



## City of Stamford Custodians & Mechanics Pension

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### Portfolio Update - April 2023

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# 2023-2042 Twenty-Year Outlook



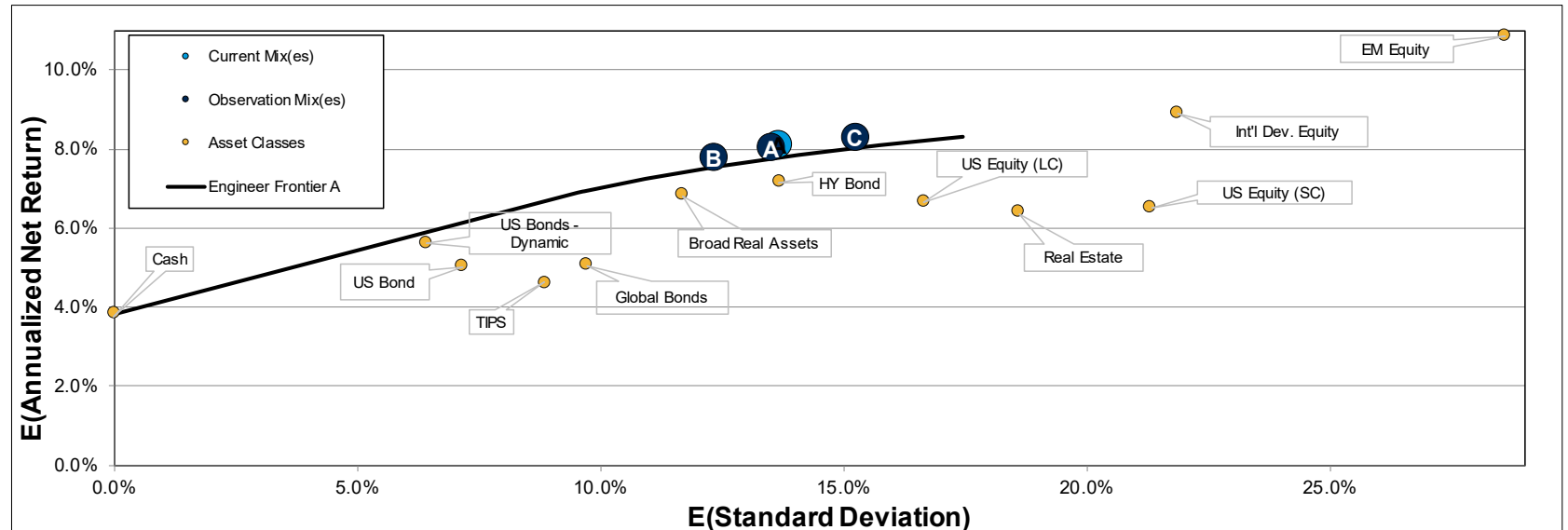
		2023	2022	Y / Y Change	
Fixed Income	<p>The 2022 pull back in fixed income was painful, but it has also sowed the seeds for opportunity going forward. Yields across many fixed income sectors are multiple times higher from year-end 2021 producing greater opportunity for meaningfully higher returns in the years to come.</p> <p>Additionally, the diversifying principles of fixed income with recharged yields makes owning fixed income and duration more compelling than it was in 2022 and doing so may add to portfolio resiliency going forward.</p>	U.S. Bonds	5.0%	2.4%	2.6%
		TIPS	4.6%	2.1%	2.5%
		Dynamic Bonds <sup>1</sup>	5.6%	2.8%	2.8%
		High Yield Bonds	7.1%	5.6%	1.5%
		Global Bonds	5.1%	2.2%	2.9%
		Muni Bond <sup>2</sup>	5.8%	2.1%	3.7%
		Muni High Yield	9.9%	5.6%	4.3%
Global Equity	<p>Our global equity outlook has improved, bolstered by more attractive valuations. U.S. valuations are near averages relative to history while International and Emerging Markets remains more attractive, but with elevated risks.</p>	U.S. All Cap	6.7%	6.8%	-0.1%
		Intl Developed Equity	8.9%	8.6%	0.3%
		Emerging Markets	10.8%	10.5%	0.3%
Real Assets & Alternatives	<p>A continued bid for inflationary assets and more attractive valuations across some subsets of assets contributed to higher forecasts.</p> <p>The opportunity set for marketable alternatives rose with more attractive valuations in both global equities and fixed income.</p>	Real Estate	6.4%	6.3%	0.1%
		Broad Real Assets <sup>3</sup>	6.8%	5.6%	1.2%
		Marketable Alts	8.1%	6.8%	1.3%
		Private Equity	9.7%	9.8%	-0.1%

1) Dynamic bonds are a blend of 33% Cash, 33% Corp HY, and 34% Global Bonds. 2) Tax Equivalent yield based on highest marginal Federal tax rate (37%). 3) Broad Real Assets is 20% REITS, 20% Global Infrastructure, 20% Commodities, 20% US Bonds, 15% Corp High Yield, 5% TIPS Outputs and opinions are as of the date referenced and are subject to change based on market or economic conditions. Information is intended for general information purposes only and does not represent any specific investment recommendation. Please consult with your advisor, attorney and accountant, as appropriate, regarding specific advice. There is no guarantee that any of these expectations will become actual results. For additional information on forecast methodologies, please speak with your advisor. Please see Index Proxy Summary slide at the end of this presentation for summary of indices used to represent each asset class. Past performance does not indicate future performance and there is a possibility of a loss. Please see the Frontier Engineer Hypothetical Performance Disclosures at the end of the presentation for additional information.

# Frontier Engineer® Analysis



12/31/2022	Asset Allocation															Forecasts				Past (1/88-12/22)		
	Fixed Income	Equity	Real Assets	Alternatives	Cash	TIPS	US Bond	US Bonds - Dynamic	HY Bond	Global Bonds	US Equity (LC)	US Equity (SC)	Int'l Dev. Equity	EM Equity	Real Estate	Broad Real Assets	Annualized Net Return	Annualized Volatility	Normal 100 Year Flood*	Non-Normal 100 Year Flood**	Annualized Net Return	Annualized Volatility
<b>Current Mix (A)</b>	27%	69%	5%				18%	9%			26%	11%	22%	10%		5%	8.1%	13.7%	-23%	-31%	8.3%	11.2%
Observation Mix (A)	27%	65%	9%			2%	15%	5%	3%	2%	27%	11%	18%	9%	4%	5%	8.0%	13.5%	-22%	-30%	8.6%	11.1%
Observation Mix (B)	35%	57%	8%			3%	20%	7%	3%	3%	24%	10%	16%	8%	4%	4%	7.8%	12.3%	-20%	-26%	8.3%	10.1%
Observation Mix (C)	15%	77%	9%			1%	9%	3%	2%	1%	31%	14%	22%	11%	4%	5%	8.3%	15.2%	-26%	-35%	8.9%	12.7%



\*The expected one in a hundred worst case calendar year return based on normally distributed capital market assumptions. Greater losses are possible (1% expected likelihood).

\*\*The expected one in a hundred worst case calendar year return based on non-normally distributed capital market assumptions (factoring in skewness & kurtosis). Greater losses are possible (1% expected likelihood).

Historical Returns and Risk Metrics for each Mix represent back-tested calculations developed with the benefit of hindsight. Return calculations use an asset-weighted methodology based on the target asset allocation of each mix and the total return of index proxies used to represent each asset class and are net of fees. Historical returns are hypothetical and do not represent returns earned by a client. It is not possible to invest in an index. Please see the Frontier Engineer Hypothetical Performance Disclosures at the end of the presentation for additional information, including index proxies used to represent each asset class. Please ask for a copy of Fiducient Advisors' white paper titled 10-Year Capital Market Forecasts. Past performance does not indicate future performance and it is possible to lose money when investing. Please refer to the Capital Markets Assumptions Slide for the hypothetical alpha and hypothetical fee inputs used in the calculation methodology.

## Implemented Portfolio Changes



<b>Stamford Custodians &amp; Mechanics Pension</b>		
<b>Investment Name</b>	<b>Year-End Target Allocation</b>	<b>Current Target Allocation</b>
<i>Cash</i>		
Cash	0.0%	0.0%
<i>Fixed Income</i>		
	<b>25.0%</b>	<b>25.0%</b>
Fidelity Inflation Protected Bond Index Fund	0.0%	2.0%
Metropolitan West Total Return Bond Fund PI	16.5%	13.5%
BlackRock Strategic Income Opportunities Fund K	8.5%	5.0%
Artisan High Income Fund Adv	0.0%	2.5%
BrandywineGLOBAL Global Opps Bond Fund IS	0.0%	2.0%
<i>Domestic Equity</i>		
	<b>35.0%</b>	<b>35.0%</b>
Fidelity Total Market Index Fund	35.0%	35.0%
<i>International Equity</i>		
	<b>30.0%</b>	<b>26.0%</b>
Fidelity Total International Index Fund	2.0%	2.0%
Vanguard International Value Fund Inv	14.0%	12.0%
Vanguard International Growth Fund Adm	14.0%	12.0%
<i>Multi-Asset</i>		
	<b>5.0%</b>	<b>5.0%</b>
GMO Global Balanced Asset Allocation Fund	5.0%	5.0%
<i>Real Assets</i>		
	<b>5.0%</b>	<b>9.0%</b>
Cohen & Steers Instl Realty Shares Fund*	0.0%	4.0%
DWS RREEF Real Assets Fund R6	5.0%	5.0%
<b>Investment Portfolio Total</b>	<b>100.0%</b>	<b>100.0%</b>

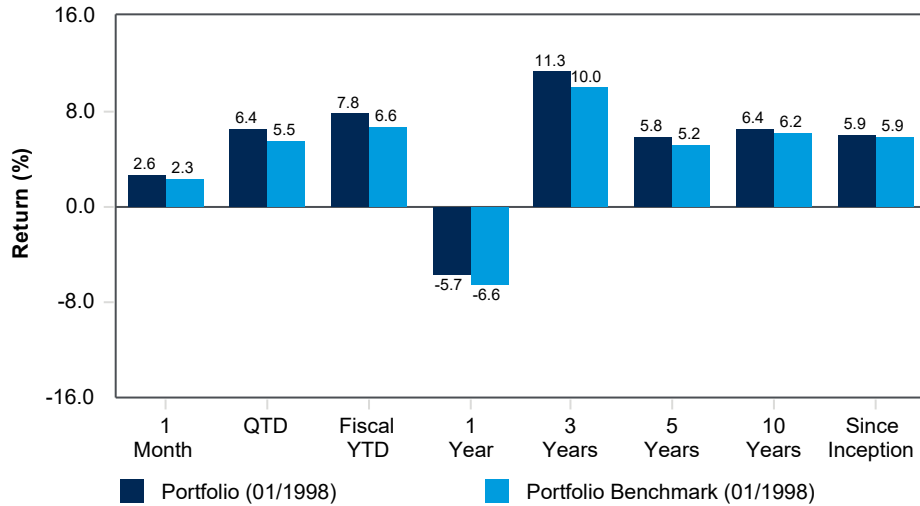
\*Cohen & Steers Instl Realty Shares implementation is ½ complete.

# Portfolio Dashboard

City of Stamford C&M

As of March 31, 2023

## Historical Performance



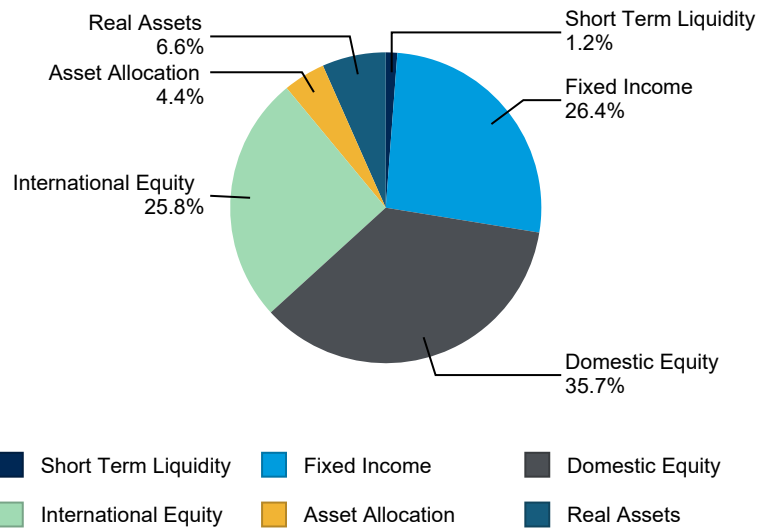
## Summary of Cash Flows

	1 Month	QTD	Fiscal YTD	1 Year
Beginning Market Value	90,746,641	87,938,759	85,913,862	98,993,600
Net Contributions	-211,699	-700,816	291,386	-406,977
Gain/Loss	2,359,705	5,656,704	6,689,399	-5,691,976
Ending Market Value	92,894,647	92,894,647	92,894,647	92,894,647

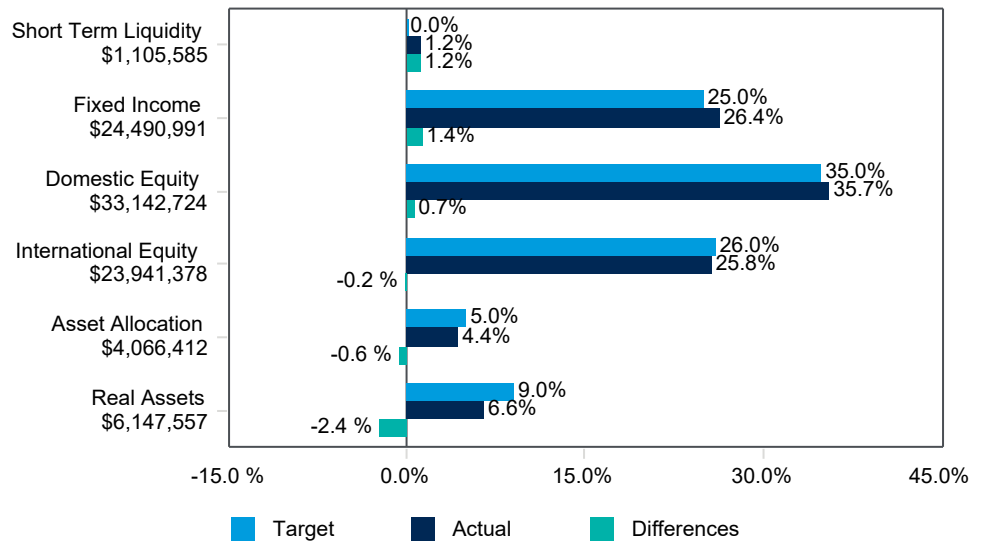
## Current Benchmark Composition

From Date	To Date	Composition
03/2023	Present	25.00% Blmbg. U.S. Aggregate, 35.00% Dow Jones U.S. Total Stock Market Index, 26.00% MSCI AC World ex USA (Net), 5.00% GMO Global Balanced Asset Allocation Index, 4.00% FTSE NAREIT All Equity REITs, 5.00% DWS Real Assets Benchmark

## Portfolio Allocation



## Actual vs. Target Allocations



# Asset Allocation

City of Stamford C&M

As of March 31, 2023

	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)	Differences (%)
<b>City of Stamford C&amp;M</b>	<b>92,894,647</b>	<b>100.0</b>	<b>100.0</b>	<b>0.0</b>
<b>Short Term Liquidity</b>	<b>1,105,585</b>	<b>1.2</b>	<b>0.0</b>	<b>1.2</b>
Allspring Government Money Market	1,105,585	1.2	0.0	1.2
<b>Fixed Income</b>	<b>24,490,991</b>	<b>26.4</b>	<b>25.0</b>	<b>1.4</b>
Fidelity Inflation Protected Bond Index	1,894,965	2.0	2.0	0.0
Metropolitan West Total Return Bond PI	12,807,016	13.8	13.5	0.3
BlackRock Strategic Income Opportunities Fund K	5,359,145	5.8	5.0	0.8
Artisan High Income Fund Adv	2,446,781	2.6	2.5	0.1
BrandywineGLOBAL Global Opportunities Bd IS	1,983,084	2.1	2.0	0.1
<b>Domestic Equity</b>	<b>33,142,724</b>	<b>35.7</b>	<b>35.0</b>	<b>0.7</b>
Fidelity Total Market Index Fund	33,142,724	35.7	35.0	0.7
<b>International Equity</b>	<b>23,941,378</b>	<b>25.8</b>	<b>26.0</b>	<b>-0.2</b>
Fidelity Total International Index Fund	1,723,442	1.9	2.0	-0.1
Vanguard International Value Inv	10,980,236	11.8	12.0	-0.2
Vanguard International Growth Adm	11,237,700	12.1	12.0	0.1
<b>Asset Allocation</b>	<b>4,066,412</b>	<b>4.4</b>	<b>5.0</b>	<b>-0.6</b>
GMO Global Asset Allocation III	4,066,412	4.4	5.0	-0.6
<b>Real Assets</b>	<b>6,147,557</b>	<b>6.6</b>	<b>9.0</b>	<b>-2.4</b>
Cohen & Steers Instl Realty Shares	1,728,016	1.9	4.0	-2.1
DWS RREEF Real Assets Fund R6	4,419,541	4.8	5.0	-0.2

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# Disclosures



# Historical Annual Total Return

Annualized net returns as of 12/31/2022	Fixed Income	Equity	Real Assets	Alternatives	Past 3 Months (Not Annualized)	1-Year Return	3-Year Return	5-Year Return	7-Year Return	10-Year Return	15-Year Return	20-Year Return	25-Year Return	30-Year Return	35-Year Return
Current Mix (A)	27%	69%	5%	0%	8.4%	-14.8%	2.6%	4.2%	6.7%	6.6%	5.3%	7.9%	6.6%	7.6%	8.3%
Observation Mix (A)	27%	65%	9%		8.0%	-15.5%	2.7%	4.3%	6.8%	6.8%	5.6%	8.1%	6.8%	7.9%	8.6%
Observation Mix (B)	35%	57%	8%		7.3%	-15.0%	2.3%	4.0%	6.3%	6.3%	5.4%	7.7%	6.6%	7.6%	8.3%
Observation Mix (C)	15%	77%	9%		9.0%	-16.2%	3.3%	4.8%	7.6%	7.6%	5.8%	8.6%	7.0%	8.2%	8.9%
Cash	100%				0.9%	1.5%	0.7%	1.2%	1.0%	0.7%	0.6%	1.2%	1.8%	2.3%	2.9%
TIPS	100%				2.0%	-11.8%	1.2%	2.1%	2.6%	1.1%	3.1%	3.8%	4.8%	5.0%	5.8%
US Bond	100%				1.9%	-13.0%	-2.7%	0.0%	0.9%	1.1%	2.7%	3.1%	4.0%	4.6%	5.4%
US Bonds - Dynamic	100%				2.0%	-7.0%	-0.5%	1.4%	2.5%	2.2%	3.3%	4.0%	4.0%	4.7%	5.5%
For. Dev. Bond	100%				2.4%	-17.6%	-5.9%	-2.1%	-0.2%	-0.2%	1.5%	2.6%	3.3%	4.2%	4.6%
Global Bonds	100%				4.5%	-16.2%	-4.5%	-1.7%	0.1%	-0.4%	1.5%	2.7%	3.3%	4.0%	5.0%
HY Bond	100%				4.2%	-11.2%	0.0%	2.3%	5.0%	4.0%	6.1%	7.3%	5.9%	6.8%	7.5%
EM Bond	100%				8.5%	-11.7%	-6.1%	-2.5%	1.6%	-2.0%	1.5%	4.9%	5.7%	6.9%	7.6%
Global Equity		100%			9.9%	-18.0%	4.5%	5.8%	8.7%	8.5%	5.4%	8.6%	6.4%	7.8%	7.7%
US Equity (AC)		100%			7.2%	-19.2%	7.1%	8.8%	11.0%	12.1%	8.7%	9.9%	7.7%	9.6%	10.5%
US Equity (LC)		100%			7.6%	-18.1%	7.7%	9.4%	11.5%	12.6%	8.8%	9.8%	7.6%	9.6%	10.5%
US Equity (MC)		100%			9.2%	-17.3%	5.9%	7.1%	9.6%	11.0%	8.4%	10.8%	9.0%	10.5%	11.4%
US Equity (SC)		100%			6.2%	-20.4%	3.1%	4.1%	7.9%	9.0%	7.2%	9.4%	7.1%	8.6%	9.5%
Non-US Equity (ACWI)		100%			14.4%	-15.6%	0.5%	1.4%	5.3%	4.3%	2.0%	7.2%	5.2%	6.2%	5.6%
Int'l Dev. Equity		100%			17.4%	-14.0%	1.3%	2.0%	5.0%	5.2%	2.3%	6.9%	4.9%	6.0%	5.4%
EM Equity		100%			9.8%	-19.7%	-2.3%	-1.0%	5.6%	1.8%	1.0%	9.1%	6.2%	6.4%	9.5%
Real Estate			100%		4.1%	-24.9%	0.2%	4.4%	5.6%	7.1%	6.6%	9.4%	8.2%	9.8%	9.8%
Broad Real Assets			100%		7.3%	-9.9%	1.7%	3.0%	5.2%	3.5%	4.0%	7.2%	6.8%	6.4%	5.6%
Marketable Alternatives				100%	1.6%	-5.3%	3.7%	3.0%	3.3%	3.5%	1.7%	3.6%	3.9%	5.3%	6.9%
Private Equity				100%	0.0%	0.0%	9.8%	11.6%	11.8%	12.8%	10.2%	12.6%	13.0%	15.1%	14.4%

<sup>1</sup>The expected one in a hundred worst case calendar year return based on normally distributed capital market assumptions. Greater losses are possible (1% expected likelihood).

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# Calendar Year Total Return

Calendar Net Year Returns	Fixed Income	Equity	Real Assets	Alternatives	YTD 12/31/2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988
Current Mix (A)	27%	69%	5%	0%	-15%	12%	13%	21%	-6%	18%	9%	-2%	5%	17%	14%	-2%	14%	29%	-30%	10%	18%	10%	14%	29%	-9%	-5%	-6%	20%	11%	13%	12%	20%	1%	21%	5%	26%	-7%	23%	20%
Observation Mix (A)	27%	65%	9%		-15%	13%	13%	22%	-6%	17%	9%	-2%	6%	16%	14%	-1%	15%	30%	-30%	9%	18%	9%	15%	30%	-8%	-4%	-4%	18%	10%	14%	13%	20%	1%	21%	6%	28%	-7%	22%	19%
Observation Mix (B)	35%	57%	8%		-15%	12%	12%	20%	-5%	16%	9%	-1%	6%	14%	14%	0%	14%	27%	-27%	8%	17%	8%	14%	27%	-7%	-3%	-3%	16%	10%	14%	12%	20%	1%	19%	6%	27%	-5%	21%	18%
Observation Mix (C)	15%	77%	9%		-16%	15%	14%	24%	-7%	20%	10%	-2%	6%	20%	16%	-3%	16%	32%	-34%	9%	20%	10%	16%	33%	-12%	-6%	-7%	22%	10%	15%	14%	21%	1%	23%	6%	29%	-9%	24%	21%
Cash	100%				2%	0%	1%	2%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	2%	5%	5%	3%	1%	1%	2%	4%	6%	5%	5%	5%	5%	6%	4%	3%	4%	6%	8%	9%	7%
TIPS	100%				-12%	6%	11%	8%	-1%	3%	5%	-1%	4%	-9%	7%	14%	6%	11%	-2%	12%	0%	3%	8%	8%	17%	8%	13%	2%	4%	3%	4%	18%	-3%	10%	7%	16%	9%	15%	8%
US Bond	100%				-13%	-2%	8%	9%	0%	4%	3%	1%	6%	-2%	4%	8%	7%	6%	5%	7%	4%	2%	4%	4%	10%	8%	12%	-1%	9%	10%	4%	18%	-3%	10%	7%	16%	9%	15%	8%
US Bonds - Dynamic	100%				-7%	1%	5%	8%	1%	4%	7%	-1%	3%	2%	7%	4%	7%	19%	-7%	4%	7%	3%	6%	10%	3%	6%	3%	3%	6%	9%	8%	14%	0%	10%	9%	21%	1%	15%	8%
For. Dev. Bond	100%				-18%	-6%	8%	7%	1%	6%	3%	-2%	4%	-2%	4%	5%	4%	3%	9%	8%	5%	-2%	9%	10%	14%	1%	4%	-1%	15%	3%	8%	19%	1%	14%	6%	14%	9%	0%	6%
Global Bonds	100%				-16%	-5%	9%	7%	-1%	7%	2%	-3%	1%	-3%	4%	6%	6%	7%	5%	9%	7%	-4%	9%	13%	17%	2%	3%	-5%	14%	4%	5%	20%	0%	11%	6%	16%	-11%	15%	8%
HY Bond	100%				-11%	5%	7%	14%	-2%	8%	17%	-4%	2%	7%	16%	5%	15%	58%	-26%	2%	12%	3%	11%	29%	-1%	5%	-6%	2%	2%	13%	11%	19%	-1%	17%	16%	46%	-10%	1%	13%
EM Bond	100%				-12%	-9%	3%	13%	-6%	15%	10%	-15%	-6%	-9%	17%	-2%	16%	22%	-5%	18%	15%	6%	23%	17%	14%	10%	13%	20%	-8%	11%	38%	27%	-19%	17%	16%	46%	-10%	1%	13%
Global Equity		100%			-18%	19%	17%	27%	-9%	25%	8%	-2%	5%	23%	17%	-7%	13%	35%	-42%	12%	22%	11%	16%	35%	-19%	-16%	-14%	27%	22%	15%	13%	19%	5%	25%	-4%	20%	-16%	18%	24%
US Equity (AC)		100%			-19%	26%	21%	31%	-5%	21%	13%	0%	13%	34%	16%	1%	17%	28%	-37%	5%	16%	6%	12%	31%	-22%	-11%	-7%	21%	24%	32%	22%	37%	0%	11%	10%	34%	-5%	29%	18%
US Equity (LC)		100%			-18%	29%	18%	31%	-4%	22%	12%	1%	14%	32%	16%	2%	15%	26%	-37%	5%	16%	5%	11%	29%	-22%	-12%	-9%	21%	29%	33%	23%	38%	1%	10%	8%	30%	-3%	32%	17%
US Equity (MC)		100%			-17%	23%	17%	31%	-9%	19%	14%	-2%	13%	35%	17%	-2%	25%	40%	-41%	6%	15%	13%	20%	40%	-16%	-6%	8%	18%	10%	29%	19%	34%	-2%	14%	16%	42%	-11%	26%	20%
US Equity (SC)		100%			-20%	15%	20%	26%	-11%	15%	21%	-4%	5%	39%	16%	-4%	27%	27%	-34%	-2%	18%	5%	18%	47%	-20%	2%	-3%	21%	-3%	22%	16%	28%	-2%	19%	18%	46%	-19%	16%	25%
Non-US Equity (ACWI)		100%			-16%	8%	11%	22%	-14%	28%	5%	-5%	-3%	16%	17%	-13%	12%	42%	-45%	17%	27%	17%	21%	41%	-15%	-19%	-15%	31%	14%	2%	7%	10%	7%	35%	-11%	14%	-23%	12%	28%
Int'l Dev. Equity		100%			-14%	12%	8%	23%	-13%	26%	2%	0%	-4%	23%	18%	-12%	8%	32%	-43%	12%	27%	14%	21%	39%	-16%	-21%	-14%	27%	20%	2%	6%	12%	8%	33%	-12%	12%	-23%	11%	29%
EM Equity		100%			-20%	-2%	19%	19%	-14%	38%	12%	-15%	-2%	-2%	19%	-18%	19%	79%	-53%	40%	33%	35%	26%	56%	-6%	-2%	-31%	66%	-25%	-12%	6%	-5%	-7%	75%	11%	60%	-11%	65%	40%
Real Estate			100%		-25%	41%	-5%	29%	-4%	9%	9%	3%	28%	3%	20%	8%	28%	28%	-38%	-16%	35%	12%	32%	37%	4%	14%	26%	-5%	-18%	20%	35%	15%	3%	20%	15%	36%	-15%	9%	13%
Broad Real Assets			100%		-10%	15%	1%	17%	-6%	11%	11%	-10%	5%	4%	14%	3%	15%	33%	-28%	11%	23%	10%	20%	23%	12%	2%	15%	3%	-5%	4%	8%	6%	2%	3%	2%	4%	-6%	1%	4%
Marketable Alternatives				100%	-5%	6%	11%	8%	-4%	8%	1%	0%	3%	9%	5%	-6%	6%	11%	-21%	10%	10%	7%	7%	12%	1%	3%	4%	26%	-5%	16%	14%	11%	-3%	26%	12%	14%	18%	23%	19%
Private Equity				100%	0%	0%	32%	16%	13%	16%	9%	8%	15%	23%	12%	12%	18%	10%	-20%	18%	25%	21%	22%	14%	-16%	-21%	10%	125%	21%	32%	33%	32%	14%	23%	14%	14%	4%	9%	9%

Historical Returns for each Mix based on back-tested return calculations developed with the benefit of hindsight. Return calculations use an asset-weighted methodology based on the target asset allocation of each mix and the total return of index proxies used to represent each asset class and are net of fees. Historical returns used are hypothetical and do not represent returns earned by a client. It is not possible to invest in an index. Please see the Frontier Engineer Hypothetical Performance Disclosures at the end of the presentation for additional information, including index proxies used to represent each asset class. For additional information on forecast methodologies, please ask for a copy of Fiducient Advisors' white paper titled 10-Year Capital Market Forecasts. Past performance does not indicate future performance and it is possible to lose money when investing.



# Capital Market Assumptions

Return & Risk Assumptions (Forecasts)	Arithmetic Return	Geometric Return	Standard Deviation	Skewness	Kurtosis
Cash	3.8%	3.8%	0.0%	0	0
TIPS	5.0%	4.6%	8.9%	-0.86	4.83
US Bond	5.3%	5.0%	7.2%	-0.65	1.95
US Bonds - Dynamic	5.8%	5.6%	6.4%	-1.01	6.58
HY Bond	8.1%	7.1%	13.7%	-1.11	8.22
Global Bonds	5.5%	5.1%	9.7%	-0.36	1.26
US Equity (LC)	8.0%	6.7%	16.6%	-0.57	0.83
US Equity (SC)	8.8%	6.5%	21.3%	-0.47	1.21
Int'l Dev. Equity	11.3%	8.9%	21.9%	-0.56	1.30
EM Equity	14.9%	10.8%	28.6%	-0.65	2.01
Real Estate	8.1%	6.4%	18.6%	-0.75	6.78
Broad Real Assets	7.5%	6.8%	11.7%	-1.63	8.81

Correlation Assumptions (Forecasts)	Cash	TIPS	US Bond	US Bonds - Dynamic	HY Bond	Global Bonds	US Equity (LC)	US Equity (SC)	Int'l Dev. Equity	EM Equity	Real Estate	Broad Real Assets
Cash	1	0	0	0	0	0	0	0	0	0	0	0
TIPS	0	1.00	0.77	0.53	0.35	0.68	0.14	0.09	0.18	0.19	0.31	0.56
US Bond	0	0.77	1.00	0.56	0.32	0.72	0.21	0.12	0.17	0.07	0.21	0.36
US Bonds - Dynamic	0	0.53	0.56	1.00	0.94	0.51	0.60	0.58	0.55	0.56	0.61	0.75
HY Bond	0	0.35	0.32	0.94	1.00	0.33	0.62	0.64	0.55	0.59	0.61	0.75
Global Bonds	0	0.68	0.72	0.51	0.33	1.00	0.27	0.17	0.43	0.30	0.35	0.53
US Equity (LC)	0	0.14	0.21	0.60	0.62	0.27	1.00	0.84	0.70	0.66	0.60	0.63
US Equity (SC)	0	0.09	0.12	0.58	0.64	0.17	0.84	1.00	0.63	0.66	0.66	0.64
Int'l Dev. Equity	0	0.18	0.17	0.55	0.55	0.43	0.70	0.63	1.00	0.71	0.51	0.60
EM Equity	0	0.19	0.07	0.56	0.59	0.30	0.66	0.66	0.71	1.00	0.45	0.58
Real Estate	0	0.31	0.21	0.61	0.61	0.35	0.60	0.66	0.51	0.45	1.00	0.82
Broad Real Assets	0	0.56	0.36	0.75	0.75	0.53	0.63	0.64	0.60	0.58	0.82	1.00

October 31, 2022 Tw enty-Year Forecasted CMAs

\*Historical mix return calculations assume a weighted average excess return assumption of 0.5% with a Fiducient Advisors' hypothetical fee of 0.25%

For additional information on forecast methodologies, please speak with your advisor. Please see Index Proxy Summary slide at the end of this presentation for summary of indexes used to represent each asset class. Past performance does not indicate future performance. Please see the Frontier Engineer Hypothetical Performance Disclosures at the end of the presentation for additional information.



## Indices for Past Return & Risk Metrics

Indices used to generate historical risk and return metrics	Most Recent Index	Index Dates			Linked Index 1	Index Dates			Linked Index 2	Index Dates		
Cash	FTSE Treasury Bill 3 Mon USD	12/22	-	1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
TIPS	Bloomberg US Treasury US TIPS TR USD	12/22	-	3/97	Bloomberg US Agg Bond TR USD	2/97	-	1/79	N.A.	N.A.	-	N.A.
US Bond	Bloomberg US Agg Bond TR USD	12/22	-	1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
US Bonds - Dynamic	*Custom Blend of Indices	12/22	-	2/90	Bloomberg US Agg Bond TR USD	1/90	-	1/79	N.A.	N.A.	-	N.A.
HY Bond	Bloomberg US Corporate High Yield TR USD	12/22	-	7/83	Bloomberg US Agg Bond TR USD	6/83	-	1/79	N.A.	N.A.	-	N.A.
Global Bonds	Bloomberg Global Aggregate TR USD	12/22	-	2/90	Bloomberg US Agg Bond TR USD	1/90	-	1/79	N.A.	N.A.	-	N.A.
US Equity (LC)	S&P 500 TR USD	12/22	-	1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
US Equity (SC)	Russell 2000 TR USD	12/22	-	1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
Int'l Dev. Equity	MSCI EAFE GR USD	12/22	-	1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
EM Equity	MSCI EM GR USD	12/22	-	1/88	MSCI EAFE GR USD	12/87	-	1/79	N.A.	N.A.	-	N.A.
Real Estate	FTSE Nareit All Equity REITs TR USD	12/22	-	1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
Broad Real Assets	S&P Real Asset TR USD	12/22	-	5/05	*Custom Real Assets Index	4/05	-	1/79	N.A.	N.A.	-	N.A.

\*US Bonds - Dynamic Index - 1/3 Bloomberg Gbl Agg Ex USD TR Hdg USD, 1/3 FTSE Treasury Bill 3 Mon USD & 1/3 Bloomberg US Corporate High Yield TR USD

Note: Private Equity Index is frequently 3-6 months behind the other indices. For historical return calculation purposes, it is given 0% returns during the most recent period where gaps may exist. Past performance, actual or hypothetical, is no guarantee of future results and there is a possibility of a loss. Please see Frontier Engineer Hypothetical Performance Disclosures at the end of the presentation for additional information, including index proxies used to represent each asset class.



# Frontier Engineer Hypothetical Performance Disclosures

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The historical performance information derived from the Frontier Engineer and used or presented in charts, tables, or graphs represent simulated historical performance, which has been derived by retroactively applying an asset allocation modeling process in its most recently developed form with its most recently derived ten-year (forward-looking) capital market assumptions. Such historical return simulations (or back testing) was performed by simulating the combination of actual index returns for the historical period with a buy and hold strategy effective January 1, 1988 through the most recently available month-end date with simulated rebalancing occurring every month-end (with the reinvestment of dividends and capital gains from each index).

Back tested performance is hypothetical and does not reflect actual trades or actual client performance. As with all models, there are inherent limitations which are derived from the retroactive application developed with the benefit of hindsight, including the risk that certain factors such as material economic and market conditions could have contributed to materially different (either higher or lower) performance results than those depicted, or that certain material factors may have been included or excluded from consideration. As such, actual results during the applicable back tested period would have been different than those depicted.

The asset allocation modeling process currently used was initially developed in 2002, and was not offered as a strategy prior to that time. The output of a forward-looking model (or process) is a representation of allocation percentages among specific asset classes. Clients cannot invest directly in a target allocation, but rather, in underlying securities within designated asset classes. Advisor may change its models from time to time, and regularly updates its model as additional capital market assumption information becomes available or to increase or decrease relative weightings or emphasis on certain factors. Consequently, the Advisor may choose to deviate from a stated model over time as the model itself is revised, which could have a materially positive or negative impact on performance.

During the period represented, numerous modelling changes were made, including the regular changes in (ten-year) forward-looking expected returns, expected volatilities, expected non-normal return distribution assumptions, as well as tracking-error assumptions and risk budgets. Furthermore, such assumptions can be modified client-by-client depending on certain preferences, priorities, constraints or unique considerations applicable to each client.

Other economic and market factors may have impacted decision-making when using the model to manage client funds, including the list of approved asset classes by a client or client type as well as any client-directed or Advisor implemented constraints.

All investments bear the risk of loss, including the loss of principal. Past performance, actual or hypothetical, is no guarantee of future results.

The hypothetical annual Fiducient Advisors' fee is divided by 12 and subtracted from the historical monthly (index) returns. The hypothetical excess return assumption is divided by 12 and added to the historical monthly (index) returns. Furthermore, for forecasted total portfolio (index-based) annual returns based on capital market assumptions, the annual Fiducient Advisors' fee assumption is subtracted from the hypothetical annual manager excess return assumption. Additional information on advisory fees charged by Fiducient Advisors are described in Part 2 of the Form ADV.



## INDEX DEFINITIONS

**FTSE Treasury Bill 3 Month** measures return equivalents of yield averages and are not marked to market. It is an average of the last three three-month Treasury bill month-end rates.

**Bloomberg Capital US Treasury Inflation Protected Securities Index** consists of Inflation-Protection securities issued by the U.S. Treasury.

**Bloomberg Muni 5 Year Index** is the 5 year (4-6) component of the Municipal Bond index.

**Bloomberg High Yield Municipal Bond Index** covers the universe of fixed rate, non-investment grade debt.

**Bloomberg U.S. Aggregate Index** covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities.

**FTSE World Government Bond Index (WGBI) (Unhedged)** provides a broad benchmark for the global sovereign fixed income market by measuring the performance of fixed-rate, local currency, investment-grade sovereign debt from over 20 countries,

**FTSE World Government Bond Index (WGBI) (Hedged)** is designed to represent the FTSE WGBI without the impact of local currency exchange rate fluctuations.

**Bloomberg US Corporate High Yield TR USD** covers the universe of fixed rate, non-investment grade debt. Eurobonds and debt issues from countries designated as emerging markets (sovereign rating of Baa1/BBB+/BBB+ and below using the middle of Moody's, S&P, and Fitch) are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included.

**JP Morgan Government Bond Index-Emerging Market Index (GBI-EMI)** is a comprehensive, global local emerging markets index, and consists of regularly traded, liquid fixed-rate, domestic currency government bonds to which international investors can gain exposure.

**JPMorgan EMBI Global Diversified** is an unmanaged, market-capitalization weighted, total-return index tracking the traded market for U.S.-dollar-denominated Brady bonds, Eurobonds, traded loans, and local market debt instruments issued by sovereign and quasi-sovereign entities.

**MSCI ACWI** is designed to represent performance of the full opportunity set of large- and mid-cap stocks across multiple developed and emerging markets, including cross-market tax incentives.

**The S&P 500** is a capitalization-weighted index designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries.

**Russell 3000** is a market-cap-weighted index which consists of roughly 3,000 of the largest companies in the U.S. as determined by market capitalization. It represents nearly 98% of the investable U.S. equity market.

**Russell Mid Cap** measures the performance of the 800 smallest companies in the Russell 1000 Index.

**Russell 2000** consists of the 2,000 smallest U.S. companies in the Russell 3000 index.

**MSCI EAFE** is an equity index which captures large and mid-cap representation across Developed Markets countries around the world, excluding the US and Canada. The index covers approximately 85% of the free float-adjusted market capitalization in each country.

**MSCI Emerging Markets** captures large and mid-cap representation across Emerging Markets countries. The index covers approximately 85% of the free-float adjusted market capitalization in each country

**The Wilshire US Real Estate Securities Index (Wilshire US RESI)** is comprised of publicly-traded real estate equity securities and designed to offer a market-based index that is more reflective of real estate held by pension funds.

**Alerian MLP Index** is a float adjusted, capitalization-weighted index, whose constituents represent approximately 85% of total float-adjusted market capitalization, is disseminated real-time on a price-return basis (AMZ) and on a total-return basis.

**Bloomberg Commodity Index (BCI)** is calculated on an excess return basis and reflects commodity futures price movements. The index rebalances annually weighted 2/3 by trading volume and 1/3 by world production and weight-caps are applied at the commodity, sector and group level for diversification.

**Treasury Inflation-Protected Securities (TIPS)** are Treasury bonds that are indexed to inflation to protect investors from the negative effects of rising prices. The principal value of TIPS rises as inflation rises.

**HFRI Fund of Funds Composite** is an equal-weighted index consisting of over 800 constituent hedge funds, including both domestic and offshore funds.

**Cambridge Associates U.S. Private Equity Index (67% Buyout vs. 33% Venture)** is based on data compiled from more than 1,200 institutional-quality buyout, growth equity, private equity energy, and mezzanine funds formed between 1986 and 2015.

**HFN Hedge Fund Aggregate Average** is an equal weighted average of all hedge funds and CTA/managed futures products reporting to the HFN Database. Constituents are aggregated from each of the HFN Strategy Specific Indices.

**Goldman Sachs Commodity Index (GSCI)** is a broadly diversified, unleveraged, long-only composite index of commodities that measures the performance of the commodity market.

# Definitions & Disclosures

Please note: Due to rounding methodologies of various data providers, certain returns in this report might differ slightly when compared to other sources

## REGULATORY DISCLOSURES

**Offer of ADV Part 2A:** Rule 204-3 under the Investment Advisers Act of 1940 requires that we make an annual offer to clients to send them, without charge, a written disclosure statement meeting the requirements of such rule. We will be glad to send a copy of our ADV Part 2A to you upon your written request to [compliance@fiducient.com](mailto:compliance@fiducient.com).

## INDEX DEFINITIONS

- **Citigroup 3 Month T-Bill** measures monthly return equivalents of yield averages that are not marked to market. The Three-Month Treasury Bill Indexes consist of the last three three-month Treasury bill issues.
- **Ryan 3 Yr. GIC** is an arithmetic mean of market rates of \$1 million Guaranteed Interest Contracts held for three years.
- **Bloomberg Treasury U.S. T-Bills-1-3 Month Index** includes aged U.S. Treasury bills, notes and bonds with a remaining maturity from 1 up to (but not including) 3 months. It excludes zero coupon strips.
- **Bloomberg Capital US Treasury Inflation Protected Securities Index** consists of Inflation-Protection securities issued by the U.S. Treasury.
- **Bloomberg Muni Index** is a rules-based, market-value-weighted index engineered for the long-term tax-exempt bond market. Bonds must be rated investment-grade by at least two ratings agencies.
- **Bloomberg Muni 1 Year Index** is the 1-year (1-2) component of the Municipal Bond index.
- **Bloomberg Muni 3 Year Index** is the 3-year (2-4) component of the Municipal Bond index.
- **Bloomberg Muni 5 Year Index** is the 5-year (4-6) component of the Municipal Bond index.
- **Bloomberg Muni 7 Year Index** is the 7-year (6-8) component of the Municipal Bond index.
- **Bloomberg Intermediate U.S. Gov't/Credit** is the Intermediate component of the U.S. Government/Credit index, which includes securities in the Government and Credit Indices. The Government Index includes treasuries and agencies, while the credit index includes publicly issued U.S. corporate and foreign debentures and secured notes that meet specified maturity, liquidity, and quality requirements.
- **Bloomberg U.S. Aggregate Index** covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities.
- **Bloomberg Global Aggregate ex. USD Indices** represent a broad-based measure of the global investment-grade fixed income markets. The two major components of this index are the Pan-European Aggregate and the Asian-Pacific Aggregate Indices. The index also includes Eurodollar and Euro-Yen corporate bonds and Canadian government, agency and corporate securities.
- **Bloomberg U.S. Corporate High Yield Index** covers the universe of fixed rate, non-investment grade debt. Eurobonds and debt issues from countries designated as emerging markets (sovereign rating of Baa1/BBB+/BBB+ and below using the middle of Moody's, S&P, and Fitch) are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included.
- **JP Morgan Government Bond Index-Emerging Market (GBI-EM) Index** is a comprehensive, global local emerging markets index, and consists of regularly traded, liquid fixed-rate, domestic currency government bonds to which international investors can gain exposure.
- **The S&P 500** is a capitalization-weighted index of 500 stocks designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries.
- **The Dow Jones Industrial Index** is a price-weighted average of 30 blue-chip stocks that are generally the leaders in their industry.
- **The NASDAQ** is a broad-based capitalization-weighted index of stocks in all three NASDAQ tiers: Global Select, Global Market and Capital Market.
- **Russell 3000** is a market-cap-weighted index which consists of roughly 3,000 of the largest companies in the U.S. as determined by market capitalization. It represents nearly 98% of the investable U.S. equity market.
- **Russell 1000** consists of the largest 1000 companies in the Russell 3000 Index.
- **Russell 1000 Growth** measures the performance of those Russell 1000 companies with higher P/B ratios and higher forecasted growth values.
- **Russell 1000 Value** measures the performance of those Russell 1000 companies with lower P/B ratios and lower forecasted growth values.
- **Russell Mid Cap** measures the performance of the 800 smallest companies in the Russell 1000 Index.
- **Russell Mid Cap Growth** measures the performance of those Russell Mid Cap companies with higher P/B ratios and higher forecasted growth values.
- **Russell Mid Cap Value** measures the performance of those Russell Mid Cap companies with lower P/B ratios and lower forecasted growth values.
- **Russell 2000** consists of the 2,000 smallest U.S. companies in the Russell 3000 index.
- **Russell 2000 Growth** measures the performance of the Russell 2000 companies with higher P/B ratios and higher forecasted growth values.
- **Russell 2000 Value** measures the performance of those Russell 2000 companies with lower P/B ratios and lower forecasted growth values.
- **Russell 2500** consists of the 2,500 smallest U.S. companies in the Russell 3000 index.
- **Russell 2500 Growth** measures the performance of the Russell 2500 companies with higher P/B ratios and higher forecasted growth values.
- **Russell 2500 Value** measures the performance of those Russell 2500 companies with lower P/B ratios and lower forecasted growth values.
- **MSCI World** captures large and mid-cap representation across 23 Developed Markets countries. With 1,645 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.
- **MSCI ACWI (All Country World Index) ex. U.S. Index** captures large and mid-cap representation across 22 of 23 Developed Markets countries (excluding the United States) and 23 Emerging Markets countries. With 1,859 constituents, the index covers approximately 85% of the global equity opportunity set outside the US.
- **MSCI ACWI (All Country World Index) ex. U.S. Small Cap Index** captures small cap representation across 22 of 23 Developed Markets countries (excluding the US) and 23 Emerging Markets countries. With 4,368 constituents, the index covers approximately 14% of the global equity opportunity set outside the US.
- **MSCI EAFE** is an equity index which captures large and mid-cap representation across Developed Markets countries around the world, excluding the US and Canada. With 930 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

- **MSCI EAFE Value** captures large and mid-cap securities exhibiting overall value style characteristics across Developed Markets countries around the world, excluding the US and Canada. The value investment style characteristics for index construction are defined using three variables: book value to price, 12-month forward earnings to price and dividend yield. With 507 constituents, the index targets 50% coverage of the free float-adjusted market capitalization of the MSCI EAFE Index.
- **MSCI EAFE Growth** captures large and mid-cap securities exhibiting overall growth style characteristics across Developed Markets countries around the world, excluding the US and Canada. The growth investment style characteristics for index construction are defined using five variables: long-term forward EPS growth rate, short-term forward EPS growth rate, current internal growth rate and long-term historical EPS growth trend and long-term historical sales per share growth trend. With 542 constituents, the index targets 50% coverage of the free float-adjusted market capitalization of the MSCI EAFE Index.
- **MSCI Emerging Markets** captures large and mid-cap representation across 23 Emerging Markets countries. With 836 constituents, the index covers approximately 85% of the free-float adjusted market capitalization in each country.
- **Consumer Price Index** is a measure of prices paid by consumers for a market basket of consumer goods and services. The yearly (or monthly) growth rates represent the inflation rate.
- **FTSE NAREIT Equity REITs Index** contains all Equity REITs not designed as Timber REITs or Infrastructure REITs.
- **S&P Developed World Property** defines and measures the investable universe of publicly traded property companies domiciled in developed markets. The companies in the index are engaged in real estate related activities, such as property ownership, management, development, rental and investment.
- **S&P Developed World Property x U.S.** defines and measures the investable universe of publicly traded property companies domiciled in developed countries outside of the U.S. The companies included are engaged in real estate related activities, such as property ownership, management, development, rental and investment.
- **Fund Specific Broad Real Asset Benchmarks:**
  - **DWS Real Assets:** 30%: Dow Jones Brookfield Infrastructure Index, 30%: FTSE EPRA/NAREIT Developed Index, 15%: Bloomberg Commodity Index, 15%: S&P Global Natural Resources Index, 10%: U.S. Treasury Inflation Notes Total Return Index
  - **PIMCO Inflation Response Multi Asset Fund:** 45% Bloomberg U.S. TIPS, 20% Bloomberg Commodity Index, 15% JP Morgan Emerging Local Markets Plus, 10% Dow Jones Select REIT, 10% Bloomberg Gold Subindex Total Return
  - **Principal Diversified Real Assets:** 35% BBgBarc U.S. Treasury TIPS Index, 20% S&P Global Infrastructure Index NTR, 20% S&P Global Natural Resources Index NTR, 15% Bloomberg Commodity Index, and 10% FTSE EPRA/NAREIT Developed Index NTR
  - **Wellington Diversified Inflation H:** 50% MSCI ACWI Commodity Producers Index, 25% Bloomberg Commodity Index, and 25% Bloomberg Bloomberg US TIPS 1 – 10 Year Index
- **Bloomberg Commodity Index** is calculated on an excess return basis and reflects commodity futures price movements. The index rebalances annually weighted 2/3 by trading volume and 1/3 by world production and weight-caps are applied at the commodity, sector and group level for diversification.
- **HFRI Fund Weighted Composite Index** is a global, equal-weighted index of over 2,000 single-manager funds that report to HFR Database. Constituent funds report monthly net of all fees performance in US Dollar and have a minimum of \$50 Million under management or a twelve (12) month track record of active performance. The HFRI Fund Weighted Composite Index does not include Funds of Hedge Funds.
- **The Alerian MLP Index** is the leading gauge of energy Master Limited Partnerships (MLPs). The float adjusted, capitalization-weighted index, whose constituents represent approximately 85% of total float-adjusted market capitalization, is disseminated real-time on a price-return basis (AMZ) and on a total-return basis.
- **The Adjusted Alerian MLP Index** is commensurate with 65% of the monthly returns of the Alerian MLP Index to incorporate the effect of deferred tax liabilities incurred by MLP entities.
- **Cambridge Associates U.S. Private Equity Index** is based on data compiled from more than 1,200 institutional-quality buyout, growth equity, private equity energy, and mezzanine funds formed between 1986 and 2015.
- **Cambridge Associates U.S. Venture Capital Index** is based on data compiled from over 1,600 institutional-quality venture capital funds formed between 1986 and 2015.
- **Vanguard Spliced Bloomberg US1-5Yr Gov/Cr Flt Adj Index:** Bloomberg U.S. 1–5 Year Government/Credit Bond Index through December 31, 2009; Bloomberg U.S. 1–5 Year Government/Credit Float Adjusted Index thereafter.
- **Vanguard Spliced Bloomberg US5-10Yr Gov/Cr Flt Adj Index:** Bloomberg U.S. 5–10 Year Government/Credit Bond Index through December 31, 2009; Bloomberg U.S. 5–10 Year Government/Credit Float Adjusted Index thereafter.
- **Vanguard Spliced Bloomberg US Agg Flt Adj Index:** Bloomberg U.S. Aggregate Bond Index through December 31, 2009; Bloomberg U.S. Aggregate Float Adjusted Index thereafter.
- **Vanguard Spliced Bloomberg US Long Gov/Cr Flt Adj Index:** Bloomberg U.S. Long Government/Credit Bond Index through December 31, 2009; Bloomberg U.S. Long Government/Credit Float Adjusted Index thereafter.
- **Vanguard Balanced Composite Index:** Made up of two unmanaged benchmarks, weighted 60% Dow Jones U.S. Total Stock Market Index (formerly the Dow Jones Wilshire 5000 Index) and 40% Bloomberg U.S. Aggregate Bond Index through May 31, 2005; 60% MSCI US Broad Market Index and 40% Bloomberg U.S. Aggregate Bond Index through December 31, 2009; 60% MSCI US Broad Market Index and 40% Bloomberg U.S. Aggregate Float Adjusted Index through January 14, 2013; and 60% CRSP US Total Market Index and 40% Bloomberg U.S. Aggregate Float Adjusted Index thereafter.
- **Vanguard Spliced Intermediate-Term Tax-Exempt Index:** Bloomberg 1–15 Year Municipal Bond Index.
- **Vanguard Spliced Extended Market Index:** Dow Jones Wilshire 4500 Index through June 17, 2005; S&P Transitional Completion Index through September 16, 2005; S&P Completion Index thereafter.
- **Vanguard Spliced Value Index:** S&P 500 Value Index (formerly the S&P 500/Barra Value Index) through May 16, 2003; MSCI US Prime Market Value Index through April 16, 2013; CRSP US Large Cap Value Index thereafter.
- **Vanguard Spliced Large Cap Index:** Consists of MSCI US Prime Market 750 Index through January 30, 2013, and the CRSP US Large Cap Index thereafter.
- **Vanguard Spliced Growth Index:** S&P 500 Growth Index (formerly the S&P 500/Barra Growth Index) through May 16, 2003; MSCI US Prime Market Growth Index through April 16, 2013; CRSP US Large Cap Growth Index thereafter.
- **Vanguard Spliced Mid Cap Value Index:** MSCI US Mid Cap Value Index through April 16, 2013; CRSP US Mid Cap Value Index thereafter.
- **Vanguard Spliced Mid Cap Index:** S&P MidCap 400 Index through May 16, 2003; the MSCI US Mid Cap 450 Index through January 30, 2013; and the CRSP US Mid Cap Index thereafter.
- **Vanguard Spliced Mid Cap Growth Index:** MSCI US Mid Cap Growth Index through April 16, 2013; CRSP US Mid Cap Growth Index thereafter.
- **Vanguard Spliced Total Stock Market Index:** Dow Jones U.S. Total Stock Market Index (formerly known as the Dow Jones Wilshire 5000 Index) through April 22, 2005; MSCI US Broad Market Index through June 2, 2013; and CRSP US Total Market Index thereafter.
- **Vanguard Spliced Small Cap Value Index:** SmallCap 600 Value Index (formerly the S&P SmallCap 600/Barra Value Index) through May 16, 2003; MSCI US Small Cap Value Index through April 16, 2013; CRSP US Small Cap Value Index thereafter.

- **Vanguard Spliced Small Cap Index:** Russell 2000 Index through May 16, 2003; the MSCI US Small Cap 1750 Index through January 30, 2013; and the CRSP US Small Cap Index thereafter.
- **Vanguard Spliced Small Cap Growth Index:** S&P SmallCap 600 Growth Index (formerly the S&P SmallCap 600/Barra Value Index) through May 16, 2003; MSCI US Small Cap Growth Index through April 16, 2013; CRSP US Small Cap Growth Index thereafter.
- **Vanguard Spliced Total International Stock Index:** Consists of the Total International Composite Index through August 31, 2006; the MSCI EAFE + Emerging Markets Index through December 15, 2010; the MSCI ACWI ex USA IMI Index through June 2, 2013; and FTSE Global All Cap ex US Index thereafter. Benchmark returns are adjusted for withholding taxes.
- **Vanguard Spliced Developed Markets Index:** MSCI EAFE Index through May 28, 2013; FTSE Developed ex North America Index through December 20, 2015; FTSE Developed All Cap ex US Transition Index through May 31, 2016; FTSE Developed All Cap ex US Index thereafter. Benchmark returns are adjusted for withholding taxes.
- **Vanguard Spliced Emerging Markets Index:** Select Emerging Markets Index through August 23, 2006; MSCI Emerging Markets Index through January 9, 2013; FTSE Emerging Transition Index through June 27, 2013; FTSE Emerging Index through November 1, 2015; and FTSE Emerging Markets All Cap China A Transition Index thereafter. Benchmark returns are adjusted for withholding taxes.
- **Vanguard REIT Spliced Index:** MSCI US REIT Index adjusted to include a 2% cash position (Lipper Money Market Average) through April 30, 2009; MSCI US REIT Index through January 31, 2018; MSCI US Investable Market Real Estate 25/50 Transition Index through July 24, 2018; MSCI US Investable Market Real Estate 25/50 Index thereafter.

#### **Additional:**

- Equity sector returns are calculated by Russell and MSCI for domestic and international markets, respectively. MSCI sector definitions correspond to the MSCI GICS® classification (Global Industry Classification System); Russell uses its own sector and industry classifications.
- MSCI country returns are calculated by MSCI and are free float-adjusted market capitalization indices that are designed to measure equity market performance in each specific country.
- Currency returns are calculated using Bloomberg's historical spot rate indices and are calculated using the U.S. dollar as the base currency.
- The Index of Leading Economic Indicators, calculated by The Conference Board, is used as a barometer of economic activity over a range of three to six months. The index is used to determine the direction and stability of the economy. The composite index of leading indicators, which is derived from 10 leading indicators, helps to signal turning points in the economy and forecast economic cycles. The leading indicators are the following: average weekly hours, average weekly initial claims, manufacturers' new orders, both consumer and non-defense capital goods, vendor performance, building permits, stock prices, money supply (M2), the interest rate spread and the index of consumer expectations.
- S&P Target Date Indexes are constructed using a survey method of current target date investments with \$100 million or more in assets under management. Allocations for each vintage are comprised of exchange-traded funds that represent respective asset classes used in target date portfolios. The indexes are designed to represent a market consensus glide path.

#### **DEFINITION OF KEY STATISTICS AND TERMS**

- **Returns:** A percentage figure used when reporting historical average compounded rate of investment return. All returns are annualized if the period for which they are calculated exceeds one year.
- **Universe Comparison:** The universe compares the fund's returns to a group of other investment portfolios with similar investment strategies. The returns for the fund, the index and the universe percentiles are displayed. A percentile ranking of 1 is the best, while a percentile ranking of 100 is the worst. For example, a ranking of 50 indicates the fund outperformed half of the universe. A ranking of 25 indicates the fund was in the top 25% of the universe, outperforming 75%.
- **Returns In Up/Down Markets:** This measures how the fund performed in both up and down markets. The methodology is to segregate the performance for each time period into the quarters in which the market, as defined by the index, was positive and negative. Quarters with negative index returns are treated as down markets, and quarters with positive index returns are treated as up markets. Thus, in a 3 year or 12 quarter period, there might be 4 down quarters and 8 up quarters. A simple arithmetic average of returns is calculated for the fund and the index based on the up quarters. A simple arithmetic average of returns is calculated for the fund and the index based on the down quarters. The up market capture ratio is the ratio of the fund's return in up markets to the index. The down market capture ratio is the ratio of the fund's return in down markets to the index. Ideally, the fund would have a greater up market capture ratio than down market capture ratio.
- **Standard Deviation:** Standard deviation is a statistical measure of the range of performance within which the total returns of a fund fall. When a fund has a high standard deviation, the range of performance is very wide, meaning there is a greater volatility. Approximately 68% of the time, the total return of any given fund will differ from the average total return by no more than plus or minus the standard deviation figure. Ninety-five percent of the time, a fund's total return will be within a range of plus or minus two times the standard deviation from the average total return. If the quarterly or monthly returns are all the same the standard deviation will be zero. The more they vary from one another, the higher the standard deviation. Standard deviation can be misleading as a risk indicator for funds with high total returns because large positive deviations will increase the standard deviation without a corresponding increase in the risk of the fund. While positive volatility is welcome, negative is not.
- **R-Squared:** This reflects the percentage of a fund's movements that are explained by movements in its benchmark index. An R-squared of 100 means that all movements of a fund are completely explained by movements in the index. Conversely, a low R-squared indicates very few of the fund's movements are explained by movements in the benchmark index. R-squared can also be used to ascertain the significance of a particular beta. Generally, a higher R-squared will indicate a more reliable beta figure. If the R-squared is lower, then the beta is less relevant to the fund's performance. A measure of diversification, R-squared indicates the extent to which fluctuations in portfolio returns are explained by market. An R-squared = 0.70 implies that 70% of the fluctuation in a portfolio's return is explained by the fluctuation in the market. In this instance, overweighting or underweighting of industry groups or individual securities is responsible for 30% of the fund's movement.
- **Beta:** This is a measure of a fund's market risk. The beta of the market is 1.00. Accordingly, a fund with a 1.10 beta is expected to perform 10% better than the market in up markets and 10% worse than the market in down markets. It is important to note, however, a low fund beta does not imply the fund has a low level of volatility; rather, a low beta means only that the fund's market-related risk is low. Because beta analyzes the market risk of a fund by showing how responsive the fund is to the market, its usefulness depends on the degree to which the markets determine the fund's total risk (indicated by R-squared).
- **Alpha:** The Alpha is the nonsystematic return, or the return that can't be attributed to the market. It can be thought of as how the manager performed if the market's return was zero. A positive alpha implies the manager added value to the return of the portfolio over that of the market. A negative alpha implies the manager did not contribute any value over the performance of the market.
- **Sharpe Ratio:** The Sharpe ratio is the excess return per unit of total risk as measured by standard deviation. Higher numbers are better, indicating more return for the level of risk experienced. The ratio is a fund's return minus the risk-free rate of return (30-day T-Bill rate) divided by the fund's standard deviation. The higher the Sharpe ratio, the more reward you are receiving per unit of total risk. This measure can be used to rank the performance of mutual funds or other portfolios.
- **Treynor Ratio:** The Treynor ratio measures returns earned in excess of that which could have been earned on a riskless investment per each unit of market risk. The ratio relates excess return over the risk-free rate to the additional risk taken; however, systematic risk is used instead of total risk. The Treynor ratio is similar to the Sharpe ratio, except in the fact that it uses the beta to evaluate the returns rather than the standard deviation of portfolio returns. High values mean better return for risk taken.



- **Tracking Error:** Tracking error measures the volatility of the difference in annual returns between the manager and the index. This value is calculated by measuring the standard deviation of the difference between the manager and index returns. For example, a tracking error of +/- 5 would mean there is about a 68% chance (1 standard deviation event) that the manager's returns will fall within +/- 5% of the benchmark's annual return.
- **Information Ratio:** The information ratio is a measure of the consistency of excess return. This value is determined by taking the annualized excess return over a benchmark (style benchmark by default) and dividing it by the standard deviation of excess return.
- **Consistency:** Consistency shows the percent of the periods the fund has beaten the index and the percent of the periods the index has beat the fund. A high average for the fund (e.g., over 50) is desirable, indicating the fund has beaten the index frequently.
- **Downside Risk:** Downside risk is a measure similar to standard deviation but focuses only on the negative movements of the return series. It is calculated by taking the standard deviation of the negative quarterly set of returns. The higher the factor, the riskier the product.
- **M-Squared:** M-squared, or the Modigliani risk-adjusted performance measure is used to characterize how well a portfolio's return rewards an investor for the amount of risk taken, relative to that of some benchmark portfolio and to the risk-free rate.

#### DEFINITION OF KEY PRIVATE EQUITY TERMS

- **PIC (Paid in Capital):** The amount of committed capital that has been transferred from the limited partner to the general partner.
- **TVPI (Total Value to Paid in Capital):** Money returned to limited partners plus the fund's unrealized investments, divided by money paid-in to the partnership. The TVPI should equal RVPI plus DPI.
- **DPI (Distribution to Paid In Capital):** Money returned (distributions) to limited partners divided by money paid in to the partnership. Also called cash-on-cash multiple.
- **RVPI (Residual Value to Paid In Capital):** The value of a fund's unrealized investments divided by money paid-in to the partnership.
- **Internal rate of return (IRR):** This is the most appropriate performance benchmark for private equity investments. It is a time-weighted return expressed as a percentage. IRR uses the present sum of cash drawdowns (money invested), the present value of distributions (money returned from investments) and the current value of unrealized investments and applies a discount.
- **Commitment:** Every investor in a private equity fund commits to investing a specified sum of money in the fund partnership over a specified period of time. The fund records this as the limited partnership's capital commitment. The sum of capital commitments is equal to the size of the fund.
- **Capital Distribution:** These are the returns that an investor in a private equity fund receives. It is the income and capital realized from investments less expenses and liabilities. Once a limited partner has had their cost of investment returned, further distributions are actual profit. The partnership agreement determines the timing of distributions to the limited partner. It will also determine how profits are divided among the limited partners and general partner.
- **Carried Interest:** The share of profits that the fund manager is due once it has returned the cost of investment to investors. Carried interest is normally expressed as a percentage of the total profits of the fund.
- **Co-Investment:** Co-Investments are minority investments made alongside a private equity investor in an LBO, a recapitalization, or an expansion capital transaction. It is a passive, non-controlling investment, as the private equity firm involved will typically exercise control and perform monitoring functions.
- **General Partner (GP):** This can refer to the top-ranking partners at a private equity firm as well as the firm managing the private equity fund.
- **GP Commitments:** It is normal practice for the GP managing a private equity fund to also make a financial commitment to the fund on the same basis as the LPs in the fund, and this is seen as an important factor driving the alignment of GP and LP interests. The historic benchmark for GP commitments has been 1% of the total fund size, but this is by no means universal, and many GPs commit significantly larger amounts. Furthermore, there has been a marked trend towards GPs making larger commitments to their funds over recent years.
- **Leveraged Buy-Out (LBO):** The acquisition of a company using debt and equity finance.
- **Limited Partner (LP):** Institutions or high-net-worth individuals/sophisticated investors that contribute capital to a private equity fund.
- **Public Market Equivalent (PME):** Performance measure used to evaluate performance relative to the market. It is calculated as the ratio of the discounted value of the LP's inflows divided by the discounted value of outflows, with the discounting performed using realized market returns.
- **Primaries:** An original investment vehicle that invests directly into a company or asset.

#### VALUATION POLICY

Fiducient Advisors does not engage an independent third-party pricing service to value securities. Our reports are generated using the security prices provided by custodians used by our clients. Our custodial pricing hierarchy is available upon request. If a client holds a security not reported by the first custodian within the hierarchy, the valuation is generated from the next custodian within the hierarchy, and so forth. Each custodian uses pricing services from outside vendors, where the vendors may generate nominally different prices. Therefore, this report can reflect minor valuation differences from those contained in a custodian's report. In rare instances where FA overrides a custodial price, prices are taken from Bloomberg.

#### REPORTING POLICY

This report is intended for the exclusive use of the client listed within the report. Content is privileged and confidential. Any dissemination or distribution is strictly prohibited. Information has been obtained from a variety of sources believed to be reliable though not independently verified. Any forecast represents median expectations and actual returns, volatilities and correlations will differ from forecasts. Please note each client has customized investment objectives and constraints and the investment strategy for each portfolio is based on a client-specific asset allocation model. Past performance does not indicate future performance and there is a possibility of a loss. Performance calculated net of investment fees. Certain portfolios presented may be gross of Fiducient Advisors' fees and actual performance would be reduced by investment advisory fees. This report does not represent a specific investment recommendation. Please consult with your advisor, attorney, and accountant, as appropriate, regarding specific advice.

Custodian reports are the reports that govern the account. There will be different account values between Fiducient Advisors' reports and the custodian reports based on whether the report utilizes trade date or settlement date to calculate value. Additionally, difference between values contained on reports may be caused by different accrued income values. Any forecasts represent future expectations and actual returns, volatilities and correlations will differ from forecasts. This report does not represent a specific investment recommendation. Please consult with your advisor, attorney, and accountant, as appropriate, regarding specific advice. Past performance does not indicate future performance and there is a possibility of a loss.

Manager performance for mutual funds and ETFs is based on NAV and provided by Lipper. Performance for non-mutual fund or ETF investments is based on the returns provided by managers, calculations based on a manager statement, or calculations based on a statement or data from the client's custodian. Unless specified otherwise, all returns are net of individual manager fees, represent total returns and are annualized for periods greater than one year. The deduction of fees produces a compounding effect that reduces the total rate of return over time. As an example, the effect of investment management fees on the total value of a client's portfolio assuming (a) quarterly fee assessment, (b) \$1,000,000 investment, (c) portfolio return of 8% a year, and (d) 0.50% annual investment advisory fee would be \$5,228 in the first year, and cumulative effects of \$30,342 over five years and \$73,826 over ten years. Additional information on advisory fees charged by Fiducient Advisors are described in Part 2 of the Form ADV.

## **MATERIAL RISKS & LIMITATIONS**

**Fixed Income** securities are subject to interest rate risks, the risk of default and liquidity risk. U.S. investors exposed to non-U.S. fixed income may also be subject to currency risk and fluctuations.  
-Liability Driven Investing (LDI) Assets

**Cash** may be subject to the loss of principal and over longer period of time may lose purchasing power due to inflation.  
-Short Term Liquidity

**Domestic Equity** can be volatile. The rise or fall in prices take place for a number of reasons including, but not limited to changes to underlying company conditions, sector or industry factors, or other macro events. These may happen quickly and unpredictably.

**International Equity** can be volatile. The rise or fall in prices take place for a number of reasons including, but not limited to changes to underlying company conditions, sector or industry impacts, or other macro events. These may happen quickly and unpredictably. International equity allocations may also be impact by currency and/or country specific risks which may result in lower liquidity in some markets.

**Real Assets** can be volatile and may include asset segments that may have greater volatility than investment in traditional equity securities. Such volatility could be influenced by a myriad of factors including, but not limited to overall market volatility, changes in interest rates, political and regulatory developments, or other exogenous events like weather or natural disaster.

**Private Equity** involves higher risk and is suitable only for sophisticated investors. Along with traditional equity market risks, private equity investments are also subject to higher fees, lower liquidity and the potential for leverage that may amplify volatility and/or the potential loss of capital.

**Private Credit** involves higher risk and is suitable only for sophisticated investors. These assets are subject to interest rate risks, the risk of default and limited liquidity. U.S. investors exposed to non-U.S. private credit may also be subject to currency risk and fluctuations.

**Private Real Estate** involves higher risk and is suitable only for sophisticated investors. Real estate assets can be volatile and may include unique risks to the asset class like leverage and/or industry, sector or geographical concentration. Declines in real estate value may take place for a number of reasons including, but are not limited to economic conditions, change in condition of the underlying property or defaults by the borrow.

**Marketable Alternatives** involves higher risk and is suitable only for sophisticated investors. Along with traditional market risks, marketable alternatives are also subject to higher fees, lower liquidity and the potential for leverage that may amplify volatility or the potential for loss of capital. Additionally, short selling involved certain risks including, but not limited to additional costs, and the potential for unlimited loss on certain short sale positions.

## **OTHER**

By regulation, closed-end funds utilizing debt for leverage must report their interest expense, as well as their income tax expense, as part of their total expense ratio. To make for a useful comparison between closed-end funds and both open-end funds and exchange-traded funds, adjusted expense ratios excluding interest and income tax expenses are utilized for closed-end funds within this report. See disclosure on closed-end fund fact sheets for information regarding the total expense ratio of each closed-end fund.

Please advise us of any changes in your objectives or circumstances.

## **CUSTODIAN STATEMENTS**

Please remember to review the periodic statements you receive from you custodian. If you do not receive periodic statements from your custodian or notice issues with the activity reported in those statements, please contact FA or your custodian immediately.