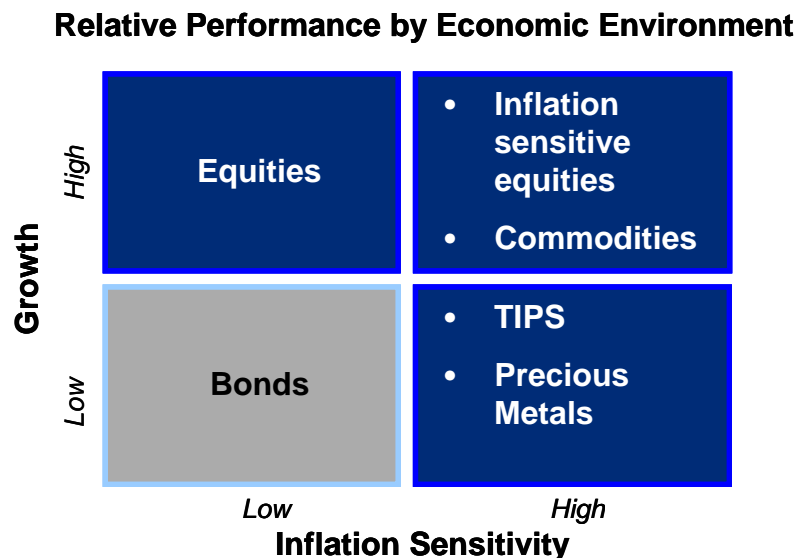


# Additional Analysis Diversified Inflation Option Goal Maker Models

August 2012

# Potential Benefits of a Diversified Approach

**Equity  
Diversification**

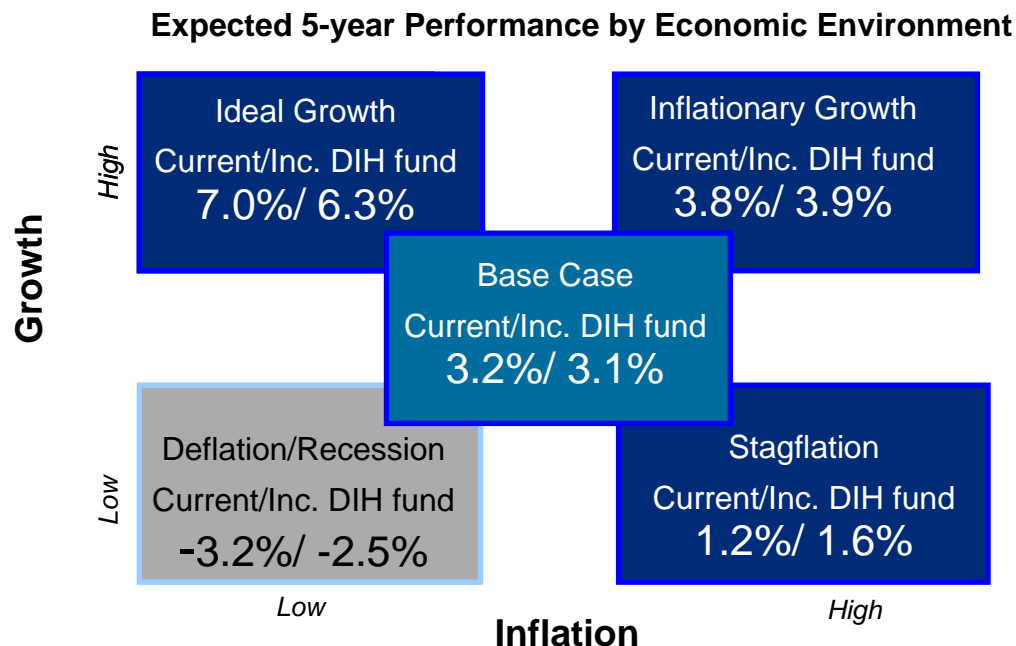


**Inflation  
Protection**

- There is no perfect inflation hedge which will protect a portfolio in all inflation scenarios.
- Diversification across many types of real assets ensures protection from different levels of inflation as well from different underlying drivers of inflation.
- Equity risk is reduced by the addition of real assets.

# Economic Scenario Analysis

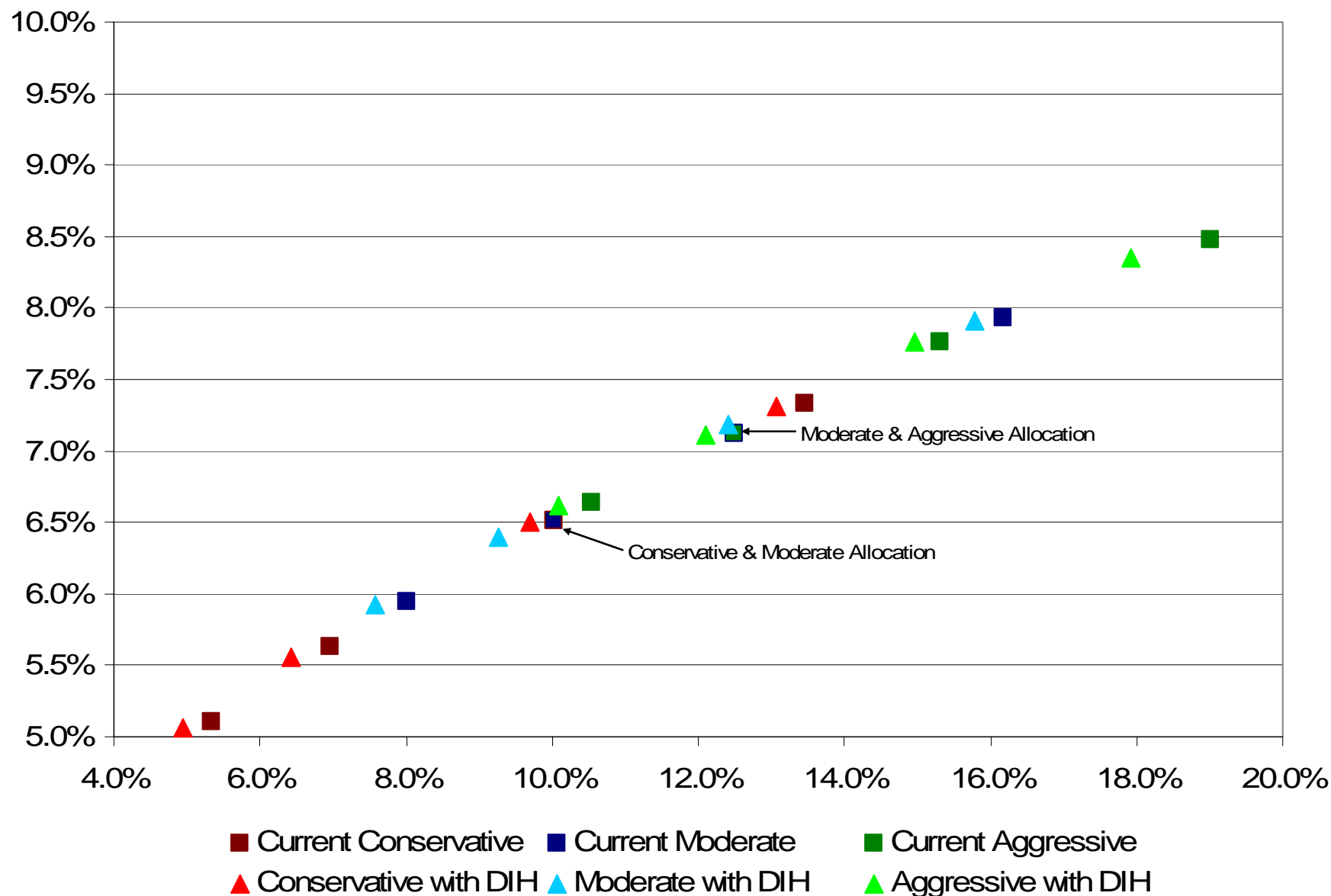
## Moderate 0-5 Year Allocation



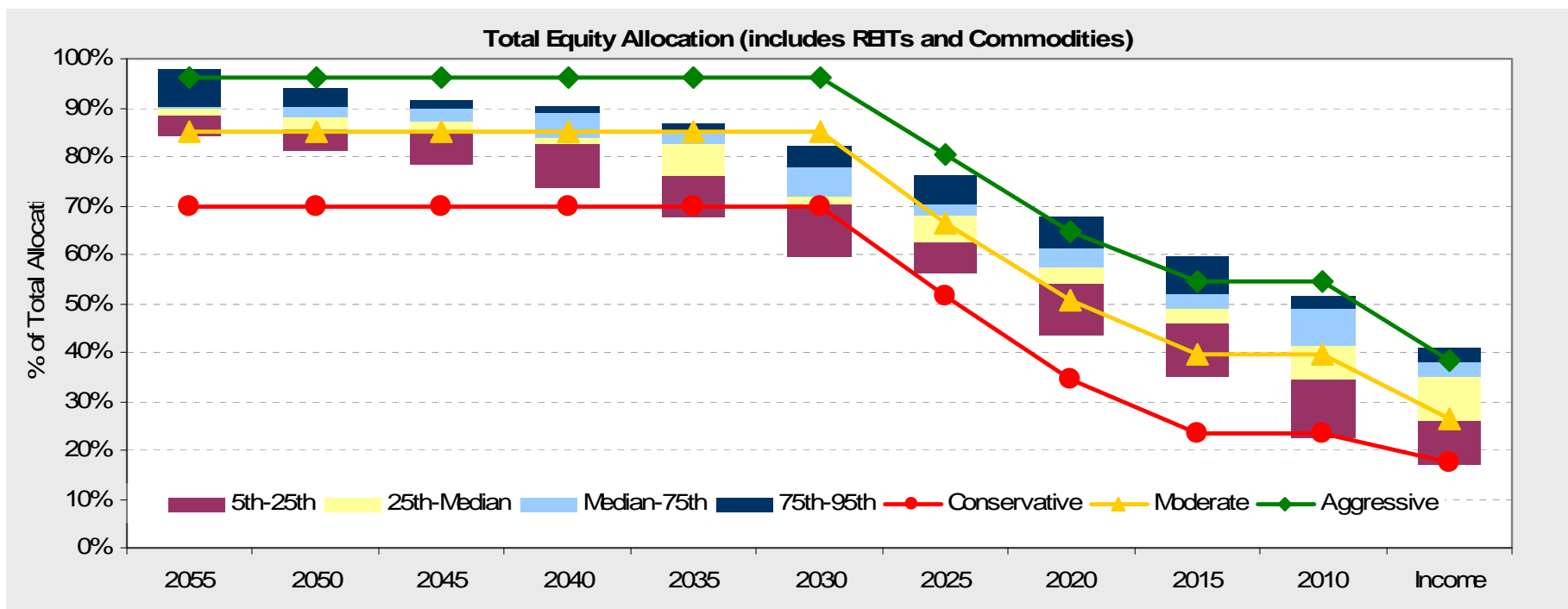
- Mercer tested the Moderate 0-5 Year Model allocation in various economic scenarios.
- The addition of the diversified inflation option results in higher performance except for Ideal Growth and a slight decrease in the Base Case.

\*DIH fund allocation is based on 1/3 REITs, 1/3 TIPs and 1/3 commodities.

# GoalMaker Portfolios Expected Risk / Return



# Glidepath Comparison With Diversified Inflation Option and Income Fund



# Potential Dollar Impact of Adding an Income Fund

## Current

	16+ Yrs	11-15 Yrs	6-10 Yrs	0-5 Yrs	Total
Conservative	\$104,299,649	\$53,479,521	\$80,132,237	\$215,897,545	\$453,808,952
Moderate	\$376,439,874	\$209,759,255	\$224,188,805	\$222,825,473	\$1,033,213,407
Aggressive	\$393,189,122	\$150,798,659	\$129,645,783	\$94,786,599	\$768,420,163
Total	\$873,928,645	\$414,037,435	\$433,966,825	\$533,509,617	\$2,255,442,522

## Addition of Income Fund

	16+ Yrs	11-15 Yrs	6-10 Yrs	0-5 Yrs	Income	Total
Conservative	\$104,299,649	\$53,479,521	\$80,132,237	\$81,867,695	\$134,029,850	\$453,808,952
Moderate	\$376,439,874	\$209,759,255	\$224,188,805	\$26,733,321	\$196,092,152	\$1,033,213,407
Aggressive	\$393,189,122	\$150,798,659	\$129,645,783	\$3,051,807	\$91,734,792	\$768,420,163
Total	\$873,928,645	\$414,037,435	\$433,966,825	\$111,652,823	\$421,856,794	\$2,255,442,522

Participants in the 60-69, 70+, and “No DOB” categories are moved from the 0-5 Yrs model to the Income model.

# Asset Impact of Allocation Changes

## Fund Balances

Funds	Current Assets	Current to Active/Passive Mix	Act/Pasv + DIH	Act/Pasv, DIH and Income Fund
North Carolina Stable Value Fund	\$2,122,426,885	\$2,122,426,885	\$2,071,579,090	\$2,115,698,517
North Carolina Fixed Income Passive Fund	\$213,741,443	\$213,741,443	\$191,734,682	\$191,212,679
North Carolina Fixed Income Fund	\$466,855,954	\$466,855,954	\$452,345,932	\$452,741,277
North Carolina Large Cap Passive Fund	\$974,847,342	\$974,847,342	\$939,151,249	\$928,879,417
North Carolina Large Cap Value Fund	\$662,533,326	\$662,533,327	\$659,549,985	\$654,414,069
North Carolina Large Cap Growth Fund	\$657,050,142	\$657,050,142	\$656,342,071	\$651,206,155
North Carolina SMID Cap Passive Fund	\$320,738,150	\$133,967,697	\$133,967,697	\$133,967,697
North Carolina SMID Value Fund	\$208,421,121	\$301,806,348	\$285,560,944	\$278,041,156
North Carolina SMID Growth Fund	\$127,604,556	\$220,989,783	\$205,152,811	\$197,633,023
North Carolina International Passive Fund	\$258,689,124	\$20,324,280	\$20,324,280	\$20,324,280
North Carolina International Fund	\$399,190,352	\$637,555,196	\$580,280,496	\$569,190,369
North Carolina Global Equity Fund	\$146,044,625	\$146,044,625	\$137,883,519	\$132,126,981
North Carolina DIH Fund	--	--	\$224,270,262	\$232,707,398
<b>Total</b>	<b>\$6,558,143,020</b>	<b>\$6,558,143,020</b>	<b>\$6,558,143,020</b>	<b>\$6,558,143,020</b>

These tables show the estimated balances and cash flows required to implement various GoalMaker allocation changes.

Active/Passive: Already approved changes between active and passive management.

DIH: Adding a Diversified Inflation fund with an assumed allocation of 8%-13%, depending on the model. Assumes Act/Pasv is implemented.

Income Fund: Adding a new post-retirement GoalMaker strategy; assume Act/Pasv and DIH are implemented.

## Transfer Amounts

Funds		Current to Active/Passive Mix	Act/Pasv + DIH	Act/Pasv, DIH and Income Fund
North Carolina Stable Value Fund		\$0	(\$50,847,795)	\$44,119,428
North Carolina Fixed Income Passive Fund		\$0	(\$22,006,761)	(\$522,003)
North Carolina Fixed Income Fund		\$0	(\$14,510,022)	\$395,345
North Carolina Large Cap Passive Fund		\$0	(\$35,696,093)	(\$10,271,832)
North Carolina Large Cap Value Fund		\$0	(\$2,983,342)	(\$5,135,916)
North Carolina Large Cap Growth Fund		\$0	(\$708,071)	(\$5,135,916)
North Carolina SMID Cap Passive Fund		(\$186,770,453)	\$0	\$0
North Carolina SMID Value Fund		\$93,385,227	(\$16,245,403)	(\$7,519,788)
North Carolina SMID Growth Fund		\$93,385,227	(\$15,836,971)	(\$7,519,788)
North Carolina International Passive Fund		(\$238,364,844)	\$0	\$0
North Carolina International Fund		\$238,364,844	(\$57,274,700)	(\$11,090,127)
North Carolina Global Equity Fund		\$0	(\$8,161,106)	(\$5,756,539)
North Carolina DIH Fund		--	\$224,270,262	\$8,437,136
<b>Total</b>		--	--	--

Note: The DIH and Income Fund allocations are for illustrative purposes only and are not a recommended asset allocation.

Additional Detail



# Scenario Returns

Moderate 0-5 Year Fund			
	3yrs	5yrs	10yrs
<b>Base - Current Allocation</b>	2.7%	3.2%	4.5%
<i>Including Diversified Inflation</i>	2.6%	3.1%	4.4%
<b>Stagflation</b>	-1.1%	1.2%	4.3%
<i>Including Diversified Inflation</i>	-0.6%	1.6%	4.4%
<b>Recession</b>	-3.4%	-2.0%	0.0%
<i>Including Diversified Inflation</i>	-2.6%	-1.4%	0.4%
<b>Inflationary Growth</b>	1.6%	3.8%	6.6%
<i>Including Diversified Inflation</i>	1.8%	3.9%	6.5%
<b>Ideal Growth</b>	6.5%	7.0%	6.4%
<i>Including Diversified Inflation</i>	5.8%	6.3%	6.0%
<b>Market Correction</b>	-2.2%	0.0%	1.7%
<i>Including Diversified Inflation</i>	-1.1%	0.7%	2.1%
<b>New Normal</b>	2.2%	2.5%	3.5%
<i>Including Diversified Inflation</i>	2.3%	2.6%	3.5%
<b>Fiscal Crisis</b>	-1.6%	0.2%	5.7%
<i>Including Diversified Inflation</i>	-1.0%	0.8%	6.0%
<b>Deflation+ Recession</b>	-6.6%	-3.2%	-0.5%
<i>Including Diversified Inflation</i>	-5.6%	-2.5%	-0.1%
<b>Volatile Markets</b>	5.8%	1.6%	5.7%
<i>Including Diversified Inflation</i>	5.4%	2.4%	5.5%
<b>Strong Equity Market</b>	10.4%	8.5%	7.1%
<i>Including Diversified Inflation</i>	8.9%	7.6%	6.6%
<b>Delayed Inflation</b>	-1.2%	0.7%	4.0%
<i>Including Diversified Inflation</i>	-0.7%	1.1%	4.2%

16+ Year Moderate			
	3yrs	5yrs	10yrs
<b>Base</b>	6.3%	6.6%	6.9%
<i>Including Diversified Inflation</i>	6.2%	6.6%	6.8%
<b>Stagflation</b>	0.1%	2.3%	5.1%
<i>Including Diversified Inflation</i>	0.5%	2.6%	5.2%
<b>Recession</b>	-8.0%	-5.1%	-1.0%
<i>Including Diversified Inflation</i>	-7.6%	-4.8%	-0.8%
<b>Inflationary Growth</b>	6.3%	8.0%	9.7%
<i>Including Diversified Inflation</i>	6.5%	8.1%	9.7%
<b>Ideal Growth</b>	13.8%	14.5%	11.3%
<i>Including Diversified Inflation</i>	13.4%	14.0%	11.0%
<b>Market Correction</b>	-6.7%	-1.8%	2.1%
<i>Including Diversified Inflation</i>	-6.0%	-1.3%	2.4%
<b>New Normal</b>	4.6%	4.7%	5.2%
<i>Including Diversified Inflation</i>	4.6%	4.7%	5.2%
<b>Fiscal Crisis</b>	0.2%	1.5%	6.7%
<i>Including Diversified Inflation</i>	0.6%	1.9%	6.9%
<b>Deflation+ Recession</b>	-15.0%	-7.9%	-2.1%
<i>Including Diversified Inflation</i>	-14.5%	-7.6%	-2.0%
<b>Volatile Markets</b>	12.9%	2.8%	9.1%
<i>Including Diversified Inflation</i>	12.7%	3.1%	9.1%
<b>Strong Equity Market</b>	23.6%	16.8%	11.9%
<i>Including Diversified Inflation</i>	22.8%	16.2%	11.6%
<b>Delayed Inflation</b>	-0.4%	2.5%	5.2%
<i>Including Diversified Inflation</i>	0.0%	2.7%	5.3%

- Returns in **Green** show scenarios and time periods when the addition of the diversified inflation option produce a better return
- Returns in **Red** show scenarios and time periods when the addition of a diversified inflation option results in a lower return

# Sample Alternative Allocations

## Allocations with a DIH Option

	Conservative					Moderate					Aggressive				
	16+ Yrs	11-15 Yrs	6-10 Yrs	0-5 Yrs	Income	16+ Yrs	11-15 Yrs	6-10 Yrs	0-5 Yrs	Income	16+ Yrs	11-15 Yrs	6-10 Yrs	0-5 Yrs	Income
Stable Value Fund	12%	20%	36%	40%	--	5%	13%	20%	30%	--	0%	7%	14%	18%	--
Fixed Income Active Fund	7%	12%	12%	15%	--	3%	8%	12%	12%	--	0%	4%	8%	10%	--
Fixed Income Passive Fund	7%	12%	12%	15%	--	3%	8%	12%	12%	--	0%	4%	8%	11%	--
Large Cap Passive Fund	12%	10%	6%	4%	--	14%	12%	8%	6%	--	16%	13%	12%	10%	--
Large Cap Value Fund	6%	5%	3%	2%	--	7%	6%	4%	3%	--	8%	7%	6%	5%	--
Large Cap Growth Fund	6%	5%	3%	2%	--	7%	6%	4%	3%	--	8%	7%	6%	5%	--
SMID Cap Passive Fund	0%	0%	0%	0%	--	0%	0%	0%	0%	--	0%	0%	0%	0%	--
SMID CAP Value Fund	8%	5%	3%	2%	--	10%	7%	5%	4%	--	12%	9%	6%	5%	--
SMID Cap Growth Fund	8%	5%	3%	2%	--	10%	7%	5%	4%	--	12%	9%	6%	5%	--
Global Equity Active Fund	6%	4%	3%	1%	--	8%	6%	6%	3%	--	7%	8%	5%	5%	--
International Active Fund	20%	13%	8%	4%	--	25%	18%	13%	10%	--	29%	23%	18%	13%	--
International Passive Fund	0%	0%	0%	0%	--	0%	0%	0%	0%	--	0%	0%	0%	0%	--
DIH Option	8%	9%	11%	13%	--	8%	9%	11%	13%	--	8%	9%	11%	13%	--

## Allocations with a DIH Plus an Income Model

	Conservative					Moderate					Aggressive				
	16+ Yrs	11-15 Yrs	6-10 Yrs	0-5 Yrs	Income	16+ Yrs	11-15 Yrs	6-10 Yrs	0-5 Yrs	Income	16+ Yrs	11-15 Yrs	6-10 Yrs	0-5 Yrs	Income
Stable Value Fund	12%	20%	36%	40%	53%	5%	13%	20%	30%	38%	0%	7%	14%	18%	30%
Fixed Income Active Fund	7%	12%	12%	15%	11%	3%	8%	12%	12%	14%	0%	4%	8%	10%	12%
Fixed Income Passive Fund	7%	12%	12%	15%	11%	3%	8%	12%	12%	14%	0%	4%	8%	11%	12%
Large Cap Passive Fund	12%	10%	6%	4%	2%	14%	12%	8%	6%	4%	16%	13%	12%	10%	6%
Large Cap Value Fund	6%	5%	3%	2%	1%	7%	6%	4%	3%	2%	8%	7%	6%	5%	3%
Large Cap Growth Fund	6%	5%	3%	2%	1%	7%	6%	4%	3%	2%	8%	7%	6%	5%	3%
SMID Cap Passive Fund	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
SMID CAP Value Fund	8%	5%	3%	2%	0%	10%	7%	5%	4%	2%	12%	9%	6%	5%	4%
SMID Cap Growth Fund	8%	5%	3%	2%	0%	10%	7%	5%	4%	2%	12%	9%	6%	5%	4%
Global Equity Active Fund	6%	4%	3%	1%	1%	8%	6%	6%	3%	1%	7%	8%	5%	5%	3%
International Active Fund	20%	13%	8%	4%	5%	25%	18%	13%	10%	6%	29%	23%	18%	13%	8%
International Passive Fund	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
DIH Option	8%	9%	11%	13%	15%	8%	9%	11%	13%	15%	8%	9%	11%	13%	15%

Note: These alternative allocations are intended for use in discussing the merits of adding a DIH option and an Income allocation. They are not intended to be allocations for adoption.

# Expected Strategy Performance in Different Market Scenarios

Wellington Strategy Allocation			
Scenario	3yrs	5yrs	10yrs
Base	2.19%	2.62%	3.98%
Stagflation	1.36%	2.93%	4.82%
Recession	-4.03%	-2.32%	0.07%
Inflationary Growth	3.05%	4.73%	6.72%
Ideal Growth	4.19%	4.68%	5.10%
Market Correction	-0.15%	1.52%	2.79%
New Normal	1.75%	1.98%	3.13%
10% Inflation Shock	4.81%	7.71%	9.93%
1% Parallel Shift Up	2.74%	3.55%	4.17%
1% Parallel Shift Down	4.87%	4.29%	3.86%
Fiscal Crisis	0.90%	2.91%	7.85%
Deflation+ Recession	-8.63%	-4.32%	-0.95%
Volatile Markets	7.13%	3.69%	5.98%
Strong Equity Market	7.56%	6.67%	6.01%
Delayed Inflation	0.72%	2.47%	4.58%

PIMCO Strategy Allocation			
Scenario	3yrs	5yrs	10yrs
Base	1.04%	1.48%	3.13%
Stagflation	1.80%	3.20%	4.92%
Recession	-0.19%	0.51%	1.41%
Inflationary Growth	1.52%	3.24%	5.44%
Ideal Growth	0.71%	1.00%	2.69%
Market Correction	3.35%	3.34%	3.34%
New Normal	1.39%	1.64%	2.80%
10% Inflation Shock	3.64%	6.63%	8.92%
1% Parallel Shift Up	2.06%	2.80%	3.36%
1% Parallel Shift Down	4.52%	3.75%	3.17%
Fiscal Crisis	1.36%	3.45%	7.86%
Deflation+ Recession	-2.84%	-0.84%	0.69%
Volatile Markets	3.76%	3.89%	4.48%
Strong Equity Market	-0.09%	1.83%	3.29%
Delayed Inflation	1.42%	2.44%	4.54%

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