



Regime-Based Asset Allocation

The next step in the evolution of asset allocation

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Agenda

1. The path toward regime-based asset allocation
2. Regime dynamics and asset class behavior
3. Constructing portfolios in response to changes in macroeconomic expectations

Source: Investment Strategy & Solutions Group

The march towards Regime-Based Asset Allocation



Source: Investment Strategy & Solutions Group

Asset classes and portfolio roles should be used in tandem

	Growth	Inflation	Deflation
Traditional Asset Classes	Equity	U.S. Equity Int'l Equity EM Equity	Energy Equity Utilities Equity
	Fixed Income	High Yield	TIPS Sovereign Debt High Quality Corp.
	Alternatives	Private Equity Long-biased HF	Real Estate Commodities Real Assets

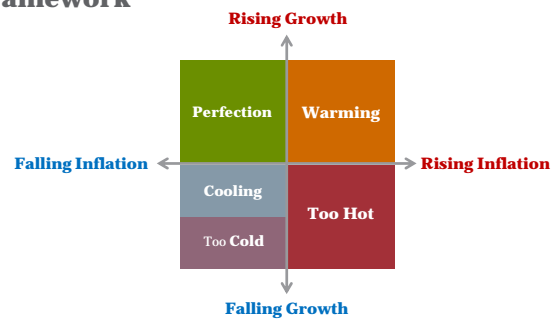
Source: Investment Strategy & Solutions Group

A further refinement of the bucketing system

“Goldilocks economics” is too simplistic

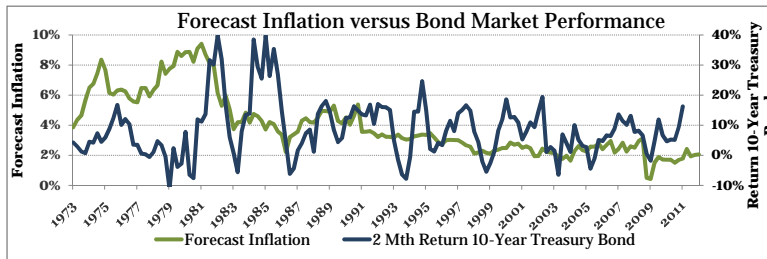
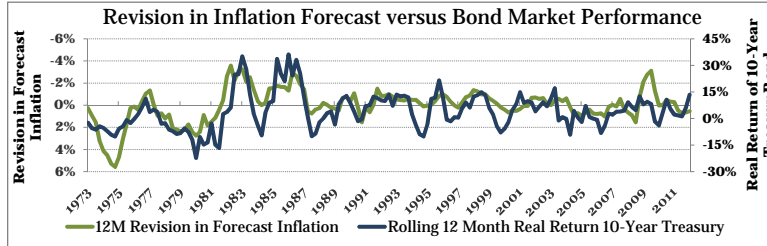


A richer framework



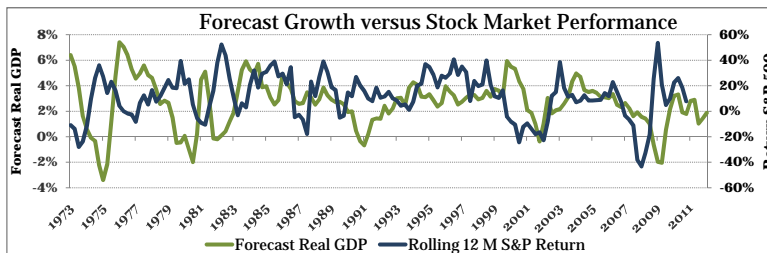
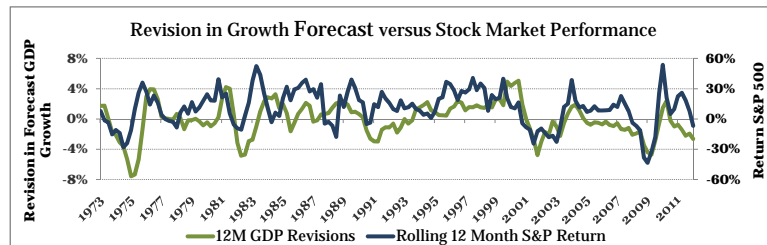
Source: Investment Strategy & Solutions Group

Revisions in inflation expectations explain bond returns better than levels of inflation



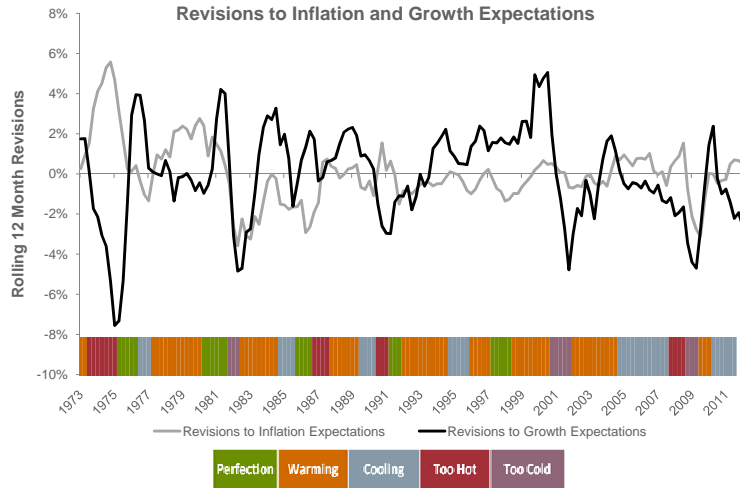
Source: Investment Strategy & Solutions Group

Revisions in growth expectations explain stock returns better than forecast GDP growth



Source: Investment Strategy & Solutions Group

Revisions in Inflation and growth expectations combine to create regimes

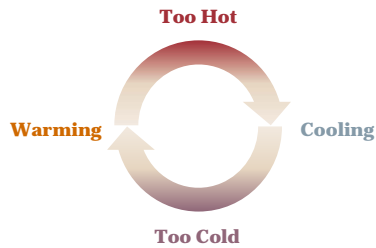


Source: Investment Strategy & Solutions Group. Source: Philadelphia Federal Reserve as of 2/29/2012.

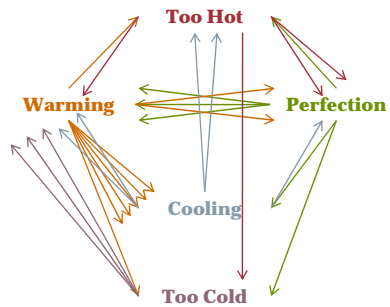
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Regimes do not occur in cycles

The conventional image



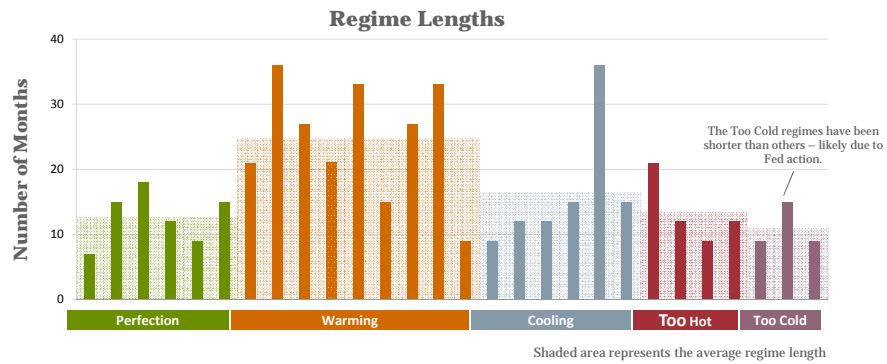
40 years of regime transitions



Source: Investment Strategy & Solutions Group

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Regime lengths have varied



Source: Investment Strategy & Solutions Group

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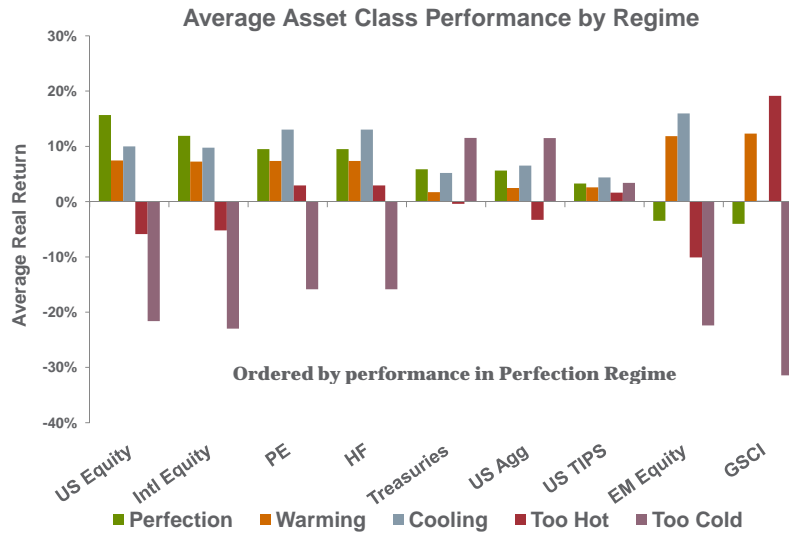
U.S. Stock market performance varied by regime

Regime	Inflation	Growth	Frequency	Real Return	Contribution to Return
Too Hot	Rising	Falling	11%	-5.9%	-0.7%
Too Cold	Falling	Negative	7%	-21.6%	-1.5%
Cooling	Falling	Falling	20%	12.0%	2.4%
Warming	Steady/Rising	Steady/Rising	46%	7.5%	3.4%
Perfection	Falling	Rising	16%	14.6%	2.3%
Total			100%	6.0%	6.0%

Source: Ibbotson, Bloomberg, As of 8/31/2011. Returns calculated using the regimes outlined on slide 19. Please see appendix for index descriptions.

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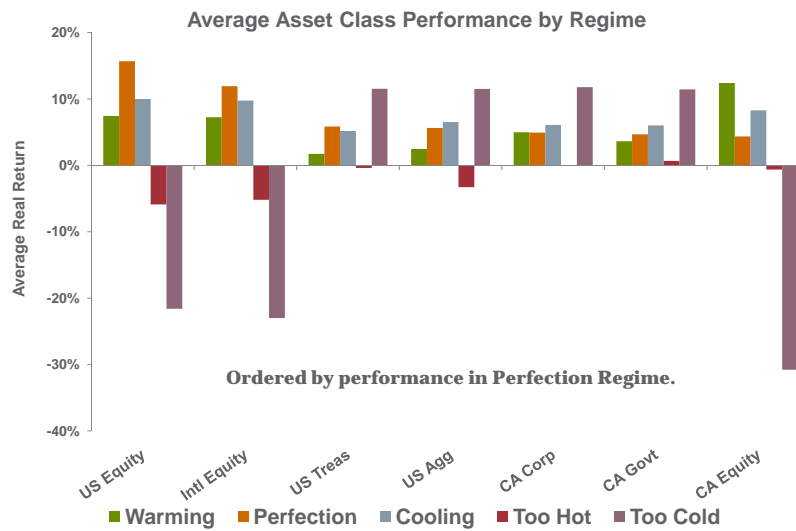
Asset performance varied by regime



Refer to addendum for additional information and sources. See appendix for index descriptions and time periods.

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Canadian equities suffered during Too Hot regimes



Refer to addendum for additional information and sources. See appendix for index descriptions and time periods.

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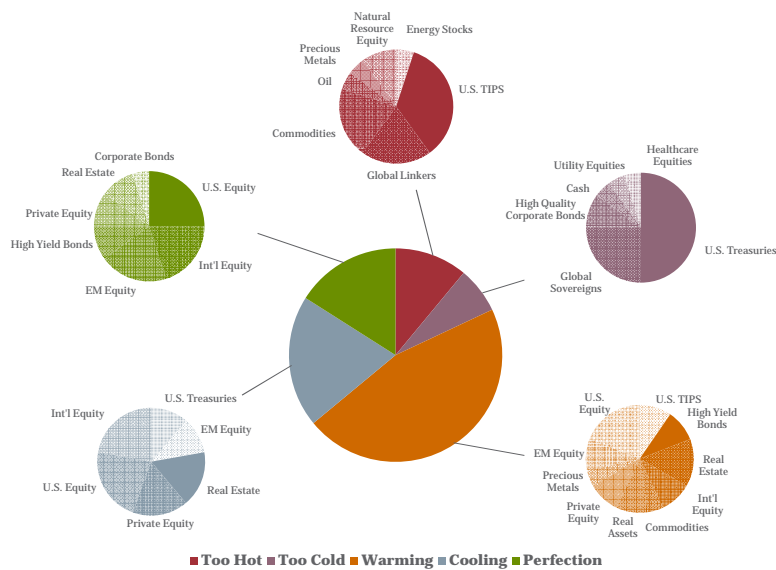
Our view of likely out performing asset classes by regime

	Growth			Inflation	Deflation
	Perfection	Warming	Cooling	Too Hot	Too Cold
Equity	Equities (led by consumer & tech sectors) U.S., Int'l and EM	Nat. Resource Equity EM Equity Energy & Industrial Sectors	EM Equity Energy Stocks Utilities Stocks	Nat. Resource Equity Energy Stocks	Utilities & Health Care Sectors
Fixed Income	High Yield Investment Grade	Inflation-Linked High Yield	Treasuries Global Bonds Corporate Bonds	US TIPS Global Linkers	Treasuries Global Bonds Ultra High Quality Corp. Cash
Alternatives	Private Equity Long-biased HF Real Estate	Real Estate Commodities Infrastructure Real Assets Private Equity Gold	Real Estate Private Equity	Commodities Oil Gold	Specialty HFs "Interest Rate Products"

Source: Investment Strategy & Solutions Group

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Regime specific portfolios have very different allocations



Source: Investment Strategy & Solutions Group

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Awareness of regimes can lead to better performance

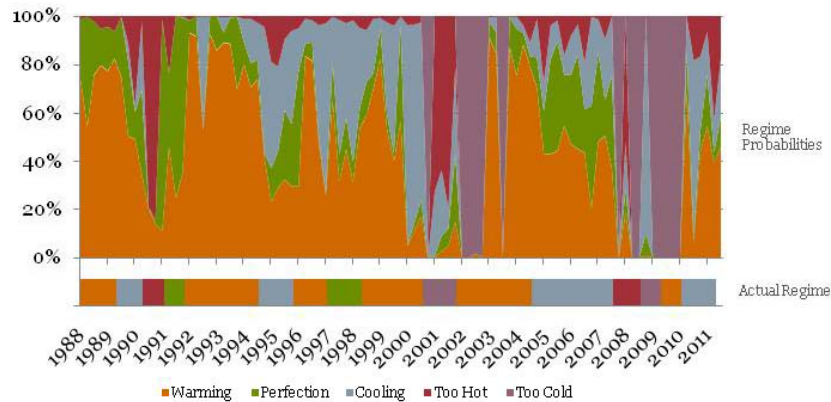
We believe:

- 1. Insight into regime probabilities should lead to better performance.**
- 2. A regime based asset allocation framework requires a systematic approach to estimating regime probabilities.**
- 3. The estimated probabilities can be used to dynamically adjust portfolio exposures.**

Source: Investment Strategy & Solutions Group. For more information please see ISSG's paper entitled "Great Expectations".

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Estimating probabilities of regimes



Source: Investment Strategy & Solutions Group. * Multinomial logistic regression models are typically used to predict the probabilities of different possible outcomes of a predefined, dependent variable, given a set of independent variables.

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Constructing a dynamic RBAA strategy

Strategy Over/Under Weights Through Time



RBAA vs Institutional Portfolio Performance (Net of fees)

	RBAA Portfolio	Inst. Portfolio
Annualized Return	9.5%	7.9%
Annualized Risk	8.3%	11.5%
Risk Free Rate	4.0%	4.0%
Sharpe Ratio	0.67	0.34

Source: Investment Strategy & Solutions Group *Based on data from Greenwich Associates. Please see appendix for further information and index descriptions.

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Current RBAA forecasts reflect a relatively benign environment

Regime	Inflation	Growth	Current Forecast Probability	Historical Average	Difference
Too Hot	Rising	Falling	28%	11%	17%
Too Cold	Falling	Negative	0%	7%	-7%
Cooling	Falling	Falling	35%	20%	15%
Warming	Steady/Rising	Steady/Rising	20%	46%	-26%
Perfection	Falling	Rising	17%	16%	1%
Total			100%	100%	0%

Source: Investment Strategy & Solutions Group

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Current RBAA model position: Underweight nominal bonds and overweight inflation hedges

	Current Weight	Neutral Mix	Active Weight	
US Stocks	32%	30%	2%	3%
International Stocks	25%	20%	5%	
Emerging Market	4%	5%	-1%	
REITs	2%	5%	-3%	
Aggregate Bonds	18%	20%	-2%	-13%
US Treasuries	1%	10%	-9%	
High Yield	0%	5%	-5%	
15+ Year STRIPS	3%	0%	3%	
TIPS	6%	0%	6%	10%
Commodities	9%	5%	4%	
Total	100%	100%		

Source: Investment Strategy & Solutions Group

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Conclusion

We believe:

- Regimes are important drivers of relative asset class performance.
 - They evolve due to changes in investors' expectations.
 - The transitions are not a simple cycle of heating and cooling.
- A regime-based asset allocation framework can add value.
 - Systematically combines regime probabilities with regime contingent asset class performance.
- Regime based asset allocation can be implemented across the entire portfolio or within asset classes.

Source: Investment Strategy & Solutions Group

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Appendix

Asset Class Name	Index	Start	End
US Equity/US Real Stock Return	S&P 500	12/31/1969	08/31/2011
International Equity	MSCI EAFE	12/31/1970	08/31/2011
Emerging Market Equity	MSCI EM	12/31/1987	08/31/2011
10-Year Treasury	St. Louis Fed	12/31/1969	08/31/2011
High Yield Bonds	CSFB High Yield Index	12/31/1985	08/31/2011
Corporate Bonds	Barclays Capital US IG Corporate Bond	01/31/1973	08/31/2011
TIPS	Barclays US Government Inflation Linked Bond	03/31/1997	08/31/2011
TIPS 2	ISSG TIPS Simulation	01/31/1972	03/31/1997
Private Equity	Cambridge Associates Private Equity returns	01/31/1996	03/31/2011
Hedge Funds	HFRF fund weighted composite	01/31/1990	08/31/2011
GSCI	S&P GSCI	01/31/1973	08/31/2011
CPI	CPI Urban Consumers (seasonally adjusted)	12/31/1969	07/31/2011
Oil	NYMEX Crude Futures/Spot Oil	12/31/1969	08/31/2011
Gold	COMEX Gold/Spot Gold	12/31/1969	08/31/2011
GDP	US GDP (seasonally adjusted)	12/31/1969	06/30/2011
Real Estate (Listed)	FTSE EPRA/NAREIT U.S. Real Estate Equity Index Series	12/31/1989	08/31/2011
GDP Revisions	Survey of Professional Forecasters/Federal Reserve Bank of Philadelphia	12/31/1969	08/31/2011
CPI Revisions	Survey of Professional Forecasters/Federal Reserve Bank of Philadelphia	12/31/1969	08/31/2011

- The Survey of Professional Forecasters is the oldest quarterly survey of macroeconomic forecasts in the United States. The survey began in 1968 and was conducted by the American Statistical Association and the National Bureau of Economic Research. The Federal Reserve Bank of Philadelphia took over the survey in 1990. The forecasted annual CPI inflation and GDP growth are an aggregation of the forecasted values for each of the next four quarters.
- The MSCI EAFE index is widely accepted as a benchmark for international stock performance (excluding the United States and Canada), and measures the performance of the developed stock markets of Europe, Australia, and the Far East (EAFE). The index is an aggregate of 22 individual country indices that collectively represent many of the major markets of the world. The index series includes only markets, companies, and share classes available to foreign investors. It is designed to maximize float and liquidity, minimize cross-ownership, and accurately reflect the market's total size, industry composition, and size of stock. The index is calculated on a total return with the percentage change in price plus actual coupon income making up the total return. The index is rebalanced monthly.
- S&P 500 Index is considered to be generally representative of the U.S. large capitalization stock market as a whole. It is an unmanaged capitalization-weighted index of 500 commonly traded stocks designed to measure performance of the broad domestic economy through changes in the aggregate market value of those stocks. The index assumes reinvestment of dividends.
- The CSFB High Yield Index, compiled by Credit Suisse First Boston, measures high-yield debt securities, which are often referred to as "junk bonds."
- MSCI Emerging Markets Index (EM) is a capitalization-weighted benchmark designed to measure global emerging equity market performance and is calculated on a total return basis with dividends reinvested.
- Typical institutional portfolio data is based on a survey compiled by Greenwich Associates on average asset allocations for Corporate, Public, and Endowment & Foundation plans covering the period from 1990-2009. The ISSG applied the 1990 weights to 1988 and 1989 as well, and used the 2010 weights for 2011.
- RBAA portfolio is a dynamically adjusted portfolio based on the Typical Institutional Portfolio. The allocation swings are shown on page 17.

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Appendix

- CPI Urban Consumers (seasonally adjusted) - All Urban program produces monthly data on changes in the prices paid by urban consumers for a representative basket of goods and services.
- HFRF Fund of Funds Composite Index is an equally weighted performance index of fund of hedge funds selected by HFR. The index includes both onshore and offshore fund of funds, which invest across the spectrum of hedge fund strategies. There are no minimum asset sizes or operating history constraints. All underlying funds report returns net of fees and in US dollars. HFR, as a business practice, does not reveal the names of participant funds.
- The FTSE EPRA/NAREIT U.S. Real Estate Equity Index Series is designed to provide the most comprehensive assessment of overall industry performance, and includes all tax-qualified real estate investment trusts (REITs) that are listed on the New York Stock Exchange, the American Stock Exchange and the NASDAQ National Market List. The index constituents span the commercial real estate space across the US economy and provide investors with exposure to all investment and property sectors.
- Cambridge Associates Private Equity Returns- Please refer to the Proprietary Benchmarks page of the Cambridge Associates website at www.cambridgeassociates.com for additional information.
- The Barclays US Government Inflation-Linked Bond Index measures the performance of the US Treasury Inflation Protected Securities ("TIPS") market. The index includes TIPS with one or more years remaining maturity with total outstanding issue size of \$500m or more.
- TIPS returns prior to 1997 were simulated by the ISSG using breakeven inflation rates from the United Kingdom, Ten-Year Treasury Yields, and Survey of Professional Forecasters data from the Federal Reserve Bank of Philadelphia.
- The Barclays Capital U.S. IG Corporate Bond Index is a broad-based benchmark that measures the investment grade, fixed-rate, taxable, corporate bond market. It includes USD-denominated securities publicly issued by U.S. and non-U.S. industrial, utility, and financial issuers that meet specified maturity, liquidity, and quality requirements. Securities in the index roll up to the U.S. Credit and U.S. Aggregate Indices. The index was launched on January 1, 1973.
- NYMEX Oil is an index blend of several U.S. domestic streams of light sweet crude oil with physical delivery.
- COMEX Gold is an index of 100 troy ounces of gold with physical delivery.
- The Federal Reserve Bank of St. Louis is one of the 12 regional reserve banks in the Fed System.
- S&P GSCI index is a composite index of commodity sector returns representing an unleveraged, long-only investment in commodity futures that is broadly diversified across the spectrum of commodities. The returns are calculated on a fully collateralized basis with full reinvestment.
- These benchmarks are broad-based indices which are used for comparative purposes only and have been selected as they are well known and are easily recognizable by investors. Comparisons to benchmarks have limitations because benchmarks have volatility and other material characteristics that may differ from the portfolio. For example, investments made for the portfolio may differ significantly in terms of security holdings, industry weightings and asset allocation from those of the benchmark. Accordingly, investment results and volatility of the portfolio may differ from those of the benchmark. Also, the indices noted in this presentation are unmanaged, are not available for direct investment, and are not subject to management fees, transaction costs or other types of expenses that the portfolio may incur. In addition, the performance of the indices reflects reinvestment of dividends and, where applicable, capital gain distributions. Therefore, investors should carefully consider these limitations and differences when evaluating the comparative benchmark data performance. The indices are trademarks and have been licensed for use by The Bank of New York Mellon Corporation (together with its affiliates and subsidiaries) and are used solely herein for comparative purposes. The foregoing index licensors are not affiliated with The Bank of New York Mellon Corporation, do not endorse, sponsor, sell or promote the investment strategies or products mentioned in this presentation and they make no representation regarding advisability of investing in the products and strategies described herein.

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