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North Carolina Supplemental Retirement Plans
GoalMaker Review
JANUARY 2013 (REVISED FEBRUARY 2013)

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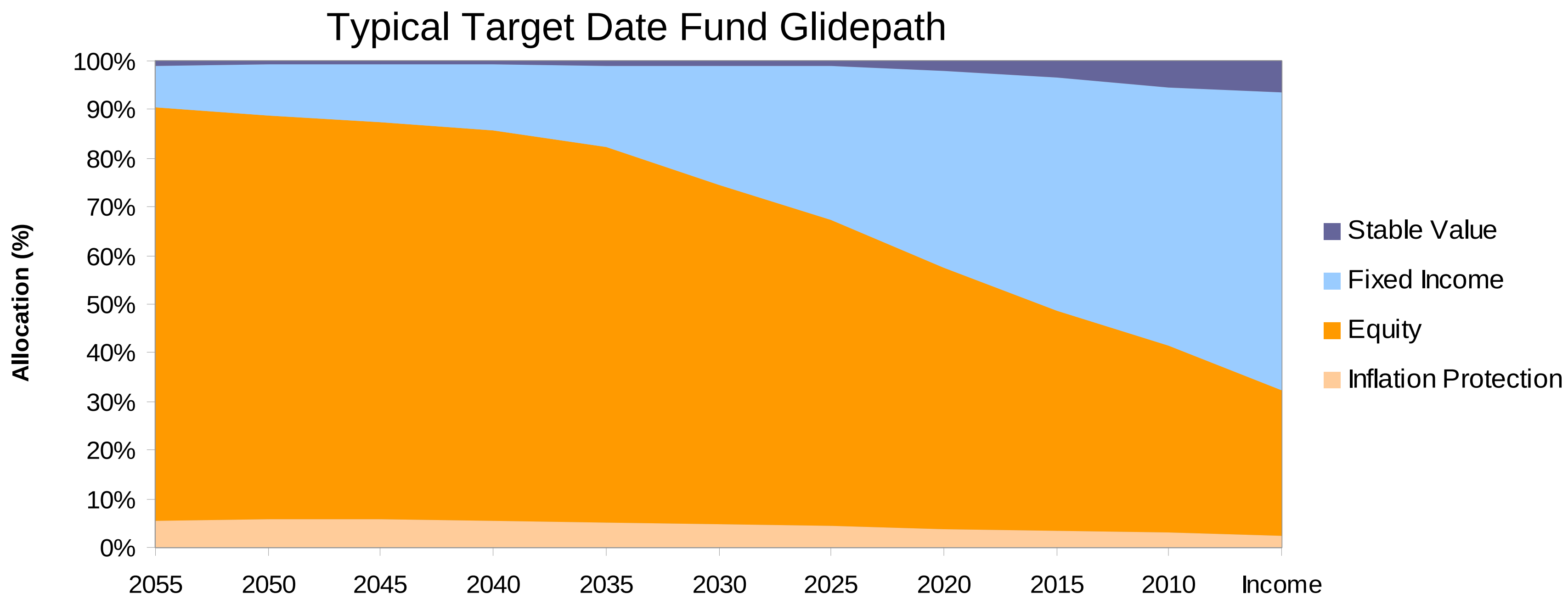
MARSH & McLENNAN COMPANIES

Agenda

- Glidepath Design
  - “To Retirement” vs. “Through Retirement”
- Phase I Proposal
  - Initial GoalMaker Enhancements
  - Implementing Phase I
- Phase II
  - Further Enhancements in Process

“To Retirement” vs. “Through Retirement”

Automatic asset allocation glidepath to retirement

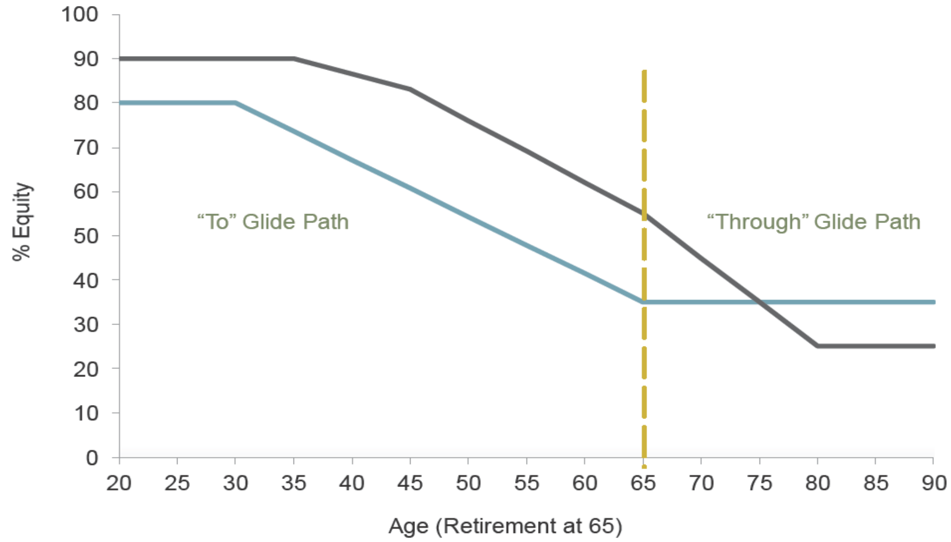


	2055	2050	2045	2040	2035	2030	2025	2020	2015	2010	Income
Expected Return	7.54%	7.22%	7.18%	7.13%	7.03%	6.81%	6.56%	6.22%	5.87%	5.57%	5.18%
Expected Risk	17.60%	16.93%	16.72%	16.40%	15.76%	14.40%	13.03%	11.31%	9.75%	8.51%	7.13%
Worst Case: 1 Yr, 2.5% Prob	-27.67%	-26.65%	-26.25%	-25.67%	-24.48%	-22.00%	-19.50%	-16.41%	-13.62%	-11.45%	-9.08%

“To retirement” vs. “through retirement”

- The “to” versus “through” distinction centers around how a glidepath (i.e., the evolving mix of equity and fixed income) should be designed once a target date fund reaches the target year of an individual’s retirement
- “To retirement” funds:
  - Designed primarily to build savings up to an individual’s target retirement date
  - Generally have more conservative allocations to equity (or other risky assets) at an individual’s target retirement date, typically with a flat or static allocation during later retirement years
  - <u>Anticipates that participants withdraw all funds at retirement</u>
- “Through retirement” funds:
  - Designed to help investors save through retirement, based on the philosophy that at age 65, an individual still has at least 20 years (or more) of life expectancy
  - Because of increased longevity, investors need their accumulated balances to last them long after retirement
  - Generally have higher allocations to equity (or other risky assets) at an individual’s target retirement date, with a declining equity allocation (i.e., equity exposure roll down) for a number of years post-retirement
  - <u>Anticipates that participants remain in plan after retirement</u>
- Large plan sponsors typically offer a “through retirement” glidepath
  - Examples: City of New York (custom), State of Ohio (custom), State of Texas (mutual funds), State of California (custom), State of Mississippi (mutual funds)

“To retirement” vs. “through retirement”



Objectives / Constraints	Equity minimized at retirement (“To” philosophy)	Equity minimized years into retirement (“Through” philosophy)
Accumulation	Focus on accumulating a high probability minimum target balance at retirement	Focus on building a high median expected balance to sustain spending in retirement
Risk budget and participant experience	Smooth the ride: trade potential return for lower volatility especially near and in retirement	Embrace a bumpier ride: accept higher volatility for higher return potential during work and early retirement
Retirement preparation	Focus on asset preservation and managing sequential risk approaching retirement	Focus on building and sustaining spending capacity throughout retirement
Advice preparation	Reduce likelihood of bad outcomes late in employment in preparation for de-accumulation and the potential help of a professional	Embed retirement investment advice in target date portfolios; whether assets remain in-plan or are rolled to an IRA should not impact allocation decision
Annuitization option	Prepare participants for possible total or partial annuitization	Prepare participants for systematic withdrawal

Source: Defined Contribution Institutional Investment Association, 2012

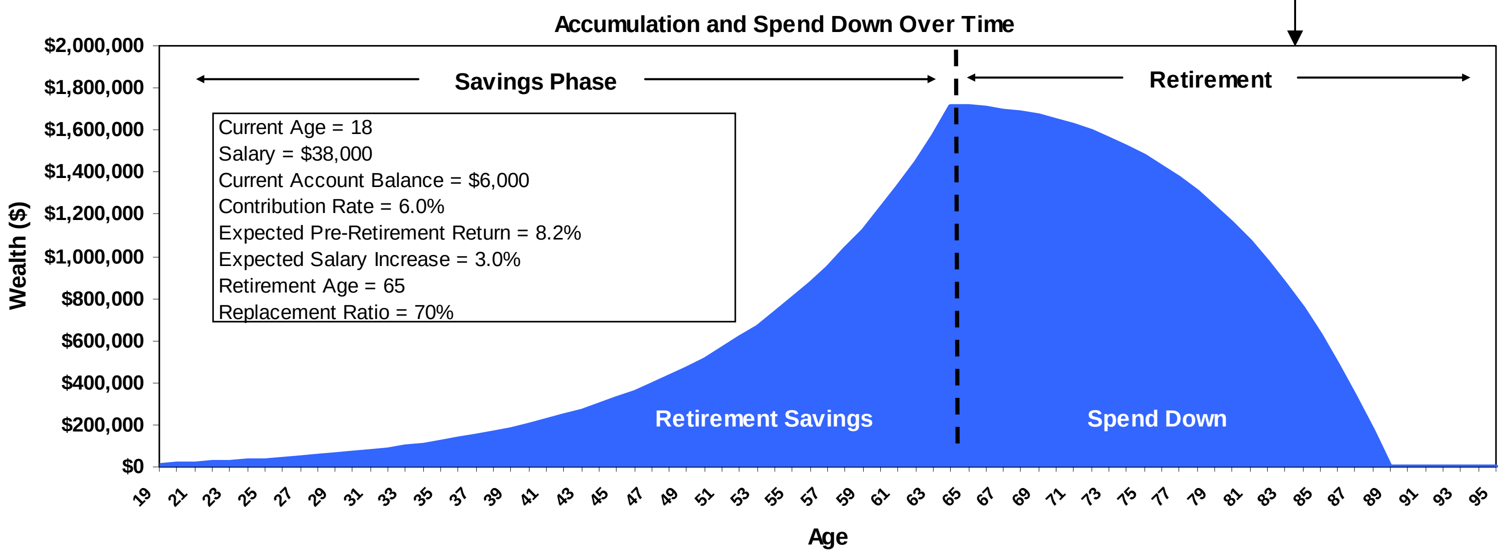
“To retirement” vs. “through retirement”
DC spend down: The next big challenge

- Historically, sponsors focused on wealth accumulation and retirement readiness
- Sponsor focus is now shifting to the drawdown of assets – challenges include:
  – Addressing longevity, inflation and market risks
  – Providing education and tools to help participants plan and manage retirement
  – Understanding and evaluating the available product solutions
  – The NC DB transfer benefit provides a cost effective means for participants to convert a portion of their savings to an annuity

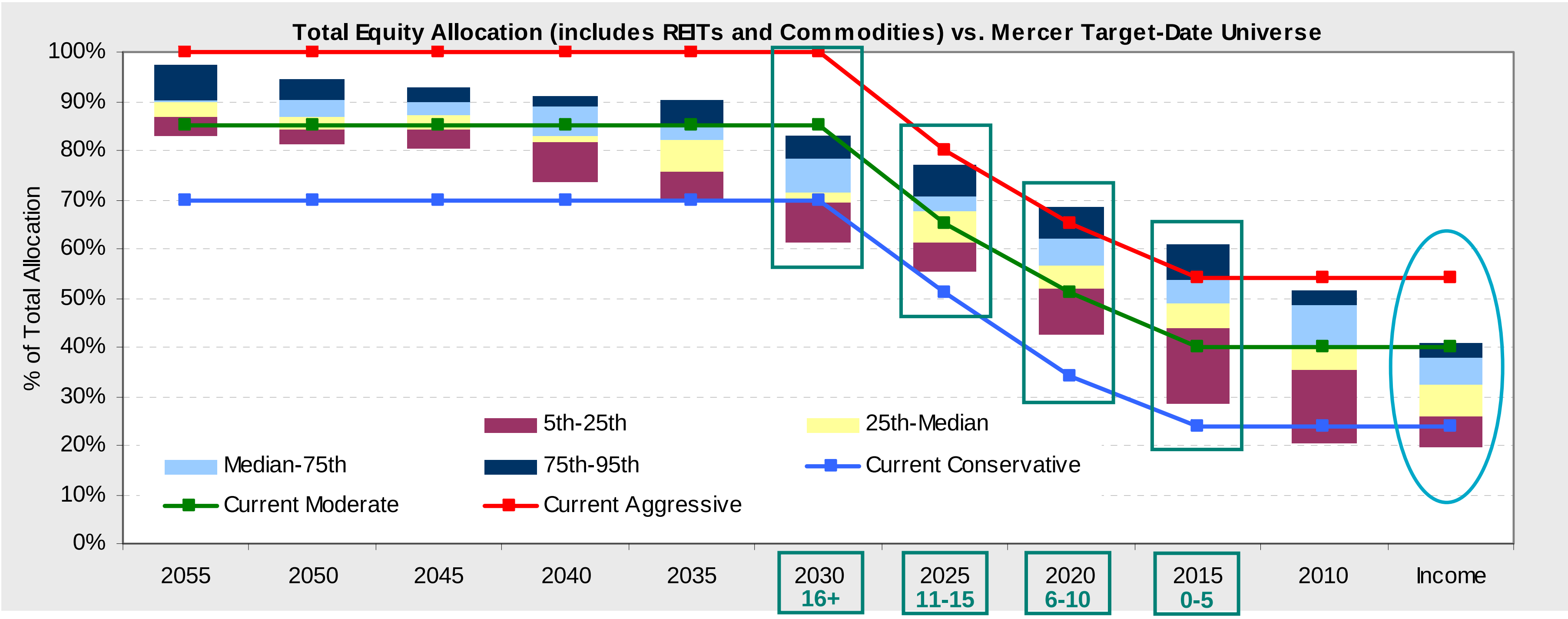
What is *spend down*?

The process of drawing down DC plan assets for purposes of providing income and meeting expenses in retirement

Retirement phase receiving greater focus



"To retirement" vs. "through retirement"
Current NCSRP glidepath: Hybrid to/through retirement construction



Mercer Target-Date Universe based on Mercer Third Quarter 2012 Target Date Fund Survey and includes 35 off-the-shelf target-date strategies.

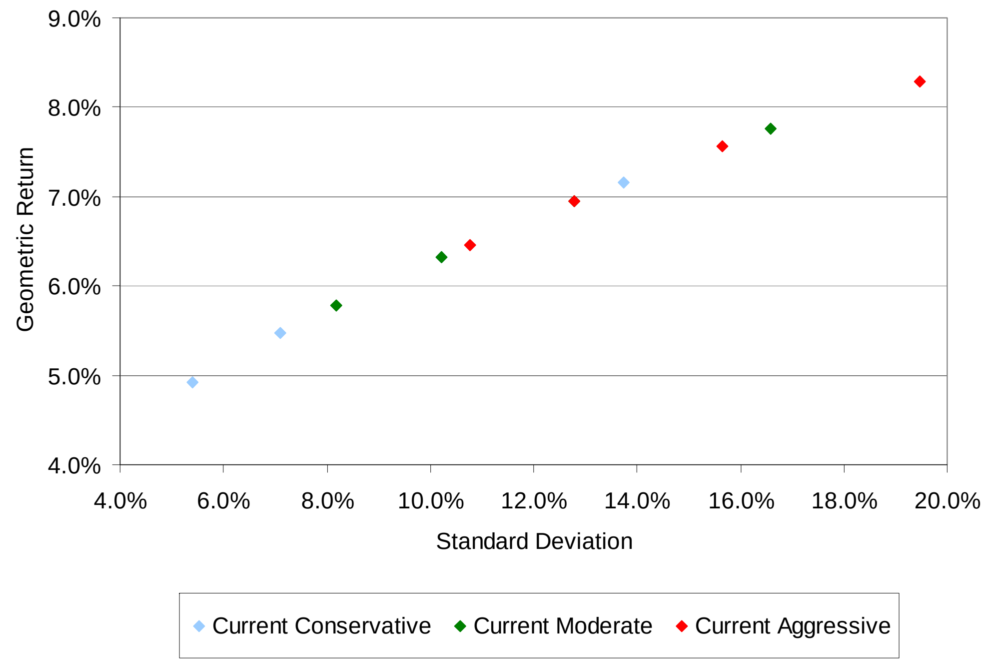
- Reallocation begins at 16 years to retirement (approximately year 2030), in 5-year increments
- "To retirement" glidepath, but with "through retirement" allocation
  - Equity exposure at retirement is appropriate for a 10+ year horizon
  - No further equity exposure roll-down post-retirement
  - Allocation will become too aggressive after retirement

Phase I
Initial GoalMaker Enhancements

North Carolina GoalMaker Portfolios (Current)

	Conservative				Moderate				Aggressive			
	0-5 Yrs	6-10 Yrs	11-15 Yrs	16+ Yrs	0-5 Yrs	6-10 Yrs	11-15 Yrs	16+ Yrs	0-5 Yrs	6-10 Yrs	11-15 Yrs	16+ Yrs
Stable Value	44%	39%	23%	14%	35%	23%	16%	7%	21%	16%	9%	0%
Fixed Income	32%	27%	26%	16%	25%	26%	19%	8%	25%	19%	11%	0%
Large Cap Equity	10%	14%	22%	30%	16%	22%	28%	34%	24%	28%	32%	38%
Small/Mid Cap Equity	6%	8%	12%	16%	10%	12%	14%	20%	12%	14%	20%	26%
International Equity	8%	12%	17%	24%	14%	17%	23%	31%	18%	23%	28%	36%
Diversified Inflation Hedge	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Expected Return	4.93%	5.47%	6.32%	7.16%	5.78%	6.32%	6.95%	7.76%	6.46%	6.95%	7.57%	8.29%
Expected Risk	5.41%	7.10%	10.22%	13.75%	8.19%	10.22%	12.79%	16.58%	10.76%	12.79%	15.66%	19.47%
Worst Case: 1 Yr, 2.5% Prob	-5.89%	-8.72%	-14.12%	-20.33%	-10.59%	-14.12%	-18.63%	-25.39%	-15.07%	-18.63%	-23.75%	-30.65%

- North Carolina increased the GoalMaker Portfolios' exposure to international equity, as compared to Morningstar's standard glidepath in 2010



Mercer's capital market assumptions
Long-term (20-year) projections – October 2012

Risk/Return Assumptions

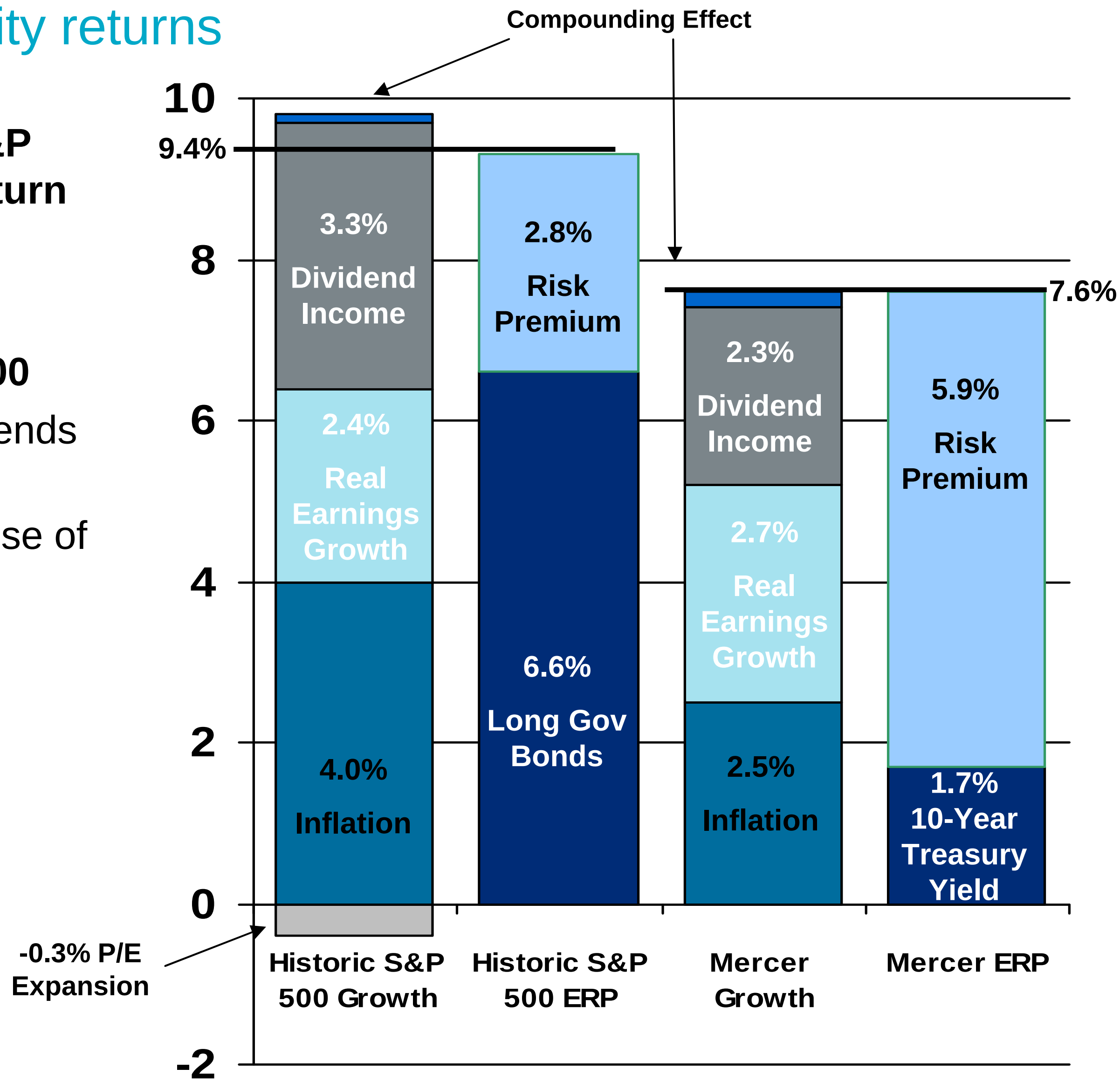
	Geometric Return	Arithmetic Return	Standard Deviation
Stable Value/GICs	3.4%	3.4%	3.0%
US Aggregate Fixed Income	3.6%	3.7%	5.0%
US Large Cap Equity	7.6%	9.4%	20.0%
US Small/Mid Cap Equity	7.7%	10.0%	23.0%
AC World ex-US All Cap Equity Unhedged	8.6%	10.5%	21.1%
US Inflation Indexed Fixed Income	2.7%	2.8%	4.5%
US REITs	7.3%	8.6%	17.0%
Commodities	4.1%	5.6%	18.0%

Correlation Assumptions

	Stable Value/GICs	US Aggregate Fixed Income	US Large Cap Equity	US Small/Mid Cap Equity	AC World ex-US All Cap Equity Unhedged	US Inflation Indexed Fixed Income	US REITs	Commodities
Stable Value/GICs	1.00							
US Aggregate Fixed Income	0.10	1.00						
US Large Cap Equity	0.05	0.10	1.00					
US Small/Mid Cap Equity	0.30	0.10	0.88	1.00				
AC World ex-US All Cap Equity Unhedged	0.00	0.05	0.76	0.66	1.00			
US Inflation Indexed Fixed Income	0.20	0.60	0.15	0.15	0.13	1.00		
US REITs	0.50	0.30	0.70	0.75	0.60	0.35	1.00	
Commodities	0.00	0.00	0.10	0.10	0.10	0.30	0.10	1.00

Asset allocation approach
Historical and expected equity returns

- **From 1959 through 2011, the S&P 500 earned a 9.4% geometric return**
  - Earnings have not matched economic growth
- **We forecast 7.6% for the S&P 500**
  - Lower income return, as dividends are much lower
  - Higher earnings growth because of lower dividends
  - No P/E impact
  - Lower inflation



Data sources: Standard & Poor's and Federal Reserve
Analysis by Mercer

Bond returns
July 2012 assumptions

Components of Equilibrium Yields

	3-Month	1-Year	5-Year	10-Year	30-Year
Real Yield Curve	0.80	1.35	1.70	2.00	2.10
Expected Inflation	2.50	2.50	2.50	2.50	2.50
Inflation Risk Premium	0.05	0.10	0.15	0.25	0.30
Nominal Yield Curve	3.35	3.95	4.35	4.75	4.90
AA Corp Default Spreads	0.60	0.70	0.80	0.90	1.00
Corporate Yield Curve	3.95	4.65	5.15	5.65	5.90

Current Real Yields	--	-0.34	-1.00	-0.46	0.56
Current Treasury Yield Curve	0.09	0.21	0.72	1.67	2.76
BofA/ML AA Yields	--	0.67	2.04	3.25	4.28
LIBOR	0.46	--	--	--	--

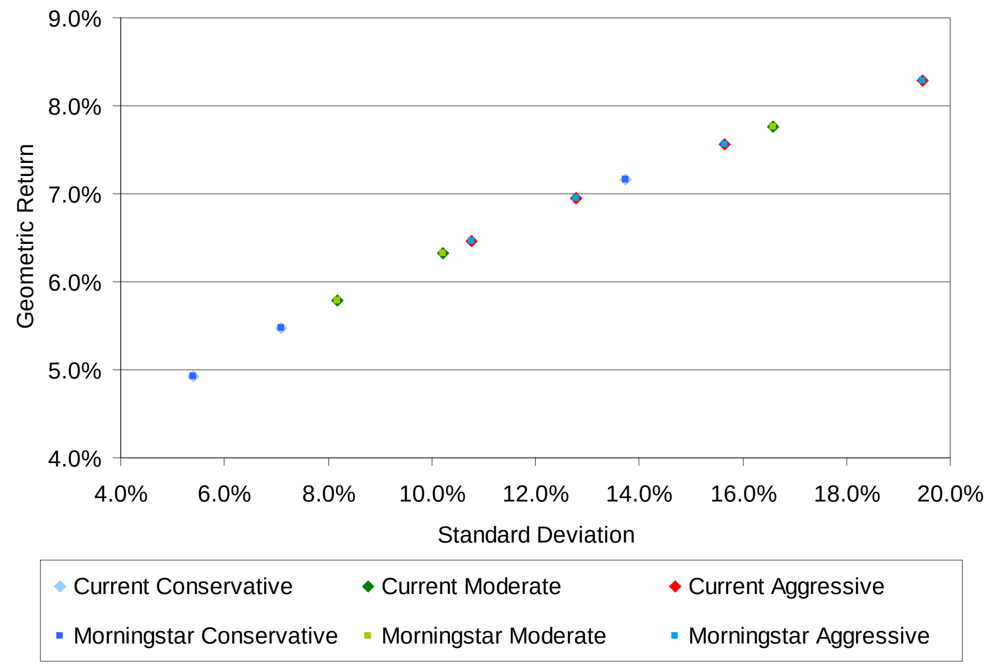
Domestic Fixed Income	Current Yield	Equilibrium Yield	1-Year Expected	2-Year Expected	3-Year Expected	5-Year Expected	10-Year Expected	20-Year Expected	Modified Adj Duration
Aggregate	2.2%	5.1%	-1.3%	-0.9%	-0.6%	0.0%	2.5%	3.8%	4.9
Intermediate G/C	1.5%	4.9%	-1.0%	-0.7%	-0.4%	0.3%	2.6%	3.8%	3.9
Long G/C	3.9%	5.5%	-2.5%	-2.2%	-1.9%	-1.3%	2.0%	3.7%	14.3
Very Long Government	2.9%	5.0%	-6.2%	-5.9%	-5.6%	-4.9%	-0.1%	2.4%	20.0
Inflation Indexed	1.7%	4.3%	-0.3%	-0.1%	0.0%	0.4%	2.3%	3.3%	N/A
Cash	0.0%	3.3%	0.4%	0.7%	1.0%	1.7%	2.5%	3.0%	0.2

Glidepath enhancements
Morningstar – standard version

	Conservative				Moderate				Aggressive			
	0-5 Yrs	6-10 Yrs	11-15 Yrs	16+ Yrs	0-5 Yrs	6-10 Yrs	11-15 Yrs	16+ Yrs	0-5 Yrs	6-10 Yrs	11-15 Yrs	16+ Yrs
Stable Value	44%	39%	23%	14%	35%	23%	16%	7%	21%	16%	9%	0%
Fixed Income	32%	27%	26%	16%	25%	26%	19%	8%	25%	19%	11%	0%
Large Cap Equity	10%	14%	22%	30%	16%	22%	28%	34%	24%	28%	32%	38%
Small/Mid Cap Equity	6%	8%	12%	16%	10%	12%	14%	20%	12%	14%	20%	26%
International Equity	8%	12%	17%	24%	14%	17%	23%	31%	18%	23%	28%	36%
Diversified Inflation Hedge	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Expected Return	4.93%	5.47%	6.32%	7.16%	5.78%	6.32%	6.95%	7.76%	6.46%	6.95%	7.57%	8.29%
Expected Risk	5.41%	7.10%	10.22%	13.75%	8.19%	10.22%	12.79%	16.58%	10.76%	12.79%	15.66%	19.47%
Expected Inflation Beta	-0.46	-0.44	-0.42	-0.38	-0.43	-0.42	-0.39	-0.35	-0.41	-0.39	-0.36	-0.32
Worst Case: 1 Yr, 2.5% Prob	-5.89%	-8.72%	-14.12%	-20.33%	-10.59%	-14.12%	-18.63%	-25.39%	-15.07%	-18.63%	-23.75%	-30.65%

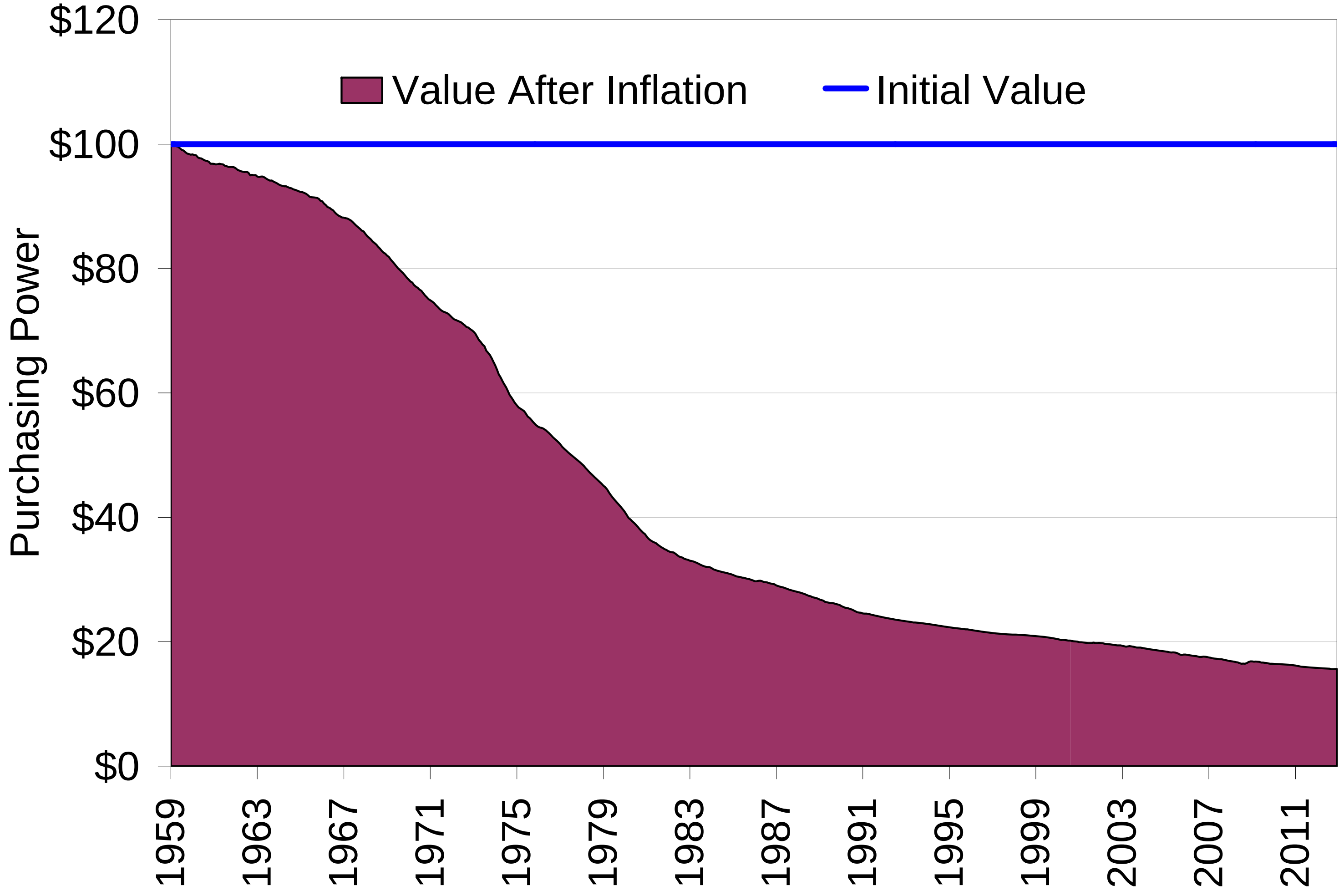
- Morningstar's new standard glidepath has the same international equity exposure as North Carolina's existing GoalMaker Portfolios

- This glidepath has the **same construction** as North Carolina's existing GoalMaker Portfolios

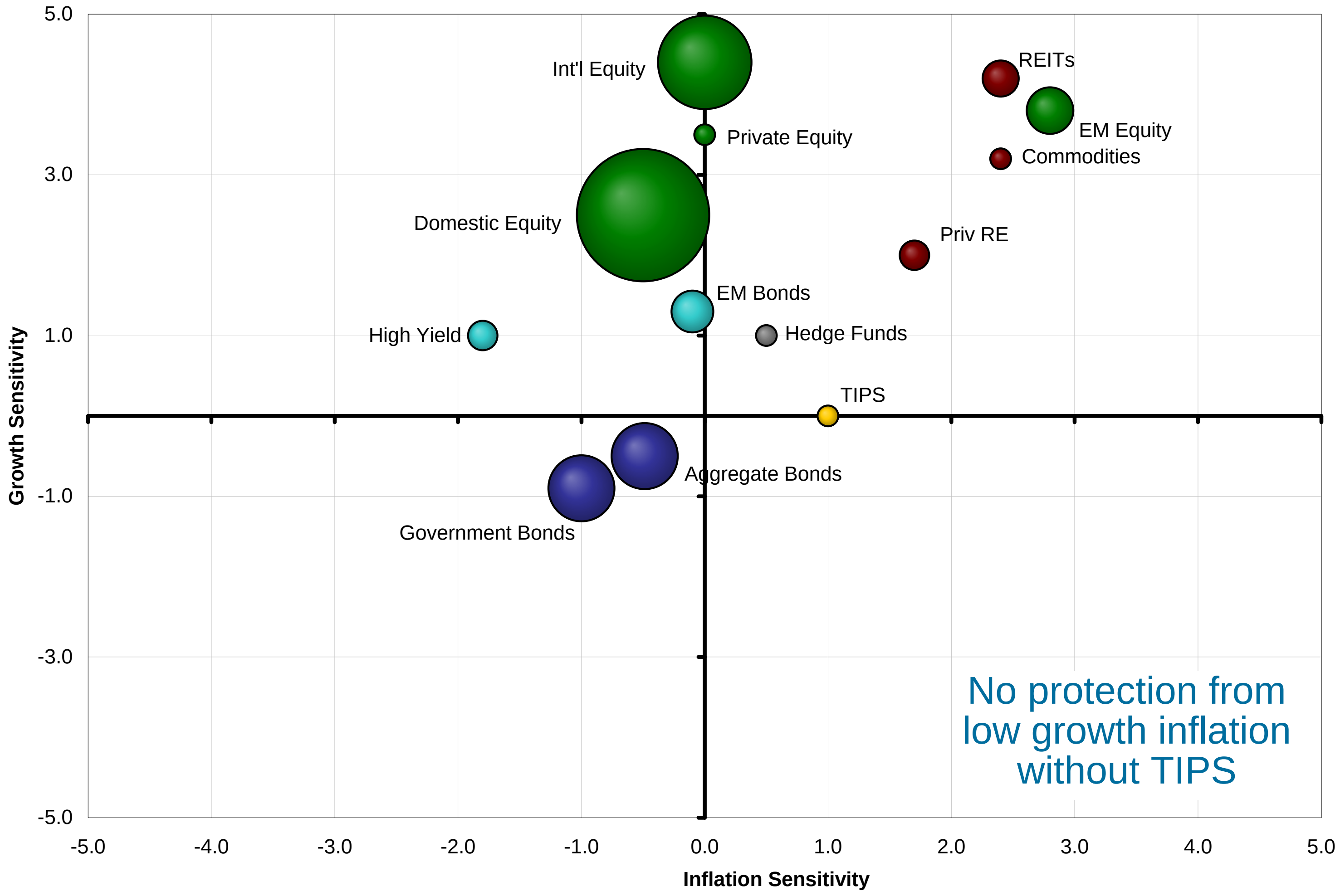


Retirement Savings

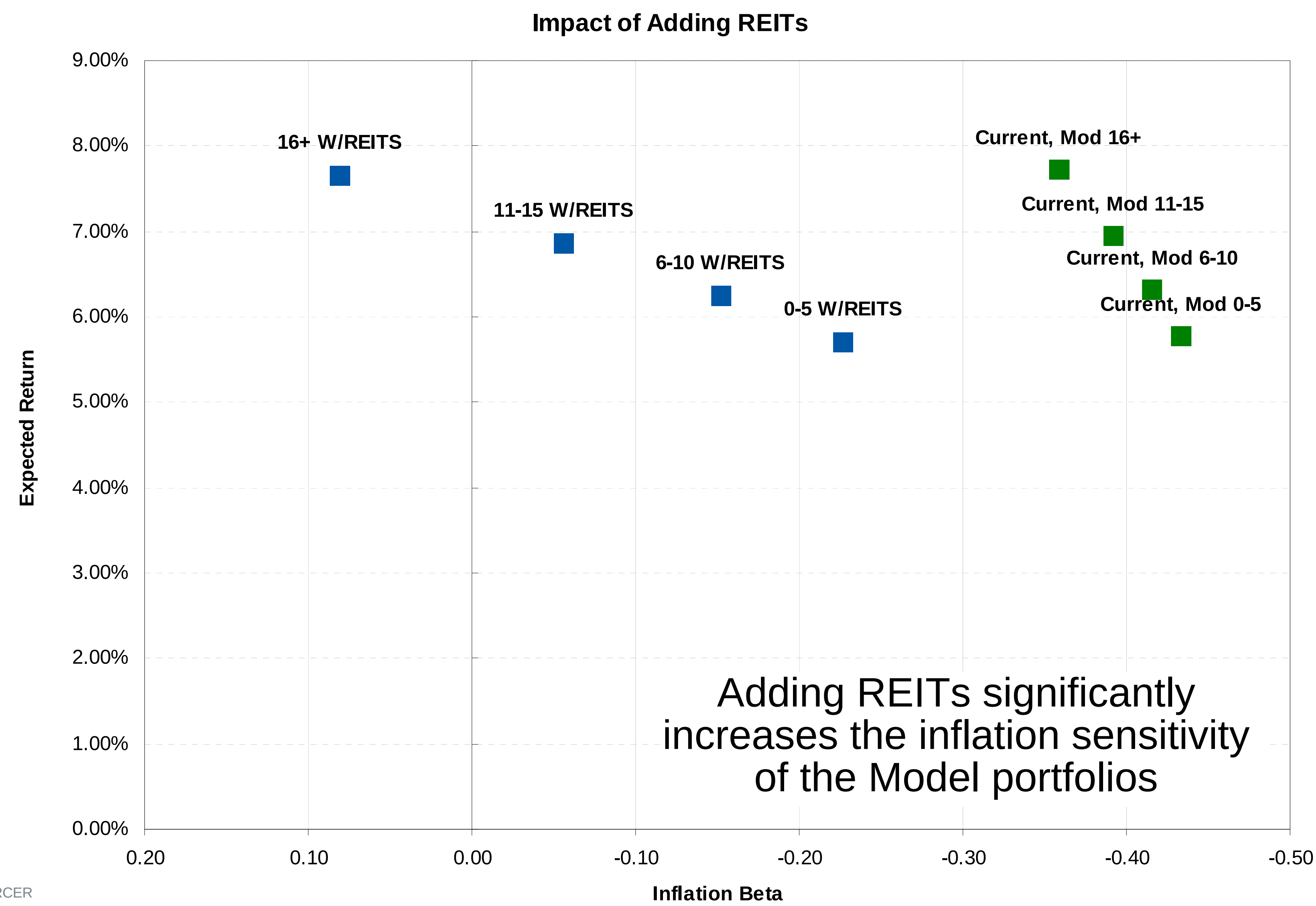
The Danger of Inflation



Asset classes for glidepath
Sensitivity to inflation and growth

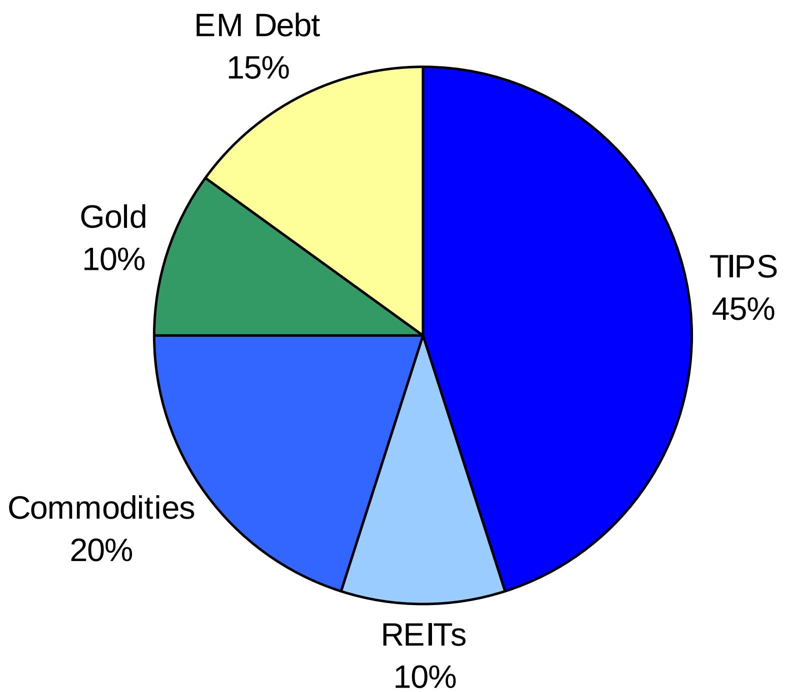


Asset classes for glidepath
Impact of adding REITs



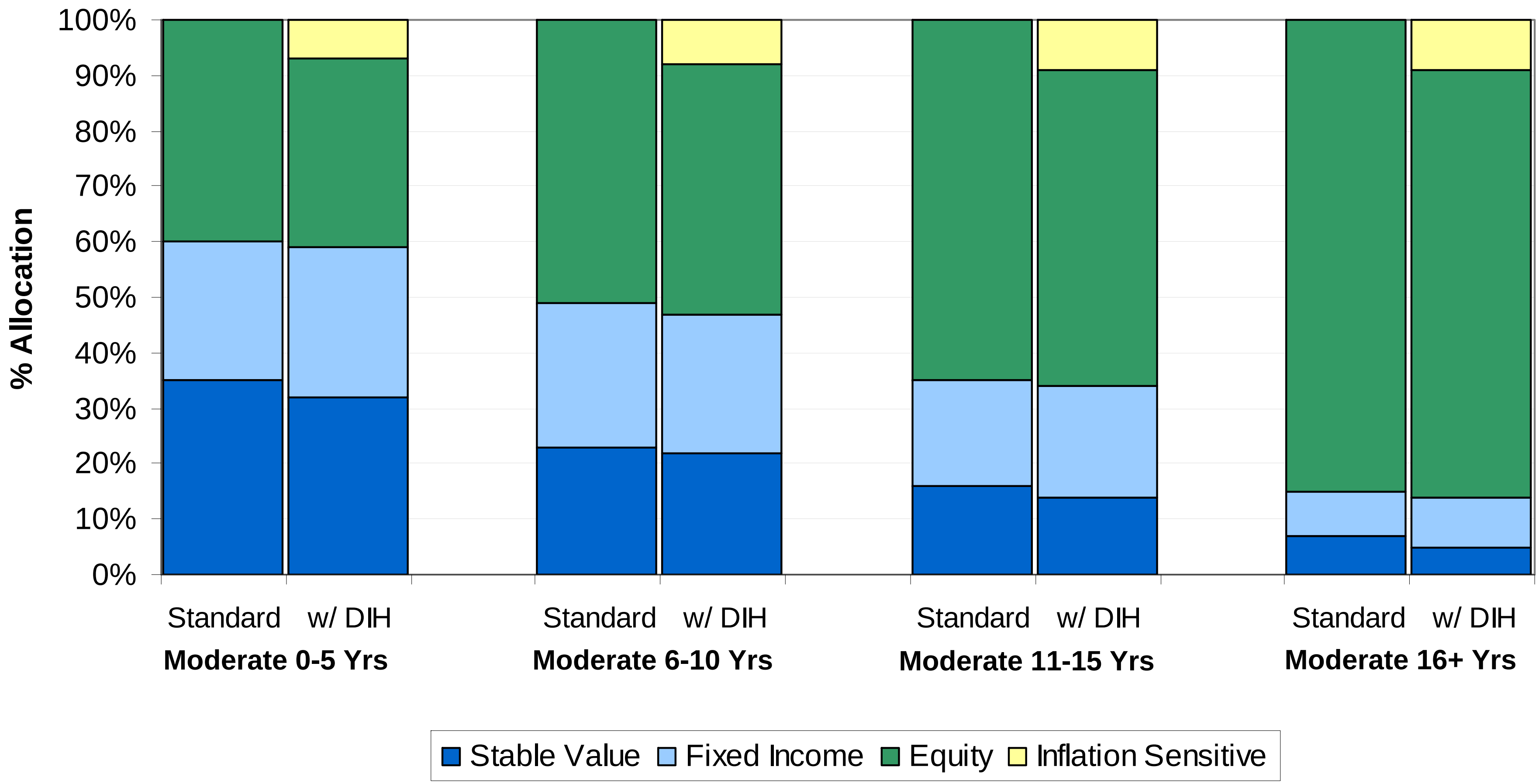
Diversified inflation hedge fund
PIMCO Inflation Response Multi-Asset Fund

Target Asset Allocation



- Expected return: 4.29%
- Expected risk: 6.86%
- Expected inflation beta: 1.34

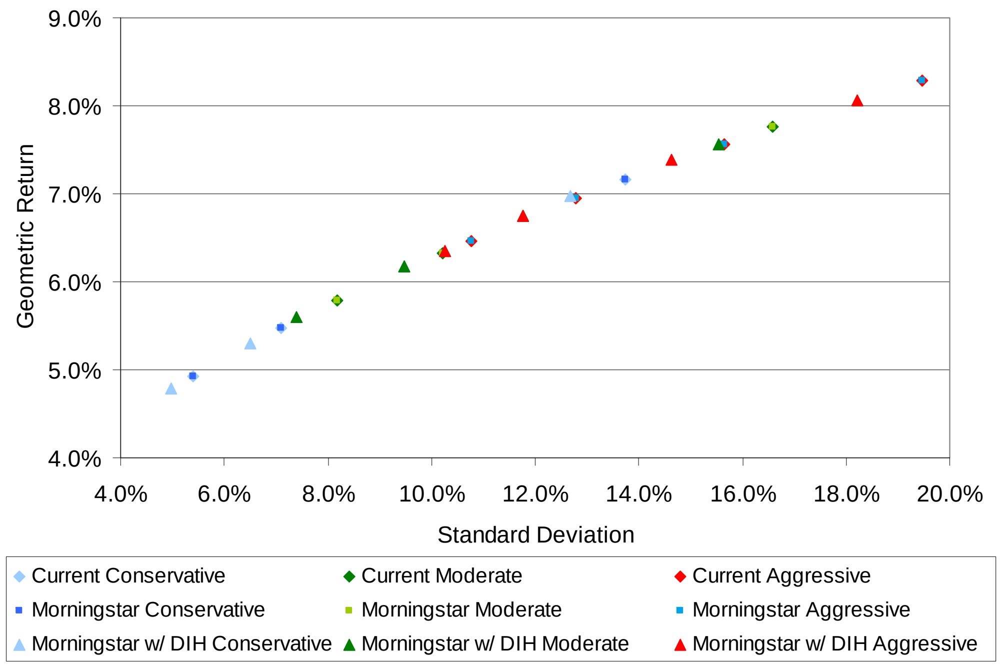
Glidepath enhancements
Morningstar – With and Without Inflation Fund



Glidepath enhancements
Morningstar – with exposure to diversified inflation hedge

	Conservative				Moderate				Aggressive			
	0-5 Yrs	**6-10 Yrs**	**11-15 Yrs**	**16+ Yrs**	**0-5 Yrs**	**6-10 Yrs**	**11-15 Yrs**	**16+ Yrs**	**0-5 Yrs**	**6-10 Yrs**	**11-15 Yrs**	**16+ Yrs**
Stable Value	41%	36%	22%	11%	32%	22%	14%	5%	18%	14%	7%	0%
Fixed Income	34%	29%	25%	18%	27%	25%	20%	9%	25%	20%	11%	0%
Large Cap Equity	10%	14%	20%	26%	16%	20%	24%	32%	22%	24%	30%	38%
Small/Mid Cap Equity	4%	6%	10%	14%	6%	10%	14%	20%	12%	14%	18%	24%
International Equity	6%	9%	15%	22%	12%	15%	19%	25%	15%	19%	24%	29%
Diversified Inflation Hedge	5%	6%	8%	9%	7%	8%	9%	9%	8%	9%	10%	9%
Expected Return	4.73%	5.23%	6.08%	6.88%	5.52%	6.08%	6.66%	7.48%	6.27%	6.66%	7.29%	7.98%
Expected Risk	4.85%	6.34%	9.26%	12.42%	7.20%	9.26%	11.52%	15.28%	10.04%	11.52%	14.35%	17.94%
Expected Inflation Beta	-0.38	-0.34	-0.28	-0.22	-0.31	-0.28	-0.24	-0.21	-0.28	-0.24	-0.20	-0.19
Worst Case: 1 Yr, 2.5% Prob	-4.97%	-7.45%	-12.44%	-17.96%	-8.89%	-12.44%	-16.38%	-23.08%	-13.81%	-16.38%	-21.40%	-27.90%

- Exposure to inflation protection asset class helps participants preserve their purchasing power particularly as allocation to fixed income exposes them to inflation risk
- Allocation to diversified inflation hedge comes primarily from stable value and fixed income
- This glidepath exhibits a slight decrease in expected return, with a large reduction in expected risk



Glidepath enhancements – with exposure to diversified inflation hedge
Mercer recommended

	Conservative				Moderate				Aggressive			
	0-5 Yrs	6-10 Yrs	11-15 Yrs	16+ Yrs	0-5 Yrs	6-10 Yrs	11-15 Yrs	16+ Yrs	0-5 Yrs	6-10 Yrs	11-15 Yrs	16+ Yrs
Stable Value	40%	35%	22%	10%	31%	21%	14%	5%	17%	14%	7%	0%
Fixed Income	33%	29%	25%	20%	27%	25%	20%	9%	25%	20%	11%	0%
Large Cap Equity	8%	12%	20%	25%	14%	19%	24%	32%	20%	24%	30%	38%
Small/Mid Cap Equity	5%	7%	10%	15%	8%	11%	14%	20%	12%	14%	18%	23%
International Equity	6%	10%	15%	23%	11%	15%	19%	25%	16%	19%	24%	30%
Diversified Inflation Hedge	8%	8%	8%	8%	9%	9%	9%	9%	10%	10%	10%	10%
Expected Return	4.73%	5.24%	6.08%	6.89%	5.51%	6.08%	6.66%	7.48%	6.28%	6.64%	7.29%	7.96%
Expected Risk	4.82%	6.32%	9.26%	12.41%	7.19%	9.24%	11.52%	15.28%	9.99%	11.45%	14.35%	17.74%
Expected Inflation Beta	-0.32	-0.31	-0.28	-0.24	-0.28	-0.26	-0.24	-0.21	-0.24	-0.22	-0.20	-0.17
Worst Case: 1 Yr, 2.5% Prob	-4.91%	-7.41%	-12.44%	-17.92%	-8.88%	-12.40%	-16.38%	-23.08%	-13.70%	-16.26%	-21.40%	-27.52%

- Increase exposure to diversified inflation hedge fund, particularly when nearing retirement, to help offset inflation risk from high fixed income exposure
- Maintain constant exposure to diversified inflation hedge fund in each model
  – 8% in Conservative, 9% in Moderate, 10% in Aggressive
  – Provides diversification from equity risk in long-dated allocations

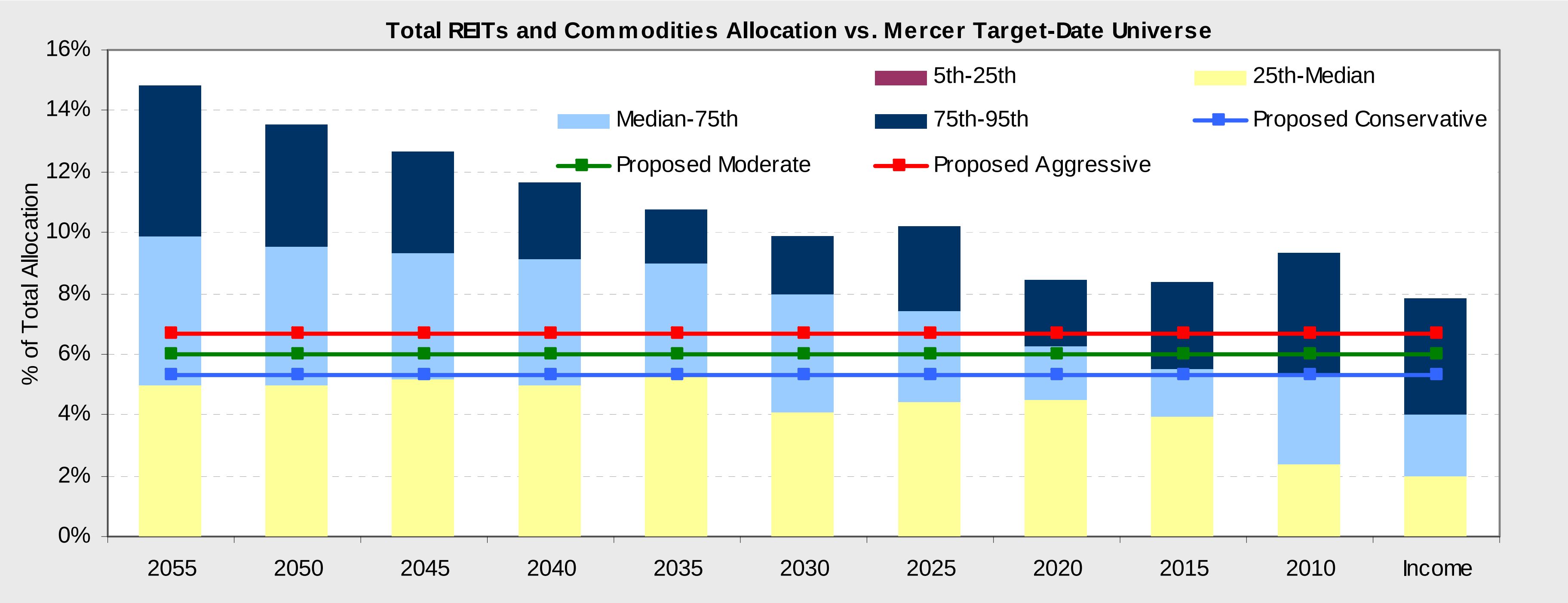
Glidepath enhancements – with exposure to diversified inflation hedge

Net changes from Morningstar to Mercer recommended

	Conservative				Moderate				Aggressive			
	0-5 Yrs	**6-10 Yrs**	**11-15 Yrs**	**16+ Yrs**	**0-5 Yrs**	**6-10 Yrs**	**11-15 Yrs**	**16+ Yrs**	**0-5 Yrs**	**6-10 Yrs**	**11-15 Yrs**	**16+ Yrs**
Stable Value	-1%	-1%	0%	-1%	-1%	-1%	0%	0%	-1%	0%	0%	0%
Fixed Income	-1%	-1%	0%	2%	0%	0%	0%	0%	-1%	-1%	0%	0%
Large Cap Equity	-2%	-2%	0%	-1%	-2%	-1%	0%	0%	-2%	-1%	0%	-1%
Small/Mid Cap Equity	1%	1%	0%	0%	2%	1%	0%	0%	0%	0%	0%	-2%
International Equity	0%	1%	0%	1%	-1%	0%	0%	0%	1%	0%	0%	1%
Diversified Inflation Hedge	3%	2%	0%	-1%	2%	1%	0%	0%	2%	1%	0%	1%
Expected Return	0.00%	0.01%	0.00%	0.01%	-0.01%	0.00%	0.00%	0.00%	0.01%	-0.02%	0.00%	-0.02%
Expected Risk	-0.03%	-0.02%	0.00%	-0.01%	-0.01%	-0.02%	0.00%	0.00%	-0.05%	-0.07%	0.00%	-0.20%
Expected Inflation Beta	0.06	0.04	0.00	-0.02	0.03	0.02	0.00	0.00	0.04	0.02	0.00	0.02
Worst Case: 1 Yr, 2.5% Prob	0.07%	0.04%	0.00%	0.03%	0.01%	0.04%	0.00%	0.00%	0.11%	0.12%	0.00%	0.37%

- Reduction in risk while slightly increasing or maintaining similar return expectation
- Allocation to diversified inflation hedge comes primarily from equities, to help offset increased equity risk in long-dated allocations and provide inflation protection in short-dated allocations

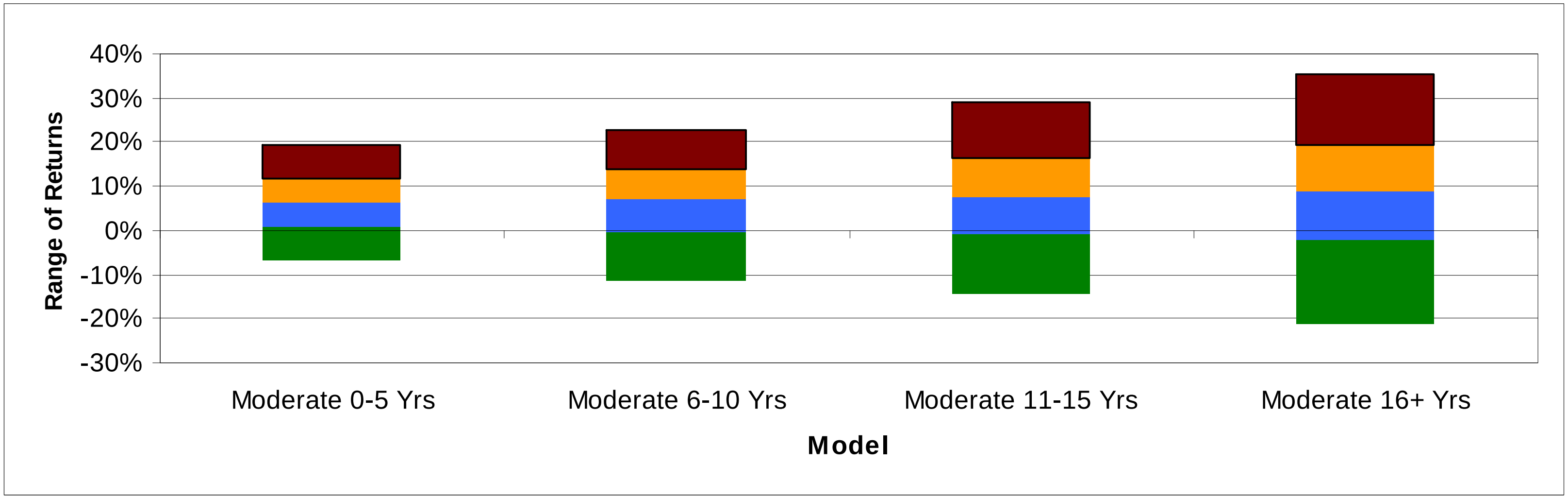
Glidepath enhancements – with exposure to diversified inflation hedge
Inflation protection allocation comparison



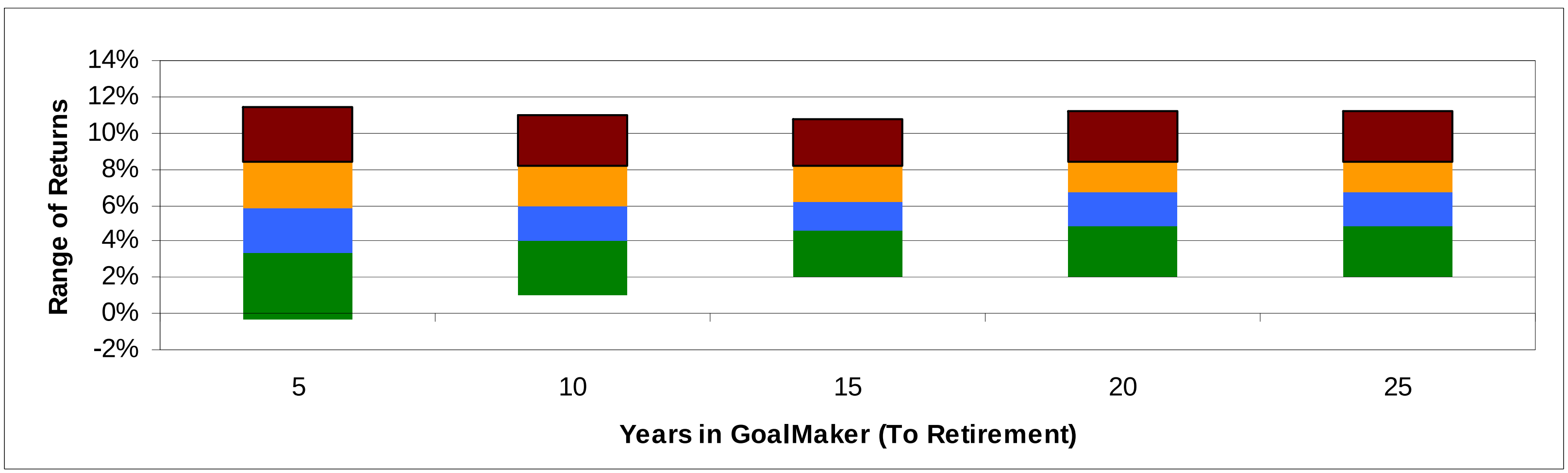
Mercer Target-Date Universe based on Mercer Third Quarter 2012 Target Date Fund Survey and includes 35 off-the-shelf target-date strategies.

Glidepath enhancements – with exposure to diversified inflation hedge

Range of One Year Returns



Range of Cumulative Return To Retirement



Phase I

Implementing Phase I

Refresher: Active vs. passive
Underlying funds

- The GoalMaker portfolios currently use both active and passive underlying funds in every asset class
- Based on Mercer's evaluation and recommendation (May 2012), the Committee approved the following actions:
  - Move to 100% active in small/mid cap equity and international equity
    - Active management is worth the risk in these asset classes
  - Maintain current split between passive and active in fixed income and large cap equity
    - The reward-to-risk tradeoff is less attractive in these markets
- Example:

	Current Moderate 6-10 Yrs	New Moderate 6-10 Yrs
Stable Value Fund	23%	23%
Fixed Income Passive Fund	13%	13%
Fixed Income Fund	13%	13%
Large Cap Passive Fund	10%	10%
Large Cap Value Fund	5%	5%
Large Cap Growth Fund	5%	5%
Small/Mid Cap Passive Fund	6%	0%
Small/Mid Cap Value Fund	3%	6%
Small/Mid Cap Growth Fund	3%	6%
International Passive Fund	8%	0%
International Equity Fund	7%	15%
Global Equity Fund	4%	4%
Diversified Inflation Hedge Fund	0%	0%

Features of a “global” equity mandate vs. a “US and non-US” mandate

- Expect higher excess return with equal or lesser risk
- Markets, sectors and stocks are increasingly connected in a global context
- Regional (US and Non-US) managers hampered by:
  - No ability to over/under weight US
  - Not able to choose best stock in global industries

Greater Security Selection Flexibility in Global Equity Portfolio

			Portfolio Weight		
		Return	US Manager	Int'l Manager	Global Manager
Autos	Ford	10%	33%		33%
	Toyota	7%		33%	
Industrial	GE	10%	33%		33%
	Siemens	5%		33%	
Technology	Apple	3%	33%		
	Samsung	10%		33%	33%
	Portfolio Return		7.6%	7.3%	9.9%

Benefit of Lowering US Only Exposure

	Exposure		Excess	Current	Proposed
	US	Int'l	Return	Weight	Weight
US Managers	100%	0%	0.40%	61%	46%
Int'l Mangers	0%	100%	1.25%	31%	16%
Global Managers	50%	50%	1.00%	8%	38%
Expected Excess Return				0.71%	0.76%
			US Exposure	65%	65%
			NUS Exposure	35%	35%

Implementation considerations
Proposed allocation by fund

	Conservative				Moderate				Aggressive			
	0-5 Yrs	6-10 Yrs	11-15 Yrs	16+ Yrs	0-5 Yrs	6-10 Yrs	11-15 Yrs	16+ Yrs	0-5 Yrs	6-10 Yrs	11-15 Yrs	16+ Yrs
Stable Value Fund	40%	35%	22%	10%	31%	21%	14%	5%	17%	13%	7%	0%
Fixed Income Passive Fund	17%	14%	13%	10%	13%	13%	10%	5%	12%	10%	6%	0%
Fixed Income Fund	16%	14%	12%	10%	13%	12%	10%	4%	12%	10%	5%	0%
Large Cap Passive Fund	4%	4%	7%	8%	5%	7%	7%	10%	7%	7%	8%	11%
Large Cap Value Fund	1%	2%	3%	3%	2%	3%	4%	5%	3%	4%	5%	6%
Large Cap Growth Fund	1%	2%	3%	3%	2%	3%	4%	5%	3%	4%	5%	6%
Small/Mid Cap Passive Fund	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Small/Mid Cap Value Fund	2%	3%	5%	7%	4%	5%	7%	10%	6%	7%	9%	11%
Small/Mid Cap Growth Fund	2%	3%	5%	7%	4%	5%	7%	10%	6%	7%	9%	11%
International Passive Fund	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
International Equity Fund	3%	5%	7%	11%	6%	7%	9%	12%	8%	9%	12%	15%
Global Equity Fund	6%	10%	15%	23%	11%	15%	19%	25%	16%	19%	24%	30%
Diversified Inflation Hedge Fund	8%	8%	8%	8%	9%	9%	9%	9%	10%	10%	10%	10%
% Active	79%	82%	80%	82%	82%	80%	83%	85%	81%	83%	86%	89%
% Passive	21%	18%	20%	18%	18%	20%	17%	15%	19%	17%	14%	11%
% Equity in US	81%	78%	76%	70%	78%	76%	74%	72%	76%	74%	71%	68%
% Equity in Non-US	19%	22%	24%	30%	22%	24%	26%	28%	24%	26%	29%	32%

Implementation considerations
Asset impact

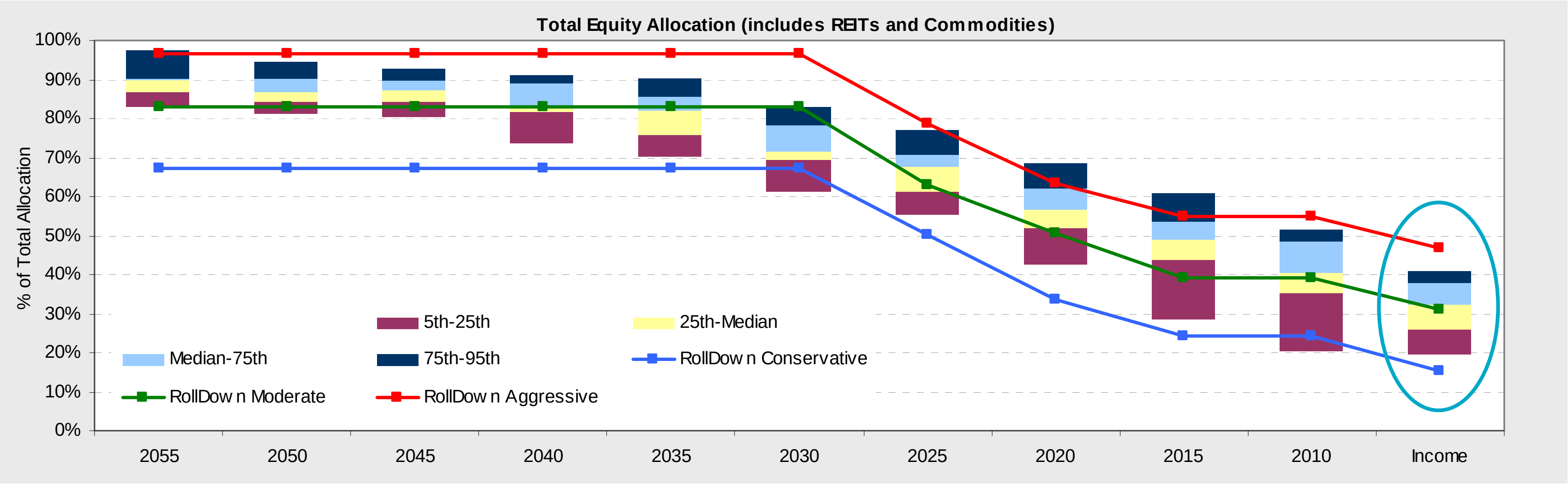
Funds and Sub-Advisors	Current Assets	Asset Flows from Current to Proposed Glidepath	Proposed Glidepath
North Carolina Stable Value Fund	**$2,214,104,500**	**-$59,650,002**	**$2,154,454,498**
Galliard	$2,214,104,500	-$59,650,002	$2,154,454,498
North Carolina Fixed Income Passive Fund	**$241,841,488**	**-$1,222,147**	**$240,619,341**
BlackRock	$241,841,488	-$1,222,147	$240,619,341
North Carolina Fixed Income Fund	**$511,374,404**	**$19,591,022**	**$530,965,427**
50% JP Morgan	$257,327,525	$9,795,511	$267,123,036
50% PIMCO	$254,046,880	$9,795,511	$263,842,391
North Carolina Large Cap Passive Fund	**$1,028,877,955**	**-$120,053,892**	**$908,824,063**
BlackRock	$1,028,877,955	-$120,053,892	$908,824,063
North Carolina Large Cap Value Fund	**$704,391,637**	**-$45,152,776**	**$659,238,861**
33.3% Hotchkis & Wiley	$235,272,418	-$15,050,925	$220,221,493
33.3% Wellington Management Company	$228,813,741	-$15,050,925	$213,762,816
33.3% Robeco BP	$240,305,478	-$15,050,925	$225,254,552
North Carolina Large Cap Growth Fund	**$688,681,864**	**-$45,566,869**	**$643,114,995**
33.3% Sands Capital Management	$242,963,833	-$15,188,956	$227,774,877
33.3% Wellington Management Company	$228,394,213	-$15,188,956	$213,205,257
33.3% Neuberger Berman	$217,323,818	-$15,188,956	$202,134,861
North Carolina SMID Cap Passive Fund	**$353,945,565**	**-$209,595,717**	**$144,349,848**
BlackRock	$353,945,565	-$209,595,717	$144,349,848
North Carolina SMID Value Fund	**$229,295,326**	**$82,284,230**	**$311,579,556**
33.3% Hotchkis & Wiley	$81,446,848	$27,428,077	$108,874,924
33.3% EARNEST Partners	$73,677,607	$27,428,077	$101,105,683
33.3% WEDGE Capital Management	$74,170,872	$27,428,077	$101,598,948
North Carolina SMID Growth Fund	**$141,137,391**	**$82,589,444**	**$223,726,835**
50% TimesSquare Capital Management	$70,720,212	$41,294,722	$112,014,934
50% Brown Advisory	$70,417,180	$41,294,722	$111,711,902
North Carolina International Passive Fund	**$289,192,400**	**-$262,599,681**	**$26,592,719**
BlackRock	$289,192,400	-$262,599,681	$26,592,719
North Carolina International Equity Fund	**$436,251,135**	**-$10,423,148**	**$425,827,987**
50% Baillie Gifford	$218,252,444	-$5,211,574	$213,040,870
50% Mondrian Investment Partners	$217,998,692	-$5,211,574	$212,787,118
North Carolina Global Equity Fund	**$163,483,895**	**$339,522,692**	**$503,006,587**
50% Wellington Management Company	$83,497,976	$169,761,346	$253,259,322
50% Arrowstreet	$79,985,918	$169,761,346	$249,747,264
North Carolina Diversified Inflation Hedge Fund	**$0**	**$230,276,844**	**$230,276,844**
PIMCO	$0	$230,276,844	$230,276,844
Total	**$7,002,577,561**	**$0**	**$7,002,577,561**

Phase II
Further Enhancements in Process

Glidepath enhancements

Income (post-retirement) allocation considerations

	Conservative					Moderate					Aggressive				
	Income	0-5 Yrs	6-10 Yrs	11-15 Yrs	16+ Yrs	Income	0-5 Yrs	6-10 Yrs	11-15 Yrs	16+ Yrs	Income	0-5 Yrs	6-10 Yrs	11-15 Yrs	16+ Yrs
Stable Value	47%	40%	35%	22%	10%	39%	31%	21%	14%	5%	24%	17%	13%	7%	0%
Fixed Income	35%	33%	29%	25%	20%	27%	27%	25%	20%	9%	26%	24%	20%	11%	0%
Large Cap Equity	4%	8%	12%	20%	25%	10%	14%	19%	24%	32%	17%	20%	24%	30%	38%
Small/Mid Cap Equity	3%	5%	7%	10%	15%	6%	8%	11%	14%	20%	10%	12%	14%	18%	23%
International Equity	3%	6%	10%	15%	23%	8%	11%	15%	19%	25%	13%	16%	19%	24%	30%
Diversified Inflation Hedge	8%	8%	8%	8%	8%	9%	9%	9%	9%	9%	10%	10%	10%	10%	10%
Expected Return	4.19%	4.73%	5.24%	6.08%	6.89%	5.05%	5.51%	6.09%	6.66%	7.48%	5.86%	6.29%	6.66%	7.29%	7.96%
Expected Risk	3.52%	4.82%	6.32%	9.26%	12.41%	5.73%	7.19%	9.26%	11.52%	15.28%	8.43%	10.02%	11.51%	14.35%	17.74%
Expected Inflation Beta	-0.34	-0.32	-0.31	-0.28	-0.24	-0.29	-0.28	-0.26	-0.24	-0.21	-0.25	-0.24	-0.22	-0.20	-0.17
Worst Case: 1 Yr, 2.5% Prob	-2.85%	-4.91%	-7.41%	-12.44%	-17.92%	-6.41%	-8.88%	-12.43%	-16.38%	-23.08%	-10.99%	-13.76%	-16.37%	-21.40%	-27.52%



- Existing glidepath construction does not include an “income” allocation
- Target date funds generally provide this equity roll-down for participants post-retirement

Glidepath enhancements
Step-down smoothing considerations

- At present, the proposed glidepath results in a steep drop in equity exposure from one point to the next, particularly from the "16+ Yrs" point to the "11-15 Yrs" point in each of the three models (i.e., C04 to C03, M04 to M03, and A04 to A03).
- As Prudential does not currently have the capability to create additional points on the glidepath, one potential solution is to utilize the pre-existing points to create a new smoother path that allows for a more gradual decrease in equity exposure.
- The following table displays a path that incorporates movement at the mid-point of each portfolio (e.g., the mid-point of "11-15 Yrs" is shown as the "12.5 Yrs" portfolio).

		Conservative		Moderate		Aggressive	
Years to Retirement	**Target Retirement**	**Proposed Path**	**% Equity (incl. REITs & Commodities)**	**Proposed Path**	**% Equity (incl. REITs & Commodities)**	**Proposed Path**	**% Equity (incl. REITs & Commodities)**
15	2030	C04	67%	M04	83%	A04	97%
12.5	2027-2028	M03	63%	A03	79%	M04	83%
10	2025	C03	50%	M03	63%	A03	79%
7.5	2022-2023	M01	39%	A01	55%	C04	67%
5	2020	C02	34%	M02	51%	A02	63%
2.5	2017-2018	C02	34%	M02	51%	A01	55%
0	2015	C01	24%	M01	39%	A01	55%

Implementation considerations
Potential allocation by fund – Conservative model

	Conservative							
	Inc	0-2.5 Yrs	2.5-5 Yrs	6-7.5 Yrs	7.5-10 Yrs	11-12.5 Yrs	12.5-15 Yrs	16+ Yrs
Stable Value Fund	47%	40%	35%	35%	31%	22%	14%	10%
Fixed Income Passive Fund	18%	17%	14%	14%	13%	13%	10%	10%
Fixed Income Fund	18%	16%	14%	14%	13%	12%	10%	10%
Large Cap Passive Fund	2%	4%	4%	4%	5%	7%	7%	8%
Large Cap Value Fund	1%	1%	2%	2%	2%	3%	4%	3%
Large Cap Growth Fund	1%	1%	2%	2%	2%	3%	4%	3%
Small/Mid Cap Passive Fund	0%	0%	0%	0%	0%	0%	0%	0%
Small/Mid Cap Value Fund	1%	2%	3%	3%	4%	5%	7%	7%
Small/Mid Cap Growth Fund	1%	2%	3%	3%	4%	5%	7%	7%
International Passive Fund	0%	0%	0%	0%	0%	0%	0%	0%
International Equity Fund	2%	3%	5%	5%	6%	7%	9%	11%
Global Equity Fund	2%	6%	10%	10%	11%	15%	19%	23%
Diversified Inflation Hedge Fund	8%	8%	8%	8%	9%	8%	9%	8%
% Active	81%	79%	82%	82%	82%	80%	83%	82%
% Passive	19%	21%	18%	18%	18%	20%	17%	18%
% US	97%	94%	90%	90%	89%	86%	82%	78%
% Non-US	3%	6%	10%	10%	12%	15%	19%	23%

Implementation considerations
Potential allocation by fund – Moderate model

	Moderate							
	Inc	0-2.5 Yrs	2.5-5 Yrs	6-7.5 Yrs	7.5-10 Yrs	11-12.5 Yrs	12.5-15 Yrs	16+ Yrs
Stable Value Fund	39%	31%	21%	21%	17%	14%	7%	5%
Fixed Income Passive Fund	14%	13%	13%	13%	12%	10%	6%	5%
Fixed Income Fund	14%	13%	12%	12%	12%	10%	5%	4%
Large Cap Passive Fund	4%	5%	7%	7%	7%	7%	8%	10%
Large Cap Value Fund	2%	2%	3%	3%	3%	4%	5%	5%
Large Cap Growth Fund	2%	2%	3%	3%	3%	4%	5%	5%
Small/Mid Cap Passive Fund	0%	0%	0%	0%	0%	0%	0%	0%
Small/Mid Cap Value Fund	3%	4%	5%	5%	6%	7%	9%	10%
Small/Mid Cap Growth Fund	3%	4%	5%	5%	6%	7%	9%	10%
International Passive Fund	0%	0%	0%	0%	0%	0%	0%	0%
International Equity Fund	6%	6%	7%	7%	8%	9%	12%	12%
Global Equity Fund	6%	11%	15%	15%	16%	19%	24%	25%
Diversified Inflation Hedge Fund	9%	9%	9%	9%	10%	9%	10%	9%
% Active	83%	82%	80%	80%	81%	83%	86%	85%
% Passive	17%	18%	20%	20%	19%	17%	14%	15%
% US	92%	89%	86%	86%	84%	82%	76%	76%
% Non-US	8%	12%	15%	15%	16%	19%	24%	25%

Implementation considerations
Potential allocation by fund – Aggressive model

	Aggressive							
	Inc	0-2.5 Yrs	2.5-5 Yrs	6-7.5 Yrs	7.5-10 Yrs	11-12.5 Yrs	12.5-15 Yrs	16+ Yrs
Stable Value Fund	24%	17%	17%	13%	10%	7%	5%	0%
Fixed Income Passive Fund	13%	12%	12%	10%	10%	6%	5%	0%
Fixed Income Fund	13%	12%	12%	10%	10%	5%	4%	0%
Large Cap Passive Fund	6%	7%	7%	7%	8%	8%	10%	11%
Large Cap Value Fund	3%	3%	3%	4%	3%	5%	5%	6%
Large Cap Growth Fund	3%	3%	3%	4%	3%	5%	5%	6%
Small/Mid Cap Passive Fund	0%	0%	0%	0%	0%	0%	0%	0%
Small/Mid Cap Value Fund	5%	6%	6%	7%	7%	9%	10%	11%
Small/Mid Cap Growth Fund	5%	6%	6%	7%	7%	9%	10%	11%
International Passive Fund	0%	0%	0%	0%	0%	0%	0%	0%
International Equity Fund	9%	8%	8%	9%	11%	12%	12%	15%
Global Equity Fund	9%	16%	16%	19%	23%	24%	25%	30%
Diversified Inflation Hedge Fund	10%	10%	10%	10%	8%	10%	9%	10%
% Active	81%	81%	81%	83%	82%	86%	85%	89%
% Passive	19%	19%	19%	17%	18%	14%	15%	11%
% US	87%	84%	84%	82%	78%	76%	76%	70%
% Non-US	13%	16%	16%	19%	23%	24%	25%	30%

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