

**State of Alaska**  
**Department of Revenue**  
STATE INVESTMENT REVIEW MEETING  
June 9, 2021 – 8:00 a.m.

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Microsoft Teams Meeting Info:

[Click here to join the meeting](#)

Call-In: 1-907-202-7104

Code: 648 938 703#

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- I. Introduction**  
*Lucinda Mahoney, Commissioner of Revenue*
  
- II. Fidelity Tactical Bond**  
*Jeffrey Moore, Michael Plage, Kristin Shofner – Fidelity Investments*
  
- III. State Investments**  
*Zachary Hanna, Chief Investment Officer*
  - A. March 31, 2021 Performance – Commissioner’s Report**
  - B. Non-Routine Investments**
  - C. FY2022 Asset Allocation**
  
- IV. Rebalancing**  
*Steve Sikes, State Investment Officer*
  
- V. IAC Comments**  
*Investment Advisory Council Members*
  
- VI. Future Agenda Items & Calendar Review**  
*Zachary Hanna, Chief Investment Officer*  
*Alysia Jones, ARMB Liaison*
  
- VII. Other Matters for Discussion**
  
- VIII. Adjournment**

# Fidelity Tactical Bond

Presentation to:  
State of Alaska

**Jeffrey Moore, CFA**  
*Portfolio Manager*

**Michael Plage, CFA**  
*Portfolio Manager*

**Kristin Shofner**  
*Senior Vice President,  
Business Development*

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*Current performance may substantially differ from, and could be significantly lower than, performance shown due to recent significant market volatility. Please contact FIAM for updated performance numbers after the tenth business day following quarter end.*

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See "Important Information" for a discussion of performance data, some of the principal risks related to any of the investment strategies referred to in this presentation, professional designations and how they are obtained, and other information related to this presentation.

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# FIAM Overview

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# Fidelity Asset Management

Over 40 years of experience serving fixed income clients worldwide

## History

Fidelity founded in 1946

Fidelity has been managing  
Fixed Income since 1971

Global multi-asset class  
solutions provider

## People

**Global Investment  
Professionals:** 761

**Fixed Income  
Professionals:** 220

Division Management:	15
Portfolio Management:	43
Research:	112
Trading:	33
Other:	17

## Assets

**Fidelity Assets Under  
Management:** \$3.7T

**Fixed Income Assets:** \$1,510.5B

Bond Assets:	\$494.8B
High Income Assets:	\$117.4B
Money Market Assets:	\$898.3B

Source: Fidelity Investments as of 3/31/21. Data is unaudited. Fidelity fixed income assets include investment grade and high income products, bond sub-portfolios of multi-asset class strategies and money market cash management vehicles. Research professionals include both analysts and associates.

# Fixed Income Capabilities

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# Active Diversified Strategies Across the Risk Spectrum

## Managing strategies that seek to meet clients' unique needs

	← BENCHMARK ORIENTED		HIGHLY FLEXIBLE →
	BROAD MARKET DURATION	CORE PLUS	TACTICAL BOND
<b>Alpha Target</b>	0.50%–0.75%	0.75%–1.25%	1.25%–2.50%
<b>Tracking Error</b>	1.00%–1.50%	1.50%–2.50%	2.50%–5.00%
<b>5-Year Standard Deviation</b> (Benchmark <sup>1</sup> : 3.31)	3.73%	3.73%	5.08%
<b>5-Year Annualized Return (Gross)</b> (Benchmark <sup>1</sup> : 3.10%)	4.57%	4.86%	6.19%
<b>Non- IG Sector Exposure</b>	0%	16%	39%
<b>Duration</b> (Benchmark <sup>1</sup> : 6.14)	6.21	5.92	5.72
<b>Peer Universe Rank 5-Year Total Return*</b>	8th percentile	30th percentile	14th percentile
<b>eVestment Peer*</b>	U.S. Core Fixed Income	U.S. Core Plus Fixed Income	Global Unconstrained Fixed Income

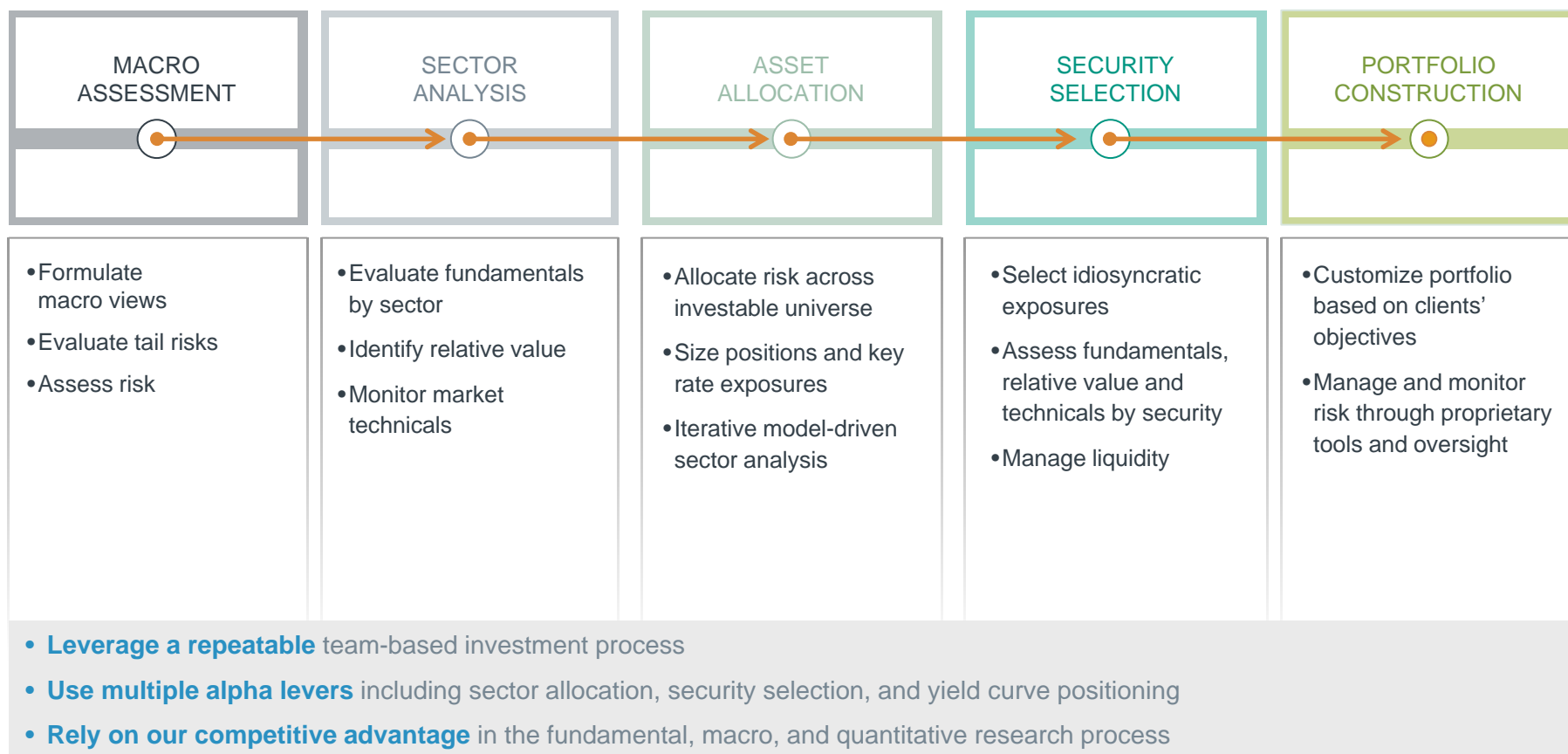
As of 3/31/21. <sup>1</sup>Bloomberg Barclays U.S. Aggregate Bond Index.

Performance shown is gross of any fees and expenses, including advisory fees, which when deducted will reduce returns. See the GIPS Composite Performance Data for annual performance figures that are net of the maximum investment advisory fee charged any client employing these strategies. Target alpha is presented gross of fees and expenses, including advisory fees, which when deducted will reduce returns. Although FIAM believes it has a reasonable basis for any gross target alpha, there can be no assurance that actual results will be comparable. Actual results will depend on market conditions over a full market cycle and any developments that may affect these investments and will be reduced by the deduction of any fees and expenses associated with the investment.

\*Rankings source eVestment. FIAM has not verified and cannot verify the accuracy of information from outside sources, which are self-reported by participating investment managers. Rankings data of the FIAM strategies for all the time periods shown were retrieved on 4/20/21 with at least 80% of managers in U.S. Core Fixed Income, U.S. Core Plus Fixed Income and Global Unconstrained Fixed Income, universe reporting. Rankings are based on 213, 128, and 84 investment products respectively. The universe that the products are shown against is defined by eVestment. Rankings shown are based on gross returns. Please see Important Information for information regarding third party databases and rankings. Past performance is no guarantee of future results.

# Investment Process

Disciplined process helps uncover global risk-adjusted return opportunities



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# Cross Firm Collaboration and Research Portal

Example: 31 notes published on a single issuer during a 90 day period accessible by all Portfolio Managers, Analysts and Traders

Custom Search...		Viewing Results For: 6/1/2018-9/30/2018		Equity, HI, HI Real Estate,...		(Edit Search)				
Date	Note	Att.	Subject	Headline	Author	Team	Type			
9/26/2018	W			Announce Sale of	CLARK, KRICK	FMR Fixed Incom	FI Issuer	Global Sector Leader/Analyst		
9/25/2018	W			at Days and Dollar Limit t	CLARK, KRICK	FMR Fixed Incom	FI Issuer			
9/23/2018	W		Cable & Satellite (Benchm	Clearer picture of the new global landscape for m	DRUKKER, MATTHEW	Technology/Telecc	EQ Industry	Fixed Income Senior Analyst		
9/22/2018	W		Media (Benchmark Use Oi	Wins Paying 11X 2020 EBITDA	CHUNG, INGRID	FIAM Equity	EQ Industry			
9/20/2018	W	X	Media (Benchmark Use Oi	A look at intrinsic value for Both offer similar upside	ALBORNOZ, JULIAN	FIAM Equity	EQ Industry			
9/17/2018	W		General	Notables from Communicopia—2018	CLARK, KRICK	FMR Fixed Incom	FI General			
9/17/2018	W		Media (Benchmark Use Oi	Communocopia Takeaways: What a difference 1 year makes – Positi	CHUNG, INGRID	FIAM Equity	EQ Industry			
9/14/2018	W		Media (Benchmark Use Oi	Takeaways from Dinner with Media & Telco Bankers	CHUNG, INGRID	FIAM Equity	EQ Industry			
9/12/2018	W			Downgrade: Back to resistance and the spring pessimism has dissipe	DIBBLE, MARK	Technical Researc	EQ Technical			
8/28/2018	W		Technical Research	Fundamental US & Canada Long Term Winners - Technical Screen	GREENBLATT, RYAN	Technical Researc	EQ General			
7/26/2018	W			Q2 Results Refocus Attention on Solid Core Operations	CLARK, KRICK	FMR Fixed Incom	FI Issuer			
7/26/2018	W	X		Solid Q2 results should hopefully stabilize the stock. Continue to like	ACKERMAN, CHARLIE	FMR Mega Cap	EQ Company	Equity Sector Analyst		
7/26/2018	W	X		Thesis intact broadband can carry the day. Stock vs. grow	DRUKKER, MATTHEW	Technology/Telecc	EQ Company			
7/19/2018	W		Media (Benchmark Use Oi	Finally Ends its Hunt – Positive for	CHUNG, INGRID	FIAM Equity	EQ Industry			
7/19/2018	W			Stands Down on Asset Pursuit—Positive for Bonds	CLARK, KRICK	FMR Fixed Incom	FI Issuer			
7/12/2018	W		Media (Benchmark Use Oi	DOJ Announces Appeal of Ruling: This Is More About Making	CHUNG, INGRID	FIAM Equity	EQ Industry			
7/11/2018	W			Ups the Price for —Next Move is	CLARK, KRICK	FMR Fixed Incom	FI Issuer			
7/11/2018	W		Media (Benchmark Use Oi	Ups Bid for A Bit of Gamesmanship? The Drama Continu	CHUNG, INGRID	FIAM Equity	EQ Industry			
6/25/2018	W		Communication Services	Call with CTO extraordinaire	DRUKKER, MATTHEW	Technology/Telecc	EQ Industry			
6/20/2018	W		Media (Benchmark Use Oi	Ups Bid Getting Pretty Close to Game-End	CHUNG, INGRID	FIAM Equity	EQ Industry			
6/19/2018	W	X		CEO inhouse. Strong track n	DRUKKER, MATTHEW	Technology/Telecc	EQ Company	Equity Research Analyst		
6/19/2018	W			CEO on bid: No Clear Strategic Imperative, But Being "Opporti	CHUNG, INGRID	FIAM Equity	EQ Company			
6/18/2018	W	X		acquisitions look attractive at the current offer price. Reco	ACKERMAN, CHARLIE	FMR Mega Cap	EQ Company			
6/14/2018	W			Formalizes its for Assets—game ON	CLARK, KRICK	FMR Fixed Incom	FI Issuer			
6/13/2018	W		Media (Benchmark Use Oi	Round 1 goes aggressive, as expected, for assets, to	CHUNG, INGRID	FIAM Equity	EQ Industry			
6/13/2018	W		Strategy	Screening for fundamentally stable companies w/ yield from '08 cycle	ABERNETHY, NICOLE	Income	EQ General			
6/13/2018	W			Reiterate: Lots of support but not but a relative dov	DIBBLE, MARK	Technical Researc	EQ Technical	Equity Technical Analyst		
6/12/2018	W		Media (Benchmark Use Oi	Approved w/No Conditions: Let the Games Begin! Question N	CHUNG, INGRID	FIAM Equity	EQ Industry			
6/12/2018	W		Media (Benchmark Use Oi	Today is D-Day for Media: Handicapping the outcomes	CHUNG, INGRID	FIAM Equity	EQ Industry			
6/7/2018	W	P	Sector	Media M&A Madness Presentation	CLARK, KRICK	FMR Fixed Incom	FI General			
6/6/2018	W			– Affirming	CLARK, KRICK	FMR Fixed Incom	FI Issuer			

For illustrative purposes only. Intended to show modeling resource that may be used by portfolio manager.

Certain data has been intentionally masked to protect sensitive research information.

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# Tactical Bond

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# FIAM Tactical Bond

Leveraging a long history of fixed income asset allocation

## CHARACTERISTICS

- Multi-sector allocation exposure to global fixed income assets
- Risk-adjusted returns by qualitative and quantitative assessments
- Maintains liquidity and seeks to capitalize on dynamic opportunities

**Universe:** Global investment grade and non-investment grade fixed income sectors and securities

**Potential Sources of Return:** Asset allocation, sector rotation, security selection, yield curve, foreign currency

	Limit	Average
<b>Non-Investment Grade Exposure</b>	70%	30%–40% (max 53%)
<b>Active Currency Exposure</b>	Up to 10%	0%–2%
<b>Targeted Duration Range</b>	Flexible	3–6 years
<b>Targeted Volatility Over a Market Cycle</b>	3%–6% annualized	Actual 5-Year: 5.08%

Representative account information shown. As of 3/31/21.

# Tactical Bond Performance Review

As of March 31, 2021

	Cumulative	Annualized			
	3-Month	1-Year	3-Year	5-Year	10-Year
<b>Tactical Bond (Gross)</b>	<b>(2.57)</b>	<b>12.13</b>	<b>6.40</b>	<b>6.19</b>	<b>6.14</b>
Bloomberg Barclays U.S. Aggregate Bond Index	(3.37)	0.71	4.65	3.10	3.44
<i>Active Return (Gross)</i>	<i>0.80</i>	<i>11.42</i>	<i>1.75</i>	<i>3.09</i>	<i>2.70</i>
<b>Standard Deviation</b>	–	–	<b>6.05</b>	<b>5.08</b>	<b>4.38</b>
Bloomberg Barclays U.S. Aggregate Bond Index	–	–	3.56	3.31	3.04
<b>Sharpe Ratio</b>	–	–	<b>0.81</b>	<b>0.98</b>	<b>1.26</b>
Bloomberg Barclays U.S. Aggregate Bond Index	–	–	0.90	0.59	0.93
<b>Peer Universe Performance Ranking</b>					
	1Q21	1-Year	3-Year	5-Year	10-Year
<b>eVestment Universe Percentile Rank*</b>	<b>78<sup>th</sup></b>	<b>64<sup>th</sup></b>	<b>9<sup>th</sup></b>	<b>14<sup>th</sup></b>	<b>1<sup>st</sup></b>

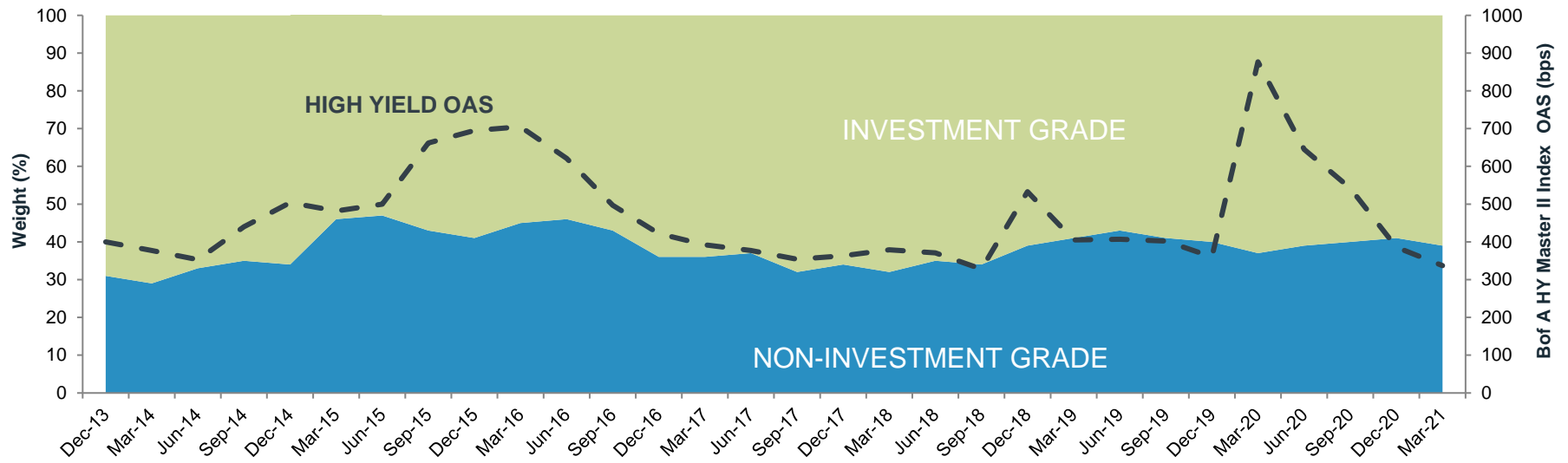
As of 3/31/21. Composite performance shown.

Performance shown is gross of any fees and expenses, including advisory fees, which when deducted will reduce returns. See the GIPS Composite Performance Data for annual performance figures that are net of the maximum investment advisory fee charged any client employing this strategy.

Past performance is no guarantee of future results.

\*Rankings source eVestment. FIAM has not verified and cannot verify the accuracy of information from outside sources, which are self-reported by participating investment managers. Rankings data of the FIAM strategy for all the time periods shown were retrieved on 4/20/21 with at least 80% of managers in Global Unconstrained Fixed Income universe reporting and based on 95,95,93,84 and 45 investment products respectively. The universe that the products are shown against is defined by eVestment. Rankings shown are based on gross returns. Please see the Important Information for information regarding third-party databases and rankings. Past performance is no guarantee of future results.

# Tactical Bond Historical Exposures



Duration	Dec-13	Mar-14	Jun-14	Sep-14	Dec-14	Mar-15	Jun-15	Sep-15	Dec-15	Mar-16	Jun-16	Sep-16	Dec-16	Mar-17	Jun-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19	Jun-19	Sep-19	Dec-19	Mar-20	Jun-20	Sep-20	Dec-20	Mar-21	
Average Years	4.3	4.5	4.7	5.5	4.7	4.8	5.8	6.3	4.4	6.3	5.7	5.5	5.2	5.1	4.9	5.0	5.0	5.1	5.3	5.4	5.7	4.9	4.7	4.7	4.9	6.4	6.1	6.7	6.9	5.7	
<b>FIAM Tactical Bond</b>	4.3	4.5	4.7	5.5	4.7	4.8	5.8	6.3	4.4	6.3	5.7	5.5	5.2	5.1	4.9	5.0	5.0	5.1	5.3	5.4	5.7	4.9	4.7	4.7	4.9	6.4	6.1	6.7	6.9	5.7	
<b>Bbg Barclays US Agg</b>	5.4	5.5	5.3	5.4	5.2	5.2	5.4	5.3	5.4	5.4	5.5	5.6	5.8	5.8	5.8	5.8	5.9	6.0	5.9	5.9	5.8	5.6	5.5	5.6	5.8	5.5	5.6	5.7	5.8	6.1	
<b>Sector Allocations (%)</b>	69	71	67	65	66	64	53	57	59	55	54	57	64	64	63	68	66	68	65	66	61	59	57	59	61	63	61	60	59	61	
Treasuries	26	35	35	33	31	21	21	18	25	16	10	10	12	17	13	18	14	14	17	25	23	19	19	19	21	11	9	12	12	11	
TIPS	-	-	-	-	-	4	-	-	7	12	15	15	22	22	22	21	17	13	5	-	-	-	-	-	-	2	1	-	-	-	
Gov't Related	3	5	4	3	3	3	4	5	3	2	2	2	1	1	1	1	1	3	2	2	3	2	2	2	2	2	1	1	1	1	
Corp-IG	11	12	18	21	22	22	22	22	18	21	21	21	20	16	20	17	17	18	17	18	18	19	16	17	16	20	27	21	18	15	
Agency MBS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
RMBS	15	14	3	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CMBS	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	-	-	-	-	-	-	-	1	1	
ABS	-	-	-	1	1	1	1	-	-	-	-	-	-	1	1	1	1	1	1	1	1	-	-	-	-	-	1	1	1	1	
CLO's	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2	2	2	4	3	5	6	8	
EMD-IG	4	4	3	3	4	2	2	2	-	1	2	2	2	2	2	2	3	4	4	4	4	4	4	4	4	5	4	4	4	5	4
Global	-	-	-	-	-	2	2	2	3	3	3	3	3	3	2	8	8	10	9	9	10	11	11	9	13	18	15	14	14	18	
-Cash/Other*	1	1	4	1	4	1	1	8	4	0	1	4	4	3	2	-	-	-	1	2	1	1	3	6	2	2	-	1	1	2	
<b>Non-Investment Grade Sectors</b>	31	29	33	35	34	36	47	43	41	45	46	43	36	36	37	32	34	32	35	34	39	41	43	41	39	37	39	40	41	39	
High Yield	16	14	18	20	20	25	25	22	21	24	25	22	15	15	15	12	13	12	14	12	16	18	18	16	16	15	17	17	18	16	
EMD-HY	-	-	-	-	-	1	1	1	1	1	1	1	-	-	1	1	2	1	1	2	3	4	4	5	4	4	4	4	4	3	
Leveraged Loan	15	15	15	15	14	20	21	20	19	20	20	20	21	21	21	19	19	19	20	20	20	19	21	20	19	18	18	19	19	20	
<b>HY OAS (bps)</b>	400	377	353	440	504	482	500	662	695	705	621	497	422	392	377	354	363	379	371	328	533	405	407	402	360	877	645	542	386	337	

\*Includes derivatives. Representative account information is shown. Data as of 3/31/21.



# Periodic Table of Cumulative Returns (%)

2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
U.S. Treasury 13.74%	High Yield 16.82%	High Yield 34.42%	High Yield 40.30%	Emerging Markets 62.91%	High Yield 74.13%	High Yield 78.50%	High Yield 70.27%	High Yield 100.04%	High Yield 114.98%	High Yield 110.14%	High Yield 140.42%	High Yield 155.01%
Government Bond 12.39%	MBS 14.72%	Emerging Markets 29.13%	<b>FIAM Tactical Bond (Gross) 39.43%</b>	High Yield 62.11%	<b>FIAM Tactical Bond (Gross) 61.81%</b>	<b>FIAM Tactical Bond (Gross) 71.59%</b>	<b>FIAM Tactical Bond (Gross) 68.50%</b>	<b>FIAM Tactical Bond (Gross) 85.26%</b>	Russell 3000 Value 100.20%	<b>FIAM Tactical Bond (Gross) 95.11%</b>	Russell 3000 Value 131.09%	<b>FIAM Tactical Bond (Gross) 141.01%</b>
MBS 8.34%	Emerging Markets 14.43%	<b>FIAM Tactical Bond (Gross) 27.48%</b>	Emerging Markets 38.13%	<b>FIAM Tactical Bond (Gross) 56.80%</b>	Emerging Markets 56.19%	Emerging Markets 63.63%	Emerging Markets 65.74%	Emerging Markets 82.12%	Emerging Markets 96.99%	Emerging Markets 92.14%	<b>FIAM Tactical Bond (Gross) 121.25%</b>	<b>Russell 3000 Value 137.74%</b>
U.S. Agg 5.24%	<b>FIAM Tactical Bond (Gross) 14.34%</b>	Credit Bond 22.00%	Credit Bond 32.19%	Credit Bond 44.57%	Credit Bond 41.66%	Russell 3000 Value 55.81%	Credit Bond 51.15%	Russell 3000 Value 76.86%	<b>FIAM Tactical Bond (Gross) 96.64%</b>	Russell 3000 Value 83.03%	Emerging Markets 117.33%	Emerging Markets 131.52%
1-3 Gov/Credit 4.97%	Credit Bond 12.47%	MBS 20.88%	MBS 28.41%	U.S. Agg 33.49%	Lev Loan 38.77%	Credit Bond 52.32%	Russell 3000 Value 49.38%	Credit Bond 59.66%	Credit Bond 69.52%	Credit Bond 65.94%	Credit Bond 88.84%	Credit Bond 106.51%
Global Agg (UH) 4.79%	Global Agg (UH) 12.05%	U.S. Agg 18.77%	U.S. Agg 28.09%	Lev Loan 31.80%	Russell 3000 Value 38.26%	Lev Loan 40.98%	Lev Loan 40.01%	Lev Loan 54.23%	Lev Loan 60.54%	Lev Loan 61.30%	Lev Loan 75.24%	Lev Loan 80.71%
Credit Bond -3.08%	U.S. Agg 11.48%	Lev Loan 18.39%	U.S. Treasury 27.51%	MBS 31.74%	U.S. Agg 30.79%	U.S. Agg 38.59%	MBS 39.85%	U.S. Agg 43.04%	U.S. Agg 48.11%	U.S. Agg 48.12%	U.S. Agg 61.04%	U.S. Agg 73.12%
<b>FIAM Tactical Bond (Gross) -8.30%</b>	Government Bond 9.92%	Global Agg (UH) 18.26%	Government Bond 26.45%	Global Agg (UH) 30.33%	MBS 29.88%	MBS 37.77%	U.S. Agg 39.35%	MBS 42.69%	MBS 45.71%	MBS 47.15%	MBS 56.49%	MBS 62.55%
Nontraditional Bond -14.21%	U.S. Treasury 9.68%	U.S. Treasury 16.12%	Global Agg (UH) 24.94%	U.S. Treasury 30.05%	Global Agg (UH) 26.94%	U.S. Treasury 32.87%	U.S. Treasury 33.99%	U.S. Treasury 35.38%	U.S. Treasury 38.51%	U.S. Treasury 39.70%	U.S. Treasury 49.28%	U.S. Treasury 61.21%
Emerging Markets -14.75%	1-3 Gov/Credit 8.99%	Government Bond 15.99%	Lev Loan 20.18%	Government Bond 29.00%	U.S. Treasury 26.48%	Government Bond 31.83%	Government Bond 32.96%	Government Bond 34.35%	Government Bond 37.44%	Government Bond 38.66%	Government Bond 48.13%	Government Bond 59.28%
Hedge Fund -21.37%	Lev Loan 7.50%	1-3 Gov/Credit 12.04%	1-3 Gov/Credit 13.83%	1-3 Gov/Credit 15.26%	Government Bond 25.65%	Global Agg (UH) 27.69%	Global Agg (UH) 23.66%	Global Agg (UH) 26.24%	Global Agg (UH) 35.58%	Global Agg (UH) 33.95%	Global Agg (UH) 43.11%	Global Agg (UH) 56.28%
High Yield -26.11%	Nontraditional Bond 2.06%	Nontraditional Bond 7.76%	Nontraditional Bond 6.79%	Nontraditional Bond 14.27%	1-3 Gov/Credit 16.00%	1-3 Gov/Credit 16.90%	1-3 Gov/Credit 17.66%	Nontraditional Bond 19.29%	Nontraditional Bond 24.54%	Nontraditional Bond 23.03%	Nontraditional Bond 31.3%	Nontraditional Bond 35.54%
Lev Loan -29.10%	Hedge Fund -12.35%	Hedge Fund -7.35%	Russell 3000 Value -11.35%	Russell 3000 Value 4.20%	Nontraditional Bond 14.78%	Nontraditional Bond 15.80%	Nontraditional Bond 14.06%	1-3 Gov/Credit 19.17%	1-3 Gov/Credit 20.18%	1-3 Gov/Credit 22.10%	1-3 Gov/Credit 27.02%	1-3 Gov/Credit 31.23%
Russell 3000 Value -36.25%	Russell 3000 Value -23.65%	Russell 3000 Value -11.27%	Hedge Fund -12.65%	Hedge Fund -8.47%	Hedge Fund -0.27%	Hedge Fund 3.09%	Hedge Fund 2.81%	Hedge Fund 3.34%	Hedge Fund 11.34%	Hedge Fund 10.00%	Hedge Fund 18.55%	Hedge Fund 10.27%

Sources: Bloomberg Barclays, S&P, ICE BofA, FMR. Tactical Bond Composite performance shown is gross of any fees and expenses, including advisory fees, which when deducted will reduce returns. See the GIPS Composite Performance Data for annual performance figures that are net of the maximum investment advisory fee charged any client employing this strategy. Past performance is no guarantee of future results. Index performance shown does not reflect the deduction of advisory fees, transaction charges and other expenses, which if charged would reduce performance. All indices are unmanaged. Investing directly in an index is not possible. Index naming correspondence is as follows: U.S. Treasury: The Bloomberg Barclays US Treasury Index, Government Bond: The Bloomberg Barclays Government Bond Index, MBS: This index is the U.S. MBS component of the U.S. Aggregate index, U.S. Agg: The Bloomberg Barclays U.S. Aggregate Index, 1-3 Gov/Credit: Bloomberg Barclays 1-3 Year Gov't/Credit Index, Global Aggregate: The Bloomberg Barclays Global Aggregate Index, Credit Bond: Bloomberg Barclays U.S. Credit Bond Index, Emerging Markets: The Bloomberg Barclays EM USD Aggregate Index, Hedge Fund: HFRI Fund Weighted Composite Index, Non Traditional Bond: Morningstar Traditional Bond Category, Lev Loans: S&P Leveraged Loan Index, High Yield: ICE BofA 0-5 Year US High Yield Constrained Index and Russell 3000 Value: Russell 3000 Value Index.



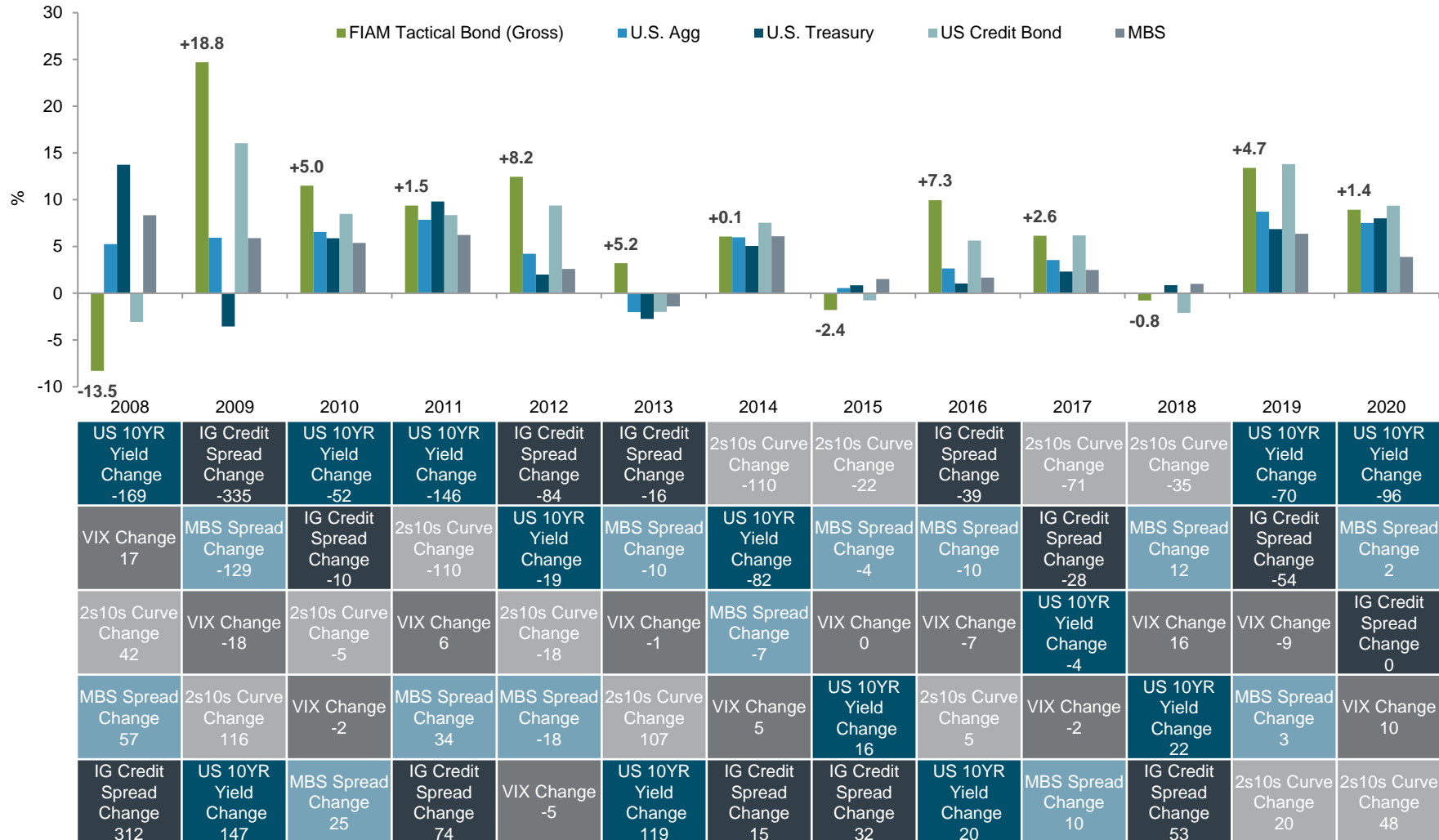
# Periodic Table of 1-Year Annualized Standard Deviations

2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
1-3 Gov/Credit 2.55	1-3 Gov/Credit 1.27	1-3 Gov/Credit 0.97	1-3 Gov/Credit 0.69	1-3 Gov/Credit 0.44	1-3 Gov/Credit 0.50	1-3 Gov/Credit 0.57	1-3 Gov/Credit 0.73	1-3 Gov/Credit 0.97	1-3 Gov/Credit 0.47	1-3 Gov/Credit 0.98	1-3 Gov/Credit 1.03	1-3 Gov/Credit 0.92
MBS 4.72	MBS 2.49	Nontraditional Bond 2.13	MBS 1.62	MBS 1.01	Lev Loan 1.64	Nontraditional Bond 1.32	MBS 1.49	MBS 2.55	Nontraditional Bond 0.72	Nontraditional Bond 1.64	MBS 1.79	MBS 1.48
U.S. Agg 6.09	U.S. Agg 3.34	MBS 2.23	U.S. Agg 2.35	Nontraditional Bond 1.81	Nontraditional Bond 2.46	Lev Loan 1.91	Nontraditional Bond 2.20	Nontraditional Bond 2.83	Lev Loan 0.92	FIAM Tactical Bond 2.11	Nontraditional Bond 2.01	U.S. Agg 3.41
Government Bond 6.14	Hedge Fund 3.65	U.S. Agg 2.91	Nontraditional Bond 2.38	U.S. Agg 2.01	Government Bond 2.69	Government Bond 2.07	Lev Loan 2.56	Lev Loan 3.35	MBS 1.15	MBS 2.98	FIAM Tactical Bond 2.54	Government Bond 4.63
U.S. Treasury 6.65	Nontraditional Bond 4.16	FIAM Tactical Bond 3.03	FIAM Tactical Bond 2.43	FIAM Tactical Bond 2.16	MBS 2.75	U.S. Treasury 2.14	U.S. Agg 2.95	U.S. Agg 3.75	U.S. Agg 1.31	U.S. Agg 3.12	Lev Loan 3.32	Global Agg (UH) 4.75
Nontraditional Bond 7.42	Government Bond 4.64	Government Bond 3.80	Government Bond 3.35	Lev Loan 2.31	U.S. Treasury 2.79	MBS 2.27	Global Agg (UH) 3.08	Hedge Fund 3.72	FIAM Tactical Bond 1.34	Credit Bond 3.19	U.S. Agg 3.43	U.S. Treasury 4.77
FIAM Tactical Bond 7.76	FIAM Tactical Bond 4.75	Credit Bond 3.91	U.S. Treasury 3.72	Government Bond 2.73	Hedge Fund 3.09	U.S. Agg 2.31	Government Bond 3.53	Government Bond 4.48	Credit Bond 1.36	Lev Loan 3.25	Hedge Fund 3.49	Nontraditional Bond 8.86
Hedge Fund 9.45	U.S. Treasury 5.45	U.S. Treasury 4.22	Credit Bond 4.11	U.S. Treasury 2.98	U.S. Agg 3.19	Hedge Fund 2.84	U.S. Treasury 3.66	U.S. Treasury 4.55	Hedge Fund 1.40	Government Bond 3.56	Emerging Markets 3.51	FIAM Tactical Bond 9.75
Global Agg (UH) 9.70	Credit Bond 5.99	Lev Loan 4.34	Global Agg (UH) 5.12	Global Agg (UH) 2.99	FIAM Tactical Bond 4.26	FIAM Tactical Bond 3.00	FIAM Tactical Bond 3.81	FIAM Tactical Bond 4.75	Government Bond 1.62	U.S. Treasury 3.61	Global Agg (UH) 3.90	Credit Bond 9.84
Credit Bond 12.18	Emerging Markets 7.29	Hedge Fund 4.80	Hedge Fund 5.13	Credit Bond 3.33	High Yield 4.77	Credit Bond 3.07	Credit Bond 4.00	Credit Bond 4.81	U.S. Treasury 1.76	High Yield 3.65	Credit Bond 4.02	Hedge Fund 10.83
Lev Loan 16.07	Global Agg (UH) 8.35	Global Agg (UH) 6.58	Lev Loan 5.97	Hedge Fund 3.52	Global Agg (UH) 4.84	Global Agg (UH) 4.01	Hedge Fund 4.61	Emerging Markets 5.71	Emerging Markets 1.84	Global Agg (UH) 3.73	Government Bond 4.53	Emerging Markets 13.61
High Yield 21.29	Lev Loan 9.56	High Yield 6.92	Emerging Markets 7.57	High Yield 3.83	Credit Bond 4.90	High Yield 4.51	Emerging Markets 4.73	High Yield 6.09	High Yield 2.64	Emerging Markets 3.83	U.S. Treasury 4.59	Lev Loan 14.88
Russell 3000 Value 21.50	High Yield 12.69	Emerging Markets 6.96	High Yield 9.64	Emerging Markets 5.57	Emerging Markets 7.16	Emerging Markets 5.08	High Yield 6.41	Global Agg (UH) 7.35	Russell 3000 Value 5.62	Hedge Fund 4.57	High Yield 5.11	High Yield 15.40
Emerging Markets 23.50	Russell 3000 Value 27.03	Russell 3000 Value 19.64	Russell 3000 Value 17.65	Russell 3000 Value 10.31	Russell 3000 Value 9.57	Russell 3000 Value 8.68	Russell 3000 Value 12.77	Russell 3000 Value 11.55	Global Agg (UH) 7.35	Russell 3000 Value 14.21	Russell 3000 Value 13.79	Russell 3000 Value 29.39

Sources: Bloomberg Barclays, S&P, ICE BofA, FMR. Tactical Bond Composite performance shown is gross of any fees and expenses, including advisory fees, which when deducted will reduce returns. See the GIPS Composite Performance Data for annual performance figures that are net of the maximum investment advisory fee charged any client employing this strategy. Past performance is no guarantee of future results. Index performance shown does not reflect the deduction of advisory fees, transaction charges and other expenses, which if charged would reduce performance. All indices are unmanaged. Investing directly in an index is not possible. Index naming correspondence is as follows: U.S. Treasury: The Bloomberg Barclays US Treasury Index, Government Bond: The Bloomberg Barclays Government Bond Index, MBS: This index is the U.S. MBS component of the U.S. Aggregate index, U.S. Agg: The Bloomberg Barclays U.S. Aggregate Index, 1-3 Gov/Credit: Bloomberg Barclays 1-3 Year Gov't/Credit Index, Global Aggregate: The Bloomberg Barclays Global Aggregate Index, Credit Bond: Bloomberg Barclays U.S. Credit Bond Index, Emerging Markets: The Bloomberg Barclays EM USD Aggregate Index, Hedge Fund: HFRI Fund Weighted Composite Index, High Yield: The Bloomberg Barclays U.S. High Yield Index, Non Traditional Bond: Morningstar Traditional Bond Category, Lev Loans: S&P Leveraged Loan Index, High Yield: ICE BofA 0-5 Year US High Yield Constrained Index and Russell 3000 Value: Russell 3000 Value Index.



# Annual Returns in Various Markets



Composite performance shown.

Performance shown is gross of any fees and expenses, including advisory fees, which when deducted will reduce returns. See the GIPS Composite Performance Data for annual performance figures that are net of the maximum investment advisory fee charged any client employing this strategy. Past performance is no guarantee of future results.

Note: Numbers next to the green bars represent the relative gross return for FIAM Tactical Bond to the Bloomberg Barclays U.S. Aggregate Index.

Source: Fidelity Investments and Bloomberg as of 12/31/20.





# High VIX, Low VIX, Rising Rates Regimes

Regime	Tactical Bond Relative Return to the U.S. Agg
High VIX (2008, 2011, 2014-2015, 2018, 2020)	-1,365 bps
Low VIX (2009-2010, 2012-2013, 2016-2017, 2019)	+5,175 bps
Rising Rates (2009, 2013, 2015-2016, 2018)	+2,814 bps

Source: Fidelity Investments and Bloomberg as of 12/31/20.

# FIAM Tactical Bond Strategy

## Macroeconomic views

### The Big Story

Bond market yield in the U.S. has improved year-to-date through the sell off in longer term interest rates. The result is a bond opportunity set that more closely resembles 2019 than 2020. One notable investment theme and perhaps opportunity is longer dated U.S. government debt. The 2s/10s yield curve slope in the US has now crossed the 70th percentile, according to our work. Said another way, in the last 50 years the yield curve has been steeper only 30% of the time. And for reference the 100th percentile, which is the steepest in the past 1/2 century, is not too far away. Additionally, the bond market is now pricing in 3 fed hikes by 2023 despite the Federal Reserve sending no signals, yet, that this is in the offing. In fact, very short end yields, for instance those inside 3 months like t-bills, Libor and sofr, are sub 10 bps per year and show no signs yet of moving higher.

Clients should know that we have used this steepening and aggressive market move to cover the longer key rates (KRDs in bond market parlance) in the portfolio. We will be watching the curve slope as a guide to possibly adding even more KRD and duration.

### The Federal Reserve

Chair Powell continues to be comfortable with the current level of rates and even the slope of the curve. To our mind, he in part views the steep yield curve as a welcome reflation and 'animal spirits' indicator and consequently has no plans for yield curve controls or operation twist, at least for now. TIPS, the inflation protected bonds, are signaling relatively stable inflation, albeit elevated somewhat, despite monetary and fiscal policy at extremes, and in the face of the vaccine rollout and return to more normal.

### Bank of Japan

Governor Kuroda would welcome some 'animal spirits' in the JGB curve and has used the recent volatility in global yields to widen the permissible trading band around its zero yield 10 year YCC from +/- 10 bp to +/- 15 bp. More 2s/10s yield curve slope would be supportive of financial institution profits (and consequently ability to lend) and be a signal that reflation is on track in Japan.

### European Central Bank

An aggressive response to the US induced backup in European yields. The current stance remains that Europe needs very accommodative interest rate policy for the foreseeable future because the growth rebound has not yet emerged in the right scope. We wonder if the ECB response also reflects the vulnerability of some big Euro countries to a debt spiral should interest rates rise too far, too fast.

### People's Bank of China (PBoC)

The most likely candidate to raise interest rates to quell growth in our view. At this stage any rate rise seems modest and careful and we note that the PBoC has a long history of using many other tools to curtail or support sector liquidity and growth.

Portfolio positioning, as April 2021.

Source: Fidelity. For illustrative purposes only. The statements and opinions are subject to change at any time, based on market and other conditions. Actual results will depend on market conditions over a full market cycle and any developments that may affect these investments and will be reduced by the deduction of any fees and expenses associated with the investment.

# FIAM Tactical Bond Strategy

## Portfolio positioning

### Valuations

**Leveraged Loans: Maintain overweight.** Best performing asset class YTD given protection from rising rates due to floating rate structure, among highest yield in fixed income, spread compression due to low expected defaults and technical demand. Energy exposure in the sector is limited. CLO Issuance supportive. Complements treasury exposure.

**High Yield:** Modest overweight with capacity to add. Despite selloff in rates, still positive returns YTD, demonstrating low empirical sensitivity to Treasuries. Beta trade largely played out so shifting exposure to idiosyncratic risk – specifically BB rated issuers with strong or improving fundamentals that have a yield advantage versus investment grade corporates.

**U.S. Investment-Grade (IG) Corporates:** Underweight. Spreads have retraced to the tightest decile and offer little value. In addition, the correlation to treasuries is high and duration for this sector is long, both negatives based on our outlook and reasons the sector is the worst performer YTD. Today we return our focus to compelling idiosyncratic opportunities, primarily in the intermediate maturity BBB rated space.

**International Credit: Maintain overweight.** Another way to reduce the portfolio impact of higher US treasury rates as sector is primarily exposed to EUR or GBP curves. High spread dispersion provides opportunity for alpha from security selection and hedging provides some positive carry. Prefer shorter duration BBB rated industrials and down in the capital structure exposure to financials.

**Emerging-Market Debt: Highly selective exposure.** Popular indices are high quality and long duration, therefore have a high degree of correlation to treasuries and have underperformed YTD. We are focused on large, liquid BB and BBB rated sovereign and quasi sovereign issuers. Most exposure is USD denominated or hedged to control volatility.

**U.S. TIPS:** No exposure. Real interest rates are negative and rising, albeit slowly, across the curve. Within the Average Inflation Targeting framework outlined by the Fed at Jackson Hole, the narrative of significant fiscal and monetary stimulus combined with economic optimism as vaccinations continue has driven breakevens in 10yr TIPS to 2.3%, well above the Fed target of 2%, despite persistent pressure on rents is concerning and had held CPI in check. Longer term, global DM demographics are a headwind for growth and higher inflation. Reflation trade is extremely popular, so this is a contrarian view.

**Structured Product:** Adding selective exposure. Most high-quality sectors have recovered to near pre COVID levels, including AAA CLOs, conduit CMBS, and other ABS sub sectors. Securitized products with COVID impacted collateral (real estate, airplanes, whole businesses, etc.) still offer value in some parts of the capital structure.

**Agency MBS: No exposure.** Low OAS negatively convex sector that has had the additional issue of being in a super-fast yet difficult to accurately predict prepayment environment. Models are being reworked to improve output given the unprecedented nature of this market and the importance of new factors influencing prepayment speeds. Negative convexity of this sector in focus as rapidly rising base rates have caused the duration of MBS to extend.

**Duration/Curve:** Adding duration (still modestly short of the benchmark) given the dramatic underperformance of long duration treasuries (among worst quarters in the last decade) as reflation trade drives nominal yields higher. Starting to focus on 10-year bonds given the steepness of the curve.

**Non-Dollar:** Volatility of unhedged currency is usually multiples of our total portfolio risk. This keeps our exposure small. The G10 zero-yield front-end interest rate policy means that no country is a high-yielder, although the U.S. is widening the gap. This should keep a lid on fx movements due to interest rate parity. We have selectively added to MXN Peso and C\$.

### Risk and Return Targets

**Yield Target:** 3.25% (unchanged)

**Duration Target:** about 5.6 years (approximately 0.25 years short to the Bloomberg Barclays U.S. Aggregate Bond Index)

**Volatility Target:** modestly higher than Bloomberg Barclays U.S. Aggregate Bond Index

**Targeted Risk to Risk-Free Asset Ratio:** 80%/20% (unchanged)

Portfolio positioning, as of April 2021. Source: Fidelity. For illustrative purposes only. The statements and opinions are subject to change at any time, based on market and other conditions.. Actual results will depend on market conditions over a full market cycle and any developments that may affect these investments and will be reduced by the deduction of any fees and expenses associated with the investment.

# Appendix

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# FIAM GIPS® Composite Report

## Tactical Bond Total Composite (USD) Versus Bloomberg Barclays U.S. Aggregate Bond Index As of March 31, 2021

Period	Composite Return (Gross%)	Composite Return (Net%)	Benchmark Return (%)	Value Added (%)*	Number of Portfolios	Total Composite Assets End of Period (\$M)	Composite 3 Year Standard Deviation (Gross%)	Benchmark 3 Year Standard Deviation (%)	Asset Weighted Standard Deviation (Gross%)	Total Firm Assets(\$B)
2021 YTD	(2.57)	(2.67)	(3.37)	0.80	12	18,730	6.05	3.56	N/A	N/A
2020 Annual	8.96	8.52	7.51	1.45	12	18,509	5.97	3.40	0.57	1089
2019 Annual	13.36	12.90	8.72	4.64	12	11,158	2.56	2.91	0.34	960
2018 Annual	(0.76)	(1.16)	0.01	(0.77)	10	8,454	3.26	2.88	0.30	705
2017 Annual	6.14	5.72	3.54	2.60	9	6,895	3.76	2.81	0.14	613
2016 Annual	9.95	9.51	2.65	7.30	8	5,741	4.05	3.02	0.54	552
2015 Annual	(1.80)	(2.19)	0.55	(2.35)	8	4,719	3.73	2.92	0.28	603
2014 Annual	6.05	5.62	5.97	0.08	6	1,370	3.33	2.67	N/A	742
2013 Annual	3.20	2.78	(2.02)	5.22	less than 5	249	3.18	2.75	N/A	737
2012 Annual	12.45	12.07	4.21	8.24	less than 5	145	2.52	2.42	N/A	669
2011 Annual	9.37	9.01	7.84	1.53	less than 5	91	3.85	2.82	N/A	665

\* Value Added is calculated by taking the gross composite return less the benchmark return.

### Notes

#### Definition of the "Firm"

For GIPS purposes, the "Firm" includes: (1) all of the portfolios managed by the investment management units of the Fidelity Institutional Asset Management group of companies (FIAM) excluding certain portfolios that primarily invest in real property; and (2) portfolios managed by FIAM's affiliates, Fidelity Management & Research Company LLC and its subsidiaries and the fixed income portfolios of Fidelity Management Trust Company (FIMTC), that are also substantially similar to institutional mandates advised by FIAM and managed by the same portfolio management team.

#### Changes to Definition of the "Firm"

Effective January 1, 2021 the firm was redefined to exclude FIAM's management of certain portfolios that primarily invest in real property. Effective January 1, 2020, certain Fidelity investment advisers in the Firm definition were re-organized and re-named. Effective January 1, 2016, the definition of the Firm was revised to include substantially similar fixed income investment strategies managed by FIMTC and the same portfolio management team. Effective November 20, 2015, the Firm name was changed from Pyramis Global Advisors to Fidelity Institutional Asset Management (FIAM). Effective January 1, 2013, the definition of the Firm was revised to include subsidiaries of FMR Co. Effective January 1, 2011, the definition of the Firm was revised to include substantially similar investment strategies managed by FMR Co. and/or FIMM and the same portfolio management team.

#### Basis of Presentation

The Firm claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. The firm has been independently verified for the periods January 1, 1990 through December 31, 2019. The verification report(s) is/are available upon request. A firm that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the firm's policies and procedures related to composite and pooled fund maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on a firm-wide basis. Verification does not provide assurance on the accuracy of any specific performance report. GIPS® is a registered trademark of CFA Institute. CFA Institute does not endorse or promote this organization, nor does it warrant the accuracy or quality of the content contained herein. The Firm's list of composite descriptions and pooled fund descriptions for limited distribution pooled funds is available upon request. Policies for valuing investments, calculating performance, and preparing GIPS reports are available upon request.

#### Returns

Gross composite returns do not reflect the deduction of investment advisory ("IA"), administrative or custodial fees, but do include trading expenses. Net composite returns are calculated by deducting the maximum standard IA fee that could have been charged to any client employing this strategy during the time period shown, exclusive of performance fee or minimum fee arrangements. IA fees paid by a client vary depending upon a variety of factors, including portfolio size and the use of any performance fee or minimum fee arrangement. Actual returns will be reduced by the IA fee and any administrative, custodial, or other fees and expenses incurred. Returns could be higher or lower than those shown. A client's fees are generally calculated based on the average month-end assets at market value during the quarter as calculated by the Firm, and are billed quarterly in arrears. More information regarding fees is available upon request. These investment performance statistics were calculated without a provision for any income taxes.

#### Composite Description

The investment objective of this composite is to achieve competitive total returns by exercising broad flexibility to invest in a broad set of fixed income sectors. The strategy will seek to generate returns from the allocation among a full suite of global fixed income investments including high yield corporates, emerging market debt (hard and local currency), leveraged loans, non-agency mortgages, high yield CMBS, convertible bonds, preferred stock and hybrid securities. The strategy seeks to generate returns from asset allocation, sector rotation, security selection, duration management, yield curve positioning and foreign currency exposures. The composite is composed of all fee-paying discretionary accounts that are managed by the Firm in this style. This is a total composite which is comprised of two or more underlying sub-composites.

#### Composite Inception and Creation Date

The inception date of this composite is January 31, 2006. This composite was created on July 15, 2017.

#### Limited Distribution Pooled Funds

The composite contains one or more limited distribution pooled funds ("LDPF") whose performance is presented net of custody, audit, and other administrative fees. Investment securities transactions for the pool portfolio are accounted for on trade date-plus-one. LDPF names are not included in order to comply with law and regulation which restricts the offer of the LDPF to certain eligible investors or prohibits any offer. Fees and expenses of each LDPF are described in each LDPF's offering and account opening documents and financial statements.

#### Fee Schedule

The maximum scheduled investment advisory fee for this strategy is 40 basis points, which may be subject to certain decreases as assets under management increase. The investment advisory fee applicable to a portfolio depends on a variety of factors, including but not limited to portfolio size, the level of committed assets, service levels, the use of a performance fee or minimum fee arrangement, and other factors.

#### Effect of Investment Advisory Fee

Returns will be reduced by the investment advisory fee and any other expenses incurred in the management of the portfolio. For example, an account with a compound annual return of 10% would have increased by 61% over five years. Assuming an annual advisory fee of 40 basis points, the net return would have been 58% over five years.

#### Pooled Fund Fee Schedule

This composite includes a limited distribution pooled fund, whose maximum scheduled investment advisory fee is 36 basis points.

Past performance is no guarantee of future results.

912697.6.0

# FIAM GIPS® Composite Report

## Core Plus Total Composite (USD) Versus Bloomberg Barclays U.S. Aggregate Bond Index As of March 31, 2021

Period	Composite Return (Gross%)	Composite Return (Net%)	Benchmark Return (%)	Value Added (%)*	Number of Portfolios	Total Composite Assets End of Period (\$M)	Composite 3 Year Standard Deviation (Gross%)	Benchmark 3 Year Standard Deviation (%)	Asset Weighted Standard Deviation (Gross%)	Total Firm Assets(\$B)
2021 YTD	(2.55)	(2.62)	(3.37)	0.82	14	58,081	4.25	3.56	N/A	N/A
2020 Annual	9.64	9.28	7.51	2.13	14	58,573	4.15	3.40	0.31	1089
2019 Annual	10.35	9.99	8.72	1.63	14	48,489	2.49	2.91	0.19	960
2018 Annual	(0.24)	(0.57)	0.01	(0.25)	12	37,285	2.76	2.88	0.07	705
2017 Annual	4.71	4.37	3.54	1.17	11	36,486	2.93	2.81	0.12	613
2016 Annual	6.35	6.00	2.65	3.70	10	29,293	3.18	3.02	0.18	552
2015 Annual	0.00	(0.33)	0.55	(0.55)	10	24,816	3.12	2.92	0.12	603
2014 Annual	6.04	5.69	5.97	0.07	9	19,941	2.92	2.67	0.07	742
2013 Annual	(0.55)	(0.88)	(2.02)	1.47	7	14,658	2.90	2.75	0.13	737
2012 Annual	7.15	6.79	4.21	2.94	6	16,171	2.30	2.42	0.19	669
2011 Annual	7.86	7.50	7.84	0.02	6	15,993	3.41	2.82	0.17	665

\* Value Added is calculated by taking the gross composite return less the benchmark return.

### Notes

#### Definition of the "Firm"

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#### Changes to Definition of the "Firm"

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#### Basis of Presentation

The Firm claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. The firm has been independently verified for the periods January 1, 1990 through December 31, 2019. The verification report(s) is/are available upon request. A firm that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the firm's policies and procedures related to composite and pooled fund maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on a firm-wide basis. Verification does not provide assurance on the accuracy of any specific performance report. GIPS® is a registered trademark of CFA Institute. CFA Institute does not endorse or promote this organization, nor does it warrant the accuracy or quality of the content contained herein. The Firm's list of composite descriptions and pooled fund descriptions for limited distribution pooled funds is available upon request. Policies for valuing investments, calculating performance, and preparing GIPS reports are available upon request.

#### Returns

Gross composite returns do not reflect the deduction of investment advisory ("IA"), administrative or custodial fees, but do include trading expenses. Net composite returns are calculated by deducting the maximum standard IA fee that could have been charged to any client employing this strategy during the time period shown, exclusive of performance fee or minimum fee arrangements. IA fees paid by a client vary depending upon a variety of factors, including portfolio size and the use of any performance fee or minimum fee arrangement. Actual returns will be reduced by the IA fee and any administrative, custodial, or other fees and expenses incurred. Returns could be higher or lower than those shown. A client's fees are generally calculated based on the average month-end assets at market value during the quarter as calculated by the Firm, and are billed quarterly in arrears. More information regarding fees is available upon request. These investment performance statistics were calculated without a provision for any income taxes.

#### Composite Description

The investment objective of this composite is to achieve absolute and risk-adjusted returns in excess of the Bloomberg Barclays U.S. Aggregate Bond Index by combining U.S. investment-grade fixed income securities (i.e., U.S. Treasuries, U.S. Government-Related Securities, U.S. Investment-Grade Corporates, U.S. Mortgage-Backed Securities, U.S. Asset-Backed Securities) with securities drawn from sectors that lie outside of the benchmark Index (i.e., "Plus sectors"), which may include all or some combination of the following: U.S. high-yield corporate bonds, U.S. leveraged loans, Developed Market ex-U.S. debt, and Emerging Market debt. Core Plus accounts invest primarily in U.S. investment-grade fixed income securities and may invest tactically in the Plus sectors up to 30% of the portfolio's net market capitalization. This composite is composed of all fee-paying discretionary accounts that are managed by the Firm in this style. This is a total composite which is comprised of two or more underlying sub-composites.

#### Composite Inception and Creation Date

The inception date of this composite is November 30, 2000. This composite was created on March 04, 2021.

#### Limited Distribution Pooled Funds

The composite contains one or more limited distribution pooled funds ("LDPF") whose performance is presented net of custody, audit, and other administrative fees. Investment securities transactions for the pool portfolio are accounted for on trade date-plus-one. LDPF names are not included in order to comply with law and regulation which restricts the offer of the LDPF to certain eligible investors or prohibits any offer. Fees and expenses of each LDPF are described in each LDPF's offering and account opening documents and financial statements.

#### Fee Schedule

The maximum scheduled investment advisory fee for this strategy is 33 basis points, which may be subject to certain decreases as assets under management increase. The investment advisory fee applicable to a portfolio depends on a variety of factors, including but not limited to portfolio size, the level of committed assets, service levels, the use of a performance fee or minimum fee arrangement, and other factors.

#### Effect of Investment Advisory Fee

Returns will be reduced by the investment advisory fee and any other expenses incurred in the management of the portfolio. For example, an account with a compound annual return of 10% would have increased by 61% over five years. Assuming an annual advisory fee of 33 basis points, the net return would have been 59% over five years.

#### Pooled Fund Fee Schedule

This composite includes a limited distribution pooled fund, whose maximum scheduled investment advisory fee is 30 basis points.

#### Use of a Sub-Advisor

In conjunction with the re-definition of the Firm effective January 1, 2009 through August 31, 2011 the Firm used a sub-advisor in managing a portion of this strategy.

Past performance is no guarantee of future results.



# FIAM GIPS® Composite Report

## Broad Market Duration Core Composite (USD) Versus Bloomberg Barclays U.S. Aggregate Bond Index As of March 31, 2021

Period	Composite Return (Gross%)	Composite Return (Net%)	Benchmark Return (%)	Value Added (%)*	Number of Portfolios	Total Composite Assets End of Period (\$M)	Composite 3 Year Standard Deviation (Gross%)	Benchmark 3 Year Standard Deviation (%)	Asset Weighted Standard Deviation (Gross%)	Total Firm Assets(\$B)
2021 YTD	(2.84)	(2.91)	(3.37)	0.53	12	109,516	4.17	3.56	N/A	N/A
2020 Annual	9.93	9.63	7.51	2.42	12	108,026	4.07	3.40	0.37	1089
2019 Annual	9.98	9.67	8.72	1.26	10	94,067	2.70	2.91	0.21	960
2018 Annual	(0.04)	(0.32)	0.01	(0.05)	10	62,228	2.87	2.88	0.12	705
2017 Annual	4.53	4.24	3.54	0.99	10	65,389	2.95	2.81	0.14	613
2016 Annual	5.16	4.87	2.65	2.51	12	55,102	3.20	3.02	0.77	552
2015 Annual	(0.15)	(0.43)	0.55	(0.70)	12	53,671	3.10	2.92	0.61	603
2014 Annual	6.26	5.97	5.97	0.29	15	54,139	2.91	2.67	0.20	742
2013 Annual	(1.48)	(1.76)	(2.02)	0.54	18	50,032	2.91	2.75	0.12	737
2012 Annual	6.16	5.86	4.21	1.95	18	50,793	2.38	2.42	0.27	669
2011 Annual	8.25	7.95	7.84	0.41	15	42,739	3.06	2.82	0.17	665

\* Value Added is calculated by taking the gross composite return less the benchmark return.

### Notes

#### Definition of the "Firm"

For GIPS purposes, the "Firm" includes: (1) all of the portfolios managed by the investment management units of the Fidelity Institutional Asset Management group of companies (FIAM) excluding certain portfolios that primarily invest in real property; and (2) portfolios managed by FIAM's affiliates, Fidelity Management & Research Company LLC and its subsidiaries and the fixed income portfolios of Fidelity Management Trust Company (FMTC), that are also substantially similar to institutional mandates advised by FIAM and managed by the same portfolio management team.

#### Changes to Definition of the "Firm"

Effective January 1, 2021 the firm was redefined to exclude FIAM's management of certain portfolios that primarily invest in real property. Effective January 1, 2020, certain Fidelity investment advisers in the Firm definition were re-organized and re-named. Effective January 1, 2016, the definition of the Firm was revised to include substantially similar fixed income investment strategies managed by FMTC and the same portfolio management team. Effective November 20, 2015, the Firm name was changed from Pyramis Global Advisors to Fidelity Institutional Asset Management (FIAM). Effective January 1, 2013, the definition of the Firm was revised to include subsidiaries of FMR Co. Effective January 1, 2011, the definition of the Firm was revised to include substantially similar investment strategies managed by FMR Co. and/or FIMM and the same portfolio management team.

#### Basis of Presentation

The Firm claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. The firm has been independently verified for the periods January 1, 1990 through December 31, 2019. The verification report(s) is/are available upon request. A firm that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the firm's policies and procedures related to composite and pooled fund maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on a firm-wide basis. Verification does not provide assurance on the accuracy of any specific performance report. GIPS® is a registered trademark of CFA Institute. CFA Institute does not endorse or promote this organization, nor does it warrant the accuracy or quality of the content contained herein. The Firm's list of composite descriptions and pooled fund descriptions for limited distribution pooled funds is available upon request. Policies for valuing investments, calculating performance, and preparing GIPS reports are available upon request.

#### Returns

Gross composite returns do not reflect the deduction of investment advisory ("IA"), administrative or custodial fees, but do include trading expenses. Net composite returns are calculated by deducting the maximum standard IA fee that could have been charged to any client employing this strategy during the time period shown, exclusive of performance fee or minimum fee arrangements. IA fees paid by a client vary depending upon a variety of factors, including portfolio size and the use of any performance fee or minimum fee arrangement. Actual returns will be reduced by the IA fee and any administrative, custodial, or other fees and expenses incurred. Returns could be higher or lower than those shown. A client's fees are generally calculated based on the average month-end assets at market value during the quarter as calculated by the Firm, and are billed quarterly in arrears. More information regarding fees is available upon request. These investment performance statistics were calculated without a provision for any income taxes.

#### Composite Description

The investment objective of this sub-composite is to achieve total returns in excess of the Bloomberg Barclays U.S. Aggregate Bond Index (the "Index") through investments in U.S. investment-grade bonds, including U.S. Treasuries, U.S. Agencies, U.S. investment-grade corporates, and securitized fixed income instruments, including mortgage-backed securities. The portfolios in this sub-composite make only moderate use of interest-rate anticipation methods as a way of earning excess returns versus the Index; hence, the duration of these portfolios tends to lie within +/- 0.3 years of the Index's duration. This sub-composite is composed of all fee-paying, discretionary accounts managed by the Firm in this style. This sub-composite, along with one or more other sub-composites, combine to create an aggregate composite.

#### Composite Inception and Creation Date

The inception date of this composite is June 30, 1988. This composite was created on September 20, 2019.

#### Limited Distribution Pooled Funds

The composite contains one or more limited distribution pooled funds ("LDPF") whose performance is presented net of custody, audit, and other administrative fees. Investment securities transactions for the pool portfolio are accounted for on trade date-plus-one. LDPF names are not included in order to comply with law and regulation which restricts the offer of the LDPF to certain eligible investors or prohibits any offer. Fees and expenses of each LDPF are described in each LDPF's offering and account opening documents and financial statements.

#### Fee Schedule

The maximum scheduled investment advisory fee for this strategy is 28 basis points, which may be subject to certain decreases as assets under management increase. The investment advisory fee applicable to a portfolio depends on a variety of factors, including but not limited to portfolio size, the level of committed assets, service levels, the use of a performance fee or minimum fee arrangement, and other factors.

#### Effect of Investment Advisory Fee

Returns will be reduced by the investment advisory fee and any other expenses incurred in the management of the portfolio. For example, an account with a compound annual return of 10% would have increased by 61% over five years. Assuming an annual advisory fee of 28 basis points, the net return would have been 59% over five years.

#### Pooled Fund Fee Schedule

This composite includes a limited distribution pooled fund, whose maximum scheduled investment advisory fee is 25 basis points.

Past performance is no guarantee of future results.

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# Biographies

## **Jeffrey Moore, CFA**

### *Portfolio Manager*

Jeffrey Moore is a portfolio manager in the Fixed Income division at Fidelity Investments. Fidelity Investments is a leading provider of investment management, retirement planning, portfolio guidance, brokerage, benefits outsourcing and other financial products and services to more than 26 million individuals, institutions and financial intermediaries.

In this role, Mr. Moore manages portfolios across retail and institutional assets, including managing Fidelity and Fidelity Advisor Investment Grade Bond Funds and Fidelity and Fidelity Advisor Total Bond Funds. Additionally, he is a presenting member to Fidelity's Asset Allocation Committee.

Prior to assuming his current position, Mr. Moore was a fixed income analyst assigned to several sectors, including sovereign debt, energy, real estate investment trusts (REITs), Yankee banks, and Canada.

Before joining Fidelity in 1995, Mr. Moore worked at Dominion Bond Rating Service in Toronto and at the Government of Canada's Department of Finance. Mr. Moore was selected into the Accelerated Economist Training Program, serving at the Treasury Board and at the Privy Council Office. He has been in the financial industry since 1990.

Mr. Moore earned his bachelor of arts degree, with honors, in economics from the University of Western Ontario and his master's degree in economics from the University of Waterloo. He is also a CFA charterholder.

Mr. Moore has authored a number of Thought Leadership papers, most recently "Active Multi-Sector Fixed Income Investing in an Uncertain Yield Environment" in 2013, "Stretching for Yield in the Fixed Income Market" in 2012, and "What Does Risk Free Mean Now?" in 2012. In Canada, he authored the paper "The Art and Science of Fixed Income" in 2009, and co-authored the paper "The Social Cost of Labor Taxes" for the Canadian Tax Journal in 1990. Additionally, Mr. Moore and team received Morningstar's 2016 U.S. Fixed-Income Manager of the Year Award for Fidelity Total Bond Fund.

## **Michael Plage, CFA**

### *Portfolio Manager*

Michael Plage is a portfolio manager in the Fixed Income division at Fidelity Investments. Fidelity Investments is a leading provider of investment management, retirement planning, portfolio guidance, brokerage, benefits outsourcing and other financial products and services to more than 26 million individuals, institutions and financial intermediaries.

In this role, Mr. Plage manages institutional and retail Fixed Income portfolios within Core, Core Plus, and Tactical Bond strategies.

Prior to assuming his current responsibilities, Mr. Plage managed institutional and retail Fixed Income portfolios within credit strategies, including high yield. Previously, he worked as a Fixed Income trader at FMRCo from 2005 to 2009.

Before joining Fidelity in 2005, he was a trader at Travelers Insurance (Citigroup) from 1997 to 2005. He has been in the financial industry since 1997.

Mr. Plage earned his bachelor of science degree in management from the University of South Carolina and his master of business administration degree in finance from the University of Connecticut. He is also a CFA charterholder.



# Biographies

## **Christine Thorpe** *Senior Account Executive*

Christine Thorpe is a senior account executive within the Asset Management Solutions division at Fidelity Investments. Fidelity Investments is a leading provider of investment management, retirement planning, portfolio guidance, brokerage, benefits outsourcing, and other financial products and services to institutions, financial intermediaries, and individuals. The Fidelity Asset Management Solutions division is an integrated investment, distribution, and client service organization dedicated to meeting the unique needs of the institutional marketplace.

In this role, she is responsible for account management for both public and private institutional clients.

Prior to assuming her current position in September 2015, Ms. Thorpe was a senior portfolio services analyst within Fidelity's Asset Management division from 2013 to 2015. In 2013, she completed Fidelity's General Management Apprentice Program. She has been in the financial industry since 2011.

Ms. Thorpe earned her bachelor of arts degree in government from Georgetown University and her master of business administration degree in finance from Babson College. She also holds the Financial Industry Regulatory Authority (FINRA) Series 7 and 63 licenses.

## **Beau Coash** *Institutional Portfolio Manager*

Beau Coash is an institutional portfolio manager in the Fixed Income division at Fidelity Investments. Fidelity Investments is a leading provider of investment management, retirement planning, portfolio guidance, brokerage, benefits outsourcing and other financial products and services to more than 26 million individuals, institutions and financial intermediaries.

In this role, Mr. Coash is an active part of the portfolio management team and represents the team's capabilities, thought processes, and views to clients and consultants.

Prior to joining Fidelity as global head of syndicate and primary trading in Fidelity's Equity Trading division in 2005, Mr. Coash served as senior vice president in Corporate Bond Sales at Lehman Brothers. Previously, he held leadership positions in development and national sales in start-up companies.

Mr. Coash was also a professional football player for the New England Patriots and Boston Breakers. He has been in the financial industry since 1993.

Mr. Coash earned his bachelor of arts degree in history from Middlebury College and his master of business administration degree in entrepreneurship studies from Harvard Business School.

# Biographies

## **Stacie Ware, PhD, OLY**

### *Quantitative Analyst*

Stacie Ware is a quantitative analyst in the Fixed Income division at Fidelity Investments. Fidelity Investments is a leading provider of investment management, retirement planning, portfolio guidance, brokerage, benefits outsourcing, and other financial products and services to institutions, financial intermediaries, and individuals.

In this role, Ms. Ware works with the Core/Core Plus/Tactical bond investment team on asset allocation and risk management.

Prior to assuming her current position, Ms. Ware was a quantitative analyst in the Asset Management division responsible for quantitative modeling initiatives in support of the Municipal Bond team.

Prior to joining Fidelity in 2018, Ms. Ware was a senior fixed income quantitative analyst at State Street Global Advisors. In this capacity, she served as a quantitative portfolio manager for U.S. investment-grade credit and emerging-market sovereign debt factor portfolios and provided ongoing quantitative factor research in credit. Additionally, she was a quantitative research analyst responsible for conducting quantitative research in asset allocation, liquidity risk management, and fixed income. She has been in the financial industry since 2014.

Ms. Ware is also a two-time Olympian, having competed for Great Britain in the Beijing 2008 and London 2012 Olympic Games in the Women's 10m Platform Diving events.

Ms. Ware earned her master of science degree in physics and astronomy from the University of Southampton, UK, having completed her master's research project in a year abroad at Harvard University. She also earned her PhD in astrophysics from the University of Cambridge, UK.

## **Kristin Shofner**

### *Senior Vice President, Business Development*

Kristin Shofner is senior vice president of business development within the Asset Management Solutions division at Fidelity Investments. Fidelity Investments is a leading provider of investment management, retirement planning, portfolio guidance, brokerage, benefits outsourcing, and other financial products and services to institutions, financial intermediaries, and individuals. The Fidelity Asset Management Solutions division is an integrated investment, distribution, and client service organization dedicated to meeting the unique needs of the institutional marketplace.

In this role, Ms. Shofner leads the development of relationships with public pension plans.

Prior to joining Fidelity in 2013, Ms. Shofner served as director of institutional sales and marketing at Lord, Abbett & Co. LLC. Previously, she served as manager of institutional sales and client services and as a manager research associate at Asset Strategy Consulting, later acquired by InvestorForce. She has been in the financial industry since 1998.

Ms. Shofner earned her bachelor of arts degree in history and sociology from the University of California at Santa Barbara where she ran Division I Cross Country and Track & Field. She was also a member of our United States Ekiden Relay Team in China and ran in the US Olympic Trials Women's Steeplechase in Atlanta.

# Important Information

**The following information applies to the entirety of this document. Please read it carefully before making any investment. Speak with your relationship manager if you have any questions.**

*This document does not make an offer or solicitation to buy or sell any securities or services, and is not investment advice. FIAM does not provide legal or tax advice and we encourage you to consult your own lawyer, accountant, or other advisor before making an investment.*

*Information provided in this document is for informational and educational purposes only. To the extent any investment information in this material is deemed to be a recommendation, it is not meant to be impartial investment advice or advice in a fiduciary capacity and is not intended to be used as a primary basis for you or your client's investment decisions. Fidelity and its representatives may have a conflict of interest in the products or services mentioned in this material because they have a financial interest in them, and receive compensation, directly or indirectly, in connection with the management, distribution, and/or servicing of these products or services, including Fidelity funds, certain third-party funds and products, and certain investment services.*

## **Risks**

Past performance is no guarantee of future results. Investors should be aware that an investment's value may be volatile and involves the risk that you may lose money. Performance for individual accounts will differ from performance for composites and representative accounts due to factors, including but not limited to, portfolio size, trading restrictions, account objectives and restrictions, and factors specific to a particular investment structure. Representative account information is based on an account in that strategy's composite that generally reflects that strategy's management and is not based on performance of that account.

The value of a strategy's investments will vary in response to many factors, including adverse issuer, political, regulatory, market, or economic developments. The value of an individual security or a particular type of security can be more volatile than and perform differently from the market as a whole. Nearly all accounts are subject to volatility in non-U.S. markets, either through direct exposure or indirect effects on U.S. markets from events abroad, including fluctuations in foreign currency exchange rates and, in the case of less developed markets, currency illiquidity. Events such as natural disasters, pandemics, epidemics, and social unrest in one country, region, or financial market may adversely impact issuers in a different country, region, or financial market. Performance could be negatively impacted if the value of a portfolio holding were harmed by such political or economic conditions or events. Moreover, such negative political and economic conditions and events could disrupt the processes necessary for investment operations.

The performance of fixed income strategies will change daily based on changes in interest rates and market conditions and in response to other economic, political, or financial developments. Debt securities are sensitive to changes in interest rates depending on their maturity, and may involve the risk that their prices may decline if interest rates rise or, conversely, if interest rates decline, their prices may increase. Debt securities carry the risk of default, prepayment risk, and inflation risk. Changes specific to an issuer, such as its financial condition or its economic environment, can affect the credit quality or value of an issuer's securities. Lower-quality debt securities (those of less than investment-grade quality, also referred to as high-yield debt securities) and certain types of other securities are more volatile, speculative and involve greater risk due to increased sensitivity to adverse issuer, political, regulatory, and market developments, especially in periods of general economic difficulty. The value of mortgage securities may change due to shifts in the market's perception of issuers and changes in interest rates, regulatory, or tax changes.

Derivatives may be volatile and involve significant risk, such as credit risk, currency risk, leverage risk, counterparty risk, and liquidity risk. Using derivatives can disproportionately increase losses and reduce opportunities for gains in certain circumstances.

The performance of international strategies depends upon currency values, political, and regulatory environments, and overall economic factors in the countries in which they invest. Foreign markets often are more volatile than the U.S. market due to increased risks of adverse issuer, political, regulatory, market, or economic developments and often perform differently from the U.S. market. Government actions as a result of the political process can result in additional market volatility in those regions affected by a particular issue (e.g. Brexit). Foreign exchange rates also can be extremely volatile. The risks are particularly significant for strategies that focus on a single country or region or single group or type of countries. Non-U.S. security trading, settlement, and custodial practices (including those involving securities settlement where fund or account assets may be released prior to receipt of payment) may be less developed than those in U.S. markets and may result in increased investment or valuation risks, increased counterparty exposure, or substantial delays (including those arising from failed trades or the insolvency of, or breach of duty by, a non-U.S. broker-dealer, securities depository, sub-custodian, clearinghouse, or other party) for funds and accounts that invest in non-U.S. markets.

The securities, derivatives, and currency markets of emerging-market countries are generally smaller, less developed, less liquid, and more volatile than those of the United States and other developed markets, and disclosure and regulatory standards in many respects are less stringent. There also may be a lower level of monitoring and regulation of markets in emerging-market countries and the activities of investors in such markets and enforcement of existing regulations may be extremely limited and arbitrary. Emerging-market countries are more likely to experience political uncertainty and instability, including the risk of war, terrorism, nationalization, limitations on the removal of funds or other assets, or diplomatic developments that affect investments in these countries. In many cases, there is a heightened possibility of government control of the economy, expropriation or confiscatory taxation, imposition of withholding taxes on interest payments, or other similar developments.

Some investment strategies may be offered to certain qualified investors in the form of interests in a privately offered fund offered by Fidelity Distributors Company LLC. Such interests will not generally be transferable or listed on any exchange and it is not anticipated that they will be tradable. Before investing, any potential investors should receive and read a copy of such fund's confidential private placement memorandum.

These materials contain statements that are "forward-looking statements," which are based on certain assumptions of future events. FIAM does not assume any duty to update any forward-looking statement. Actual events may differ from those assumed. There can be no assurance that forward-looking statements, including any projected returns, will materialize or that actual market conditions and/or performance results will not be materially different or worse than those presented.

# Important Information, continued

## Performance Data

Performance data is generally presented gross of any fees and expenses, including advisory fees, which when deducted will reduce returns. See the GIPS® Composite Report for performance figures that are net of the maximum investment advisory fee charged any client employing this strategy. Performance fee arrangements, if applicable, will also reduce returns when deducted. See FIAM LLC's Form ADV for more information about advisory fees if FIAM LLC is the investment manager for the account. For additional information about advisory fees related to other FIAM advisory entities, speak with your relationship manager. All results reflect realized and unrealized appreciation and the reinvestment of dividends and investment income, if applicable. Taxes have not been deducted.

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Fidelity Institutional Asset Management (FIAM) includes the following entities or divisions that provide investment services: Fidelity Institutional Asset Management Trust Company, a New Hampshire trust company (FIAM TC); FIAM LLC, a U.S. registered investment adviser; the Fidelity Institutional Asset Management division of FMR Investment Management (UK) Limited, a UK registered investment manager and U.S. registered investment adviser; and the Fidelity Institutional Asset Management division of Fidelity Management & Research (Hong Kong) Limited, a Hong Kong and U.S. registered investment adviser. Fidelity Asset Management Solutions (FAMS) provides a broad array of investment solutions with its Global Institutional Solutions (GIS), Global Asset Allocation (GAA), and institutional equity, fixed income, high income, and alternative asset management teams through FIAM LLC and Fidelity Institutional Asset Management Trust Company.

"Fidelity Investments" and/or "Fidelity" refers collectively to FMR LLC, a U.S. company, and its subsidiaries, including but not limited to Fidelity Management & Research Company LLC (FMR) and FIAM LLC.

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FIAM does not provide legal or tax advice and we encourage you to consult your own lawyer, accountant, or other advisor before making an investment.

## Professional Designation

The Chartered Financial Analyst (CFA) designation is offered by the CFA Institute. To obtain the CFA charter, candidates must pass three exams demonstrating their competence, integrity, and extensive knowledge in accounting, ethical and professional standards, economics, portfolio management, and security analysis, and must also have at least four years of qualifying work experience, among other requirements.

Chartered Alternative Investment Analyst (CAIA) is offered by the Association of Chartered Alternative Analysts. Candidates are expected to understand the basic concepts of finance and quantitative analysis and need to pass two exams. One year of professional experience with a bachelor's degree or four of professional experience without a bachelor's degree is required. Professional experience is defined as full-time employment in a professional capacity within the regulatory, banking, financial, or related fields.

Financial Risk Manager (FRM) is offered by the Global Association of Risk Professionals. Candidates must pass two exams demonstrating their competence in risk management, and must also have at least two years of professional full-time financial risk management work experience among other requirements.

# Important Information, continued

## Professional Designation – continued

Established in 1988, the Morningstar Fund Manager of the Year award recognizes portfolio managers who demonstrate excellent investment skill and the courage to differ from the consensus to benefit investors. To qualify for the award, managers' funds must have not only posted impressive returns for the year, but the managers also must have a record of delivering outstanding long-term risk-adjusted performance and of aligning their interests with shareholders'. Nominated funds must be Morningstar Medalists—a fund that has garnered a Morningstar Analyst Rating™ of Gold, Silver, or Bronze. The Fund Manager of the Year award winners are chosen based on research and in-depth qualitative evaluation by Morningstar's Manager Research Group. Morningstar's Manager Research Group consists of various wholly owned subsidiaries of Morningstar, Inc. including, but not limited to, Morningstar Research Services LLC. Analyst Ratings are subjective in nature and should not be used as the sole basis for investment decisions. Analyst Ratings are based on Morningstar's Manager Research Group's current expectations about future events and therefore involve unknown risks and uncertainties that may cause such expectations not to occur or to differ significantly from what was expected. Analyst Ratings are not guarantees nor should they be viewed as an assessment of a fund's or the fund's underlying securities' creditworthiness. The Morningstar Analyst Rating is a subjective, forward-looking evaluation that considers a combination of qualitative and quantitative factors to rate funds on five key pillars: process, performance, people, parent, and price. Gold is the highest of four Analyst Rating categories. For the full rating methodology, go to [Corporate.Morningstar.com/us/documents/MethodologyDocuments/AnalystRatingforFundsMethodology.pdf](http://Corporate.Morningstar.com/us/documents/MethodologyDocuments/AnalystRatingforFundsMethodology.pdf).

Morningstar Awards 2017®. Morningstar, Inc. All Rights Reserved. Awarded to Ford O'Neil and team, Fidelity Total Bond Fund (FTBFX), for Fund Manager of the Year (2016), Fixed- Income, U.S. For the 2016 U.S. Fixed-Income Fund Manager of the Year award, Morningstar's Fixed-Income Fund Manager of the Year award recognized Ford O'Neil and team for Fidelity Total Bond Fund (FTBFX). Fidelity Advisor Total Bond Fund Classes A, C, M, I, and Z are classes of Fidelity Total Bond Fund and have different expense and performance characteristics as well as eligibility requirements. See prospectus for more details.

**Not FDIC Insured • No Bank Guarantee • May Lose Value**



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# State Investment Review Meeting



THE STATE  
of **ALASKA**  
GOVERNOR MIKE DUNLEAVY

## State Investments and Fiscal Year 2022 Asset Allocation

May 2021

Zachary Hanna, CFA  
Chief Investment Officer  
State of Alaska, Department of Revenue

# **Investment Performance**

**March 31, 2021**

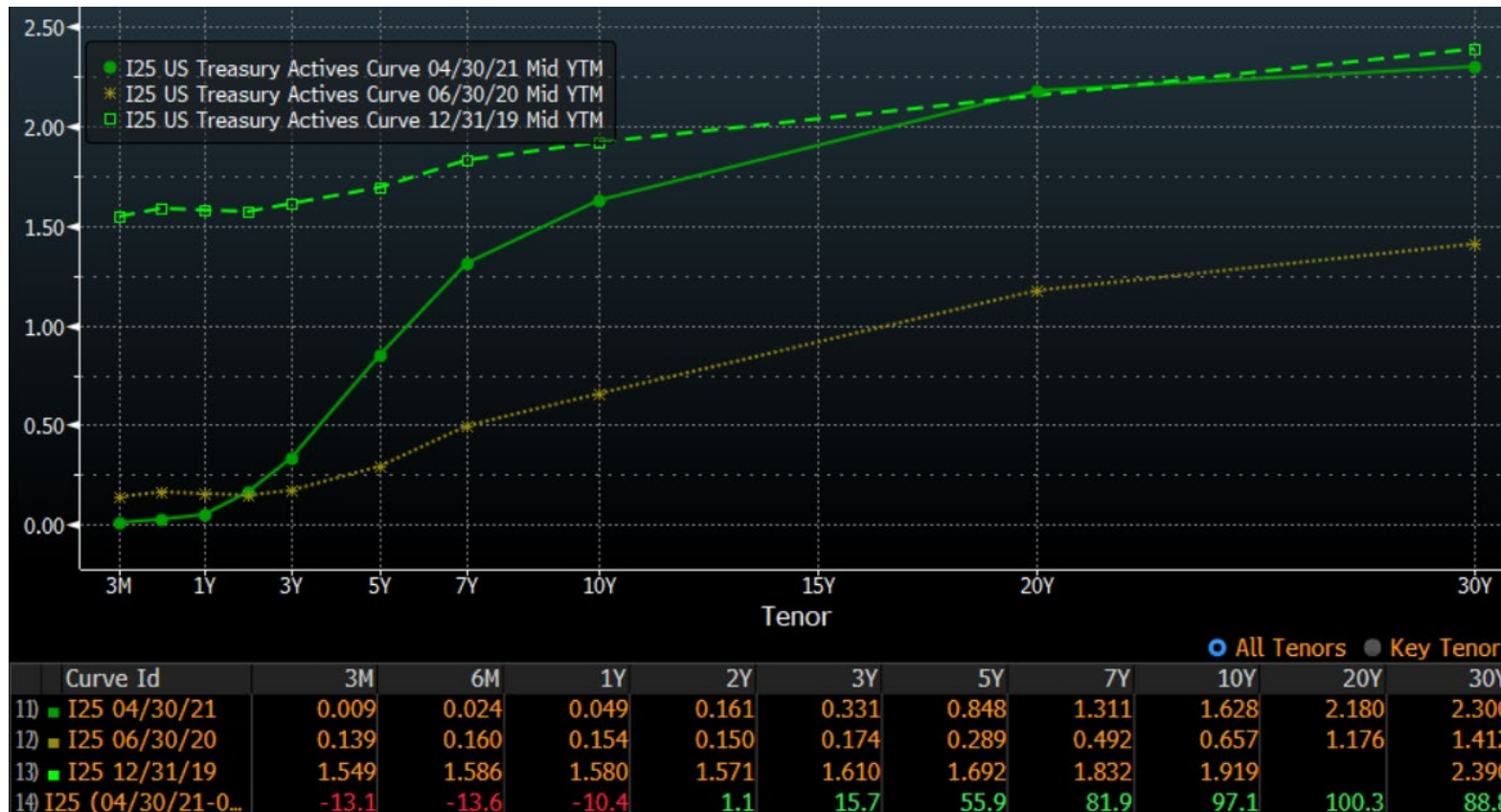


# March 2021 Capital Market Update

2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	C19 5Q	FYTD 2021	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021
TIPS	REITs	Broad U.S. Equity	REITs	REITs	High Yield	International Equity	Cash Equivalents	Broad U.S. Equity	Broad U.S. Equity	Broad U.S. Equity	Broad U.S. Equity	Core U.S. Fixed Income	Broad U.S. Equity	Broad U.S. Equity	International Equity	REITs
13.6%	19.7%	33.6%	28.0%	2.8%	17.1%	27.2%	1.9%	31.0%	20.9%	22.3%	33.2%	3.1%	22.0%	9.2%	17.0%	8.3%
REITs	International Equity	International Equity	Broad U.S. Equity	Core U.S. Fixed Income	Broad U.S. Equity	Broad U.S. Equity	Core U.S. Fixed Income	REITs	TIPS	International Equity	International Equity	TIPS	International Equity	International Equity	Broad U.S. Equity	Broad U.S. Equity
8.3%	16.8%	15.3%	12.6%	0.5%	12.7%	21.1%	0.0%	28.7%	11.0%	11.5%	28.7%	1.7%	16.1%	6.3%	14.7%	6.3%
Core U.S. Fixed Income	Broad U.S. Equity	High Yield	Core U.S. Fixed Income	Broad U.S. Equity	REITs	REITs	TIPS	International Equity	International Equity	TIPS	REITs	Cash Equivalents	REITs	High Yield	REITs	International Equity
7.8%	16.4%	7.4%	6.0%	0.5%	8.6%	8.7%	(1.3%)	21.5%	10.7%	7.4%	18.5%	0.6%	13.2%	4.6%	8.1%	3.5%
High Yield	High Yield	REITs	TIPS	Cash Equivalents	TIPS	High Yield	High Yield	High Yield	Core U.S. Fixed Income	High Yield	High Yield	High Yield	High Yield	TIPS	High Yield	High Yield
5.0%	15.8%	2.9%	3.6%	0.1%	4.7%	7.5%	(2.1%)	14.3%	7.5%	6.4%	12.3%	(12.7%)	10.2%	3.0%	6.5%	0.8%
Broad U.S. Equity	TIPS	Cash Equivalents	High Yield	TIPS	International Equity	Core U.S. Fixed Income	REITs	Core U.S. Fixed Income	High Yield	Core U.S. Fixed Income	TIPS	Broad U.S. Equity	TIPS	REITs	TIPS	Cash Equivalents
1.0%	7.0%	0.1%	2.5%	(1.4%)	4.5%	3.5%	(4.0%)	8.7%	7.1%	3.1%	3.2%	(20.9%)	4.2%	1.2%	1.6%	0.0%
Cash Equivalents	Core U.S. Fixed Income	Core U.S. Fixed Income	Cash Equivalents	High Yield	Core U.S. Fixed Income	TIPS	Broad U.S. Equity	TIPS	Cash Equivalents	REITs	Cash Equivalents	International Equity	Core U.S. Fixed Income	Core U.S. Fixed Income	Core U.S. Fixed Income	TIPS
0.1%	4.2%	(2.0%)	0.0%	(4.5%)	2.6%	3.0%	(5.2%)	8.4%	0.7%	2.2%	0.1%	(23.4%)	2.9%	0.6%	0.7%	(1.5%)
International Equity	Cash Equivalents	TIPS	International Equity	International Equity	Cash Equivalents	Cash Equivalents	International Equity	Cash Equivalents	REITs	Cash Equivalents	Core U.S. Fixed Income	REITs	Cash Equivalents	Cash Equivalents	Cash Equivalents	Core U.S. Fixed Income
(13.7%)	0.1%	(8.6%)	(3.9%)	(5.7%)	0.3%	0.9%	(14.2%)	2.3%	(5.1%)	0.6%	(2.1%)	(23.4%)	0.0%	0.0%	0.0%	(3.4%)

# Current Interest Rates

- Rates remain low – below inflation expectations.
- Shorter rates have decreased, but longer rates have increased materially along with the market recovery and the longest tenors are back to pre-pandemic levels.
- Staff will likely use May or June rates for final asset allocation recommendations.



# **Commissioner's Report**

**March 2021**

# COMMISSIONER'S REPORT

As of March 31, 2021

## DOR Commissioner's Report: Market Values for Month Ending 3/31/2021

### Market Value

Plan Name	Cash Equivalents	Domestic Equity	Fixed Income	Int'l Equity	Market Value
2008 Transportation Project Government Bonds (AY2Q)	\$760,226				<b>\$760,226</b>
2010 Education Tax Exempt Bonds (AY3V)	\$2,641				<b>\$2,641</b>
2013B Tax Exempt Education (AY3Z)	\$240,682				<b>\$240,682</b>
2016A - 2012 Transporation Bond Act (AY3Y)	\$1,914,861				<b>\$1,914,861</b>
2016B - 2012 Transportation Bond Act (AY3Q)	\$88,001,818				<b>\$88,001,818</b>
Alaska Higher Education Investment (AY3L)	\$4,744,642	\$169,543,127	\$112,424,743	\$109,501,601	<b>\$396,214,113</b>
Alaska Mental Health Trust Reserve (AY2L)	\$196,282	\$20,710,805	\$26,530,453	\$13,959,519	<b>\$61,397,059</b>
Constitutional Budget Reserve Fund (AY19)	\$1,072,513,755				<b>\$1,072,513,755</b>
Education Endowment Fund (AY3G)	\$6,820	\$243,046	\$161,247	\$156,972	<b>\$568,084</b>
EVOS Habitat Investment (AY2H)	\$286,419	\$26,435,671	\$44,212,638	\$18,380,854	<b>\$89,315,583</b>
EVOS Research Investment (AY02)	\$341,068	\$34,227,589	\$48,491,066	\$23,501,095	<b>\$106,560,818</b>
GeFONSI I (AY01)	\$1,189,182,330		\$322,492,701		<b>\$1,511,675,030</b>
GeFONSI II (AY3F)	\$850,510,662	\$46,003,031	\$202,870,509	\$30,964,908	<b>\$1,130,349,110</b>
Illinois Creek Mine Reclamation (AY9J)	\$16,811	\$597,219	\$396,066	\$385,683	<b>\$1,395,778</b>
International Airports 2006 Non-AMT (AY9X)	\$2,062,343				<b>\$2,062,343</b>
International Airports 2009 Variable (AY9Y)	\$2,492,576				<b>\$2,492,576</b>
International Airports 2010-A (AY3A)	\$220,286				<b>\$220,286</b>
International Airports 2010-B (AY3B)	\$352,642				<b>\$352,642</b>
International Airports Repair & Replacement Fund (AY05)	\$500,814				<b>\$500,814</b>
International Airports Revenue Fund (AY04)	\$128,508,557		\$38,364,661		<b>\$166,873,218</b>
International Airports Series 2002 Reserve Account (AY2E)	\$16,396,068				<b>\$16,396,068</b>
International Airports Series 2003 Reserve (AY2U)	\$10,508,685				<b>\$10,508,685</b>
Investment Loss Trust Fund (AY28)	\$3,748,187				<b>\$3,748,187</b>
PCE Endowment Fund (AY13)	\$13,745,622	\$279,068,794	\$669,054,260	\$167,639,430	<b>\$1,129,508,106</b>
Permanent Fund Dividend Holding Account (AY2G)	\$38,991,259				<b>\$38,991,259</b>
Public School - Income (AY09)	\$176				<b>\$176</b>
Public School Trust Fund (AY08)	\$9,621,325	\$341,790,958	\$226,642,879	\$220,750,095	<b>\$798,805,257</b>
RHIF LTC Insurance (AY11)	\$8,673,706	\$199,808,206	\$383,202,770	\$128,412,770	<b>\$720,097,451</b>
RHIF Major Medical (AY03)	\$19,030,706				<b>\$19,030,706</b>

## DOR Commissioner's Report: Market Values for Month Ending 3/31/2021

### Relative Allocation

Plan Name	Cash Equivalents	Domestic Equity	Fixed Income	Int'l Equity
2008 Transportation Project Government Bonds (AY2Q)	0.00% ●			
2010 Education Tax Exempt Bonds (AY3V)	0.00% ●			
2013B Tax Exempt Education (AY3Z)	0.00% ●			
2016A - 2012 Transportation Bond Act (AY3Y)	0.00% ●			
2016B - 2012 Transportation Bond Act (AY3Q)	0.00% ●			
Alaska Higher Education Investment (AY3L)	0.20% ●	0.79% ❌	-0.63% ❖	-0.36% ▲
Alaska Mental Health Trust Reserve (AY2L)	0.32% ▲	0.73% ❖	-0.79% ❌	-0.26% ▲
Constitutional Budget Reserve Fund (AY19)	0.00% ●			
Education Endowment Fund (AY3G)	0.20% ●	0.78% ❌	-0.62% ❖	-0.37% ▲
EVOS Habitat Investment (AY2H)	0.32% ▲	0.70% ❖	-0.80% ❌	-0.22% ●
EVOS Research Investment (AY02)	0.32% ▲	0.72% ❖	-0.79% ❌	-0.25% ●
GeFONSI I (AY01)	1.67% ❌		-1.67% ❌	
GeFONSI II (AY3F)	0.24% ●	0.07% ●	-0.05% ●	-0.26% ▲
Illinois Creek Mine Reclamation (AY9J)	0.20% ●	0.79% ❌	-0.62% ❖	-0.37% ▲
International Airports 2006 Non-AMT (AY9X)	0.00% ●			
International Airports 2009 Variable (AY9Y)	0.00% ●			
International Airports 2010-A (AY3A)	0.00% ●			
International Airports 2010-B (AY3B)	0.00% ●			
International Airports Repair & Replacement Fund (AY05)	0.00% ●			
International Airports Revenue Fund (AY04)	0.01% ●		-0.01% ●	
International Airports Series 2002 Reserve Account (AY2E)	0.00% ●			
International Airports Series 2003 Reserve (AY2U)	0.00% ●			
Investment Loss Trust Fund (AY28)	0.00% ●			
PCE Endowment Fund (AY13)	0.22% ●	0.71% ❖	-0.77% ❌	-0.16% ●
Permanent Fund Dividend Holding Account (AY2G)	0.00% ●			
Public School - Income (AY09)	0.00% ●			
Public School Trust Fund (AY08)	0.20% ●	0.79% ❌	-0.63% ❖	-0.36% ▲
RHIF LTC Insurance (AY11)	0.20% ●	0.75% ❖	-0.78% ❌	-0.17% ●
RHIF Major Medical (AY03)	0.00% ●			

## DOR Commissioner's Report: Market Values for Month Ending 3/31/2021

### Actual Allocation

Plan Name	Cash Equivalents	Domestic Equity	Fixed Income	Int'l Equity
2008 Transportation Project Government Bonds (AY2Q)	100.00%			
2010 Education Tax Exempt Bonds (AY3V)	100.00%			
2013B Tax Exempt Education (AY3Z)	100.00%			
2016A - 2012 Transportation Bond Act (AY3Y)	100.00%			
2016B - 2012 Transportation Bond Act (AY3Q)	100.00%			
Alaska Higher Education Investment (AY3L)	1.20%	42.79%	28.37%	27.64%
Alaska Mental Health Trust Reserve (AY2L)	0.32%	33.73%	43.21%	22.74%
Constitutional Budget Reserve Fund (AY19)	100.00%			
Education Endowment Fund (AY3G)	1.20%	42.78%	28.38%	27.63%
EVOS Habitat Investment (AY2H)	0.32%	29.60%	49.50%	20.58%
EVOS Research Investment (AY02)	0.32%	32.12%	45.51%	22.05%
GeFONSI I (AY01)	78.67%		21.33%	
GeFONSI II (AY3F)	75.24%	4.07%	17.95%	2.74%
Illinois Creek Mine Reclamation (AY9J)	1.20%	42.79%	28.38%	27.63%
International Airports 2006 Non-AMT (AY9X)	100.00%			
International Airports 2009 Variable (AY9Y)	100.00%			
International Airports 2010-A (AY3A)	100.00%			
International Airports 2010-B (AY3B)	100.00%			
International Airports Repair & Replacement Fund (AY05)	100.00%			
International Airports Revenue Fund (AY04)	77.01%		22.99%	
International Airports Series 2002 Reserve Account (AY2E)	100.00%			
International Airports Series 2003 Reserve (AY2U)	100.00%			
Investment Loss Trust Fund (AY28)	100.00%			
PCE Endowment Fund (AY13)	1.22%	24.71%	59.23%	14.84%
Permanent Fund Dividend Holding Account (AY2G)	100.00%			
Public School - Income (AY09)	100.00%			
Public School Trust Fund (AY08)	1.20%	42.79%	28.37%	27.64%
RHIF LTC Insurance (AY11)	1.20%	27.75%	53.22%	17.83%
RHIF Major Medical (AY03)	100.00%			

## DOR Commissioner's Report: Market Values for Month Ending 3/31/2021

### Target Allocation

Plan Name	Cash Equivalents	Domestic Equity	Fixed Income	Int'l Equity
2008 Transportation Project Government Bonds (AY2Q)	100.00%			
2010 Education Tax Exempt Bonds (AY3V)	100.00%			
2013B Tax Exempt Education (AY3Z)	100.00%			
2016A - 2012 Transportation Bond Act (AY3Y)	100.00%			
2016B - 2012 Transportation Bond Act (AY3Q)	100.00%			
Alaska Higher Education Investment (AY3L)	1.00%	42.00%	29.00%	28.00%
Alaska Mental Health Trust Reserve (AY2L)	0.00%	33.00%	44.00%	23.00%
Constitutional Budget Reserve Fund (AY19)	100.00%			
Education Endowment Fund (AY3G)	1.00%	42.00%	29.00%	28.00%
EVOS Habitat Investment (AY2H)	0.00%	28.90%	50.30%	20.80%
EVOS Research Investment (AY02)	0.00%	31.40%	46.30%	22.30%
GeFONSI I (AY01)	77.00%		23.00%	
GeFONSI II (AY3F)	75.00%	4.00%	18.00%	3.00%
Illinois Creek Mine Reclamation (AY9J)	1.00%	42.00%	29.00%	28.00%
International Airports 2006 Non-AMT (AY9X)	100.00%			
International Airports 2009 Variable (AY9Y)	100.00%			
International Airports 2010-A (AY3A)	100.00%			
International Airports 2010-B (AY3B)	100.00%			
International Airports Repair & Replacement Fund (AY05)	100.00%			
International Airports Revenue Fund (AY04)	77.00%		23.00%	
International Airports Series 2002 Reserve Account (AY2E)	100.00%			
International Airports Series 2003 Reserve (AY2U)	100.00%			
Investment Loss Trust Fund (AY28)	100.00%			
PCE Endowment Fund (AY13)	1.00%	24.00%	60.00%	15.00%
Permanent Fund Dividend Holding Account (AY2G)	100.00%			
Public School - Income (AY09)	100.00%			
Public School Trust Fund (AY08)	1.00%	42.00%	29.00%	28.00%
RHIF LTC Insurance (AY11)	1.00%	27.00%	54.00%	18.00%
RHIF Major Medical (AY03)	100.00%			



## DOR Commissioner's Report: Net Pool Performance for Month Ending 3/31/2021

<b>Relative Performance (Net of Fee)</b>	<b>1 Month</b>	<b>3 Month</b>	<b>FYTD</b>	<b>1 Year</b>	<b>3 Year</b>	<b>5 Year</b>	<b>6 Year</b>	<b>10 Year</b>
Broad Market Fixed Income	0.31%	-0.11%	0.02%	0.89%	0.23%	0.18%	0.20%	0.19%
Domestic Equity*	0.02%	-0.03%	-0.10%	-0.25%	-0.10%			
International Equity*	0.00%	0.00%	0.10%	-0.10%	0.02%			
Short-term Fixed Income Pool	0.00%	0.01%	0.07%	0.35%	0.15%	0.22%	0.24%	0.23%
<b>Pool Performance (Net of Fee)</b>	<b>1 Month</b>	<b>3 Month</b>	<b>FYTD</b>	<b>1 Year</b>	<b>3 Year</b>	<b>5 Year</b>	<b>6 Year</b>	<b>10 Year</b>
Broad Market Fixed Income	-0.94%	-3.49%	-2.10%	1.60%	4.88%	3.28%	3.11%	3.63%
Domestic Equity*	3.60%	6.32%	33.09%	62.28%	17.02%			
International Equity*	1.27%	3.49%	28.77%	49.31%	6.53%			
Short-term Fixed Income Pool	0.00%	0.04%	0.16%	0.47%	1.64%	1.41%	1.25%	0.87%
<b>Benchmark Performance</b>	<b>1 Month</b>	<b>3 Month</b>	<b>FYTD</b>	<b>1 Year</b>	<b>3 Year</b>	<b>5 Year</b>	<b>6 Year</b>	<b>10 Year</b>
Broad Market Fixed Income	-1.25%	-3.37%	-2.12%	0.71%	4.65%	3.10%	2.91%	3.44%
Domestic Equity*	3.58%	6.35%	33.19%	62.53%	17.12%			
International Equity*	1.26%	3.49%	28.67%	49.41%	6.51%			
Short-term Fixed Income Pool	0.01%	0.03%	0.09%	0.12%	1.49%	1.19%	1.01%	0.63%

\*Equity performance reflects data as of July 1, 2016 due to accounting structure change.

## DOR Commissioner's Report: Net Plan Performance for Month Ending 3/31/2021

Relative Performance (Net of Fee)	1 Month	3 Month	FYTD	1 Year	3 Year	5 Year	6 Year	10 Year
2008 Transportation Project Government Bonds (AY2Q)	0.00% ▲	0.01% ●	0.07% ●	0.35% ●	0.15% ●	0.22% ●	0.24% ●	0.23% ●
2010 Education Tax Exempt Bonds (AY3V)	0.00% ▲	0.02% ●	0.07% ●	0.35% ●	0.15% ●	0.22% ●	0.24% ●	0.23% ●
2013B Tax Exempt Education (AY3Z)	0.00% ▲	0.01% ●	0.07% ●	0.35% ●	0.15% ●	0.22% ●	0.24% ●	
2016A - 2012 Transportation Bond Act (AY3Y)	0.00% ▲	0.01% ●	0.07% ●	0.23% ●	0.13% ●	0.21% ●	0.23% ●	
2016B - 2012 Transportation Bond Act (AY3Q)	0.00% ▲	0.01% ●	0.07% ●	0.35% ●	0.15% ●			
Alaska Higher Education Investment (AY3L)	0.09% ●	-0.10% ◆	-0.11% ◆	0.07% ●	-0.06% ◆	-0.01% ▲	0.09% ●	
Alaska Mental Health Trust Reserve (AY2L)	0.14% ●	-0.07% ◆	0.03% ●	0.41% ●	0.15% ●	0.09% ●	0.25% ●	0.48% ●
Constitutional Budget Reserve Fund (AY19)	0.00% ▲	0.01% ●	0.07% ●	0.52% ●	0.15% ●	0.21% ●	0.22% ●	0.20% ●
Education Endowment Fund (AY3G)	0.09% ●	-0.10% ◆	-0.11% ◆	0.09% ●				
EVOS Habitat Investment (AY2H)	0.15% ●	-0.25% ◆	-0.13% ◆	0.31% ●	-0.07% ◆	-0.09% ◆	0.19% ●	0.50% ●
EVOS Research Investment (AY02)	0.14% ●	-0.16% ◆	0.00% ●	0.41% ●	-0.02% ▲	-0.07% ◆	0.17% ●	0.49% ●
GeFONSI I (AY01)	0.07% ●	-0.01% ▲	0.06% ●	0.40% ●	0.14% ●	0.18% ●	0.19% ●	0.21% ●
GeFONSI II (AY3F)	0.04% ●	-0.07% ◆	-0.04% ▲	0.37% ●	0.05% ●			
Illinois Creek Mine Reclamation (AY9J)	0.09% ●	-0.10% ◆	-0.11% ◆	0.06% ●	-0.10% ◆	-0.05% ▲	0.01% ●	0.11% ●
International Airports 2006 Non-AMT (AY9X)	0.00% ▲	0.01% ●	0.07% ●	0.35% ●	0.15% ●	0.22% ●	0.24% ●	0.23% ●
International Airports 2009 Variable (AY9Y)	0.00% ▲	0.01% ●	0.07% ●	0.35% ●	0.15% ●	0.22% ●	0.24% ●	0.23% ●
International Airports 2010-A (AY3A)	0.00% ▲	0.01% ●	0.07% ●	0.35% ●	0.15% ●	0.22% ●	0.24% ●	0.23% ●
International Airports 2010-B (AY3B)	0.00% ▲	0.01% ●	0.07% ●	0.35% ●	0.15% ●	0.22% ●	0.24% ●	0.23% ●
International Airports Repair & Replacement Fund (AY05)	0.00% ▲	0.01% ●	0.07% ●	0.35% ●	0.15% ●	0.22% ●	0.24% ●	0.23% ●
International Airports Revenue Fund (AY04)	0.07% ●	-0.01% ▲	0.06% ●	0.45% ●	0.11% ●	0.19% ●	0.24% ●	0.23% ●
International Airports Series 2002 Reserve Account (AY2E)	0.00% ▲	0.01% ●	0.07% ●	0.35% ●	0.15% ●	0.22% ●	0.24% ●	0.23% ●
International Airports Series 2003 Reserve (AY2U)	0.00% ▲	0.01% ●	0.07% ●	0.35% ●	0.15% ●	0.22% ●	0.24% ●	0.23% ●
Investment Loss Trust Fund (AY28)	0.00% ▲	0.01% ●	0.07% ●	0.35% ●	0.15% ●	0.22% ●	0.24% ●	0.23% ●
PCE Endowment Fund (AY13)	0.19% ●	-0.12% ◆	-0.08% ◆	0.08% ●	-0.10% ◆	-0.05% ▲	0.12% ●	0.25% ●
Permanent Fund Dividend Holding Account (AY2G)	0.00% ▲	0.01% ●	0.07% ●	0.35% ●	0.20% ●	0.35% ●	0.33% ●	0.29% ●
Public School - Income (AY09)	0.00% ▲	0.01% ●	0.06% ●	0.35% ●	0.12% ●	0.20% ●	0.22% ●	0.22% ●
Public School Trust Fund (AY08)	0.09% ●	-0.10% ◆	-0.11% ◆	0.05% ●	-0.09% ◆	-0.02% ▲	0.07% ●	0.01% ●
RHIF LTC Insurance (AY11)	0.17% ●	-0.11% ◆	-0.09% ◆	0.50% ●	0.01% ●	0.07% ●	0.17% ●	0.24% ●
RHIF Major Medical (AY03)	0.00% ▲	0.01% ●	0.07% ●	0.35% ●	0.15% ●	0.22% ●	0.24% ●	0.23% ●

## DOR Commissioner's Report: Net Plan Performance for Month Ending 3/31/2021

Plan Performance (Net of Fee)	1 Month	3 Month	FYTD	1 Year	3 Year	5 Year	6 Year	10 Year
2008 Transportation Project Government Bonds (AY2Q)	0.00%	0.04%	0.16%	0.47%	1.64%	1.41%	1.25%	0.87%
2010 Education Tax Exempt Bonds (AY3V)	0.01%	0.04%	0.16%	0.47%	1.64%	1.41%	1.25%	0.87%
2013B Tax Exempt Education (AY3Z)	0.00%	0.04%	0.16%	0.47%	1.64%	1.41%	1.25%	
2016A - 2012 Transportation Bond Act (AY3Y)	0.00%	0.04%	0.16%	0.35%	1.62%	1.40%	1.24%	
2016B - 2012 Transportation Bond Act (AY3Q)	0.00%	0.04%	0.16%	0.47%	1.64%			
Alaska Higher Education Investment (AY3L)	1.59%	2.53%	20.51%	37.77%	11.08%	10.68%	8.67%	
Alaska Mental Health Trust Reserve (AY2L)	1.06%	1.29%	15.78%	30.14%	9.86%	9.75%	8.05%	8.40%
Constitutional Budget Reserve Fund (AY19)	0.00%	0.04%	0.16%	1.65%	2.67%	2.33%	2.06%	1.98%
Education Endowment Fund (AY3G)	1.59%	2.52%	20.51%	37.79%				
EVOS Habitat Investment (AY2H)	0.83%	0.55%	13.31%	26.13%	9.12%	9.87%	8.18%	8.98%
EVOS Research Investment (AY02)	0.97%	0.99%	14.79%	28.54%	9.47%	10.06%	8.31%	9.06%
GeFONSI I (AY01)	-0.21%	-0.77%	-0.35%	0.04%	1.76%	1.35%	1.23%	1.10%
GeFONSI II (AY3F)	0.01%	-0.31%	1.65%	3.75%	3.32%			
Illinois Creek Mine Reclamation (AY9J)	1.59%	2.53%	20.51%	37.75%	11.03%	10.64%	8.64%	6.15%
International Airports 2006 Non-AMT (AY9X)	0.00%	0.04%	0.16%	0.47%	1.64%	1.41%	1.25%	0.87%
International Airports 2009 Variable (AY9Y)	0.00%	0.04%	0.16%	0.47%	1.64%	1.41%	1.25%	0.87%
International Airports 2010-A (AY3A)	0.00%	0.04%	0.16%	0.47%	1.64%	1.41%	1.25%	0.87%
International Airports 2010-B (AY3B)	0.00%	0.04%	0.16%	0.47%	1.64%	1.41%	1.25%	0.87%
International Airports Repair & Replacement Fund (AY05)	0.00%	0.04%	0.16%	0.47%	1.64%	1.41%	1.25%	0.87%
International Airports Revenue Fund (AY04)	-0.21%	-0.78%	-0.35%	1.39%	2.56%	2.27%	2.04%	1.76%
International Airports Series 2002 Reserve Account (AY2E)	0.00%	0.04%	0.16%	0.47%	1.64%	1.41%	1.25%	0.87%
International Airports Series 2003 Reserve (AY2U)	0.00%	0.04%	0.16%	0.47%	1.64%	1.41%	1.25%	0.87%
Investment Loss Trust Fund (AY28)	0.00%	0.04%	0.16%	0.47%	1.64%	1.41%	1.25%	0.87%
PCE Endowment Fund (AY13)	0.49%	-0.15%	10.08%	25.84%	7.73%	8.66%	7.05%	8.34%
Permanent Fund Dividend Holding Account (AY2G)	0.00%	0.04%	0.16%	0.47%	1.70%	1.54%	1.35%	0.92%
Public School - Income (AY09)	0.01%	0.03%	0.15%	0.46%	1.61%	1.39%	1.23%	0.86%
Public School Trust Fund (AY08)	1.59%	2.52%	20.51%	37.75%	11.05%	10.03%	8.25%	8.04%
RHIF LTC Insurance (AY11)	0.69%	0.36%	12.02%	21.54%	9.28%	8.05%	6.83%	6.77%
RHIF Major Medical (AY03)	0.00%	0.04%	0.16%	0.47%	1.64%	1.41%	1.25%	0.87%

## DOR Commissioner's Report: Net Plan Performance for Month Ending 3/31/2021

<b>Benchmark Performance</b>	<b>1 Month</b>	<b>3 Month</b>	<b>FYTD</b>	<b>1 Year</b>	<b>3 Year</b>	<b>5 Year</b>	<b>6 Year</b>	<b>10 Year</b>
2008 Transportation Project Government Bonds (AY2Q)	0.01%	0.03%	0.09%	0.12%	1.49%	1.19%	1.01%	0.63%
2010 Education Tax Exempt Bonds (AY3V)	0.01%	0.03%	0.09%	0.12%	1.49%	1.19%	1.01%	0.63%
2013B Tax Exempt Education (AY3Z)	0.01%	0.03%	0.09%	0.12%	1.49%	1.19%	1.01%	
2016A - 2012 Transportation Bond Act (AY3Y)	0.01%	0.03%	0.09%	0.12%	1.49%	1.19%	1.01%	
2016B - 2012 Transportation Bond Act (AY3Q)	0.01%	0.03%	0.09%	0.12%	1.49%			
Alaska Higher Education Investment (AY3L)	1.50%	2.62%	20.62%	37.70%	11.14%	10.69%	8.58%	
Alaska Mental Health Trust Reserve (AY2L)	0.92%	1.36%	15.75%	29.73%	9.71%	9.66%	7.80%	7.91%
Constitutional Budget Reserve Fund (AY19)	0.01%	0.03%	0.09%	1.14%	2.52%	2.11%	1.84%	1.78%
Education Endowment Fund (AY3G)	1.50%	2.62%	20.62%	37.70%				
EVOS Habitat Investment (AY2H)	0.67%	0.81%	13.44%	25.82%	9.19%	9.95%	7.99%	8.48%
EVOS Research Investment (AY02)	0.83%	1.15%	14.79%	28.13%	9.49%	10.13%	8.14%	8.57%
GeFONSI I (AY01)	-0.28%	-0.76%	-0.41%	-0.35%	1.62%	1.17%	1.03%	0.89%
GeFONSI II (AY3F)	-0.04%	-0.24%	1.69%	3.37%	3.27%			
Illinois Creek Mine Reclamation (AY9J)	1.50%	2.62%	20.62%	37.70%	11.14%	10.69%	8.64%	6.04%
International Airports 2006 Non-AMT (AY9X)	0.01%	0.03%	0.09%	0.12%	1.49%	1.19%	1.01%	0.63%
International Airports 2009 Variable (AY9Y)	0.01%	0.03%	0.09%	0.12%	1.49%	1.19%	1.01%	0.63%
International Airports 2010-A (AY3A)	0.01%	0.03%	0.09%	0.12%	1.49%	1.19%	1.01%	0.63%
International Airports 2010-B (AY3B)	0.01%	0.03%	0.09%	0.12%	1.49%	1.19%	1.01%	0.63%
International Airports Repair & Replacement Fund (AY05)	0.01%	0.03%	0.09%	0.12%	1.49%	1.19%	1.01%	0.63%
International Airports Revenue Fund (AY04)	-0.28%	-0.76%	-0.41%	0.93%	2.45%	2.07%	1.81%	1.53%
International Airports Series 2002 Reserve Account (AY2E)	0.01%	0.03%	0.09%	0.12%	1.49%	1.19%	1.01%	0.63%
International Airports Series 2003 Reserve (AY2U)	0.01%	0.03%	0.09%	0.12%	1.49%	1.19%	1.01%	0.63%
Investment Loss Trust Fund (AY28)	0.01%	0.03%	0.09%	0.12%	1.49%	1.19%	1.01%	0.63%
PCE Endowment Fund (AY13)	0.30%	-0.02%	10.16%	25.76%	7.83%	8.70%	6.94%	8.09%
Permanent Fund Dividend Holding Account (AY2G)	0.01%	0.03%	0.09%	0.12%	1.49%	1.19%	1.01%	0.63%
Public School - Income (AY09)	0.01%	0.03%	0.09%	0.12%	1.49%	1.19%	1.01%	0.63%
Public School Trust Fund (AY08)	1.50%	2.62%	20.62%	37.70%	11.14%	10.05%	8.18%	8.04%
RHIF LTC Insurance (AY11)	0.52%	0.47%	12.11%	21.04%	9.27%	7.98%	6.65%	6.53%
RHIF Major Medical (AY03)	0.01%	0.03%	0.09%	0.12%	1.49%	1.19%	1.01%	0.63%

## DOR Commissioner's Report: External Management Fees as of Month Ending 3/31/2021

### Plan Fees for the Last Year

Plan	Fee as a %
2008 Transportation Project Government Bonds (AY2Q)	0.0000%
2010 Education Tax Exempt Bonds (AY3V)	0.0000%
2013B Tax Exempt Education (AY3Z)	0.0000%
2016A - 2012 Transportation Bond Act (AY3Y)	0.0000%
2016B - 2012 Transportation Bond Act (AY3Q)	0.0000%
Alaska Higher Education Investment (AY3L)	0.0077%
Alaska Mental Health Trust Reserve (AY2L)	0.0064%
Constitutional Budget Reserve Fund (AY19)	0.0001%
Education Endowment Fund (AY3G)	0.0091%
EVOS Habitat Investment (AY2H)	0.0055%
EVOS Research Investment (AY02)	0.0060%
GeFONSI I (AY01)	0.0000%
GeFONSI II (AY3F)	0.0009%
Illinois Creek Mine Reclamation (AY9J)	0.0077%
International Airports 2006 Non-AMT (AY9X)	0.0000%
International Airports 2009 Variable (AY9Y)	0.0000%
International Airports 2010-A (AY3A)	0.0000%
International Airports 2010-B (AY3B)	0.0000%
International Airports Repair & Replacement Fund (AY05)	0.0000%
International Airports Revenue Fund (AY04)	0.0002%
International Airports Series 2002 Reserve Account (AY2E)	0.0000%
International Airports Series 2003 Reserve (AY2U)	0.0000%
Investment Loss Trust Fund (AY28)	0.0000%
PCE Endowment Fund (AY13)	0.0043%
Permanent Fund Dividend Holding Account (AY2G)	0.0000%
Public School - Income (AY09)	0.0000%
Public School Trust Fund (AY08)	0.0077%
RHIF LTC Insurance (AY11)	0.0051%
RHIF Major Medical (AY03)	0.0000%

Commissioner's Report: Top GeFONSI Accounts for Month Ending: 3/31/2021

Program	Account Name	End Balance
GeFONSI I	General Fund	\$915,397,757.85
	Alaska Clean Water Fund	\$115,096,020.45
	Alaska Drinking Water Fund	\$72,376,608.73
	Oil & Hazardous Substance Release Response Account	\$43,284,734.04
	Public Advocacy Trust	\$37,625,669.45
GeFONSI II	Public Education Fund	\$159,697,201.38
	Highway Equipment Working Capital Fund For Operating Appropriations	\$96,377,339.98
	School Construction Fund	\$78,374,789.10
	Community Revenue Sharing Fund	\$71,848,254.43
	Regional Ed Attendance Area School Fund	\$64,840,432.11
<b>Sum of 5 Largest GeFONSI I and II Funds</b>		<b>\$1,654,918,807.52</b>

**Questions?**

# Non-Routine Investments

- The Department of Revenue is presented periodically with non-routine investment opportunities that fall outside the scope of its existing investment opportunity set.
- The state does not currently have any non-routine investments, and none are presently contemplated by investment staff.
- Non-routine investment process summary:
  - Document the investment opportunity and determine if it merits further diligence and/or if it is more suitable for other funding sources.
  - Seek legal advice on DOR eligibility.
  - Seek guidance from external auditors.
  - Use an impartial external expert to evaluate the opportunity and to provide an opinion on the investment.
  - Seek advice from the Investment Advisory Council.
  - Notify the Office of Management and Budget.
  - Complete diligence and investment documentation.
  - Inform the Chairs of the Senate and House Finance Committees of any decision to move forward with an investment.



**Questions?**

**Asset Allocation Process**

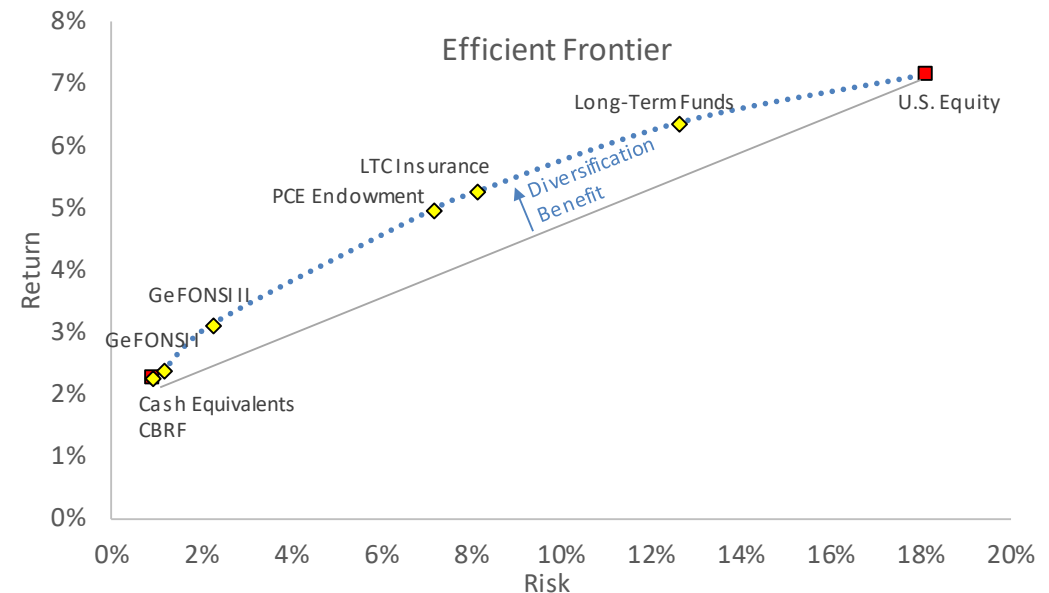
**and**

**2021 Capital Market Assumptions**

# State Asset Allocation Process

- The Commissioner of Revenue is the fiduciary for over \$7 billion in state assets across 100+ accounts pooled into 25 funds with similar assets or mandates.
- Setting investment policies and asset allocations are key fiduciary duties for these funds.
- Staff reviews and makes recommendations on the investment policy and asset allocation of each fund at least annually.
- Each investment program is designed to balance fund investment objectives, risk tolerance, and other attributes:
  - Time horizon
  - Nominal or real return objectives
  - Cashflows, liquidity, and income needs
  - Capacity for loss or volatility over short, medium, and longer time horizons

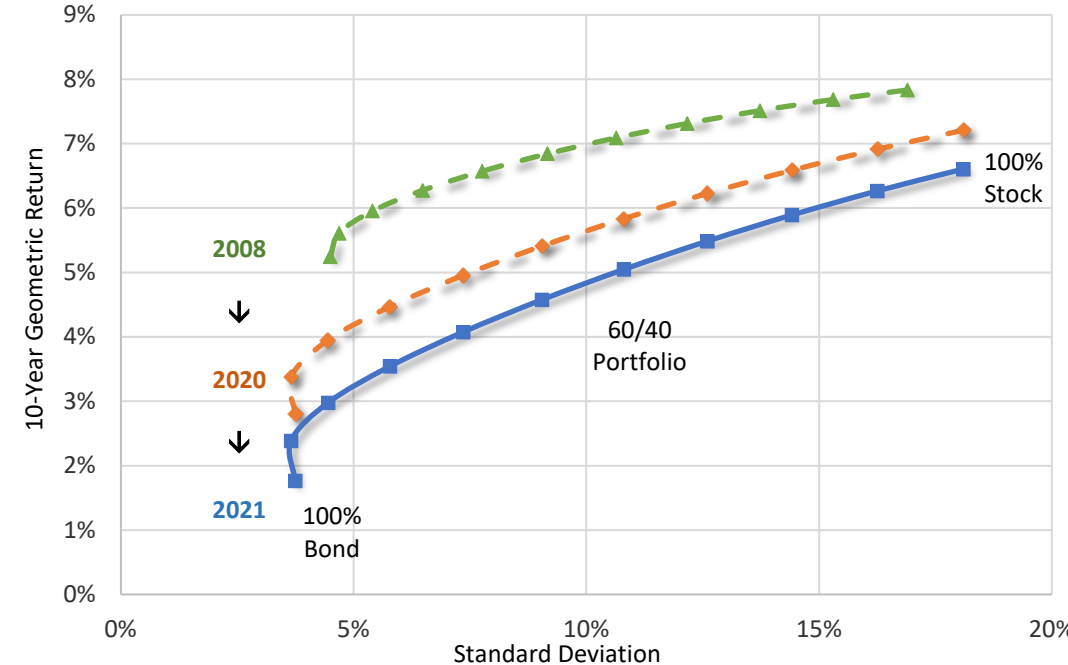
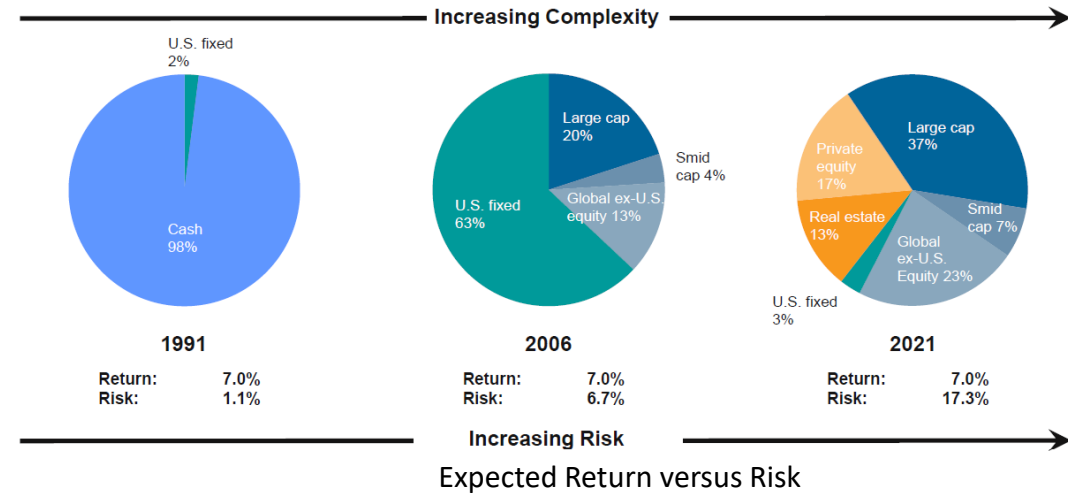
Fund - Account	Assets (3/31/21)	Risk Tolerance	Policy 1yr Risk/Loss
Short-Term Funds	\$185,223,794	Low	<1%
CBRF - AY19	\$1,072,513,755	Low	<1%
GeFONSI - AY01	\$1,511,675,030	Moderate	1-5%
International Airport - AY04	\$166,873,218	Moderate	1-5%
GeFONSI II - AY3F	\$1,130,349,110	Moderate-High	5-10%
PCE Endowment - AY13	\$1,129,508,106	High	>10%
Retiree LTC - AY11	\$720,097,451	High	>10%
Public School Trust Fund - AY08	\$798,805,257	High	>10%
AK Higher Education - AY3L	\$396,214,113	High	>10%
Illinois Creek Mine - AY9J	\$1,395,778	High	>10%
Education Endowment - AY3G	\$568,084	High	>10%
<b>Total</b>	<b>\$7,113,223,696</b>		



# Asset Allocation

- Callan LLC, annually develops 10-year capital market assumptions for risk, return, and correlations using a building block approach.
- Return expectations have steadily declined over time due to lower rates, growth and inflation expectations due largely to global trade, technology, and the transition toward a service economy.
- Staff evaluates Callan’s capital market assumptions, other provider’s assumptions, and current market conditions to develop an asset allocation approach for each state fund.
- The goal is generally to maximize return or minimize risk consistent with investment objectives and risk tolerance using a combination of Modern Portfolio Theory and investment judgment.

## 7% Expected Returns Over Past 30+ Years



# 2021 Capital Market Assumptions

- Callan recently released their 10-year capital market assumptions (CMAs) for 2021. All earnings assumptions decreased this year due to the global pandemic. Risk and correlation assumptions were largely unchanged.
- Staff selects a subset of these asset classes for use in state funds based on risk, return, diversification, complexity, and cost.
- For FY22, staff recommends continuing with the use of Broad U.S. Equities, International Equities, Core U.S. Fixed Income, and Cash Equivalents for state funds.
- Staff is recommending adding REITs to higher risk portfolios for additional yield and inflation protection and adding an unfunded allocation to TIPS of 0-5%, both to be managed internally as they were previously.
- Staff is also recommending investing up to 20% of the fixed income allocation in a tactical bond portfolio that can opportunistically invest in high yield, TIPS, and other fixed income asset classes in a risk-managed fashion.

Asset Classes	1-Year Arithmetic Return	10-Year Geometric Return	Return Change	Standard Deviation	Projected Yield	Correlation to Domestic Equity	Real Return
<b>Broad U.S. Equity</b>	<b>8.0%</b>	<b>6.6%</b>	<b>-0.55%</b>	<b>18.0%</b>	<b>2.0%</b>	<b>1.00</b>	<b>4.6%</b>
Large Cap U.S. Equity	7.9%	6.5%	-0.50%	17.7%	2.0%	1.00	4.5%
Small/Mid Cap U.S. Equity	8.8%	6.7%	-0.55%	21.3%	1.8%	0.93	4.7%
<b>International Equity</b>	<b>8.7%</b>	<b>6.8%</b>	<b>-0.45%</b>	<b>20.7%</b>	<b>2.8%</b>	<b>0.82</b>	<b>4.8%</b>
Developed ex-U.S. Equity	8.3%	6.5%	-0.50%	19.9%	3.0%	0.78	4.5%
Emerging Market Equity	9.8%	6.9%	-0.35%	25.2%	2.4%	0.80	4.9%
<b>Cash Equivalents</b>	<b>1.0%</b>	<b>1.0%</b>	<b>-1.25%</b>	<b>0.9%</b>	<b>1.0%</b>	<b>-0.06</b>	<b>-1.0%</b>
Government 1-3 year Bonds	1.4%	1.3%	-1.15%	3.5%	1.6%	-0.25	-0.7%
<b>Core U.S. Fixed Income</b>	<b>1.8%</b>	<b>1.8%</b>	<b>-1.00%</b>	<b>3.8%</b>	<b>2.5%</b>	<b>-0.10</b>	<b>-0.3%</b>
TIPS	1.8%	1.7%	-0.70%	5.1%	2.4%	-0.08	-0.3%
Emerging Market Sovereign Debt	3.9%	3.5%	-0.85%	9.5%	6.0%	0.53	1.5%
High Yield	4.9%	4.4%	-0.30%	10.8%	6.7%	0.72	2.4%
Core Real Estate	6.6%	5.8%	-0.50%	14.1%	4.4%	0.71	3.8%
REITs	8.2%	6.3%	-0.45%	20.7%	4.7%	0.80	4.3%
Private Equity	11.5%	8.0%	-0.50%	27.8%	0.0%	0.80	6.0%
Hedge Funds	4.3%	4.0%	-1.00%	8.0%	0.0%	0.78	2.0%
<b>Inflation</b>		<b>2.0%</b>	<b>-0.25%</b>				
<b>60/40 Portfolio</b>		<b>5.0%</b>	<b>-0.79%</b>				

# Risk Tolerance Assessment

## Risk and Time Horizon

Time horizon specification	Estimated time period before State will need funds	Risk categories	Probability of a loss over next one year period	Magnitude of Potential Loss
Very short time horizon	less than 6 months	Low risk	< 1%	0 – 0.4%
Short time horizon	6 months to 1 year	Moderate risk	1 - 5%	0 – 1.5%
Intermediate time horizon	1 to 4 years	Moderately high risk	5 - 10%	1.5 – 5%
Moderately long time horizon	4 to 8 years	High risk	>10%	5 – 20%
Long time horizon	over 8 years			

Low risk tolerance	Unwilling to risk material short-term volatility because of the immediate need for the invested funds. Minimizing exposure of principal to loss is very important.
Moderate risk tolerance	Willing to assume an average amount of market risk and volatility to achieve higher returns.
Moderately high risk tolerance	Willing to assume an above average amount of risk, volatility and loss of principal to achieve higher returns.
High risk tolerance	Willing to assume a material amount of risk, volatility and loss of principal to take advantage of higher return opportunities.

Fund - Account	Assets (3/31/21)	Risk Tolerance	Policy 1yr Risk/Loss	Loss Magnitude
Short-Term Funds	\$185,223,794	Low	<1%	0 - 0.4%
CBRF - AY19	\$1,072,513,755	Low	<1%	0 - 0.4%
GeFONSI - AY01	\$1,511,675,030	Moderate	1-5%	0 - 1.5%
International Airport - AY04	\$166,873,218	Moderate	1-5%	0 - 1.5%
GeFONSI II - AY3F	\$1,130,349,110	Moderate-High	5-10%	1.5 - 5%
PCE Endowment - AY13	\$1,129,508,106	High	>10%	5 - 20%
Retiree LTC - AY11	\$720,097,451	High	>10%	5 - 20%
Public School Trust Fund - AY08	\$798,805,257	High	>10%	5 - 20%
AK Higher Education - AY3L	\$396,214,113	High	>10%	5 - 20%
Illinois Creek Mine - AY9J	\$1,395,778	High	>10%	5 - 20%
Education Endowment - AY3G	\$568,084	High	>10%	5 - 20%
<b>Total</b>	<b>\$7,113,223,696</b>			

# Existing SOA Asset Allocations with New CMA's

- Low rates lead to both an earnings and a principal protection challenge.

## Current Asset Allocation Process:

- Evaluate the current attributes of each fund to identify the best balance of risk and return.
- Use Callan's capital market assumptions and Modern Portfolio Theory to arrive at asset allocations.
- Set short-term return expectations for fixed income and cash equivalents using current yields and adjust the cash risk to reflect the expectation of a near-zero bound for cash returns.
- Emphasize diversification in a particularly uncertain market.

Asset Classes	Low	Moderate	Moderate High	High	Higher	Highest
Broad U.S. Equity	0%	0%	4%	24%	27%	42%
Global ex-U.S. Equity	0%	0%	3%	15%	18%	28%
US REITS	0%	0%	0%	0%	0%	0%
Core U.S. Fixed Income	0%	23%	18%	60%	54%	29%
Cash Equivalents	100%	77%	75%	1%	1%	1%
Total	100%	100%	100%	100%	100%	100%
Optimization Results:						
<b>Expected Return</b>	<b>0.05%</b>	<b>0.38%</b>	<b>0.88%</b>	<b>4.10%</b>	<b>4.43%</b>	<b>5.65%</b>
Risk - Standard Deviation	0.05%	0.87%	1.37%	7.17%	8.19%	12.64%
Sharpe Ratio		0.38	0.61	0.43	0.42	0.37
Risk Statistics:						
<b>10% Probable Annual Loss (10% cVaR)</b>	<b>0.0%</b>	<b>-1.1%</b>	<b>-1.5%</b>	<b>-8.7%</b>	<b>-10.1%</b>	<b>-16.6%</b>
5% Probable Annual Loss (5% cVaR)	-0.1%	-1.4%	-1.9%	-10.9%	-12.6%	-20.5%
Probability of Loss - 1 Year	15.9%	33.1%	26.0%	29.3%	30.2%	33.0%
Prob. Return < -1%	0.0%	5.6%	8.5%	24.7%	26.1%	30.2%
Prob. Return < -2%	0.0%	0.3%	1.8%	20.5%	22.2%	27.5%
Prob. Return < -3%	0.0%	0.0%	0.2%	16.7%	18.8%	24.9%
Prob. Return < -5%	0.0%	0.0%	0.0%	10.7%	12.9%	20.2%
Prob. Return < -10%	0.0%	0.0%	0.0%	2.6%	4.1%	10.9%
Prob. Return < -20%	0.0%	0.0%	0.0%	0.0%	0.2%	2.2%
Probability of Loss - 10 Year	0.0%	0.0%	0.0%	3.5%	4.4%	7.9%
Duration Estimate - Max of 6	0.3	1.6	1.7	5.9	5.9	5.9
Return Statistics:						
Short-Term Expected Return	0.05%	0.38%	0.88%	3.91%	4.26%	5.55%
Long-Term Expected Return				4.10%	4.43%	5.65%
Long-Term Real Return				2.10%	2.43%	3.65%
Long-Term Yield				2.40%	2.39%	2.34%
Capital Gain				1.70%	2.04%	3.31%
Arithmetic Return				4.32%	4.71%	6.33%
Dollars: (\$Millions)						
Assets	1,257.7	1,678.5	1,130.3	1,129.5	720.1	1,197.0
Expected Annual Earnings	0.6	6.4	10.0	46.3	31.9	67.6
10% Probable Annual Loss (10% cVaR)	(0.5)	(19.2)	(17.3)	(97.9)	(72.9)	(199.0)

# **Low Risk Tolerance Funds**



# Short Term Funds - \$185 Million

## FY2021 Short-Term Funds Investment Policy

The Department manages several funds that have high liquidity requirements necessitating investment entirely in short-term fixed income. The following funds are covered by this policy:

AY03 - Retiree Health Insurance Fund	AY3B - International Airports 2010-B
AY05 - International Airport Repair and Replacement Fund	AY3V - 2010-C GO Bonds
AY28 - Investment Loss Trust Fund	AY3Y - 2013-C GO Bonds
AY2E - 2002 Series Reserve Account	AY3Z - 2013-B GO Bonds
AY2G - Permanent Fund Dividend Holding Account	AY9X - 2006B Non-AMT Construction Fund
AY2Q - 2008 Transportation Project GO Bonds	AY9Y - 2006 Series Variable Rate
AY2U - 2003 Series Reserve Account	AY3Q - FY 2017 2016B - 2012 Transportation Bond Act
AY3A - International Airports 2010-A	

Investment Topic	Proposed Policy	Current Policy
Investment Objective	Very low exposure to principal loss. Modest current income requirement. Little inflation protection needed. High liquidity requirement.	No Change
Risk Tolerance	Low	No Change
Policy Risk/Loss Range	<1%	No Change
Time Horizon	Short	No Change
Asset Allocation	Cash Equivalents 100%	100%
Short-Term Expected Return	0.17%	1.93%
Long-Term Expected Return	2.25%	2.50%
Expected Risk (Std. Dev.)	0.90%	0.90%
Probability of Loss - 10 Year (CMA)	0.0%	
Probability of Loss - 1 Year (CMA)	0.6%	2.0%

The proposed policy is effective July 1, 2020:

*Lucinda Mahony*

6.26.2020

Approved

Date

## State of Alaska FY2022 Asset Allocation

Asset Classes	Asset Mix Alternatives					Prior Year	Portfolio1
	1	2	3	4	5		
Broad U.S. Equity	0.0%	0.0%	0.0%	0.0%	0.0%	0%	0%
Global ex-U.S. Equity	0.0%	0.0%	0.0%	0.0%	0.0%	0%	0%
US REITS	0.0%	0.0%	0.0%	0.0%	0.0%	0%	0%
Core U.S. Fixed Income	6.4%	7.7%	9.1%	10.4%	11.8%	0%	0%
Cash Equivalents	93.6%	92.3%	90.9%	89.6%	88.2%	100%	100%
Total	100%	100%	100%	100%	100%	100%	100%

### Optimization Results:

Expected Return - Short-Term	0.14%	0.16%	0.18%	0.20%	0.22%	0.17%	0.05%
Risk - Standard Deviation	0.25%	0.30%	0.35%	0.40%	0.45%	0.90%	0.05%
Sharpe Ratio	0.37	0.37	0.37	0.38	0.38	0.13	

### Risk Statistics:

10% Probable Annual Loss (10% cVaR)	-0.3%	-0.4%	-0.4%	-0.5%	-0.6%	-1.4%	0.0%
5% Probable Annual Loss (5% cVaR)	-0.4%	-0.5%	-0.5%	-0.6%	-0.7%	-1.7%	-0.1%
Probability of Loss - 1 Year	28.5%	29.5%	30.2%	30.8%	31.3%	42.5%	15.9%
Prob. Return < -1%	0.0%	0.0%	0.0%	0.1%	0.3%	9.7%	0.0%
Prob. Return < -2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.0%
Prob. Return < -3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Prob. Return < -5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Prob. Return < -10%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Prob. Return < -20%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Probability of Loss - 10 Year	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Duration Estimate - Max of 6	0.6	0.7	0.8	0.8	0.9	0.3	0.3

### Dollars: (\$Millions)

Assets	185.2	185.2	185.2	185.2	185.2		185.2
Expected Annual Earnings	0.3	0.3	0.3	0.4	0.4		0.1
10% Probable Annual Loss (10% cVaR)	(0.5)	(0.7)	(0.8)	(0.9)	(1.1)		(0.1)

Cash History	2021	2020	2019	2018	2017	2016	2015	2014	2013
Expected ST Return	0.17%	1.93%	2.25%	2.25%	2.25%	2.25%	2.25%	2.00%	2.75%
Expected Volatility	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%
10% cVaR	-1.41%	0.35%	0.67%	0.67%	0.67%	0.67%	0.67%	0.42%	1.17%

# CBRF – \$1.1 Billion

## AY19: FY2021 CBRF Investment Policy

The investment policies for the Constitutional Budget Reserve Fund (CBRF) have changed over the years as the balance and the expected uses of the CBRF have changed. Declining production of Alaska North Slope crude oil and the inconsistency of future prices are still a concern. The CBRF is the state’s “savings account” and as such is responsible for covering fluctuations in the general fund.

Financial planning by the administration and the legislature is highly dependent upon the CBRF balance maintaining stability and high liquidity. Given the short-term expected requirement for these funds, a cash equivalent investment program is warranted.

Investment Topic	Proposed Policy	Current Policy
Investment Objective	Very low exposure to principal loss. Little inflation protection needed. High liquidity requirement.	Proposed Change
Risk Tolerance	Low	Moderate
Policy Risk/Loss Range	<1%	1-5%
Time Horizon	Short	Intermediate
Asset Allocation	Broad U.S. Equity International Equity Core U.S. Fixed Income Cash Equivalents 100%	21% ±10% 79% ±10%
Short-Term Expected Return	0.17%	0.42%
Long-Term Expected Return	2.25%	2.37%
Expected Risk (Std. Dev.)	0.90%	1.11%
Probability of Loss - 10 Year (CMA)	0.0%	0.0%
Probability of Loss - 1 Year (CMA)	0.6%	1.7%

The proposed policy is effective July 1, 2020:

*Lucinda Mahoney*

Approved

6.26.2020

Date

## State of Alaska FY2022 Asset Allocation

Asset Classes	Asset Mix Alternatives					Prior Year	Portfolio1
	1	2	3	4	5		
Broad U.S. Equity	0.0%	0.0%	0.0%	0.0%	0.0%	0%	0%
Global ex-U.S. Equity	0.0%	0.0%	0.0%	0.0%	0.0%	0%	0%
US REITS	0.0%	0.0%	0.0%	0.0%	0.0%	0%	0%
Core U.S. Fixed Income	6.4%	7.7%	9.1%	10.4%	11.8%	0%	0%
Cash Equivalents	93.6%	92.3%	90.9%	89.6%	88.2%	100%	100%
Total	100%	100%	100%	100%	100%	100%	100%

### Optimization Results:

Expected Return - Short-Term	0.14%	0.16%	0.18%	0.20%	0.22%	0.17%	0.05%
Risk - Standard Deviation	0.25%	0.30%	0.35%	0.40%	0.45%	0.90%	0.05%
Sharpe Ratio	0.37	0.37	0.37	0.38	0.38	0.13	

### Risk Statistics:

10% Probable Annual Loss (10% cVaR)	-0.3%	-0.4%	-0.4%	-0.5%	-0.6%	-1.4%	0.0%
5% Probable Annual Loss (5% cVaR)	-0.4%	-0.5%	-0.5%	-0.6%	-0.7%	-1.7%	-0.1%
Probability of Loss - 1 Year	28.5%	29.5%	30.2%	30.8%	31.3%	42.5%	15.9%
Prob. Return < -1%	0.0%	0.0%	0.0%	0.1%	0.3%	9.7%	0.0%
Prob. Return < -2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.0%
Prob. Return < -3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Prob. Return < -5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Prob. Return < -10%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Prob. Return < -20%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Probability of Loss - 10 Year	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Duration Estimate - Max of 6	0.6	0.7	0.8	0.8	0.9	0.3	0.3

### Dollars: (\$Millions)

Assets	1,072.5	1,072.5	1,072.5	1,072.5	1,072.5		1,072.5
Expected Annual Earnings	1.5	1.7	1.9	2.2	2.4		0.5
10% Probable Annual Loss (10% cVaR)	(3.2)	(3.9)	(4.6)	(5.4)	(6.1)		(0.4)

CBRF History	2021	2020	2019	2018	2017	2016	2015	2014	2013
Expected ST Return	0.17%	2.32%	2.89%	2.89%	2.89%	2.89%	2.38%	2.30%	3.01%
Expected Volatility	0.90%	1.23%	1.64%	1.62%	1.59%	1.58%	1.58%	2.06%	2.31%
10% cVaR	-1.41%	0.16%	0.01%	0.05%	0.10%	0.12%	-0.40%	-1.32%	-1.04%

# High Risk Tolerance Funds

# Highest Risk Profile Funds

## AY08: FY2021 Public School Trust Fund Investment Policy

The Public School Trust Fund is a fund dedicated to the benefit of Alaska's public schools. The central objective is to provide "increasing returns from capital appreciation and net income over long-term periods to the fund's current beneficiaries." The fund may be invested "on the basis of probable total rate of return to promote the long-term generation of capital appreciate and income."

On July 1 of each year, the commissioner shall determine the monthly average market value of the fund for the previous five fiscal years preceding the previous fiscal year. The legislature may appropriate not more than five percent of the amount determined by the commissioner. Pending signature by the governor, the appropriated amount may be expended the following fiscal year.

Investment Topic	Proposed Policy	Current Policy												
Investment Objective	High exposure of principal to loss in return for higher expected Longer-term returns. Limited current income requirement. Limited inflation protection needed. Moderate liquidity requirement.	No Change												
Risk Tolerance	High	No Change												
Policy Risk/Loss Range	>10%	No Change												
Time Horizon	Long	No Change												
Asset Allocation	<table border="0"> <tr> <td>Broad U.S. Equity</td> <td>42% ± 5%</td> <td>41% ± 5%</td> </tr> <tr> <td>International Equity</td> <td>28% ± 5%</td> <td>27% ± 5%</td> </tr> <tr> <td>Core U.S. Fixed Income</td> <td>29% ± 5%</td> <td>32% ± 5%</td> </tr> <tr> <td>Cash Equivalents</td> <td>1% - 1%/+2%</td> <td></td> </tr> </table>	Broad U.S. Equity	42% ± 5%	41% ± 5%	International Equity	28% ± 5%	27% ± 5%	Core U.S. Fixed Income	29% ± 5%	32% ± 5%	Cash Equivalents	1% - 1%/+2%		
Broad U.S. Equity	42% ± 5%	41% ± 5%												
International Equity	28% ± 5%	27% ± 5%												
Core U.S. Fixed Income	29% ± 5%	32% ± 5%												
Cash Equivalents	1% - 1%/+2%													
Short-Term Expected Return	5.93%													
Long-Term Expected Return	6.37%	6.58%												
Expected Risk (Std. Dev.)	12.60%	12.50%												
Probability of Loss - 10 Year (CMA)	5.5%	4.8%												
Probability of Loss - 1 Year (CMA)	30.7%	29.9%												

The proposed policy is effective July 1, 2020:

*Lucinda Mahoney*

Approved

6.26.2020

Date

## State of Alaska FY2022 Asset Allocation

Asset Classes	Asset Mix Alternatives					Prior Year	Portfolio1	Portfolio2
	1	2	3	4	5			
Broad U.S. Equity	36.3%	38.2%	39.9%	41.7%	43.3%	42%	42%	70%
Global ex-U.S. Equity	22.7%	23.6%	24.7%	25.6%	26.7%	28%	28%	0%
US REITS	5.0%	5.0%	5.0%	5.0%	5.0%	0%	0%	0%
Core U.S. Fixed Income	35.0%	32.2%	29.5%	26.7%	24.0%	29%	29%	30%
Cash Equivalents	1.0%	1.0%	1.0%	1.0%	1.0%	1%	1%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Optimization Results:</b>								
<b>Expected Return - Long-Term</b>	<b>5.37%</b>	<b>5.49%</b>	<b>5.62%</b>	<b>5.74%</b>	<b>5.86%</b>	<b>6.37%</b>	<b>5.65%</b>	<b>5.48%</b>
<b>Risk - Standard Deviation</b>	<b>11.50%</b>	<b>12.00%</b>	<b>12.50%</b>	<b>13.00%</b>	<b>13.50%</b>	<b>12.60%</b>	<b>12.64%</b>	<b>12.50%</b>
<b>Sharpe Ratio</b>	<b>0.38</b>	<b>0.37</b>	<b>0.37</b>	<b>0.36</b>	<b>0.36</b>	<b>0.43</b>	<b>0.37</b>	<b>0.36</b>
<b>Risk Statistics:</b>								
<b>10% Probable Annual Loss (10% cVaR)</b>	<b>-14.9%</b>	<b>-15.7%</b>	<b>-16.4%</b>	<b>-17.2%</b>	<b>-17.9%</b>	<b>-16.2%</b>	<b>-16.6%</b>	<b>-16.5%</b>
5% Probable Annual Loss (5% cVaR)	-18.5%	-19.4%	-20.3%	-21.2%	-22.1%	-20.1%	-20.5%	-20.4%
Probability of Loss - 1 Year	32.4%	32.7%	32.9%	33.2%	33.4%	31.9%	33.0%	33.3%
Prob. Return < -1%	29.3%	29.7%	30.1%	30.4%	30.8%	29.1%	30.2%	30.5%
Prob. Return < -2%	26.4%	26.9%	27.4%	27.8%	28.2%	26.5%	27.5%	27.7%
Prob. Return < -3%	23.6%	24.2%	24.8%	25.3%	25.8%	23.9%	24.9%	25.1%
Prob. Return < -5%	18.6%	19.3%	20.0%	20.6%	21.2%	19.3%	20.2%	20.3%
Prob. Return < -10%	9.2%	10.0%	10.7%	11.4%	12.1%	10.3%	10.9%	10.9%
Prob. Return < -20%	1.4%	1.7%	2.1%	2.4%	2.8%	2.0%	2.2%	2.1%
Probability of Loss - 10 Year	7.0%	7.4%	7.8%	8.1%	8.5%	5.5%	7.9%	8.3%
Duration Estimate - Max of 6	5.9	5.9	5.9	5.9	5.9	5.9	5.9	6.0
<b>Return Statistics:</b>								
Long-Term Real Return	3.37%	3.49%	3.62%	3.74%	3.86%		3.65%	3.48%
Long-Term Yield	2.46%	2.45%	2.45%	2.44%	2.43%		2.34%	2.12%
Capital Gain	2.91%	3.04%	3.17%	3.30%	3.43%		3.31%	3.36%
Arithmetic Return	5.93%	6.11%	6.28%	6.46%	6.64%		6.33%	6.14%
<b>Dollars: (\$Millions)</b>								
Assets	1,197.0	1,197.0	1,197.0	1,197.0	1,197.0		1,197.0	1,197.0
Expected Annual Earnings	64.2	65.8	67.3	68.7	70.2		67.6	65.6
10% Probable Annual Loss (10% cVaR)	(178.7)	(187.6)	(196.5)	(205.4)	(214.4)		(199.1)	(198.1)

High Risk History	2021	2020	2019	2018	2017	2016	2015	2014	2013
Expected LT Return	6.37%	6.58%	6.20%	6.21%	6.55%	6.73%	6.73%	6.25%	6.25%
Expected Volatility	12.60%	12.50%	12.70%	12.70%	12.95%	13.23%	13.23%	11.80%	10.55%
10% cVaR	-15.74%	-15.36%	-16.09%	-16.08%	-16.18%	-16.49%	-16.49%	-14.46%	-12.27%

# Highest Risk Profile Funds - Continued

## AY3L: FY2021 Alaska Higher Education Investment Policy

The Alaska Higher Education Investment Fund was established to make grants and scholarship payments to qualified postsecondary institutions for students. The Legislature may appropriate up to seven percent of the fund's prior June 30 market value balance each year.

Investment Topic	Proposed Policy	Current Policy												
Investment Objective	High exposure of principal to loss in return for higher expected Longer-term returns. Limited current income requirement. Limited inflation protection needed. Moderate liquidity requirement.	No Change												
Risk Tolerance	High	No Change												
Policy Risk/Loss Range	>10%	No Change												
Time Horizon	Long	No Change												
Asset Allocation	<table border="0"> <tr> <td>Broad U.S. Equity</td> <td>42% ± 5%</td> <td>41% ± 5%</td> </tr> <tr> <td>International Equity</td> <td>28% ± 5%</td> <td>27% ± 5%</td> </tr> <tr> <td>Core U.S. Fixed Income</td> <td>29% ± 5%</td> <td>32% ± 5%</td> </tr> <tr> <td>Cash Equivalents</td> <td>1% - 1%/+2%</td> <td></td> </tr> </table>	Broad U.S. Equity	42% ± 5%	41% ± 5%	International Equity	28% ± 5%	27% ± 5%	Core U.S. Fixed Income	29% ± 5%	32% ± 5%	Cash Equivalents	1% - 1%/+2%		
Broad U.S. Equity	42% ± 5%	41% ± 5%												
International Equity	28% ± 5%	27% ± 5%												
Core U.S. Fixed Income	29% ± 5%	32% ± 5%												
Cash Equivalents	1% - 1%/+2%													
Short-Term Expected Return	5.93%													
Long-Term Expected Return	6.37%	6.58%												
Expected Risk (Std. Dev.)	12.60%	12.50%												
Probability of Loss - 10 Year (CMA)	5.5%	4.8%												
Probability of Loss - 1 Year (CMA)	30.7%	29.9%												

The proposed policy is effective July 1, 2020:

*Lucinda Mahoney*

Approved

6.26.2020

Date

## AY3G: FY2022 Education Endowment Investment Policy

AS 43.23.063(b)(2) directs the commissioner to invest in a manner likely to achieve at least a four percent nominal return over a five-year period.

On July 1 of each year, the "commissioner shall determine the fund balance for the previously closed fiscal year, including the earnings of the fund" and "when the average market value for the fiscal year exceeds \$1,000,000,000, transfer 4.5% of the average fiscal-year-end market value of the balance of the fund for the last five fiscal years, including the fiscal year just ended, and including any unrealized gains and losses."

Investment Topic	Proposed Policy	Current Policy
Investment Objective	High exposure of principal to loss in return for higher expected Longer-term returns. Limited current income requirement. Limited inflation protection needed. Moderate liquidity requirement.	No Change

## AY9J: FY2021 Illinois Creek Mine Reclamation Investment Policy

The Illinois Creek Gold Mine is a remote gold mine located on state land approximately 51 miles south of Galena, Alaska. Construction of the gold mine began in June, 1996. The companies responsible for the mine dissolved, the financier abandoned its ownership rights, and the State of Alaska inherited operating responsibility for the mine in July 1999. Following reclamation of the mine by American Reclamation Group, the State now assumes responsibility to monitor the site and to fix unexpected post-reclamation problems. To fund the post-closure monitoring and any potential maintenance, this trust fund was created. The Department of Revenue will manage the fund and Department of Natural Resources will withdraw funds for monitoring and reclamation obligations.

Investment Topic	Proposed Policy	Current Policy
Investment Objective	Maximize return while still being able to fund uncertain maintenance expenditures (amount and size)	No Change



# Retiree LTC Insurance - \$720 Million

## AY11: FY2021 Retiree LTC Insurance Investment Policy

Effective July 1, 1997, the Department of Administration established the Group Health and Life Insurance Fund and the Retiree Health Insurance Fund. The Retiree Health Insurance Fund is further broken down into three plans: 1) medical, 2) dental, vision and audio, and 3) long term care.

The Retiree Long-Term Care Plan consists of premiums paid for retiree long term care. While many retirees are paying premiums into the plan today, at present only a small percentage of the premiums are needed for claims payments. Per the analysis, Actuarial Valuation of the State of Alaska Long-Term Care Program as of June 2019, conducted by Lewis & Ellis, Inc., the actuarial assumed net investment earnings assumption is 5.0%.

Investment Topic	Proposed Policy	Current Policy												
Investment Objective	To match the fund's assumed actuarial rate of return while minimizing risk	No Change												
Risk Tolerance	High	No Change												
Policy Risk/Loss Range	>10%	No Change												
Time Horizon	Long	No Change												
Asset Allocation	<table border="0"> <tr> <td>Broad U.S. Equity</td> <td>27% ± 5%</td> <td>19% ± 5%</td> </tr> <tr> <td>International Equity</td> <td>18% ± 5%</td> <td>12% ± 5%</td> </tr> <tr> <td>Core U.S. Fixed Income</td> <td>54% ± 5%</td> <td>69% ± 5%</td> </tr> <tr> <td>Cash Equivalents</td> <td>1% - 1%/+2%</td> <td></td> </tr> </table>	Broad U.S. Equity	27% ± 5%	19% ± 5%	International Equity	18% ± 5%	12% ± 5%	Core U.S. Fixed Income	54% ± 5%	69% ± 5%	Cash Equivalents	1% - 1%/+2%		
Broad U.S. Equity	27% ± 5%	19% ± 5%												
International Equity	18% ± 5%	12% ± 5%												
Core U.S. Fixed Income	54% ± 5%	69% ± 5%												
Cash Equivalents	1% - 1%/+2%													
Short-Term Expected Return	4.44%													
Long-Term Expected Return	5.25%	5.25%												
Expected Risk (Std. Dev.)	8.08%	6.02%												
Probability of Loss - 10 Year (CMA)	2.0%	0.3%												
Probability of Loss - 1 Year (CMA)	25.8%	19.2%												

The proposed policy is effective July 1, 2020:

*Lucinda Mahoney*

Approved

6.26.2020

Date

## State of Alaska FY2022 Asset Allocation

Asset Classes	Asset Mix Alternatives					Prior Year	Portfolio1
	1	2	3	4	5		
Broad U.S. Equity	29.9%	31.6%	33.2%	34.9%	36.3%	27%	27%
Global ex-U.S. Equity	18.6%	19.6%	20.6%	21.3%	22.7%	18%	18%
US REITS	4.2%	4.4%	4.6%	5.0%	5.0%	0%	0%
Core U.S. Fixed Income	46.2%	43.4%	40.6%	37.7%	35.0%	54%	54%
Cash Equivalents	1.0%	1.0%	1.0%	1.0%	1.0%	1%	1%
Total	100%	100%	100%	100%	100%	100%	100%
Optimization Results:							
<b>Expected Return - Long-Term</b>	<b>4.82%</b>	<b>4.96%</b>	<b>5.10%</b>	<b>5.23%</b>	<b>5.37%</b>	<b>5.25%</b>	<b>4.43%</b>
Risk - Standard Deviation	9.50%	10.00%	10.50%	11.00%	11.50%	8.08%	8.19%
Sharpe Ratio	0.40	0.40	0.39	0.38	0.38	0.53	0.42
Risk Statistics:							
<b>10% Probable Annual Loss (10% cVaR)</b>	<b>-12.0%</b>	<b>-12.7%</b>	<b>-13.5%</b>	<b>-14.2%</b>	<b>-14.9%</b>	<b>-9.7%</b>	<b>-10.1%</b>
5% Probable Annual Loss (5% cVaR)	-14.9%	-15.8%	-16.7%	-17.6%	-18.5%	-12.2%	-12.6%
Probability of Loss - 1 Year	31.1%	31.5%	31.8%	32.1%	32.4%	29.1%	30.2%
Prob. Return < -1%	27.5%	28.0%	28.5%	28.9%	29.3%	25.0%	26.1%
Prob. Return < -2%	24.1%	24.8%	25.3%	25.9%	26.4%	21.3%	22.2%
Prob. Return < -3%	21.0%	21.7%	22.4%	23.0%	23.6%	17.9%	18.8%
Prob. Return < -5%	15.4%	16.3%	17.1%	17.9%	18.6%	12.1%	12.9%
Prob. Return < -10%	6.1%	6.9%	7.7%	8.5%	9.2%	3.7%	4.1%
Prob. Return < -20%	0.5%	0.7%	0.9%	1.1%	1.4%	0.1%	0.2%
Probability of Loss - 10 Year	5.4%	5.8%	6.2%	6.6%	7.0%	2.0%	4.4%
Duration Estimate - Max of 6	5.9	5.9	5.9	5.9	5.9	5.9	5.9
Return Statistics:							
Long-Term Real Return	2.82%	2.96%	3.10%	3.23%	3.37%		2.43%
Long-Term Yield	2.47%	2.46%	2.46%	2.46%	2.46%		2.39%
Capital Gain	2.35%	2.50%	2.64%	2.77%	2.91%		2.04%
Arithmetic Return	5.20%	5.38%	5.57%	5.75%	5.93%		4.71%
Dollars: (\$Millions)							
Assets	720.1	720.1	720.1	720.1	720.1		720.1
Expected Annual Earnings	34.7	35.7	36.7	37.7	38.6		31.9
10% Probable Annual Loss (10% cVaR)	(86.4)	(91.6)	(96.9)	(102.2)	(107.5)		(72.9)

# PCE Endowment - \$1.1 Billion

## AY13: FY2021 PCE Endowment Investment Policy

AS 42.45.080(a)(2) directs the commissioner to invest in a manner likely to achieve at least a four percent nominal return over a five-year period.

On July 1 of each year, the commissioner shall determine the monthly average market value of the fund for the previous three fiscal years. Five percent of the amount determined by the commissioner, pending the governor signing legislation, may be appropriated for the fiscal year beginning the following July 1.

Investment Topic	Proposed Policy	Current Policy												
Investment Objective	Returns require relatively high exposure to principal loss in return for higher expected longer-term returns. Limited current income requirement. Limited inflation protection needed. Potential for increasing liquidity requirement.	Change Recommended												
Risk Tolerance	High	No Change												
Policy Risk/Loss Range	>10%	No Change												
Time Horizon	Intermediate	Long												
Asset Allocation	<table border="0"> <tr> <td>Broad U.S. Equity</td> <td>24% ± 5%</td> <td>41% ± 5%</td> </tr> <tr> <td>International Equity</td> <td>15% ± 5%</td> <td>27% ± 5%</td> </tr> <tr> <td>Core U.S. Fixed Income</td> <td>60% ± 5%</td> <td>32% ± 5%</td> </tr> <tr> <td>Cash Equivalents</td> <td>1% - 1%/+2%</td> <td></td> </tr> </table>	Broad U.S. Equity	24% ± 5%	41% ± 5%	International Equity	15% ± 5%	27% ± 5%	Core U.S. Fixed Income	60% ± 5%	32% ± 5%	Cash Equivalents	1% - 1%/+2%		
Broad U.S. Equity	24% ± 5%	41% ± 5%												
International Equity	15% ± 5%	27% ± 5%												
Core U.S. Fixed Income	60% ± 5%	32% ± 5%												
Cash Equivalents	1% - 1%/+2%													
Short-Term Expected Return	4.11%													
Long-Term Expected Return	5.00%	6.58%												
Expected Risk (Std. Dev.)	7.20%	12.50%												
Probability of Loss - 10 Year (CMA)	1.4%	4.8%												
Probability of Loss - 1 Year (CMA)	24.4%	29.9%												

The proposed policy is effective July 1, 2020:

*Lucinda Mahoney*

Approved

6.26.2020

Date

## State of Alaska FY2022 Asset Allocation

Asset Classes	Asset Mix Alternatives					Prior Year	Portfolio1
	1	2	3	4	5		
Broad U.S. Equity	14.5%	18.4%	22.1%	25.6%	29.0%	24%	24%
Global ex-U.S. Equity	9.0%	11.4%	13.6%	15.8%	17.8%	15%	15%
US REITS	2.4%	2.9%	3.4%	3.6%	4.0%	0%	0%
Core U.S. Fixed Income	73.0%	66.2%	60.0%	54.0%	48.2%	60%	60%
Cash Equivalents	1.0%	1.0%	1.0%	1.0%	1.0%	1%	1%
Total	100%	100%	100%	100%	100%	100%	100%
Optimization Results:							
Expected Return - Long-Term	3.36%	3.75%	4.10%	4.42%	4.72%	5.00%	4.10%
Risk - Standard Deviation	5.15%	6.15%	7.15%	8.15%	9.15%	7.20%	7.17%
Sharpe Ratio	0.46	0.45	0.43	0.42	0.41	0.56	0.43
Risk Statistics:							
10% Probable Annual Loss (10% cVaR)	-5.9%	-7.3%	-8.6%	-10.1%	-11.5%	-8.5%	-8.7%
5% Probable Annual Loss (5% cVaR)	-7.5%	-9.1%	-10.8%	-12.6%	-14.3%	-10.7%	-10.9%
Probability of Loss - 1 Year	27.2%	28.2%	29.2%	30.1%	30.9%	28.4%	29.3%
Prob. Return < -1%	21.1%	23.0%	24.6%	26.0%	27.1%	23.9%	24.7%
Prob. Return < -2%	16.0%	18.4%	20.4%	22.2%	23.6%	19.8%	20.5%
Prob. Return < -3%	11.7%	14.4%	16.7%	18.7%	20.4%	16.2%	16.7%
Prob. Return < -5%	5.7%	8.2%	10.6%	12.8%	14.8%	10.3%	10.7%
Prob. Return < -10%	0.5%	1.4%	2.6%	4.0%	5.6%	2.5%	2.6%
Prob. Return < -20%	0.0%	0.0%	0.0%	0.1%	0.4%	0.0%	0.0%
Probability of Loss - 10 Year	2.0%	2.7%	3.5%	4.3%	5.1%	1.4%	3.5%
Duration Estimate - Max of 6	5.9	5.9	5.9	5.9	5.9	5.9	5.9
Return Statistics:							
Long-Term Real Return	1.36%	1.75%	2.10%	2.42%	2.72%		2.10%
Long-Term Yield	2.48%	2.48%	2.48%	2.47%	2.47%		2.40%
Capital Gain	0.87%	1.27%	1.62%	1.95%	2.25%		1.70%
Arithmetic Return	3.47%	3.91%	4.31%	4.70%	5.07%		4.32%
Dollars: (\$Millions)							
Assets	1,129.5	1,129.5	1,129.5	1,129.5	1,129.5		1,129.5
Expected Annual Earnings	37.9	42.4	46.3	49.9	53.3		46.3
10% Probable Annual Loss (10% cVaR)	(66.7)	(81.9)	(97.6)	(113.6)	(129.8)		(97.9)

# Moderate Risk Tolerance Funds



# GeFONSI I and II – Top 60 Participants 4/30/21

GF	Fund Name	1,643,663,054 Ending Balance	Cum. %/Total
GF I	General Fund	1,014,771,775	62%
GF I	Alaska Clean Water Fund	115,670,773	69%
GF I	Alaska Drinking Water Fund	73,375,657	73%
GF I	OHSR Response Account	43,246,247	76%
GF I	Public Advocacy Trust	39,096,202	78%
GF I	Group Health & Life Benefits	26,063,854	80%
GF I	Fish and Game Fund	24,606,143	81%
GF I	RHF DB Dental, Vision, & Audio	24,461,982	83%
GF I	Mental Health Settlement Income	24,407,109	84%
GF I	AEA - Renewable Energy Grant Fund	22,390,099	86%
GF I	Vaccine Assessment	18,184,762	87%
GF I	Bulk Fuel Loan Fund	16,681,107	88%
GF I	OHSR Prevention Account	13,621,936	89%
GF I	Permanent Fund Personnel Account Trust	11,309,680	89%
GF I	Railbelt Energy Fund	11,291,716	90%
GF I	AGDC - Liquefied Natural Gas	11,100,995	91%
GF I	Exxon Valdez Settlement Trust	9,841,594	91%
GF I	Bulk Fuel Bridge Loan	8,347,478	92%
GF I	School Trust Land Sales	7,554,553	92%
GF I	Commercial Passenger Vessel Environmental Cor	6,943,667	93%
GF I	AHFC - Alaska Capital Fund	6,688,649	93%
GF I	Alaska Drinking Water Operating Account	6,621,952	93%
GF I	Memorial Education RLF	6,243,137	94%
GF I	Alaska Clean Water Operating Account	5,962,979	94%
GF I	Anchorage International Airport PFC Revenue #2	5,623,409	95%
GF I	Election Fund	5,578,929	95%
GF I	Alaska Capstone Avionics RLF	5,118,044	95%
GF I	4 Cent Per Barrel of Oil Produced Surcharge	4,619,246	95%

GF	Fund Name	1,116,985,408 Ending Balance	Cum. %/Total
GF II	Public Education Fund	154,307,447	14%
GF II	Highways Equipment Working Capital Fund	96,299,079	22%
GF II	School Construction Grant	78,374,789	29%
GF II	Community Assistance Fund	70,843,322	36%
GF II	Regional Educational Attendance Area School	64,840,432	42%
GF II	Major Maintenance Grant	56,116,212	47%
GF II	Disaster Relief Fund	53,980,782	51%
GF II	National Petroleum Reserve Fund	51,438,530	56%
GF II	Alaska Comprehensive Health Insurance Fund	50,427,794	61%
GF II	AMHS Vessel Replacement	49,957,681	65%
GF II	Commercial Fishing RLF	43,288,451	69%
GF II	Fisheries Enhancement RLF	38,242,446	72%
GF II	Deposits, Suspense, & Miscellaneous	37,860,677	76%
GF II	Statutory Budget Reserve Fund	25,901,730	78%
GF II	Alaska Capital Income Fund	25,852,320	80%
GF II	General Fund Investment Fund	23,865,336	83%
GF II	Information Services	20,326,688	84%
GF II	Alaska Public Building Fund	17,221,389	86%
GF II	Tobacco Use Education & Cessation	17,209,492	87%
GF II	Alaska Seafood Marketing Institute	15,242,236	89%
GF II	Agricultural RLF	13,536,660	90%
GF II	School Fund	12,668,502	91%
GF II	Fishermen's Fund	12,402,816	92%
GF II	State Insurance Catastrophe Reserve	11,451,571	93%
GF II	Unclaimed Property	10,600,732	94%
GF II	Alcohol & Other Drug Abuse Treatment & Preven	9,418,822	95%
GF II	Recidivism Reduction Fund	8,833,013	96%
GF II	Marijuana Education and Treatment Fund	6,867,738	96%

# GeFONSI - \$1.5 Billion

## AY01: FY2021 GeFONSI Investment Policy

The General Fund constitutes the largest element of the General Fund and Other Non-Segregated Investments (GeFONSI) fund. Much of the money in the fund has been appropriated and a material loss could affect the state's ability to fulfill its obligations. Treasury expects much of the money in the pool to be spent in less than one year. Accordingly, the allocation should allow minimal exposure to principal loss. Equities are not recommended for the GeFONSI.

Investment Topic	Proposed Policy	Current Policy
Investment Objective	Minimal exposure to principal loss. Maximize current income within moderate risk tolerance. Minimal inflation protection needed. High liquidity requirement.	No Change
Risk Tolerance	Moderate	No Change
Policy Risk/Loss Range	1 - 5%	No Change
Time Horizon	Short to Intermediate	No Change
Asset Allocation	1-3 Year Treasuries Core U.S. Fixed Income      23% ±10% Cash Equivalents              77% ±10%	17% ±10% 83% ±10%
Short-Term Expected Return	0.44%	1.91%
Long-Term Expected Return	2.38%	2.65%
Expected Risk (Std. Dev.)	1.16%	0.93%
Probability of Loss - 10 Year (CMA)	0.0%	0.0%
Probability of Loss - 1 Year (CMA)	2.0%	0.2%

The proposed policy is effective July 1, 2020:

*Lucinda Mahoney*

Approved

6.26.2020

Date

## State of Alaska FY2022 Asset Allocation

Asset Classes	Asset Mix Alternatives					Prior Year	Portfolio1
	1	2	3	4	5		
Broad U.S. Equity	0.0%	0.0%	0.0%	0.0%	0.0%	0%	0%
Global ex-U.S. Equity	0.0%	0.0%	0.0%	0.0%	0.0%	0%	0%
US REITS	0.0%	0.0%	0.0%	0.0%	0.0%	0%	0%
Core U.S. Fixed Income	6.9%	15.0%	23.0%	31.0%	39.1%	23%	23%
Cash Equivalents	93.1%	85.0%	77.0%	69.0%	60.9%	77%	77%
Total	100%	100%	100%	100%	100%	100%	100%
Optimization Results:							
Expected Return - Short-Term	0.15%	0.27%	0.38%	0.49%	0.61%	0.44%	0.38%
Risk - Standard Deviation	0.27%	0.57%	0.87%	1.17%	1.47%	1.16%	0.87%
Sharpe Ratio	0.37	0.38	0.38	0.38	0.38	0.34	0.38

## Risk Statistics:

10% Probable Annual Loss (10% cVaR)	-0.3%	-0.7%	-1.1%	-1.6%	-2.0%		-1.1%
5% Probable Annual Loss (5% cVaR)	-0.4%	-0.9%	-1.4%	-1.9%	-2.4%		-1.4%
Probability of Loss - 1 Year	28.9%	32.0%	33.1%	33.6%	34.0%	35.2%	33.1%
Prob. Return < -1%	0.0%	1.3%	5.6%	10.1%	13.7%	10.7%	5.6%
Prob. Return < -2%	0.0%	0.0%	0.3%	1.6%	3.8%	1.8%	0.3%
Prob. Return < -3%	0.0%	0.0%	0.0%	0.1%	0.7%	0.2%	0.0%
Prob. Return < -5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Prob. Return < -10%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Prob. Return < -20%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Probability of Loss - 10 Year	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%
Duration Estimate - Max of 6	0.6	1.1	1.6	2.0	2.5	1.6	1.6

## Dollars: (\$Millions)

Assets	1,511.7	1,511.7	1,511.7	1,511.7	1,511.7		1,511.7
Expected Annual Earnings	2.3	4.0	5.8	7.5	9.2		5.8
10% Probable Annual Loss (10% cVaR)	(4.9)	(11.1)	(17.3)	(23.6)	(29.8)		(17.3)

GeFONSI History	2021	2020	2019	2018	2017	2016	2015	2014	2013
Expected ST Return	0.44%	1.91%	2.38%	2.38%	2.36%	2.30%	2.30%	2.14%	2.87%
Expected Volatility	1.16%	0.93%	1.08%	1.08%	1.08%	1.08%	1.08%	1.28%	1.33%
10% cVaR	-1.60%	0.28%	0.48%	0.48%	0.46%	0.40%	0.40%	-0.11%	0.54%

# International Airport Revenue Fund - \$167 Million

## AY04: FY2021 International Airport Revenue Fund Investment Policy

The Revenue Fund maintains a significant balance and the investment earnings on that balance are a revenue source for the airport system. Airport management and airline representatives want to keep fees as stable and low as practical. Relatively stable investment earnings assist the airport system and the airlines in meeting that goal.

Beginning October 2000, the Revenue Fund contained receipts from passenger facility charges collected at the Anchorage and Fairbanks International Airports. All the airport systems' revenue and expenses flow through the Revenue Fund. This includes normal operating transactions and most repair and maintenance projects. This subjects the Revenue Fund to the possibility of relatively significant cash inflows and outflows.

Investment Topic	Proposed Policy	Current Policy
Investment Objective	Minimal exposure to principal loss. Maximize current income within moderate risk tolerance. Minimal inflation protection needed. High liquidity requirement.	No Change
Risk Tolerance	Moderate	No Change
Policy Risk/Loss Range	1 - 5%	No Change
Time Horizon	Short to Intermediate	No Change
Asset Allocation	Broad U.S. Equity International Equity Core U.S. Fixed Income 23% ±10% Cash Equivalents 77% ±10%	2% - 2%/+5% 2% - 2%/+5% 21% ±10% 75% ±10%
Short-Term Expected Return	0.44%	2.32%
Long-Term Expected Return	2.38%	3.01%
Expected Risk (Std. Dev.)	1.16%	1.23%
Probability of Loss - 10 Year (CMA)	0.0%	0.0%
Probability of Loss - 1 Year (CMA)	2.0%	0.7%

The proposed policy is effective July 1, 2020:

*Lucinda Mahoney*

Approved

6.26.2020

Date

## State of Alaska FY2022 Asset Allocation

Asset Classes	Asset Mix Alternatives					Prior Year	Portfolio1
	1	2	3	4	5		
Broad U.S. Equity	0.0%	0.0%	0.0%	0.0%	0.0%	0%	0%
Global ex-U.S. Equity	0.0%	0.0%	0.0%	0.0%	0.0%	0%	0%
US REITS	0.0%	0.0%	0.0%	0.0%	0.0%	0%	0%
Core U.S. Fixed Income	6.9%	15.0%	23.0%	31.0%	39.1%	23%	23%
Cash Equivalents	93.1%	85.0%	77.0%	69.0%	60.9%	77%	77%
Total	100%	100%	100%	100%	100%	100%	100%
Optimization Results:							
Expected Return - Short-Term	0.15%	0.27%	0.38%	0.49%	0.61%	0.44%	0.38%
Risk - Standard Deviation	0.27%	0.57%	0.87%	1.17%	1.47%	1.16%	0.87%
Sharpe Ratio	0.37	0.38	0.38	0.38	0.38	0.34	0.38

## Risk Statistics:

10% Probable Annual Loss (10% cVaR)	-0.3%	-0.7%	-1.1%	-1.6%	-2.0%		-1.1%
5% Probable Annual Loss (5% cVaR)	-0.4%	-0.9%	-1.4%	-1.9%	-2.4%		-1.4%
Probability of Loss - 1 Year	28.9%	32.0%	33.1%	33.6%	34.0%	35.2%	33.1%
Prob. Return < -1%	0.0%	1.3%	5.6%	10.1%	13.7%	10.7%	5.6%
Prob. Return < -2%	0.0%	0.0%	0.3%	1.6%	3.8%	1.8%	0.3%
Prob. Return < -3%	0.0%	0.0%	0.0%	0.1%	0.7%	0.2%	0.0%
Prob. Return < -5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Prob. Return < -10%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Prob. Return < -20%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Probability of Loss - 10 Year	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%
Duration Estimate - Max of 6	0.6	1.1	1.6	2.0	2.5	1.6	1.6

## Dollars: (\$Millions)

Assets	166.9	166.9	166.9	166.9	166.9		166.9
Expected Annual Earnings	0.3	0.4	0.6	0.8	1.0		0.6
10% Probable Annual Loss (10% cVaR)	(0.5)	(1.2)	(1.9)	(2.6)	(3.3)		(1.9)

# GeFONSI II - \$1.1 Billion

## AY3F: FY2021 GeFONSI II Investment Policy

GeFONSI II is comprised of funds that do not benefit from positive investment returns, nor bear the risk of loss in the event of negative returns. The General Fund benefits, or is harmed, by these returns. GeFONSI II is invested more aggressively than is the GeFONSI. The premise for the higher risk posture is that over the course of several years the General Fund will generate more total return, despite having a higher risk of loss in any given year.

Investment Topic	Proposed Policy	Current Policy																									
Investment Objective	Tolerate moderate exposure to principal loss to target modestly higher returns.	No Change																									
Risk Tolerance	Moderate-High	No Change																									
Policy Risk/Loss Range	5 - 10%	No Change																									
Time Horizon	Intermediate	No Change																									
Asset Allocation	<table border="0"> <tr> <td>Broad U.S. Equity</td> <td>4%</td> <td>- 4%/+5%</td> <td>4%</td> <td>- 4%/+5%</td> </tr> <tr> <td>International Equity</td> <td>3%</td> <td>- 3%/+5%</td> <td>3%</td> <td>- 3%/+5%</td> </tr> <tr> <td>1-3 Year Government</td> <td></td> <td></td> <td>31%</td> <td>±10%</td> </tr> <tr> <td>Core U.S. Fixed Income</td> <td>18%</td> <td>±10%</td> <td>9%</td> <td>± 5%</td> </tr> <tr> <td>Cash Equivalents</td> <td>75%</td> <td>±10%</td> <td>53%</td> <td>±10%</td> </tr> </table>	Broad U.S. Equity	4%	- 4%/+5%	4%	- 4%/+5%	International Equity	3%	- 3%/+5%	3%	- 3%/+5%	1-3 Year Government			31%	±10%	Core U.S. Fixed Income	18%	±10%	9%	± 5%	Cash Equivalents	75%	±10%	53%	±10%	
Broad U.S. Equity	4%	- 4%/+5%	4%	- 4%/+5%																							
International Equity	3%	- 3%/+5%	3%	- 3%/+5%																							
1-3 Year Government			31%	±10%																							
Core U.S. Fixed Income	18%	±10%	9%	± 5%																							
Cash Equivalents	75%	±10%	53%	±10%																							
Short-Term Expected Return	0.94%	2.37%																									
Long-Term Expected Return	2.78%	3.30%																									
Expected Risk (Std. Dev.)	1.47%	1.61%																									
Probability of Loss - 10 Year (CMA)	0.0%	0.0%																									
Probability of Loss - 1 Year (CMA)	3.0%	2.0%																									

The proposed policy is effective July 1, 2020:

*Lucinda Mahony*

Approved

6.26.2020

Date

## State of Alaska FY2022 Asset Allocation

Asset Classes	Asset Mix Alternatives					Prior Year	Portfolio1
	1	2	3	4	5		
Broad U.S. Equity	0.4%	2.1%	3.7%	5.4%	7.0%	4%	4%
Global ex-U.S. Equity	0.3%	1.3%	2.3%	3.3%	4.3%	3%	3%
US REITS	0.0%	0.0%	0.0%	0.0%	0.0%	0%	0%
Core U.S. Fixed Income	2.9%	14.3%	25.6%	36.9%	48.2%	18%	18%
Cash Equivalents	96.4%	82.3%	68.4%	54.4%	40.5%	75%	75%
Total	100%	100%	100%	100%	100%	100%	100%
Optimization Results:							
Expected Return - Short-Term	0.15%	0.53%	0.91%	1.28%	1.65%	0.94%	0.88%
Risk - Standard Deviation	0.17%	0.77%	1.37%	1.97%	2.57%	1.47%	1.37%
Sharpe Ratio	0.60	0.63	0.63	0.63	0.62	0.61	0.61

## Risk Statistics:

10% Probable Annual Loss (10% cVaR)	-0.1%	-0.8%	-1.5%	-2.2%	-2.9%	-1.6%	-1.5%
5% Probable Annual Loss (5% cVaR)	-0.2%	-1.1%	-1.9%	-2.8%	-3.7%	-2.1%	-1.9%
Probability of Loss - 1 Year	18.5%	24.4%	25.3%	25.8%	26.0%	26.1%	26.0%
Prob. Return < -1%	0.0%	2.3%	8.2%	12.3%	15.1%	9.3%	8.5%
Prob. Return < -2%	0.0%	0.0%	1.7%	4.8%	7.8%	2.3%	1.8%
Prob. Return < -3%	0.0%	0.0%	0.2%	1.5%	3.5%	0.4%	0.2%
Prob. Return < -5%	0.0%	0.0%	0.0%	0.1%	0.5%	0.0%	0.0%
Prob. Return < -10%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Prob. Return < -20%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Probability of Loss - 10 Year	0.0%	0.0%	0.0%	0.1%	0.4%	0.0%	0.0%
Duration Estimate - Max of 6	0.5	1.3	2.1	2.9	3.7	1.7	1.7

## Dollars: (\$Millions)

Assets	1,130.3	1,130.3	1,130.3	1,130.3	1,130.3	1,130.3
Expected Annual Earnings	1.7	6.0	10.3	14.5	18.7	10.0
10% Probable Annual Loss (10% cVaR)	(1.7)	(9.2)	(16.9)	(24.6)	(32.3)	(17.3)

GeFONSI II History	2021	2020	2019	2018
Expected ST Return	0.94%	2.37%	3.38%	3.38%
Expected Volatility	1.47%	1.61%	2.63%	2.58%
10% cVaR	-1.64%	-0.46%	-1.24%	-1.15%

# State Asset Allocation Last Steps

- Further evaluate the general fund, GeFONSI and other participants with respect to time horizon and downside risk tolerance.
- Based on the analysis, consider creating additional GeFONSI funds with both lower and higher risk profiles.
- Prepare operationally for the addition of REITs, tactical bonds, and the potential for TIPS.
- Late June – Commissioner considers full set of investment policies and asset allocations for adoption.

Fund - Account	Assets (3/31/21)	Risk Tolerance	Policy 1yr Risk/Loss
Short-Term Funds	\$ 185,223,794	Low	<1%
CBRF - AY19	\$ 1,072,513,755	Low	<1%
GeFONSI - AY01	\$ 1,511,675,030	Moderate	1-5%
International Airport - AY04	\$ 166,873,218	Moderate	1-5%
GeFONSI II - AY3F	\$ 1,130,349,110	Moderate-High	5-10%
PCE Endowment - AY13	\$ 1,129,508,106	High	>10%
Retiree LTC - AY11	\$ 720,097,451	High	>10%
Public School Trust Fund - AY08	\$ 798,805,257	High	>10%
AK Higher Education - AY3L	\$ 396,214,113	High	>10%
Illinois Creek Mine - AY9J	\$ 1,395,778	High	>10%
Education Endowment - AY3G	\$ 568,084	High	>10%
Total	\$ 7,113,223,696		

**Questions?**



THE STATE  
*of* **ALASKA**  
GOVERNOR MIKE DUNLEAVY

# State Investment Review Meeting

## Rebalancing Process

**May 2021**

**Steve Sikes, CFA, CPA**  
**State Investment Officer**

# Rebalancing

- Define “Rebalancing”
- Current Rebalancing Policy
- Dimensions of Rebalancing
- Implementation

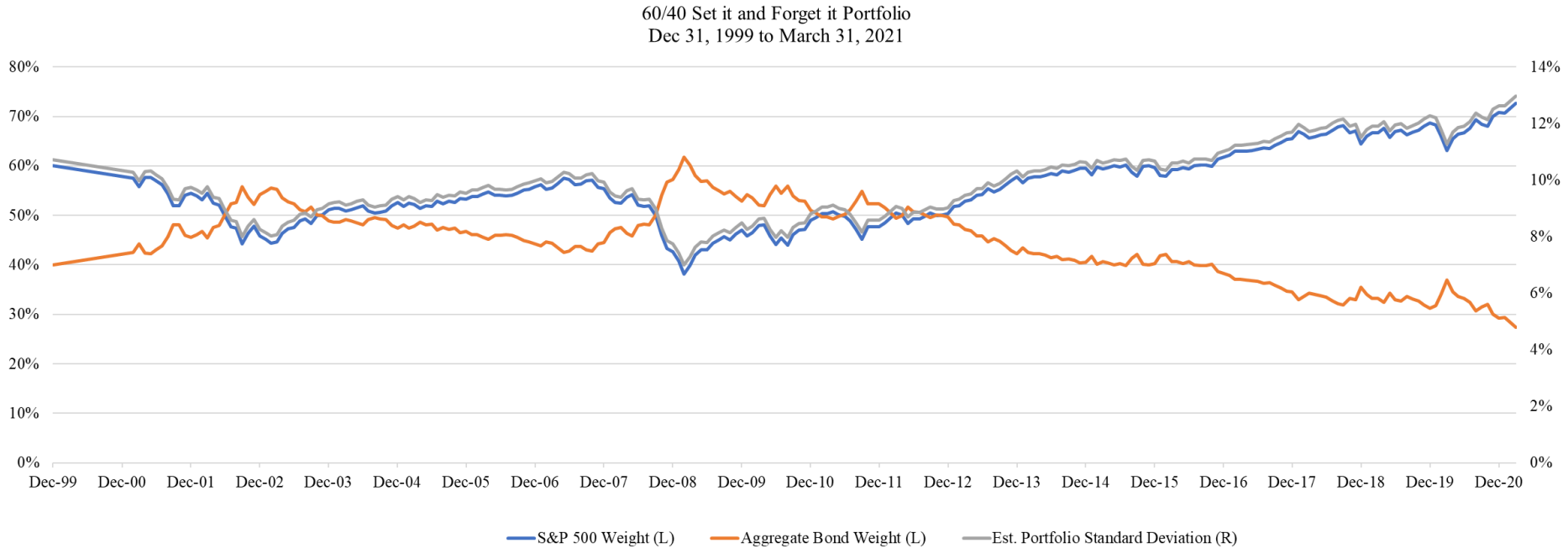


## What is “Rebalancing”

- Rebalancing is an internal control process in which portfolios are adjusted over time to keep investment exposures within target asset allocations approved by fiduciaries.
- Portfolios require rebalancing over time as actual asset allocations drift from policy target asset allocations due to:
  - External cash flows (cash flows in or out of a fund) – “Cash Flow Rebalancing”
  - Relative performance between asset classes – “Investment Rebalancing”
- Without rebalancing, portfolios will drift over time outside of risk tolerance levels.
- State funds are rebalanced by engaging in open market transactions and/or by engaging in internal pool rebalancing in which ownership of investment pools is rebalanced to minimize transaction costs.

# What is “Rebalancing”

- The primary goal of rebalancing is to maintain risk/return profile of portfolio as markets move over time.



# Rebalancing Policy

## Treasury Division Investment Policies and Procedures, Appendix AI

- CIO has discretion to rebalance within approved asset allocation bands.
- Rebalancing offers both risk control and return enhancement as it naturally encourages an appealing “buy low, sell high” philosophy.

### Rebalance Policy

It shall be the policy of the Treasury Division that all funds managed on behalf of the Commissioner of Revenue be invested in accordance with the asset allocation for that fund most recently approved by the Commissioner.

Except for incidental amounts of cash, all investments in pooled funds are to be maintained within the percentage range of investment approved by the Commissioner. Dividend and interest income may exceed the percentage range when awaiting transfer to an income account.

The Chief Investment Officer may rebalance investments within the bands approved by the Commissioner when, in the judgement of the Chief Investment Officer, rebalancing will improve investment returns or lower volatility.

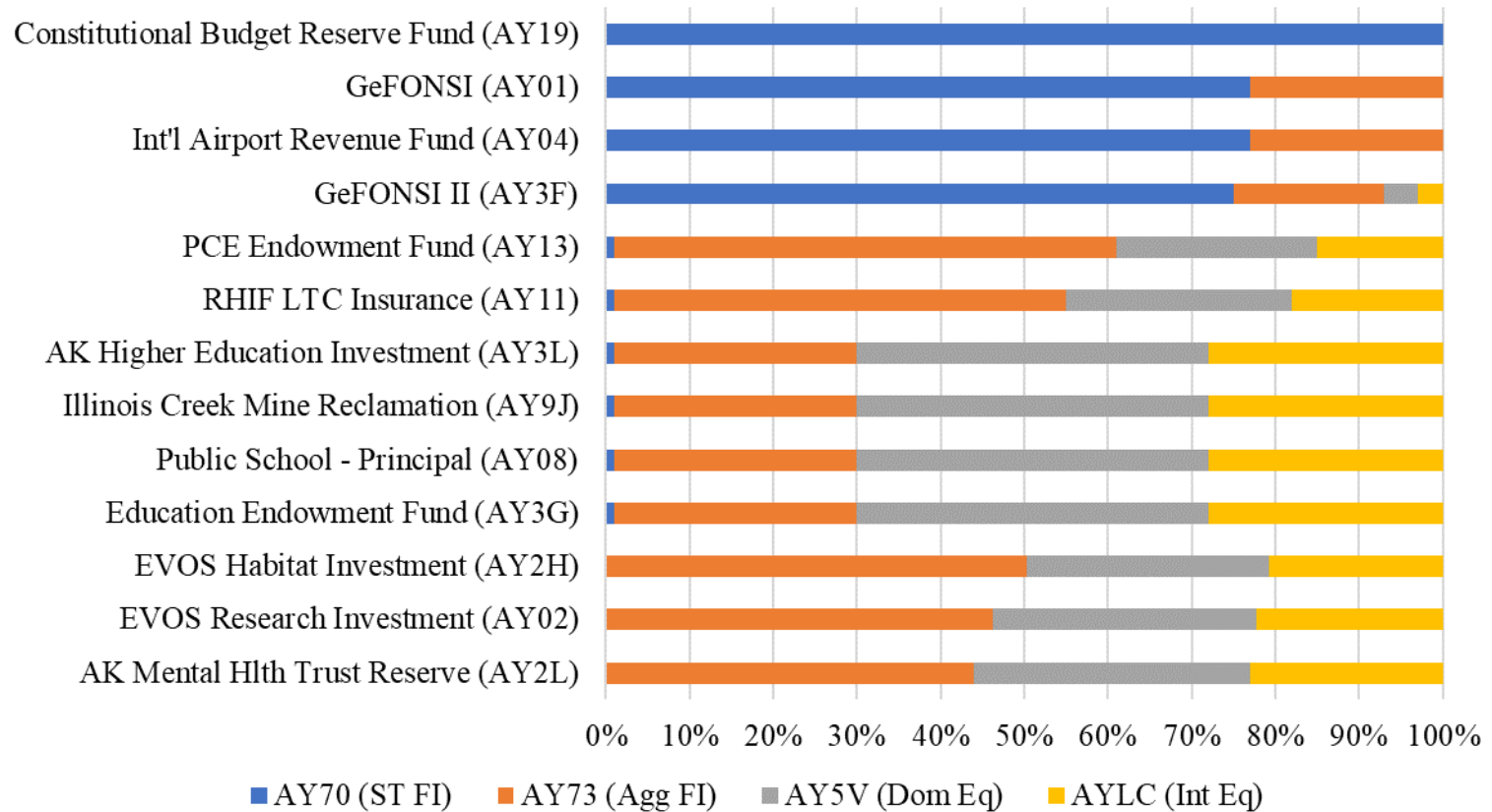
Approved for inclusion in Department of Revenue Policy Book

  
William Corbus

10/31/03  
Date

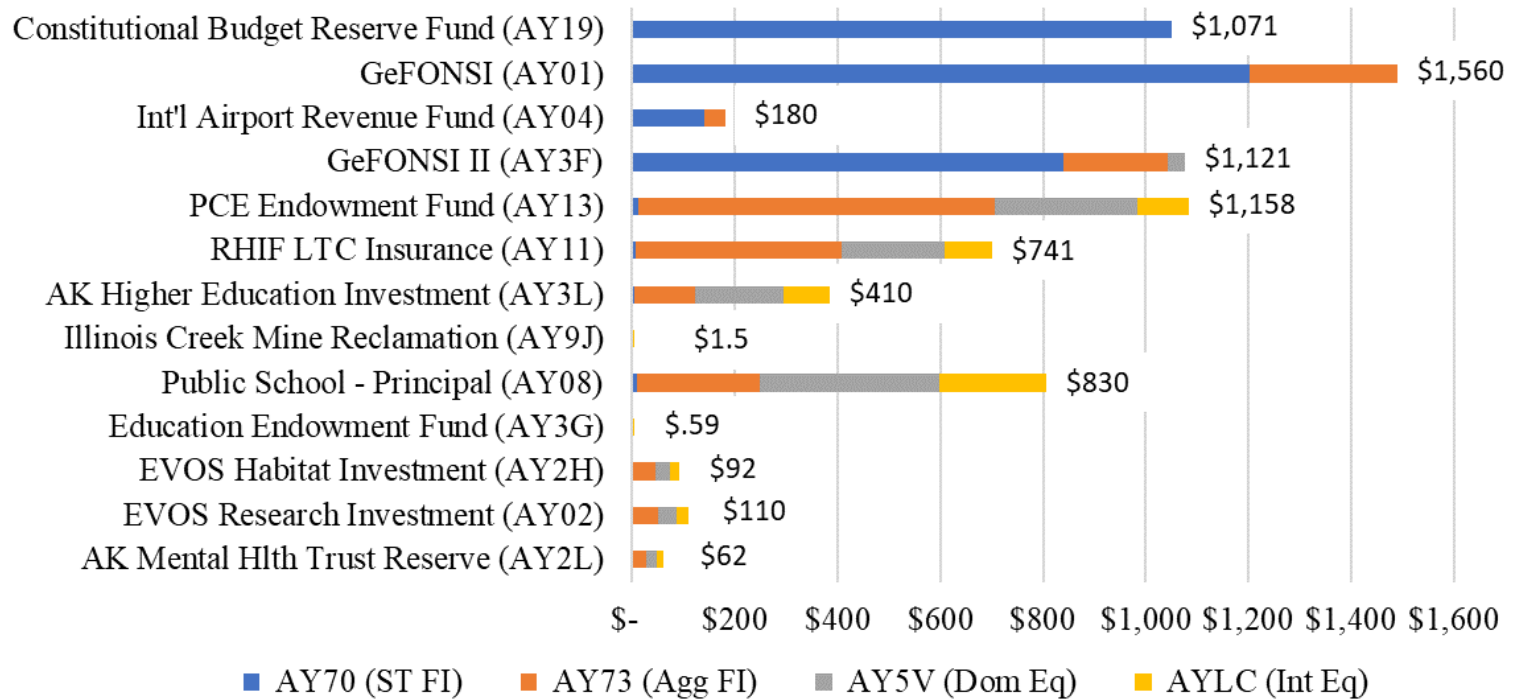
# The Dimensions of Rebalancing

State Fund FY 2021 Asset Allocations by %



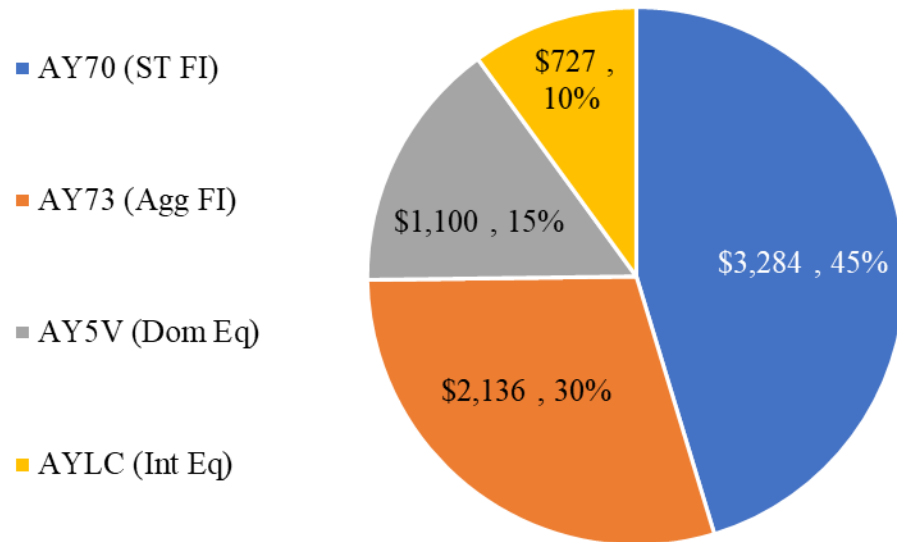
# The Dimensions of Rebalancing

State Funds Target Allocation by \$ Size  
as of April 30, 2021 (\$millions)



# The Dimensions of Rebalancing

Investment Pools at Target Allocation Size (\$millions)  
as of April 30, 2021

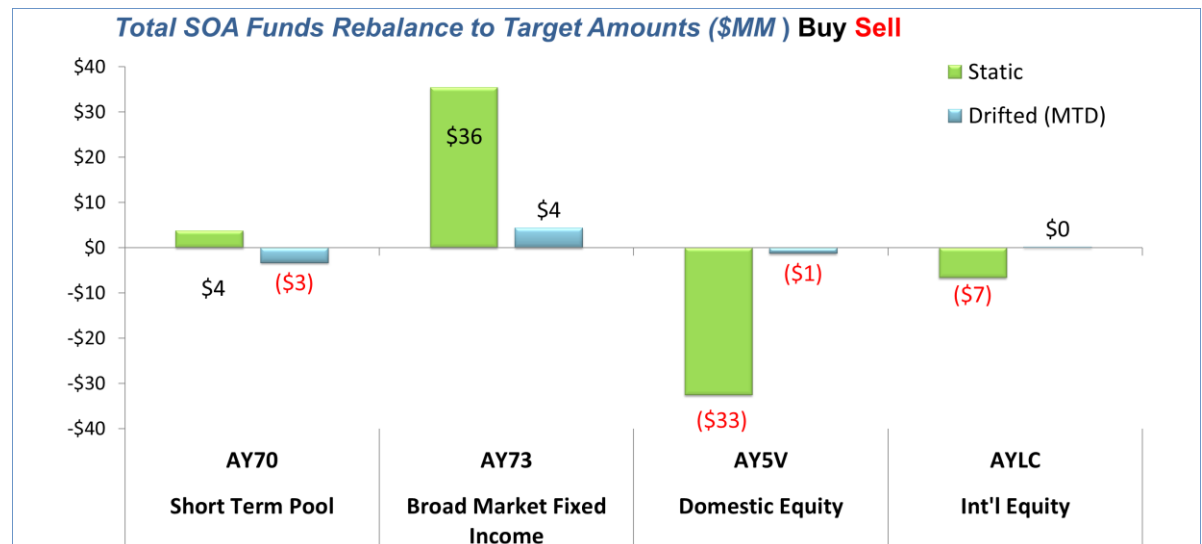


# How we Rebalance

- All State funds are reviewed daily by portfolio staff to check compliance with approved asset allocations.
- Cash Flow Rebalancing – Major cash flows are forecasted to plan portfolio adjustments.
  - Example: Periodic APFC transfers to State General Fund
  - Portfolios are managed to drifted asset allocation intra-month
- Investment Rebalancing – State funds are rebalanced to static target asset allocations at month-end

FY21 APFC to GF transfer schedule

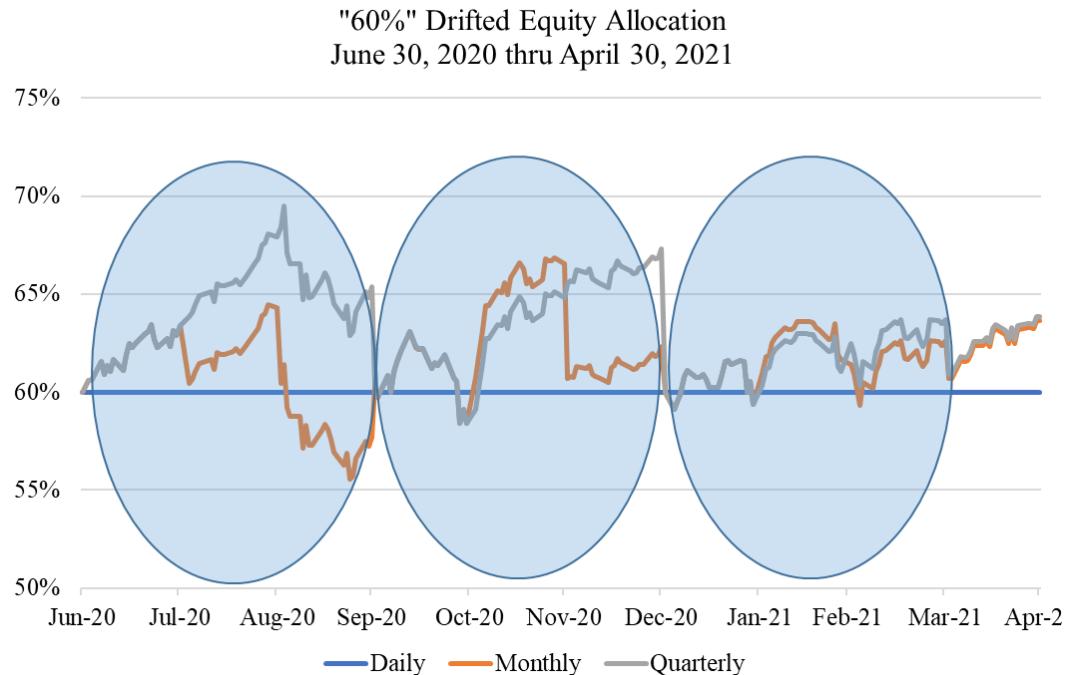
August 13, 2020	300,000,000
September 14, 2020	400,000,000
October 15, 2020	400,000,000
November 12, 2020	450,000,000
January 14, 2021	450,000,000
March 12, 2021	300,000,000
April 27, 2021	300,000,000
June 24, 2021	491,492,927
<b>Appropriation Total</b>	<b>3,091,492,927</b>



Rebalancing requirement April 30, 2021

## Static vs. Drifted Asset Allocation

- While absolute portfolio risk management is an important goal of rebalancing, relative risk management from a tracking error standpoint is also important.
- Tracking error management is directly tied to benchmark reset specification. A blended “60/40” portfolio will be very different depending on whether the 60/40 weights are reset daily, monthly, or quarterly.
- Using drifted asset allocation targets allows us to manage overall portfolio risk in the context of tracking error risk intra-month.





# Internal Pool Rebalancing

- Managing the State investments through investment pools creates efficiency not only at the portfolio construction level but also for rebalancing.
- Prior to engaging in open market transactions, we evaluate whether the ownership of investment pools can be rebalanced internally to improve the risk return profile of the funds collectively.
- Most often the ultimate month-end rebalancing solution involves both a layer of internal pool rebalancing and open market transactions.

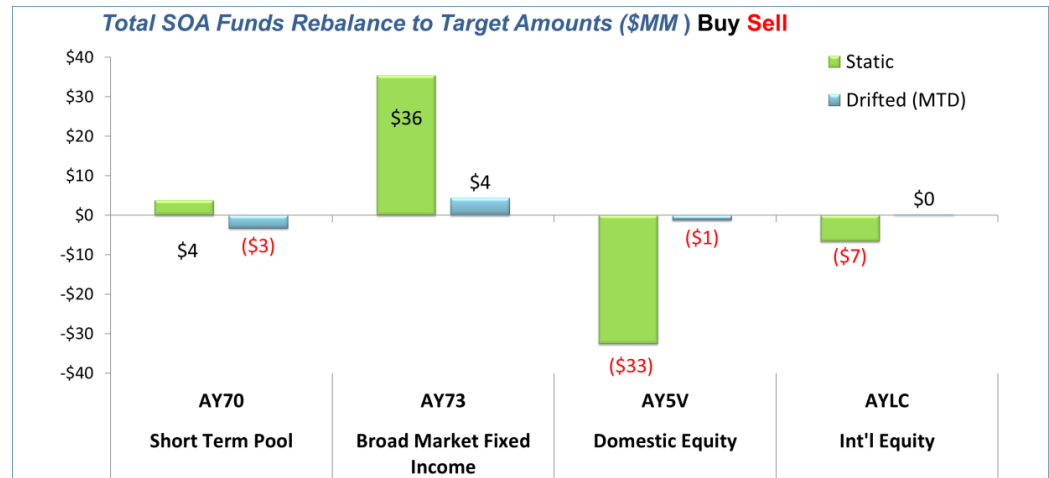
Static (for month-end)	Short Term Pool AY70	Med-Term Fixed Income AY72	Broad Market Fixed Income AY73	Domestic Equity AYSV	Int'l Equity AYLC	Total	AY70 Balance	Ending Market Value
<b>Buys &amp; (Sells) needed to get to target</b>								
GeFONSI (AY01)	\$ (3,291,509.67)	\$ -	\$ 3,291,509.67	\$ -	\$ -	\$ -	1,204,617,524.04	1,560,163,655.02
GeFONSI II (AY3F)	\$ 6,028,840.82	\$ -	\$ (1,800,343.27)	\$ (2,976,041.02)	\$ (1,252,456.53)	\$ -	834,809,749.14	1,121,118,119.95
Constitutional Budget Reserve Fund (AY19)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	1,071,349,431.77	1,071,349,431.77
Statutory Budget Reserve (AY3E)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	-
<b>AK Higher Education Investment (AY3L)</b>	\$ 1,074,836.85	\$ -	\$ 3,307,744.96	\$ (3,959,596.06)	\$ (422,985.76)	\$ -	3,024,899.59	409,973,644.43
Illinois Creek Mine Reclamation (AY9J)	\$ 687.60	\$ -	\$ 12,554.51	\$ (12,681.56)	\$ (560.55)	\$ -	13,810.82	1,449,841.55
RHIF LTC Insurance (AY11)	\$ 540,043.10	\$ -	\$ 7,640,461.57	\$ (6,513,848.70)	\$ (1,666,655.96)	\$ -	6,877,637.72	741,768,081.65
Int'l Airport Revenue Fund (AY04)	\$ (683,587.04)	\$ -	\$ 683,587.04	\$ -	\$ -	\$ -	139,927,730.03	180,836,549.34
Public School - Principal (AY08)	\$ 244,577.67	\$ -	\$ 7,247,159.18	\$ (7,182,293.92)	\$ (309,442.94)	\$ -	8,057,721.10	830,229,877.48
PCE Endowment Fund (AY13)	\$ 387,117.95	\$ -	\$ 11,802,346.97	\$ (9,674,705.11)	\$ (2,514,759.81)	\$ -	11,190,019.22	1,157,713,716.88
Endowment Education (AY3G)	\$ 281.09	\$ -	\$ 5,143.93	\$ (5,192.77)	\$ (232.25)	\$ -	5,619.79	590,087.70
<b>Total State Discretionary</b>	\$ 4,301,288.37	\$ -	\$ 32,190,164.57	\$ (30,324,359.14)	\$ (6,167,093.80)	\$ -	\$ 3,279,874,143.22	\$ 7,075,193,005.77
AK Mental Hlth Trust Reserve (AY2L)	\$ (123,882.38)	\$ -	\$ 777,170.42	\$ (550,169.30)	\$ (103,118.74)	\$ -	123,882.38	61,911,692.58
EVOS Research Investment (AY02)	\$ (220,168.41)	\$ -	\$ 1,389,346.16	\$ (966,743.09)	\$ (202,434.66)	\$ -	220,168.41	109,902,396.20
EVOS Habitat Investment (AY2H)	\$ (184,519.32)	\$ -	\$ 1,168,373.53	\$ (793,267.59)	\$ (190,586.62)	\$ -	184,519.32	91,954,984.18
<b>Total State Non-Discretionary</b>	\$ (528,570.11)	\$ -	\$ 3,334,890.11	\$ (2,310,173.98)	\$ (496,140.01)	\$ -	\$ 528,570.11	\$ 263,769,072.96
<b>Total State</b>	\$ 3,772,718.26	\$ -	\$ 35,525,054.68	\$ (32,634,539.12)	\$ (6,663,233.81)	\$ -	\$ 3,280,402,713.33	\$ 7,338,962,078.73

External open market trades required to adjust investment pool sizes

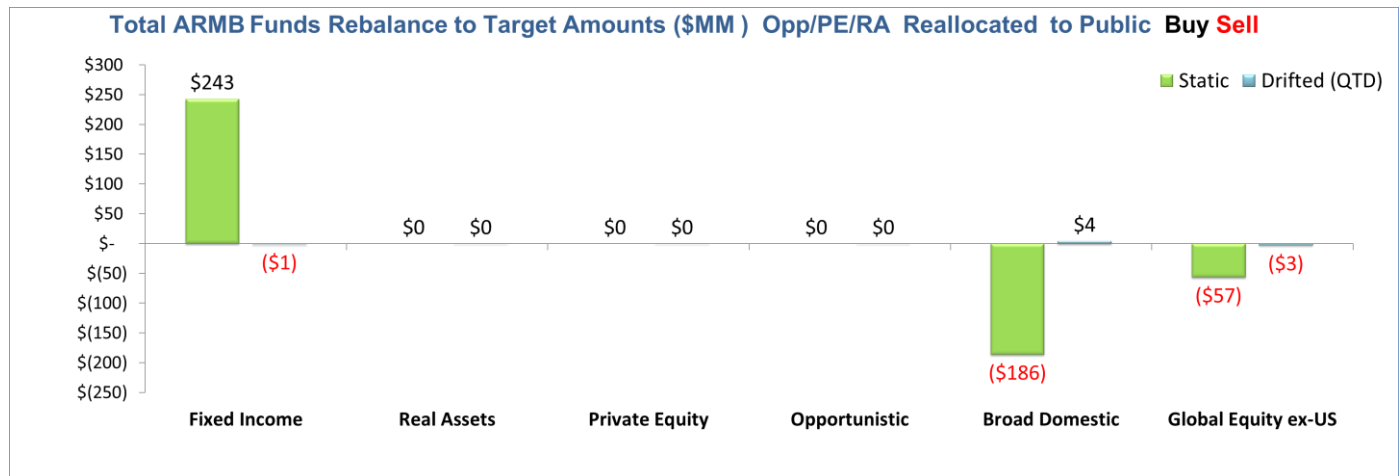
Internal pool rebalancing is performed to identify internal crossing opportunities based on pro rata targets.

# Rebalance Planning

- The asset allocation rebalancing dashboard provides a decision-making framework at any point in time.
- Green = size of rebalancing trades required if wanting to adjust to static target asset allocation (month-end).
- Blue = size of rebalancing trades required if wanting to adjust to drifted target asset allocation (intra-month).



ARMB chart maps illiquid asset classes to liquid asset classes to facilitate rebalancing and management of broad beta exposure.



## Rebalance Timing – Monthly or Quarterly

Recommend moving the State rebalancing cycle from monthly to quarterly.

- Consistent with ARMB, which rebalances quarterly.
- Reduces frequency of trading and therefore transaction costs.
- Tilts more toward momentum – winners keep winning.
- But also disciplined – sell high, buy low at quarterly intervals.
- Current policy appears to be based on a monthly benchmarking reset convention which can be changed.
- Even with quarterly investment rebalancing, funds will be managed daily to drifted target asset allocations and corrective action will initiate if funds fall out of asset allocation bands.
- Regular cycle maintains protection against emotional influence.
- Consistent with research – less frequent is generally better although can vary depending on time period and market direction.

## Rebalancing Timing – Research

- Research on rebalancing is mixed in terms of best approach. Very dependent on time period studied and what objective function is tied to:
  - Overall volatility
  - Tracking error
  - Transaction cost
- Consistent conclusion appears to be “it doesn’t matter precisely how you do it, just as long as you do it.”
- Rebalanced portfolios generally have a higher Sharpe Ratio than buy and hold portfolios.
- Many different approaches:
  - Timing based – monthly, quarterly
  - % changed based – 5%, 10%
  - Hybrid – “monthly, if  $>5\%$ ”
  - Volatility threshold based
- Can get very complex. Simplicity is also important.

# Rebalancing Timing – Callan

- Callan Research from 2000:
- Over 30 years, various disciplined approaches produced superior Sharpe Ratios over buy and hold.
- Best approach depended on time period.
- The 70s and 90s suggested wider rebalancing ranges were superior while the 80s suggested a tighter, more frequent rebalancing was better.
- Not surprisingly, all disciplined rebalancing approaches had much lower maximum equity exposure.

**Table 1: Asset Class Rebalancing over the Long Term**

First Quarter 1970 to First Quarter 2000								Rebalancing Ranges			
Strategy	# Times Rebalanced	Return Base T-Cost	Risk (Std. Dev.)	Sharpe Ratio	Minimum Equity	Maximum Equity	Average Equity	US Lrg	US Small	Non-US Eq	U.S. Fixed
Buy And Hold	0	12.14%	11.84%	0.457	49%	83%	66%	n/a	n/a	n/a	n/a
Annually	30	12.00%	11.10%	0.475	53%	68%	61%	n/a	n/a	n/a	n/a
Quarterly	121	11.98%	11.04%	0.475	53%	65%	60%	n/a	n/a	n/a	n/a
25% Std Dev	100	11.99%	11.04%	0.476	53%	65%	60%	1%	0%	0%	1%
50% Std Dev	60	12.02%	11.03%	0.479	53%	65%	60%	3%	1%	1%	2%
75% Std Dev	39	12.11%	11.03%	0.488	53%	65%	61%	4%	1%	1%	3%
100% Std Dev	32	12.14%	11.03%	0.490	53%	65%	60%	6%	1%	1%	4%
125% Std Dev	22	12.18%	11.04%	0.493	53%	66%	61%	7%	1%	1%	5%
150% Std Dev	15	12.07%	11.04%	0.483	50%	66%	61%	9%	2%	2%	6%

**Table 2: Asset Class Rebalancing in the 1970s**

First Quarter 1970 to Fourth Quarter 1979								Rebalancing Ranges			
Strategy	# Times Rebalanced	Return Base T-Cost	Risk (Std. Dev.)	Sharpe Ratio	Minimum Equity	Maximum Equity	Average Equity	US Lrg	US Small	Non-US Eq	U.S. Fixed
Buy And Hold	0	7.13%	11.18%	0.073	49%	61%	57%	n/a	n/a	n/a	n/a
Annually	10	7.57%	11.90%	0.106	53%	66%	60%	n/a	n/a	n/a	n/a
Quarterly	40	7.52%	11.95%	0.101	54%	65%	60%	n/a	n/a	n/a	n/a
25% Std Dev	33	7.54%	11.95%	0.103	54%	65%	60%	1%	0%	0%	1%
50% Std Dev	20	7.54%	11.90%	0.103	53%	65%	60%	3%	1%	1%	2%
75% Std Dev	14	7.65%	11.93%	0.112	53%	65%	60%	4%	1%	1%	3%
100% Std Dev	10	7.72%	11.90%	0.119	53%	65%	60%	6%	1%	1%	4%
125% Std Dev	9	7.64%	11.91%	0.111	53%	65%	61%	7%	1%	1%	5%
150% Std Dev	8	7.76%	11.92%	0.121	53%	65%	60%	9%	2%	2%	6%

**Table 3: Asset Class Rebalancing in the 1980s**

First Quarter 1980 to Fourth Quarter 1989								Rebalancing Ranges			
Strategy	# Times Rebalanced	Return Base T-Cost	Risk (Std. Dev.)	Sharpe Ratio	Minimum Equity	Maximum Equity	Average Equity	US Lrg	US Small	Non-US Eq	U.S. Fixed
Buy And Hold	0	17.67%	12.64%	0.695	58%	74%	66%	n/a	n/a	n/a	n/a
Annually	10	17.57%	12.10%	0.718	54%	68%	61%	n/a	n/a	n/a	n/a
Quarterly	40	17.62%	11.89%	0.735	53%	64%	60%	n/a	n/a	n/a	n/a
25% Std Dev	32	17.65%	11.90%	0.736	53%	65%	60%	1%	0%	0%	1%
50% Std Dev	20	17.75%	11.92%	0.744	53%	65%	60%	3%	1%	1%	2%
75% Std Dev	11	17.66%	11.87%	0.739	53%	65%	60%	4%	1%	1%	3%
100% Std Dev	7	17.60%	12.02%	0.725	54%	65%	60%	6%	1%	1%	4%
125% Std Dev	5	17.66%	12.08%	0.726	55%	65%	60%	7%	1%	1%	5%
150% Std Dev	5	17.78%	12.01%	0.740	53%	67%	60%	9%	2%	2%	6%

**Table 4: Asset Class Rebalancing in the 1990s**

First Quarter 1990 to Fourth Quarter 1999								Rebalancing Ranges			
Strategy	# Times Rebalanced	Return Base T-Cost	Risk (Std. Dev.)	Sharpe Ratio	Minimum Equity	Maximum Equity	Average Equity	US Lrg	US Small	Non-US Eq	U.S. Fixed
Buy And Hold	0	13.33%	9.64%	0.857	54%	75%	62%	n/a	n/a	n/a	n/a
Annually	10	12.56%	9.06%	0.828	54%	65%	61%	n/a	n/a	n/a	n/a
Quarterly	40	12.50%	9.05%	0.821	55%	64%	60%	n/a	n/a	n/a	n/a
25% Std Dev	32	12.52%	9.06%	0.823	55%	64%	60%	1%	0%	0%	1%
50% Std Dev	21	12.55%	9.07%	0.825	56%	64%	60%	3%	1%	1%	2%
75% Std Dev	15	12.52%	9.04%	0.825	56%	64%	61%	4%	1%	1%	3%
100% Std Dev	13	12.56%	9.07%	0.826	56%	64%	61%	6%	1%	1%	4%
125% Std Dev	10	12.55%	8.99%	0.832	54%	63%	61%	7%	1%	1%	5%
150% Std Dev	7	12.59%	9.02%	0.833	54%	65%	61%	9%	2%	2%	6%

Source: Callan; Disciplined Rebalancing: Friend or Foe? August 2000

# Rebalancing Timing – Callan

- Callan Research update from 2008:
- Similar results from 2000 work.
- Disciplined process produces better Sharpe Ratio than buy and hold.
- Quarterly has slightly better Sharpe Ratio than monthly for period studied.
- Volatility threshold rebalancing which Callan used doesn't recognize tracking error.

Exhibit 4 Quarterly Data from 1/1/80 to 9/30/08

STRATEGY	# Times Rebalanced	Return Base	Risk (Std. Dev.)	Sharpe Ratio	Minimum Equity	Maximum Equity	Average Equity	REBALANCING RANGES			
								U.S. Large Cap Equity	U.S. Small Cap Equity	Non-U.S. Equity	U.S. Fixed
Buy And Hold	0	10.39%	12.14%	0.354	58%	82%	71%	n/a	n/a	n/a	n/a
Annually	29	10.66%	10.58%	0.432	51%	68%	60%	n/a	n/a	n/a	n/a
Quarterly	115	10.63%	10.57%	0.430	53%	64%	60%	n/a	n/a	n/a	n/a
25% Std Dev	80	10.62%	10.58%	0.429	53%	65%	60%	1.0%	1.0%	1.0%	1.0%
50% Std Dev	66	10.65%	10.58%	0.432	53%	65%	60%	3.0%	1.0%	2.0%	1.0%
75% Std Dev	45	10.72%	10.59%	0.437	53%	65%	60%	4.0%	1.0%	3.0%	2.0%
100% Std Dev	27	10.73%	10.59%	0.439	53%	65%	61%	5.0%	2.0%	4.0%	3.0%
125% Std Dev	19	10.69%	10.61%	0.433	52%	66%	61%	6.0%	2.0%	5.0%	4.0%
150% Std Dev	18	10.68%	10.65%	0.431	52%	66%	61%	8.0%	3.0%	6.0%	4.0%

Exhibit 6 Monthly Data from 1/1/80 to 9/30/08

STRATEGY	# Times Rebalanced	Return Base	Risk (Std. Dev.)	Sharpe Ratio	Minimum Equity	Maximum Equity	Average Equity	REBALANCING RANGES			
								U.S. Large Cap Equity	U.S. Small Cap Equity	Non-U.S. Equity	U.S. Fixed
Buy And Hold	0	10.39%	12.14%	0.354	58%	74%	65%	n/a	n/a	n/a	n/a
Annually	29	10.66%	10.58%	0.432	51%	68%	60%	n/a	n/a	n/a	n/a
Monthly	345	10.54%	10.58%	0.422	54%	62%	60%	n/a	n/a	n/a	n/a
25% Std Dev	150	10.60%	10.57%	0.427	54%	62%	60%	1.0%	1.0%	1.0%	1.0%
50% Std Dev	64	10.63%	10.60%	0.429	54%	63%	60%	3.0%	1.0%	2.0%	2.0%
75% Std Dev	52	10.71%	10.61%	0.436	54%	64%	60%	4.0%	1.0%	3.0%	3.0%
100% Std Dev	36	10.67%	10.60%	0.432	55%	64%	60%	5.0%	2.0%	4.0%	3.0%
125% Std Dev	21	10.65%	10.60%	0.431	53%	65%	61%	7.0%	2.0%	4.0%	4.0%
150% Std Dev	19	10.73%	10.55%	0.441	54%	66%	61%	8.0%	2.0%	5.0%	5.0%

Source: Callan: Rebalancing in a Time of Extreme Volatility, November 2008

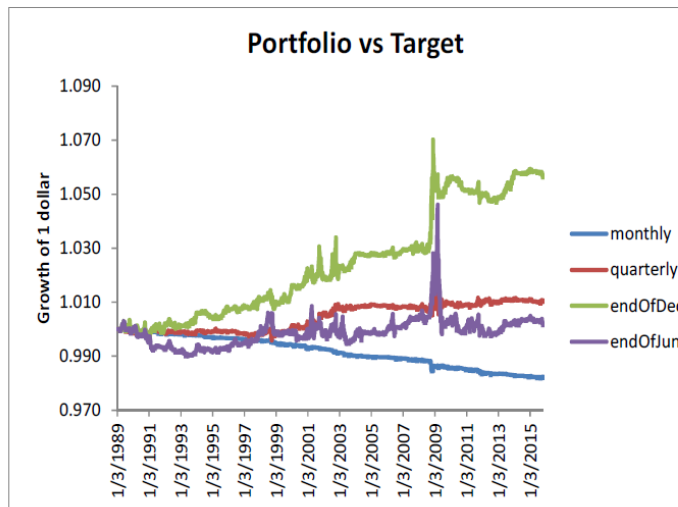


# Rebalancing Timing – Fidelity

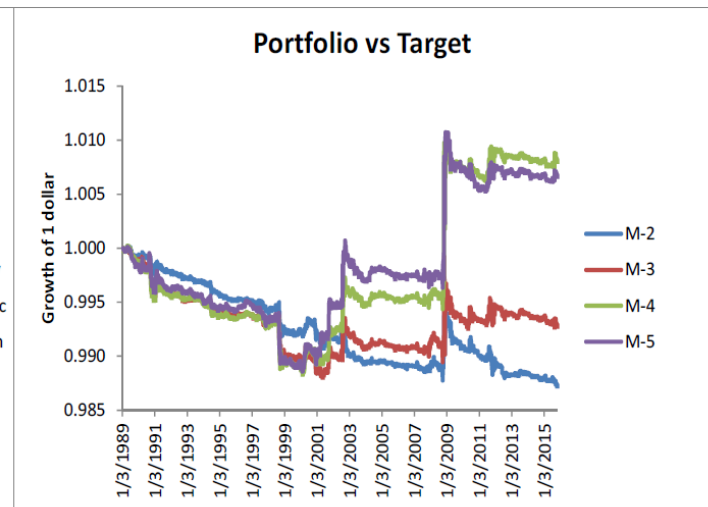
## Simple Timing and Frequency Tests

- Monthly, delta agnostic, time-based rebalancing produced the worst results of all tests conducted
- Less frequent rebalancing has improved performance relative to more frequent rebalancing – (i.e., monthly vs quarterly) – exhibit 3
- Assuming trading all the way back to benchmark weight avoiding month-end(M) is preferable with M-4 being better than M-3 or M-2 - exhibit 4

**Exhibit 3: Comparison of calendar-based rebalancing**



**Exhibit 4: Comparison of anticipatory month-end rebalancing dates**

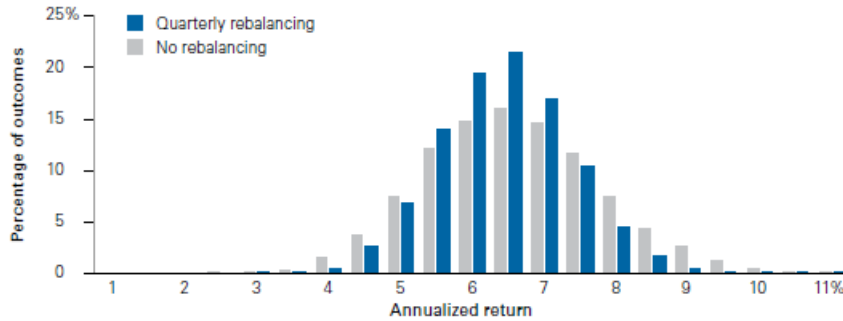


Source: Fidelity GAA Rebalancing Study 2016

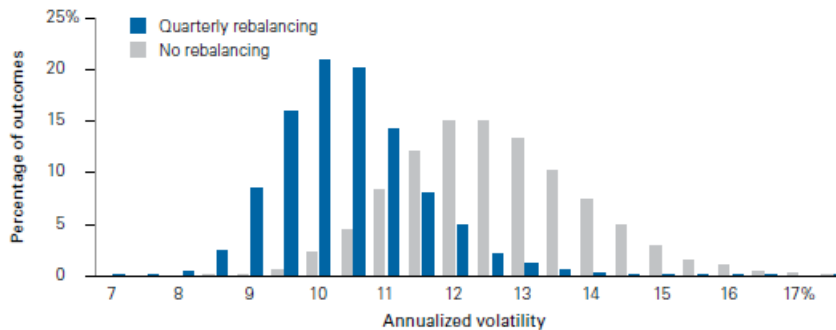
# Rebalancing Timing – Vanguard

Figure 2. Rebalancing typically improves risk-adjusted returns

a. A rebalanced portfolio generally exhibits a tighter return distribution



b. A nonrebalanced portfolio is typically more volatile



Rebalancing tends to increase a portfolio's Sharpe ratio, improving risk-adjusted returns.

Source: Vanguard: Getting back on track: A guide to smart rebalancing 2019



# Rebalancing Timing – Vanguard

Figure 4. Any reasonable rebalancing strategy beats not rebalancing at all

Monitoring frequency	Strategy/threshold	Tax-adjusted annualized return	Annualized volatility	Sharpe ratio	Average equity allocation	Rebalancing events (tax lots)
Never	NA	8.74%	14.0%	0.46	85%	0
Monthly	Avoid short-term gains	8.19%	11.7%	0.50	60%	1,107
	0%	8.20%	11.7%	0.50	60%	1,116
	1%	8.20%	11.7%	0.50	60%	426
	5%	8.22%	11.8%	0.50	61%	58
	10%	8.39%	11.8%	0.51	62%	24
Quarterly	0%	8.26%	11.6%	0.51	60%	372
	1%	8.26%	11.6%	0.51	60%	233
	5%	8.31%	11.6%	0.51	61%	47
	10%	8.26%	11.7%	0.50	62%	19
Annually	0%	8.19%	11.4%	0.51	60%	93
	1%	8.19%	11.4%	0.51	60%	83
	5%	8.19%	11.4%	0.51	61%	34
	10%	8.20%	11.6%	0.50	63%	14

Notes: Return data cover January 1, 1926, through December 31, 2018. The "avoid short-term gains" strategy avoids selling at a gain any securities that have been owned for less than a year and are thus subject to ordinary income tax rates. The "strategy/threshold" column indicates that the portfolio was rebalanced to target if the asset allocation had strayed from it by more than the specified percentage when monitored.

Source: Vanguard.

Source: Vanguard: Getting back on track: A guide to smart rebalancing 2019

# Recommendation

Change rebalancing implementation from monthly to quarterly cycle.

Questions?

**State of Alaska**  
**Department of Revenue**

State Investment Review 2021 Meeting Schedule

Remaining meetings for 2021

**August 25, 2021 (Teleconference)**

1. June 30, 2021 Performance
2. Final Asset Allocation Review

**October 27, 2021 (Teleconference)**

1. September 30, 2021 Performance
2. TBD

*All meetings are scheduled for 10:00 a.m. to Noon.*

**Potential Discussion Topics:**

- Performance Analytics
- Endowment-Oriented Accounts, Asset Allocation, and Spending Policy
- Positioning for inflation
- What are reasonable investment objectives?