allocation and 60/40

Ex-CRO Constraints

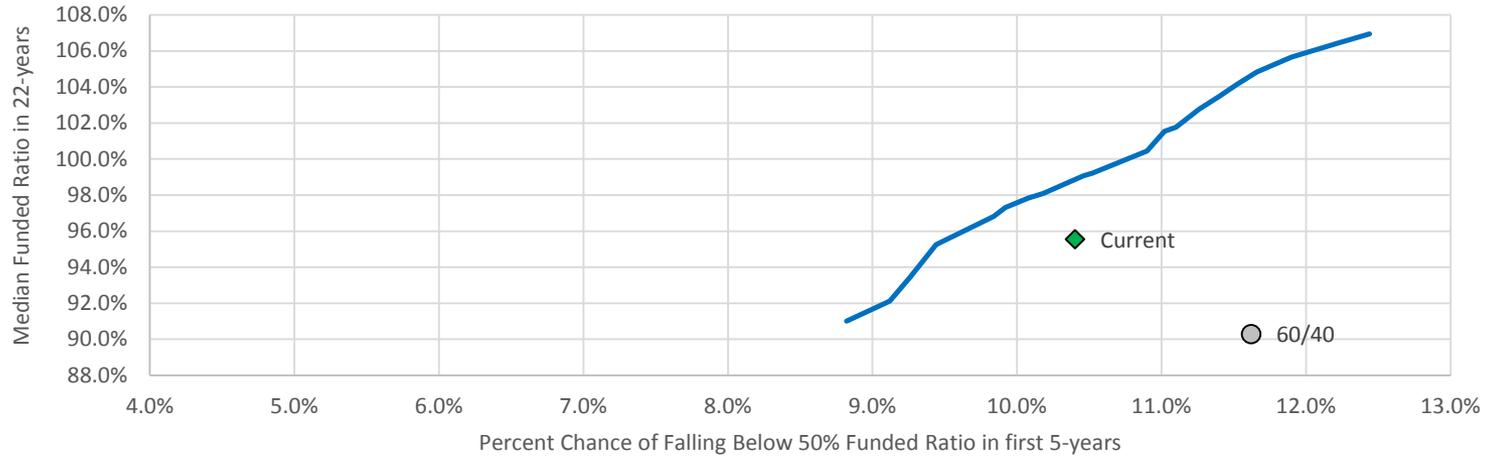
Strategic Class Constraints

	Min	Max		Min	Max	
US Equity	12.5	45.0	}	40	60	← US / Non-US Equity Split Constraint
Non-US Equity	12.5	45.0		40	60	
Private Growth	5.0	15.0				
Income Class	5.0	35.0				
CRO	0.0	0.0				
Inflation Protection	5.0	15.0				
IG Fixed Income	10.0	20.0				
Absolute Return	0.0	15.0				
Cash	3.0	5.0				
Total	100.0	100.0				

- Initial set of constraints, excluding new Crisis Risk Offset
- US / Non-US Equity limited to 60/40 split in either direction
- Using these constraints, an optimal efficient frontier was produced based on the selected asset/liability statistics
 - Risk = Probability of falling below 50% funded in first 5-years
 - Reward = Median Funded Ratio in 22-years

Ex-CRO Efficient Frontier

Ex-Crisis Risk Offset Efficient Frontier



Strategic Class %	Cur.	6040	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
US Equity	23.0	30.0	14.0	15.5	16.0	17.0	18.5	19.0	19.5	20.0	20.5	20.5	21.5	22.5	23.5	24.5	25.5	26.0	27.0	26.0	26.0	25.0
Non-US Equity	23.0	30.0	12.5	13.5	16.0	19.0	21.0	22.0	22.5	23.0	24.0	24.5	27.0	27.5	27.5	28.0	29.0	29.5	30.0	33.0	35.0	37.0
Private Growth	9.0	0.0	14.5	14.5	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Income Class	3.5	0.0	5.0	5.5	5.5	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.5	6.0	6.0	5.5	5.5	5.0	5.0	5.0	5.0
Crisis Risk Offset	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflation Protection	16.5	0.0	14.0	14.0	14.0	14.0	14.0	13.0	12.5	12.0	11.5	11.0	9.0	9.0	9.0	9.5	9.5	10.0	10.0	8.0	6.0	5.0
IG Fixed Income	15.0	40.0	20.0	18.5	18.0	17.0	15.0	15.0	14.5	14.5	14.5	14.5	14.0	14.0	13.5	12.5	11.5	11.0	10.0	10.0	10.0	10.0
Absolute Return	7.0	0.0	15.0	14.0	10.5	7.0	5.5	5.0	5.0	4.5	4.0	4.0	2.5	2.5	2.5	1.5	1.0	0.0	0.0	0.0	0.0	0.0
Cash	3.0	0.0	5.0	4.5	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Median Compound Return	7.0	6.5	6.6	6.7	6.8	7.0	7.1	7.1	7.2	7.2	7.3	7.3	7.3	7.4	7.4	7.5	7.5	7.6	7.6	7.6	7.7	7.7
Avg. Standard Deviation	12.3	11.5	10.6	11.0	11.4	12.0	12.5	12.7	12.9	13.0	13.3	13.4	13.8	14.1	14.2	14.4	14.7	14.8	15.0	15.4	15.7	15.9
% chance of <50% Yrs 1-5	10.4	11.6	8.8	9.1	9.3	9.4	9.8	9.9	10.1	10.2	10.5	10.5	10.9	11.0	11.1	11.3	11.4	11.5	11.7	11.9	12.2	12.4
Med Funded Ratio Yr 22	95.6	90.3	91.0	92.1	93.4	95.3	96.8	97.3	97.8	98.1	99.1	99.2	100.5	101.5	101.8	102.8	103.5	104.1	104.8	105.7	106.4	106.9
Avg. % Yrs Emplr Ctrb >30%	6.2	7.5	5.9	6.0	5.8	5.8	5.9	5.9	6.0	6.0	6.0	6.1	6.2	6.2	6.3	6.3	6.3	6.3	6.4	6.5	6.6	6.7

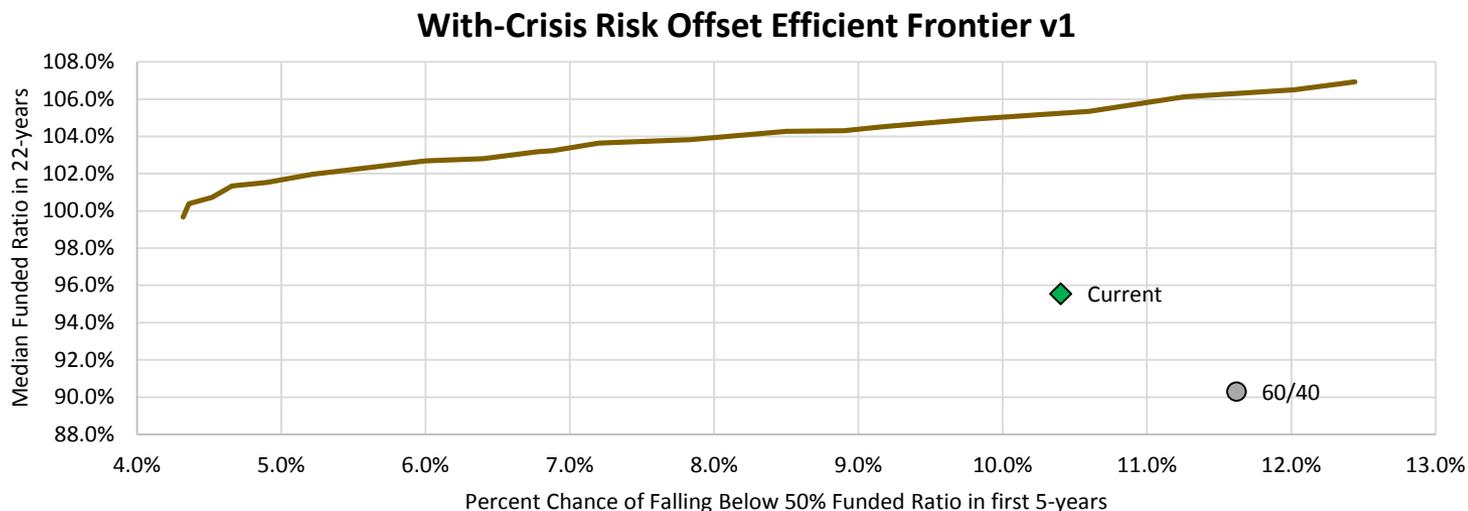
With-CRO Efficient Frontier v1

Strategic Class Constraints

	Min	Max		Min	Max	
US Equity	12.5	45.0	}	40	60	← US / Non-US Equity Split Constraint
Non-US Equity	12.5	45.0		40	60	
Private Growth	5.0	15.0				
Income Class	5.0	35.0				
CRO	0.0	20.0				
Inflation Protection	5.0	15.0				
IG Fixed Income	10.0	20.0				
Absolute Return	0.0	15.0				
Cash	3.0	5.0				
Total	100.0	100.0				

- Initial set of constraints, including new Crisis Risk Offset
- CRO is allowed a maximum allocation of 20%
- All other constraints remained the same

With-CRO Efficient Frontier v1



Strategic Class %	Cur.	6040	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
US Equity	23.0	30.0	15.0	15.0	15.0	16.0	16.5	17.0	20.0	20.0	20.5	20.5	21.0	21.5	22.5	23.5	24.5	25.5	27.0	26.0	26.0	25.0
Non-US Equity	23.0	30.0	20.0	22.0	22.0	22.0	22.0	22.0	22.0	23.0	24.0	24.5	25.5	26.5	27.5	27.5	28.0	29.0	30.0	33.0	35.0	37.0
Private Growth	9.0	0.0	14.0	14.0	14.5	14.5	14.5	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Income Class	3.5	0.0	7.0	7.0	7.5	7.5	8.0	8.0	8.0	8.0	7.5	7.5	7.0	7.0	6.5	6.5	6.0	5.5	5.0	5.0	5.0	5.0
Crisis Risk Offset	0.0	0.0	20.0	20.0	19.5	19.5	19.0	18.0	17.0	16.0	15.0	14.5	13.5	12.0	10.5	9.5	8.5	7.0	5.0	3.0	1.0	0.0
Inflation Protection	16.5	0.0	8.0	8.0	7.5	7.5	7.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
IG Fixed Income	15.0	40.0	10.0	11.0	11.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Absolute Return	7.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cash	3.0	0.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Median Compound Return	7.0	6.5	7.4	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
Avg. Standard Deviation	12.3	11.5	10.0	10.2	10.3	10.5	10.7	10.9	11.4	11.6	11.9	12.0	12.3	12.7	13.1	13.3	13.6	14.0	14.5	15.1	15.6	15.9
% chance of <50% Yrs 1-5	10.4	11.6	4.3	4.4	4.5	4.7	4.9	5.2	6.0	6.4	6.8	6.9	7.2	7.8	8.5	8.9	9.2	9.8	10.6	11.3	12.0	12.4
Med Funded Ratio Yr 22	95.6	90.3	99.7	100.4	100.7	101.3	101.5	102.0	102.7	102.8	103.2	103.2	103.6	103.8	104.3	104.3	104.5	104.9	105.3	106.1	106.5	106.9
Avg. % Yrs Emplry Ctr >30%	6.2	7.5	2.7	2.7	2.8	2.8	2.9	3.1	3.4	3.5	3.7	3.8	4.0	4.3	4.5	4.7	5.0	5.3	5.7	6.1	6.5	6.7

With-CRO Efficient Frontier v2

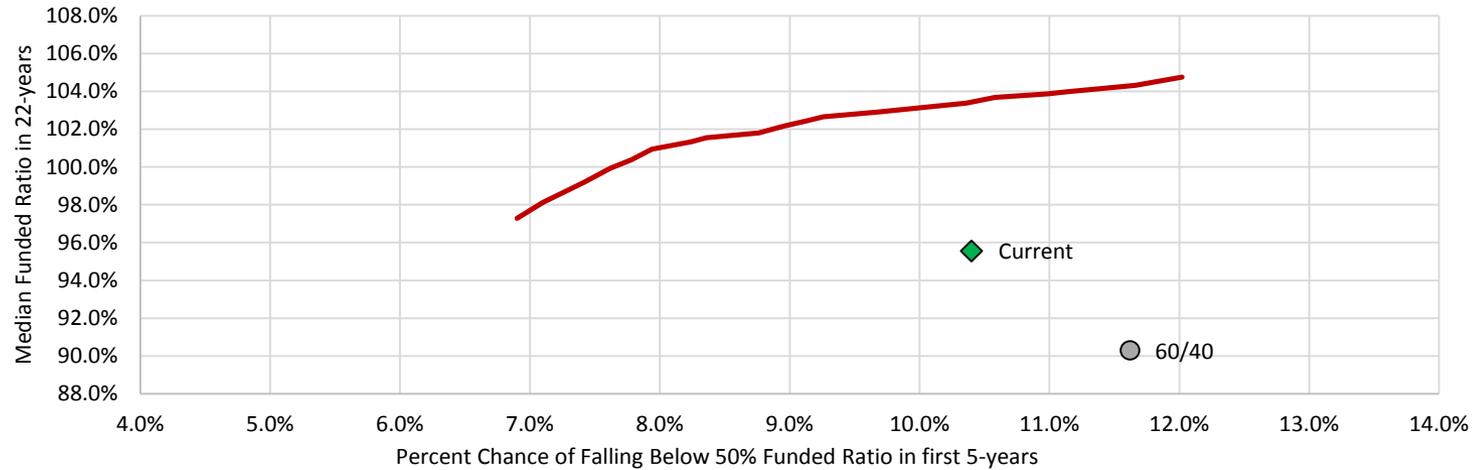
Strategic Class Constraints

	Min	Max		Min	Max	
US Equity	12.5	45.0	}	40	60	← US / Non-US Equity Split Constraint
Non-US Equity	12.5	45.0		40	60	
Private Growth	5.0	15.0				
Income Class	5.0	35.0				
CRO	0.0	10.0				
Inflation Protection	5.0	15.0				
IG Fixed Income	10.0	20.0				
Absolute Return	5.0	15.0				
Cash	3.0	5.0				
Total	100.0	100.0				

- Secondary set of constraints, including new Crisis Risk Offset
- Changes:
 - CRO is allowed a maximum allocation of 10%
 - Absolute Return minimum allocation is adjusted to 5%
- All other constraints remained the same

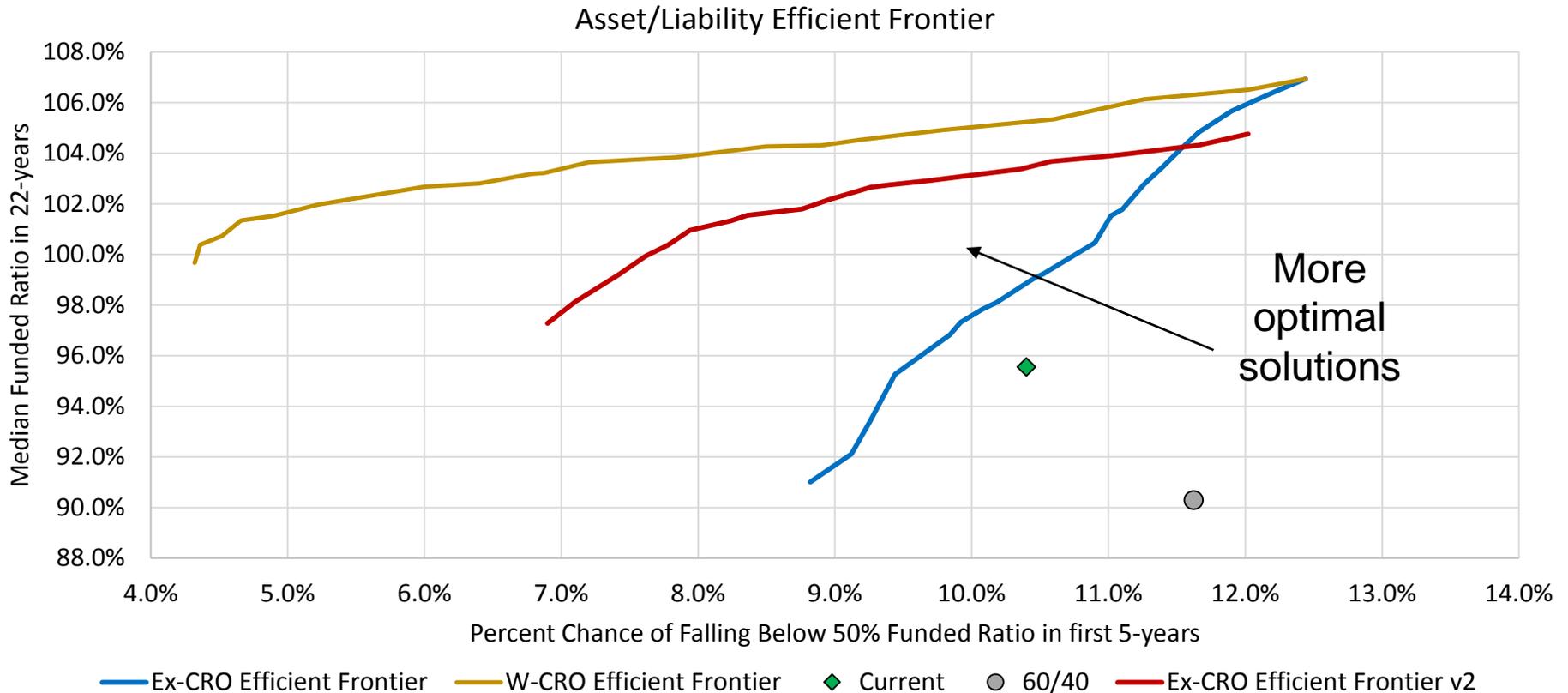
With-CRO Efficient Frontier v2

With-Crisis Risk Offset Efficient Frontier v2



Strategic Class %	Cur.	6040	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
US Equity	23.0	30.0	15.0	15.0	16.0	17.5	18.5	19.0	20.0	20.0	19.5	20.0	20.0	20.0	20.5	21.0	22.0	22.5	24.0	24.0	24.0	24.0
Non-US Equity	23.0	30.0	20.0	22.0	22.0	22.0	22.0	22.5	22.5	23.0	24.0	24.0	24.5	25.0	25.0	25.0	25.5	27.0	28.0	30.0	32.0	32.0
Private Growth	9.0	0.0	14.0	14.0	14.5	14.5	14.5	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Income Class	3.5	0.0	7.0	7.0	7.5	7.5	8.0	8.0	8.0	8.0	7.5	7.5	7.0	7.0	6.5	6.5	6.0	5.5	5.0	5.0	5.0	5.0
Crisis Risk Offset	0.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.5	8.5	7.0	5.0	3.0	1.0	1.0
Inflation Protection	16.5	0.0	8.0	8.0	8.0	8.0	7.5	7.0	6.5	6.0	6.0	5.5	5.5	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
IG Fixed Income	15.0	40.0	14.0	13.0	11.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Absolute Return	7.0	0.0	9.0	8.0	8.0	7.5	6.5	5.5	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Cash	3.0	0.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Median Compound Return	7.0	6.5	7.1	7.2	7.3	7.4	7.4	7.4	7.5	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
Avg. Standard Deviation	12.3	11.5	11.0	11.3	11.7	11.9	12.0	12.2	12.3	12.4	12.7	13.0	13.3	13.4	13.5	13.7	14.1	14.3	14.6	14.7	15.1	15.4
% chance of <50% Yrs 1-5	10.4	11.6	6.9	7.1	7.4	7.6	7.8	7.9	8.2	8.4	8.8	9.0	9.1	9.3	9.4	9.7	10.4	10.6	11.0	11.1	11.7	12.0
Med Funded Ratio Yr 22	95.6	90.3	97.3	98.1	99.2	99.9	100.4	101.0	101.3	101.5	101.8	102.2	102.5	102.7	102.8	102.9	103.4	103.7	103.9	104.0	104.3	104.8
Avg. % Yrs Emplr Ctrb >30%	6.2	7.5	4.3	4.3	4.3	4.4	4.4	4.5	4.5	4.5	4.7	4.9	5.1	5.2	5.3	5.4	5.7	5.8	6.0	6.1	6.4	6.6

Efficient Frontier Comparison



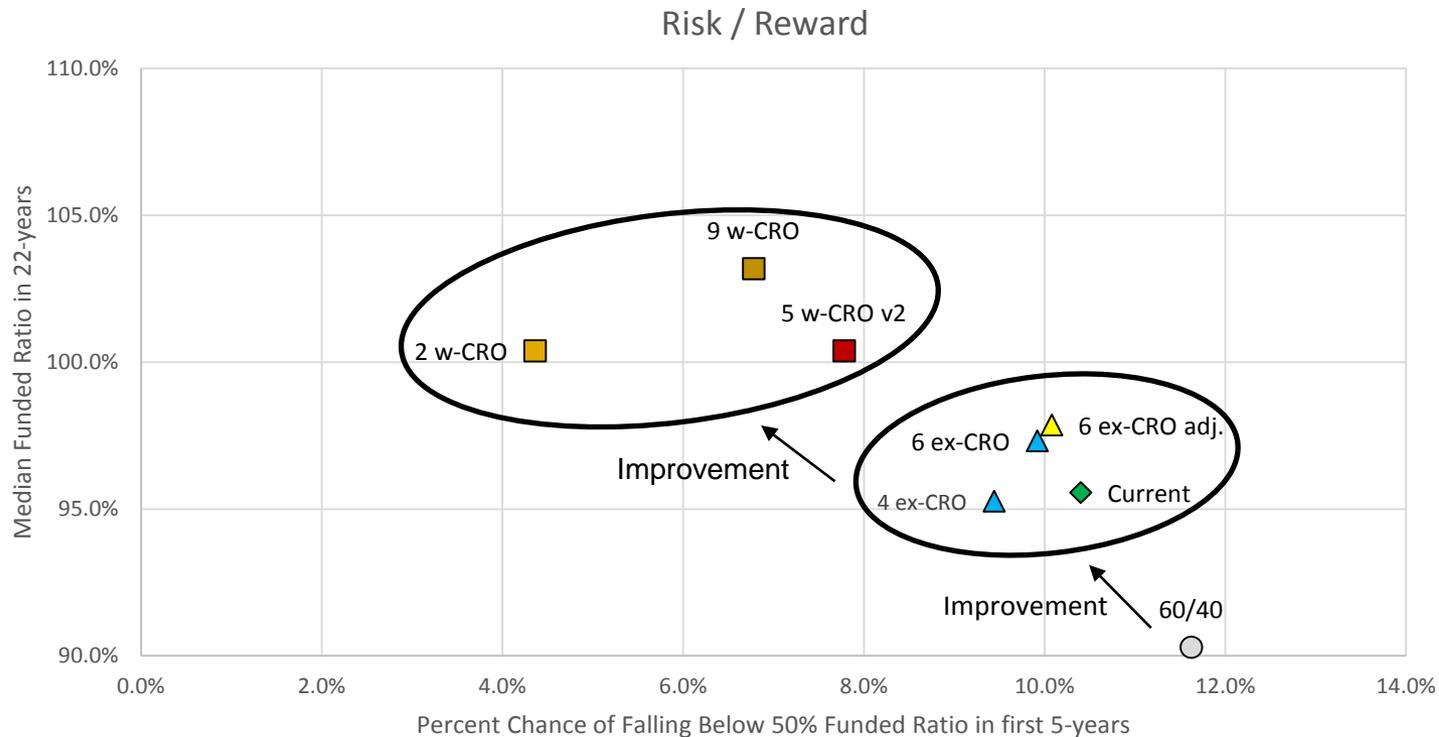
- Optimized solutions exhibit better chances of funding success with materially lower short-term drawdowns/funding risks
- Simulations indicate material improvements can be made

Relevant / Selected Portfolios

Strategic Class %	Current	60/40	4 ex-CRO	6 ex-CRO	6 ex-CRO adj.	2 w-CRO	5 w-CRO v2	9 w-CRO
US Equity	23.0	30.0	17.0	19.0	19.0	15.0	18.5	20.5
Non-US Equity	23.0	30.0	19.0	22.0	22.0	22.0	22.0	24.0
Private Growth	9.0	0.0	15.0	15.0	15.0	14.0	14.5	15.0
Income Class	3.5	0.0	6.0	6.0	6.0	7.0	8.0	7.5
Crisis Risk Offset	0.0	0.0	0.0	0.0	0.0	20.0	10.0	15.0
Inflation Protection	16.5	0.0	14.0	13.0	13.0	8.0	7.5	5.0
IG Fixed Income	15.0	40.0	17.0	15.0	15.0	11.0	10.0	10.0
Absolute Return	7.0	0.0	7.0	5.0	7.0	0.0	6.5	0.0
Cash	3.0	0.0	5.0	5.0	3.0	3.0	3.0	3.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Median Scenario Comp Return	7.0	6.5	7.0	7.1	7.2	7.5	7.4	7.6
Average Scenario Standard Deviation	12.3	11.5	12.0	12.7	12.9	10.2	12.0	11.9
Sharpe Ratio	0.37	0.35	0.37	0.37	0.36	0.49	0.41	0.43
Sortino Ratio	0.62	0.51	0.60	0.60	0.58	1.10	0.73	0.84
Best Year / Worst Year	29.0 / -25.0	29.4 / -22.7	30.9 / -23.5	32.3 / -24.8	32.7 / -25.2	28.0 / -18.2	30.3 / -21.5	30.6 / -21.6
Average 2-year Loss of Worst 10%	-19.8	-18.2	-18.5	-19.9	-20.3	-11.1	-16.8	-15.2
Percent of Scenarios <50% [during first 5-years]	10.4	11.6	9.4	9.9	10.1	4.4	7.8	6.8
Median Funded Ratio [end of 5-years]	59.5	58.5	59.4	59.7	59.7	60.3	60.1	60.5
Average Funded Ratio of Worst 10% [end of 5-years]	46.2	46.0	46.7	46.3	46.2	49.6	47.6	48.2
Median Funded Ratio [end of 22-years]	95.6	90.3	95.3	97.3	97.9	100.4	100.4	103.2
Average Funded Ratio of Worst 10% [end of 22-years]	63.2	62.1	63.9	63.4	63.3	71.9	66.9	68.7
Median Avg. Ann. Employer Cntrbs. Rate % [during 22-yrs]	21.2	22.0	21.2	21.0	20.9	20.3	20.5	20.1
Average % of Yrs. w/ Employer Cntrbs. Rate >30% [during 22-yrs]	6.2	7.5	5.8	5.9	6.0	2.7	4.4	3.7

Relevant / Selected Portfolios



- All portfolios represent a significant improvement from a passive 60/40 portfolios
- Current portfolios is similar to other ex-CRO portfolios
- W-CRO portfolios represent an improvement from ex-CRO portfolios

Model Output: Discussion Points

Most important portfolio characteristics

- US / International equity ratio
- Potential increase of private growth class
- Potential increase to income class
- Potential reduction of inflation protection class
- Potential reduction of core fixed income
- Potential addition of crisis risk offset class

Next Steps

- Selection of preliminary policy portfolio
- Discussion of possible adjustments
- Discussion of target ranges and rebalancing

Definitions

Median Scenario Comp Return: median expected compound investment return based on 5,000 simulations

Average Scenario Standard Deviation: average expected portfolio standard deviation based on 5,000 simulations

Sharpe Ratio: measure of risk-adjusted return (higher the better), calculated as expected return – risk free rate (cash) / standard deviation

Sortino Ratio: measure of risk-adjusted return (higher the better), calculated as expected return – risk free rate (cash) / standard deviation of negative returns

Best Year / Worst Year: best and worst year for the portfolio through 5,000 simulations

Average 2-year Loss of Worst 10%: average 2-year drawdown of worst 10% of 5,000 scenarios (i.e. average return of the worst 500 scenarios after 2-years)

Percent of Scenarios <50% [during first 5-years]: probability of falling below 50% funded ratio at any point in the first 5-years (if equal to 10% then 500 of 5,000 simulations crossed below 50% funded ratio at some point in the first 5-years)

Median Funded Ratio [end of 5-years]: median expected funded ratio at the end of 5-years based on 5,000 simulations

Average Funded Ratio of Worst 10% [end of 5-years]: average funded ratio of worst 10% of 5,000 scenarios at the end of 5-years (i.e. average funded ratio of the worst 500 scenarios after 5-years)

Median Funded Ratio [end of 22-years]: median expected funded ratio at the end of 22-years based on 5,000 simulations

Average Funded Ratio of Worst 10% [end of 22-years]: average funded ratio of worst 10% of 5,000 scenarios at the end of 22-years (i.e. average funded ratio of the worst 500 scenarios after 22-years)

Median Avg. Ann. Employer Cntrbs. Rate % [during 22-yrs]: median expected average annual employer contribution rate across the 22-year period

Average % of Yrs. w/ Employer Cntrbs. Rate >30% [during 22-yrs]: average percent of years an employer contribution rate of greater than 30% during the 22-year period

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