

THRIFT SAVINGS PLAN

LIFECYCLE FUND ASSET ALLOCATION

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TSP GOALS FOR LIFECYCLE FUND DEVELOPMENT

To construct customized Lifecycle Funds that are:

- composed of the TSP Core Funds
- a series of evolving targeted maturity funds that become more conservative as the set “maturity date”¹ approaches
- able to accommodate daily cash flows and minimize transaction costs
- easily communicated and understood by participants
- a convenient and automatic way for participants to diversify their investment account

¹The target maturity date may not align with an individual participant’s retirement date or the date the participant begins withdrawing money from his or her account.

PLAN CHARACTERISTICS

In arriving at its fund structure recommendations, Mercer considered:

- TSP participant demographic information. We assumed that the participants were members of FERS with assets invested in one or more Lifecycle Funds and based our projections on typical account balances and contribution patterns for the targeted group for each Lifecycle Fund
- TSP participant retirement ages and post-retirement drawdown
- Underlying composition and management of each of the five Core Funds, including the unique aspects of the G Fund:
 - Returns equivalent to long government bond yields
 - No default risk
- Market conditions and long-term capital market outlook

OVERVIEW

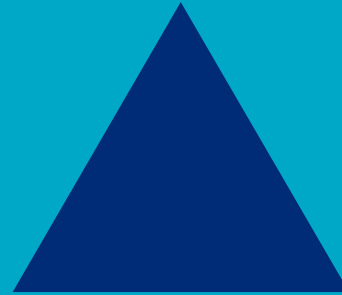
- The purpose of this study is to review the current asset allocations of the Lifecycle Funds of the Thrift Savings Plan
- Key objectives and metrics:
 - Provide opportunity to achieve sufficient retirement income for career FERS employees
 - q *Metric: Range of account balances and replacement ratios*
 - Provide capital preservation for participants as they approach retirement
 - q *Metric: Likelihood of investment loss in final two years before retirement*
 - Limit likelihood of running out of assets in retirement
 - q *Metric: Expected account drawdown age*

EXECUTIVE SUMMARY

A review of the analysis and metrics highlights the following:

- Additional equity along the glide path has the most significant impact on projected outcomes
 - This is assessed via a number of “To” design alternatives that reach the final allocation at the target maturity date, as well as “Through” design alternatives that increase equity along the glide path and continue to roll down post-retirement
- Adjustments to the structure of equity and fixed income along the glide path have a relatively muted effect
 - Overweighting or underweighting position in small cap equity (S Fund) has a negligible impact
 - Increasing international equity weight has a small positive impact
 - A higher G Fund weight is helpful over the short term, but the F Fund outperforms over the long term

THRIFT SAVINGS PLAN: MEAN-VARIANCE AND EFFICIENT FRONTIER ANALYSIS



MERCER CAPITAL MARKET ASSUMPTIONS

- We conducted our efficient frontier analysis using capital market assumptions over a 20-year time horizon:
 - Real economic growth is 2.1%
 - Inflation is 2.2%
 - For equities, the table below breaks down the components for our equity assumptions

	C Fund	S Fund	I Fund
Inflation	2.2%	2.2%	1.7%
Real Earnings Growth	2.1%	3.3%	1.8%
Dividend/Income	2.5%	1.7%	3.0%
P/E Expansion(Contraction)	-0.7%	-0.7%	0.0%
Currency Impact	0.0%	0.0%	0.6%
Total	6.1%	6.5%	7.1%

APPLYING CAPITAL MARKET ASSUMPTIONS:

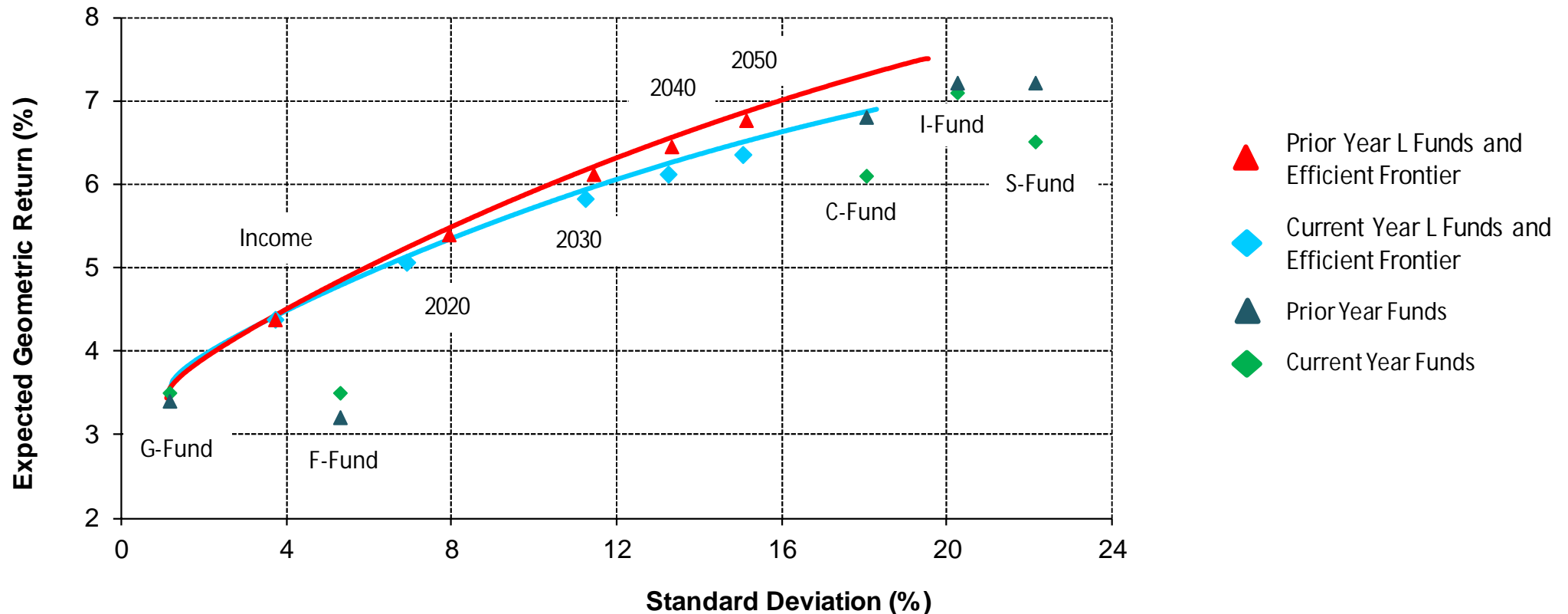
- Using our capital market assumptions and statistical modeling, we calculated expected risk and return for each of the five core funds

	Geometric Return	Change in Return from 2016 Study	Standard Deviation	Interest and Dividend Income
C Fund: Large Cap Equity	6.1%	(0.7%)	18.1%	2.5%
S Fund: Small Cap Equity	6.5%	(0.7%)	22.1%	1.7%
I Fund: International Equity	7.1%	(0.1%)	20.3%	3.0%
F Fund: Broad Market FI	3.5%	0.3%	5.3%	2.6%
G Fund: Government Yields	3.5%	0.1%	1.2%	2.3%

- We also need to set the correlation assumptions – very important in determining the diversification benefits. Correlation tells how much the markets move together (high correlation), whether they are independent (low correlation), or even inversely related (negative correlation).

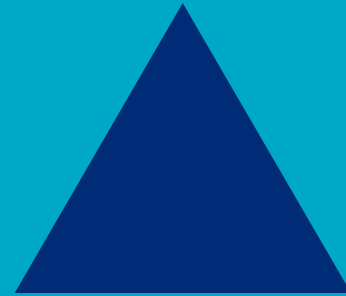
	C Fund	S Fund	I Fund	F Fund	G Fund
C Fund	1.00				
S Fund	0.91	1.00			
I Fund	0.77	0.70	1.00		
F Fund	0.11	0.10	0.03	1.00	
G Fund	0.00	0.00	0.00	-0.10	1.00

POSITION OF LIFECYCLE FUNDS ON THE EFFICIENT FRONTIER: INCLUDING 2016 AND 2017 (20-YEAR EXPECTED RETURNS)



- Return expectations have declined from prior year for C Fund and S Fund
- F Fund return expectations have increased from 2016
- G Fund and I Fund return expectations have stayed constant from 2016

STOCHASTIC MODELING



STOCHASTIC MODELING

- We projected inflation, economic growth, salary growth, corporate profits, P/E ratios, interest rates and exchange rates and used these results to compute capital market returns
- We also had special states of the world to accommodate these regimes:
 - Normal Growth: Above average growth with modest inflation
 - Recession: Negative economic growth, low inflation
 - Stagflation: Low economic growth, high inflation (6%)
 - Inflationary Growth: Above average growth with high inflation
 - Ideal Growth: Very high growth with very low inflation
 - Credit crunch: Severely negative growth, deflation
 - High Inflation: Inflation moves to 10%, growth slumps

MODELING APPROACH

- Incorporate demographic assumptions
- Project investment outcomes by using stochastic analysis (1,000 simulations) of:
 - Economic factors
 - Inflation, growth, interest rates, salary growth, capital market returns
 - Typical behavior of participants by age group
 - Participants increase contributions over time
 - Participants retire at approximately age 62
 - Change in asset allocation over time as the Lifecycle fund becomes more conservative

DEMOGRAPHIC ASSUMPTIONS

2016 Study Assumptions - Based upon 2015 FERS Data and prior study

Fund	Target Demographic by Age	Age	Salary	Account Balance	Starting Contribution Rate	Salary Growth
2020	52-61	57	\$ 82,000	\$ 180,000	7.70%	3.70%
2030	42-51	47	\$ 81,000	\$ 130,000	6.50%	3.70%
2040	32-41	37	\$ 74,000	\$ 70,000	5.70%	3.70%
2050	<32	27	\$ 58,000	\$ 25,000	5.00%	3.70%

Proposed 2017 Study Assumptions - Based upon 2016 FERS Data as of 12/31/2016 for only participants with an investment in an L Fund

Fund	Target Demographic by Age	Age	Salary	Account Balance	Starting Contribution Rate	Salary Growth
2020	54-63	59	\$ 87,000	\$ 254,000	8.80%	3.70%
2030	44-53	49	\$ 85,000	\$ 178,000	7.10%	3.70%
2040	34-43	39	\$ 79,000	\$ 96,000	6.30%	3.70%
2050	<34	29	\$ 56,000	\$ 33,000	5.50%	3.70%

- Account balances are based on data from December 31, 2016 for active FERS employees with balances in one or more L Funds (i.e. L Fund participants)
 - 2017 account balances have been rolled forward with actual returns and expected contributions through June 30, 2017
- Estimated contribution rate based on age-range averages over the period from 2014 through 2016
 - Deferral rates based on all active FERS employees for 2014 and 2015, and L Fund participants for 2016
- Auto-enrollment in effect (3% auto deferral rate)

GLIDE PATHS CONSIDERED: 2017 STUDY

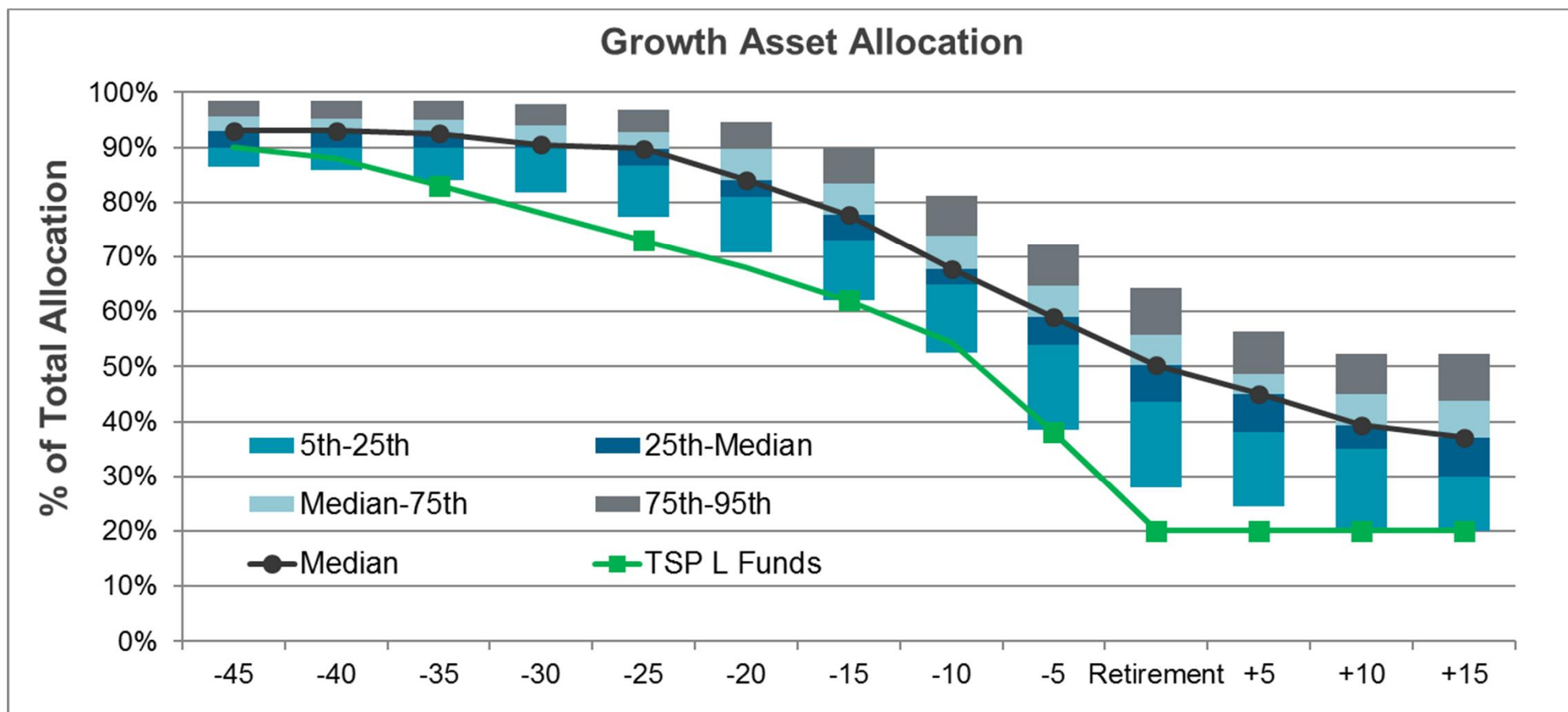
- Current glide path (allocations as of July 2017)

	2050	2040	2030	2020	Income
Allocations	Portfolio	Portfolio	Portfolio	Portfolio	Portfolio
C-Fund	43.68	39.10	33.76	21.04	11.20
S-Fund	14.42	12.00	9.64	5.56	2.80
I-Fund	24.90	21.90	18.60	11.40	6.00
F-Fund	5.32	6.42	6.33	6.32	6.00
G-Fund	11.68	20.58	31.67	55.68	74.00
Total	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios					
Percent Fixed Income	17.0	27.0	38.0	62.0	80.0
Percent Equity	83.0	73.0	62.0	38.0	20.0
Int Eq/Tot Eq	30.0	30.0	30.0	30.0	30.0
S-Fund/Domestic Eq	24.8	23.5	22.2	20.9	20.0
F-Fund/Total FI	31.3	23.8	16.7	10.2	7.5

- Alternative glide paths reviewed in four groups

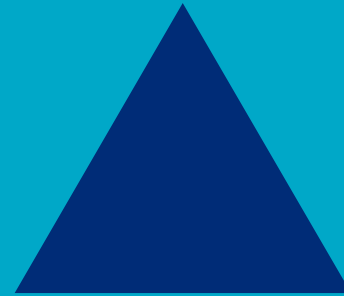
Summary of Alternative Glide Paths				
Group 1: Test Equity Allocation	Group 2: Test Domestic Equity Structure	Group 3: Test Int'l Equity	Group 4: Test Fixed Income	Group 5: Through GlidePaths
Equity Decreased by 5%	Small Cap Equity Percentage of Domestic Equity Reduced by 5%	International Equity Increased to 35%	100% F Fund for Fixed Income	Parallel Shift 5 yrs
Equity Increased by 5%		International Equity Increased to 40%	100% G Fund for Fixed Income	Parallel Shift 10 yrs
Equity Increased by 10%	Small Cap Equity Percentage of Domestic Equity Increased by 5%		Change Fixed Income allocation based on stochastic optimization	10 yr Through GlidePath with Modified Shape
More Equity in 2050-2020 Funds (5-10%)				TDF Survey Median GlidePath growth asset allocation

GROWTH ASSET ALLOCATION COMPARISON TO MERCER SURVEY



MODELING RESULTS

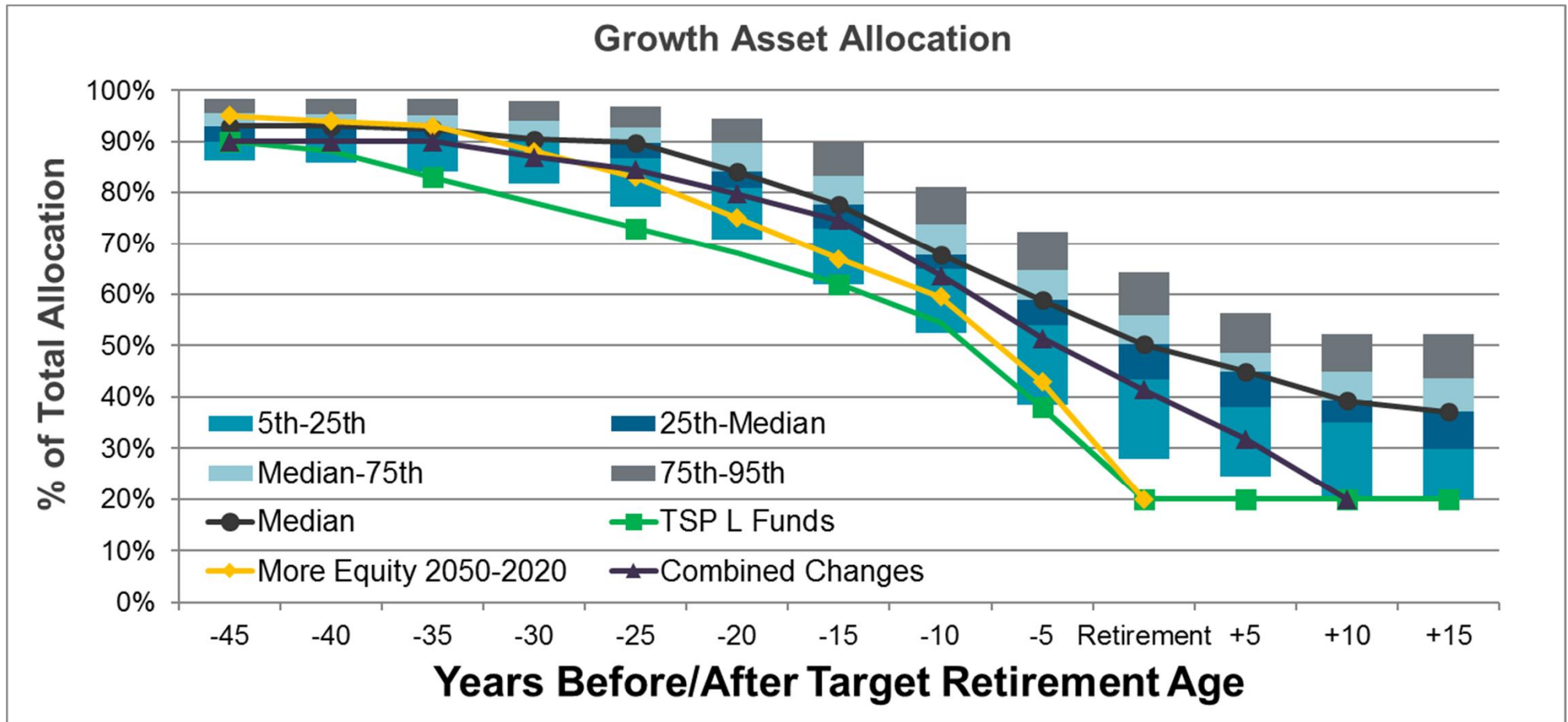
EXAMPLE: 2040 FUND



MODELING ALTERNATIVES

- In addition to the current L Fund allocations, we focus on two alternatives in the 2040 Fund example:
 - More Equity 2050-2020
 - We added equity across all L Funds and throughout the glide path except for the Income fund
 - We added 5% equity to the 2050 L Fund, 10% equity to the 2040 and 2030 L Fund, and 5% equity to the 2020 L fund
 - We made no changes to the portfolio structure
 - Combined Changes
 - We utilized a 10 year “Through” design with higher equity allocation than the current glide path and modified shape of the glide path
 - We increased international equity to 35% of total equity
 - We adjusted the FI to incorporate more F Fund over the long-term (based upon stochastic optimization)

GROWTH ASSET ALLOCATION COMPARISON TO MERCER SURVEY



2040 FUND RESULTS

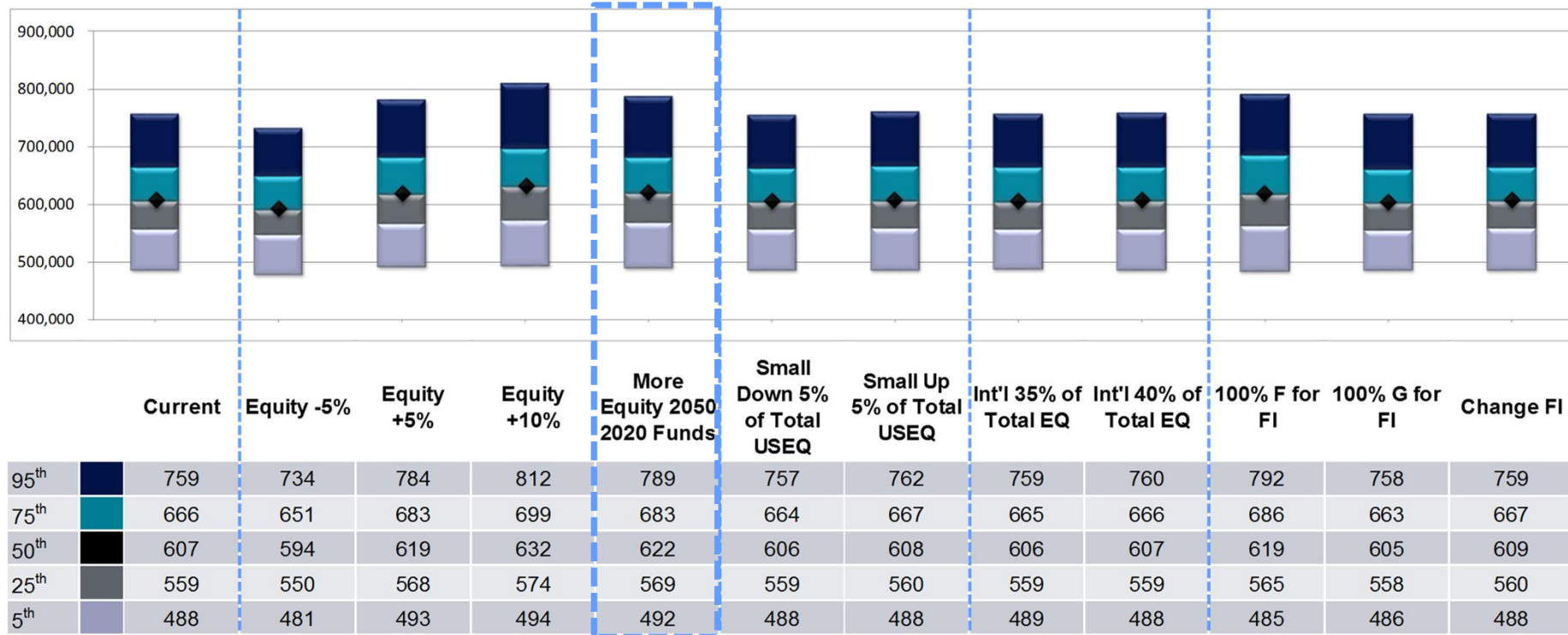
For purposes of this illustration, we modeled 2040 Lifecycle Fund outcomes for a representative career FERS participant -- a 39 yr. old FERS employee with a \$96,000 account balance, age 62 assumed retirement, and currently earning \$79,000/yr. We assume 25 years of tenure for the FERS defined benefit calculation. Assumed real wage growth is 1.5%/yr and inflation is 2.2%.

	<u>Current Glide Path</u>	<u>More Equity 2050-2020</u>	<u>Combined Changes</u>
Median Account Balance at 2040 (real \$)	\$607,184	\$621,712	\$630,869
5th Pct Account Balance at 2040 (real \$)	\$487,977	\$491,898	\$495,048
TSP Median Replacement Ratio at 2040	30%	32%	32%
TSP 5th Pct Replacement Ratio at 2040	24%	24%	26%
Total FERS Median Replacement Ratio* at 2040	81%	81%	82%
Total FERS 5th Pct Replacement Ratio* at 2040	69%	69%	70%
Probability of Decline over Final 2 Yrs.	7.30%	8.00%	13.70%
Likelihood of 5% or Larger Investment Loss over Final 2 Yrs.	7.20%	7.30%	13.50%
Assume post-retirement spending is 80% of final inflation adjusted salary.			
Probability account depleted - age 80	17.60%	16.30%	9.50%
Probability account depleted - age 90	64.20%	60.30%	52.00%
Median Drawdown Age	87	88	90
Drawdown Age at 5th Percentile Downside	77	77	79

* Includes estimated replacement from Social Security (18% to 25%) and FERS defined benefit (26%)

SUMMARY OF REAL (INFLATION-ADJUSTED) ACCOUNT BALANCES AT MATURITY: 23 YEARS TO RETIREMENT (2040 FUND)

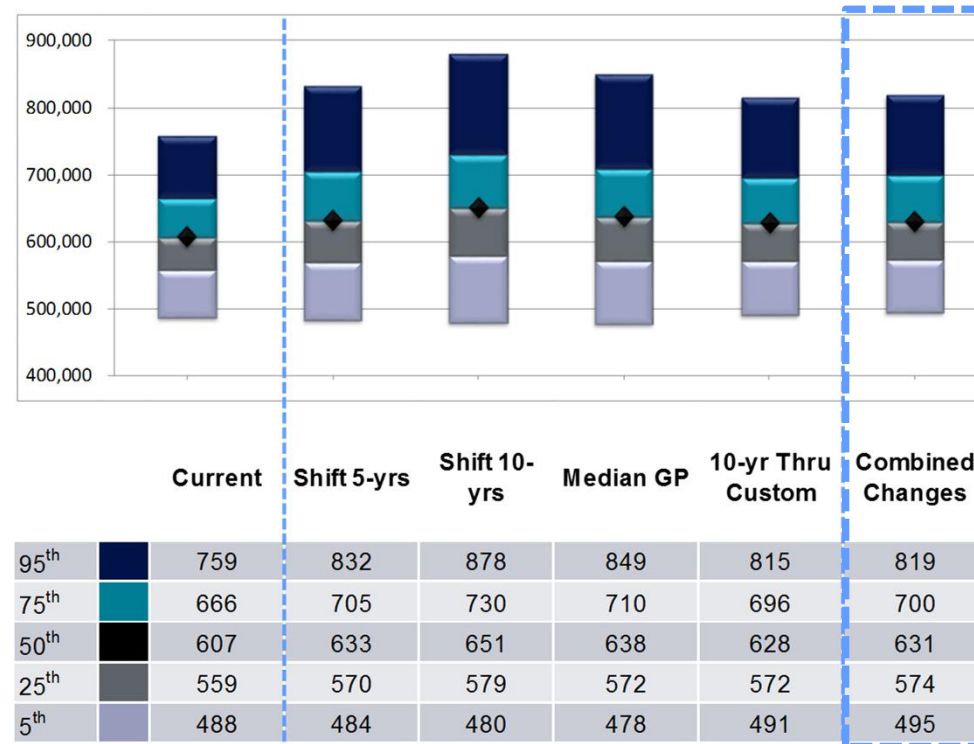
Range of Real Account Balances



- Higher equity allocations provide improvement in account balances across range of outcomes
- Allocations to small cap and international equity do not have significant impact
- Over a long horizon the F Fund outperforms the G Fund

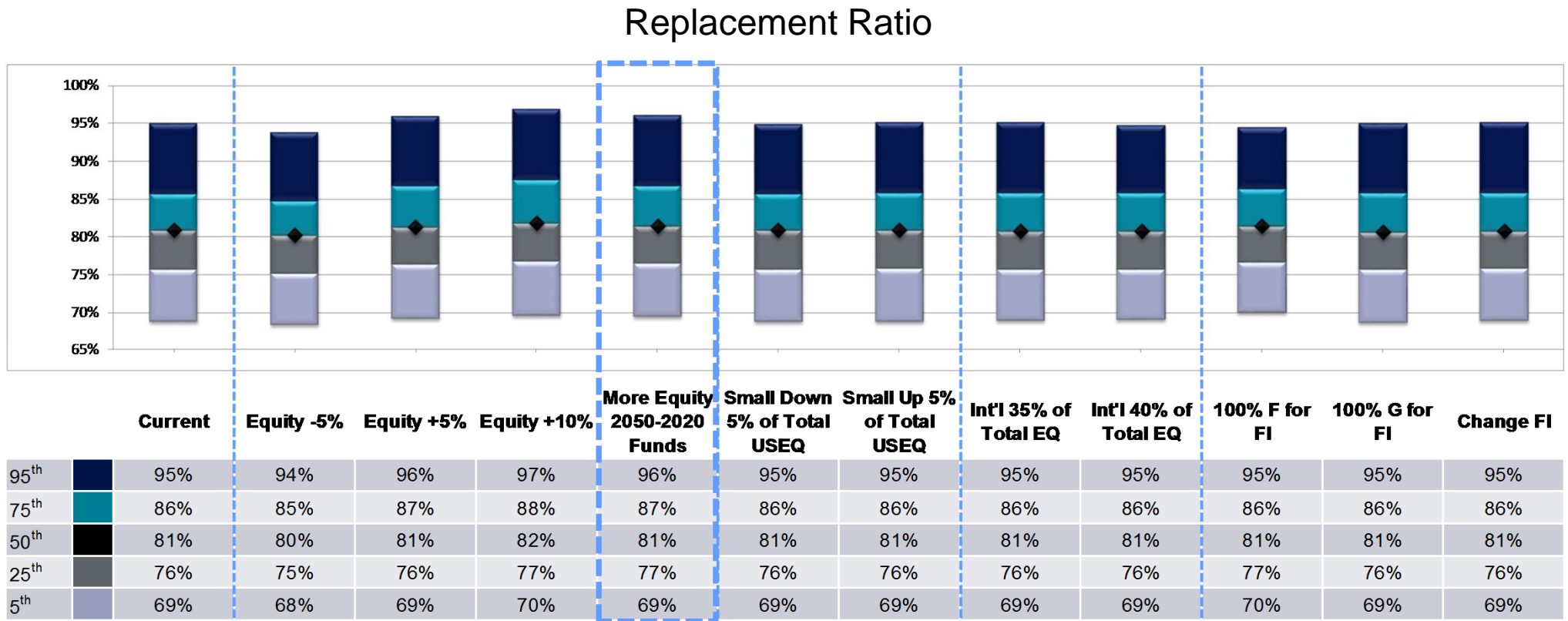
SUMMARY OF REAL (INFLATION-ADJUSTED) ACCOUNT BALANCES AT MATURITY: 23 YEARS TO RETIREMENT (2040 FUND)

Range of Real Account Balances



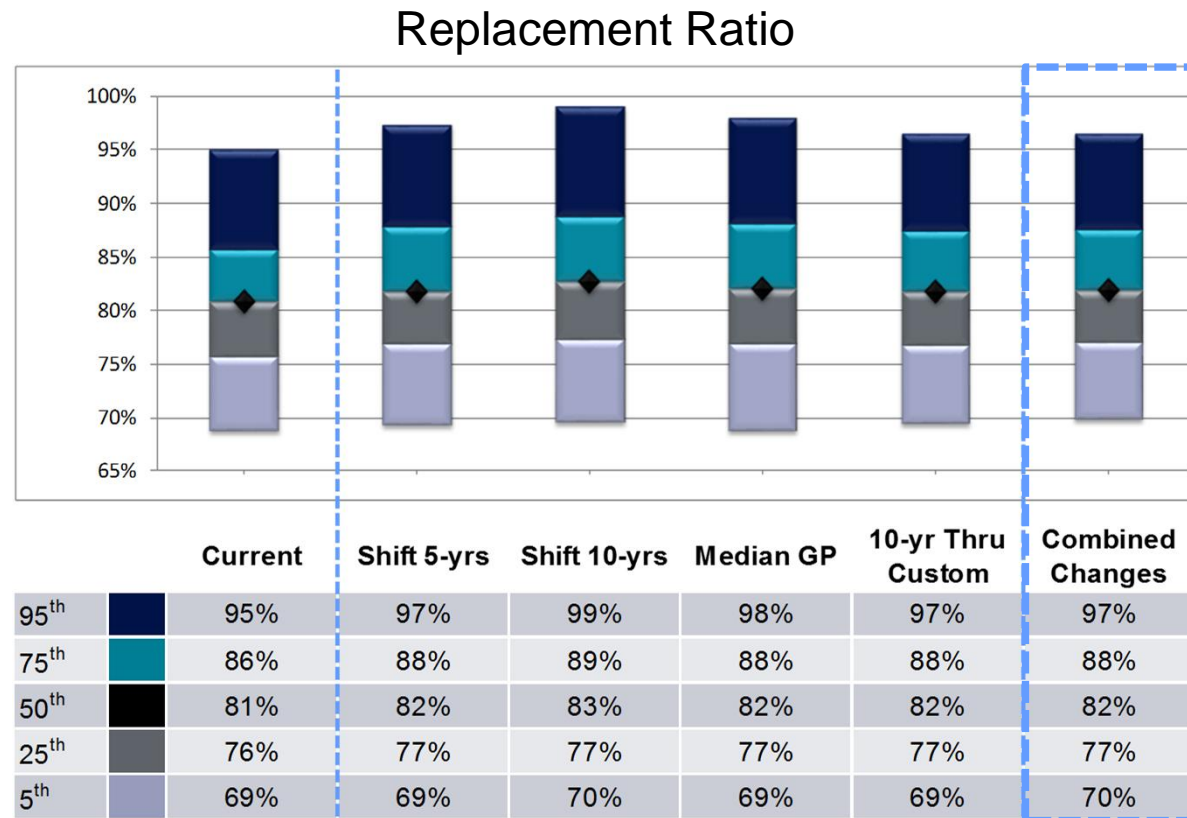
- The “Through” design alternatives maintain higher equity allocations through the glide path and therefore produce higher account balances similar to the more equity “To” glide paths

RANGE OF REPLACEMENT RATIOS AT MATURITY: 23 YEARS TO RETIREMENT (2040 FUND)



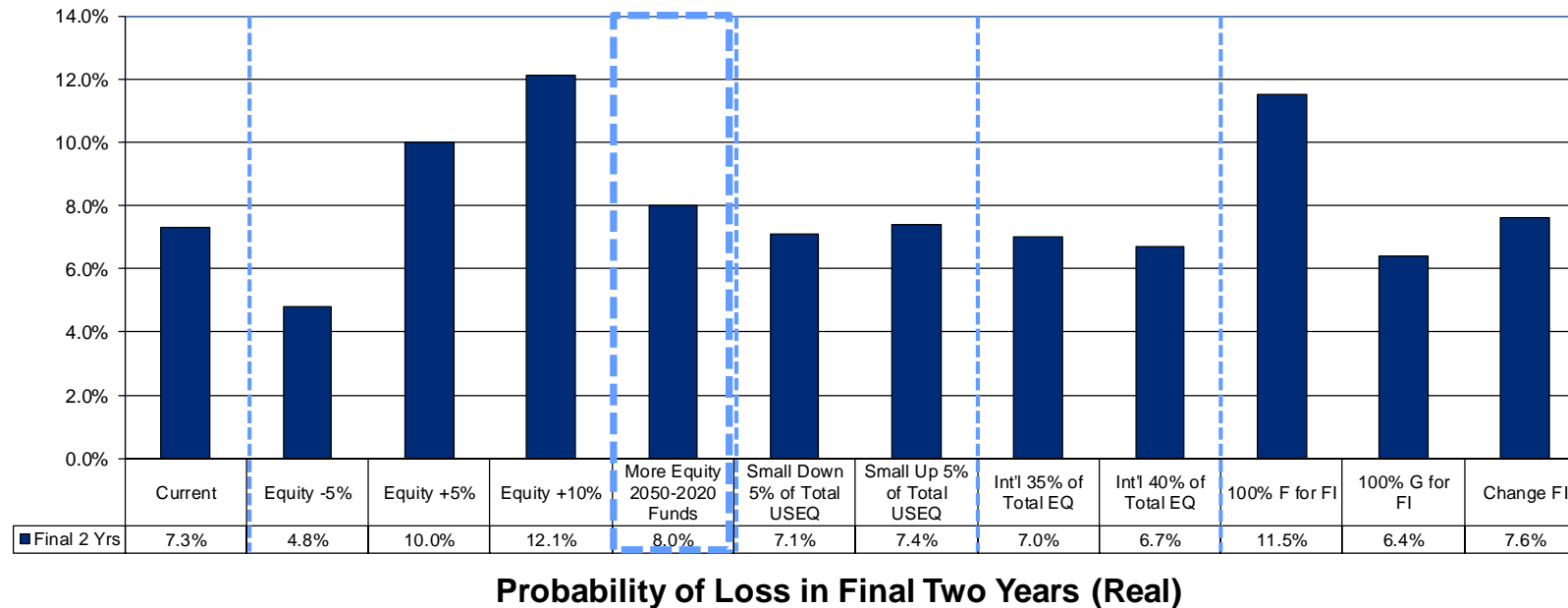
- Higher equity allocations provide improvement in replacement ratios across range of outcomes
- Allocations to small cap and international equity do not have a significant impact

RANGE OF REPLACEMENT RATIOS AT MATURITY: 23 YEARS TO RETIREMENT (2040 FUND)



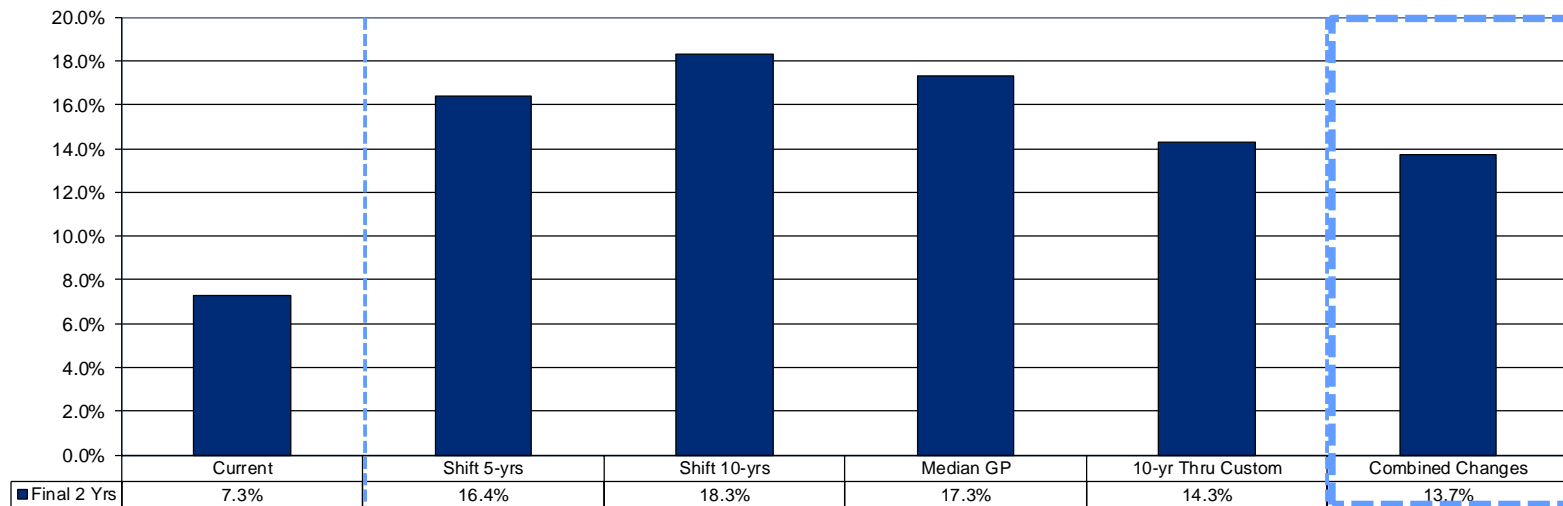
- The “Through” design alternatives maintain higher equity allocations through the glide path and therefore produce higher replacement ratios similar to the more equity “To” glide paths

PROBABILITY OF DECLINE IN ACCOUNT BALANCE IN FINAL TWO YEARS BEFORE MATURITY, IN REAL (INFLATION-ADJUSTED) TERMS: 2040 FUND



- This measure is influenced by the size of account balance as well as the size of the contributions
- Lower equity glide paths reduce the probability of a decline in account balances, while the higher equity glide paths increase the probability of decline

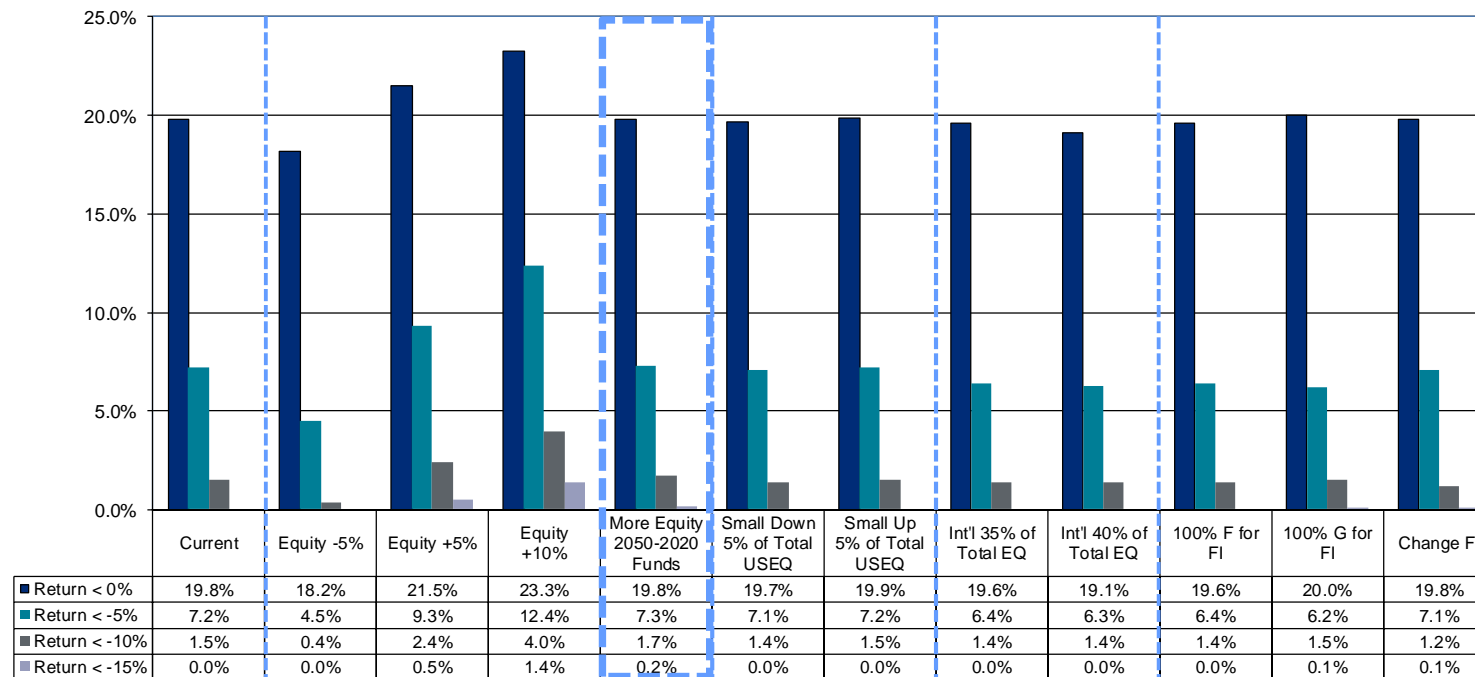
PROBABILITY OF DECLINE IN ACCOUNT BALANCE IN FINAL TWO YEARS BEFORE MATURITY, IN REAL (INFLATION-ADJUSTED) TERMS: 2040 FUND



Probability of Loss in Final Two Years (Real)

- This measure is influenced by the size of account balance as well as the size of the contributions
- The “Through” design alternatives have more equity exposure near retirement and continue to glide down post-retirement, resulting in higher risk in the final two years

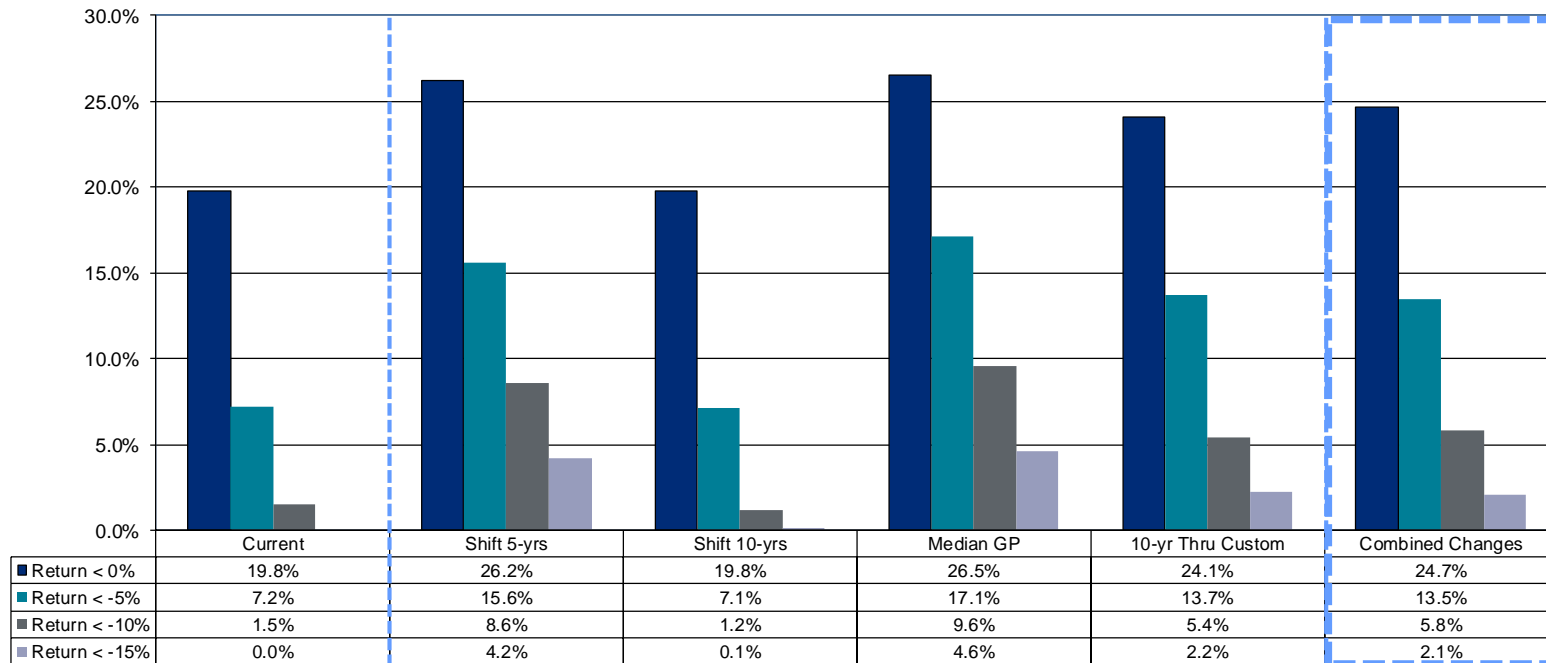
INVESTMENT RISK: 2040 FUND



Probability of Investment Loss Final 2 years Pre-Retirement

- This measure is not influenced by the size of account balance or the size of the contributions
- Lower equity glide paths reduce the probability of an investment loss, while the higher equity glide paths increase the probability of loss

INVESTMENT RISK: 2040 FUND









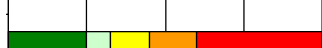










Probability of Investment Loss Final 2 years Pre-Retirement

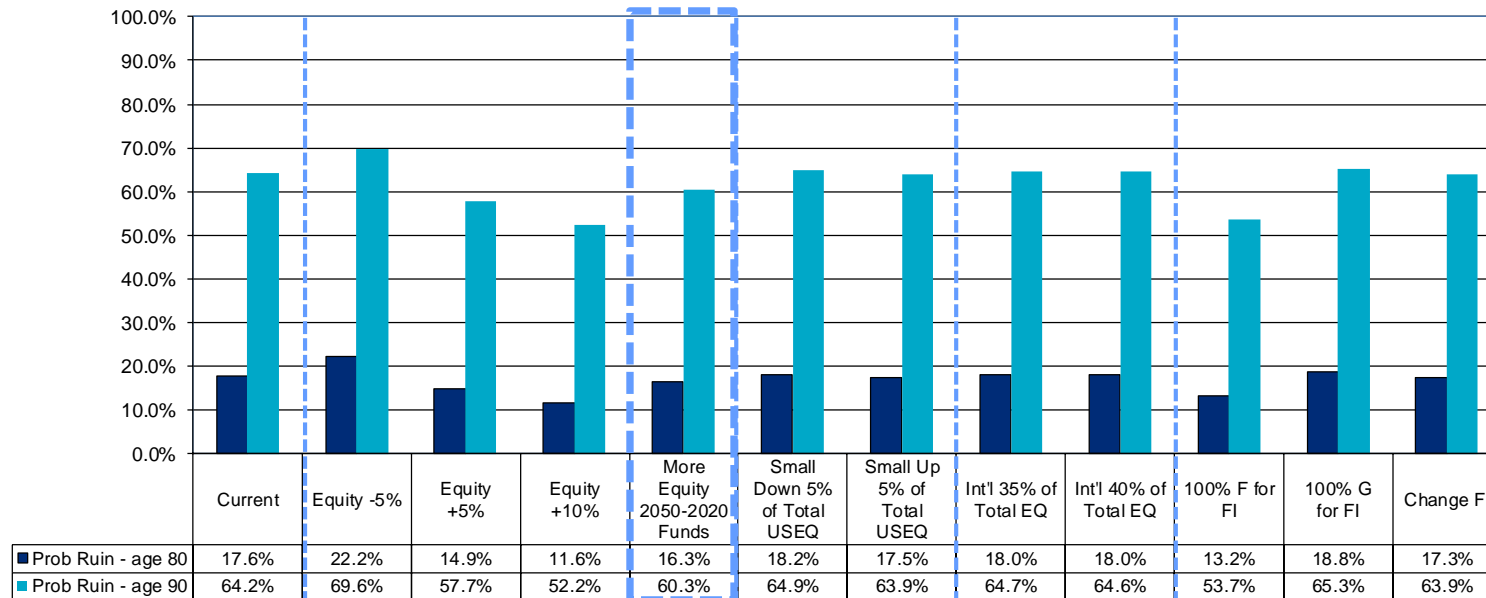
- This measure is not influenced by the size of account balance or the size of the contributions
- The “Through” design alternatives have more equity exposure near retirement and continue to glide down post-retirement, resulting in higher risk in the final two years

EXPECTED ACCOUNT DEPLETION AGES: 2040 FUND

- Assumes retirement spending budget of 80% of final pay at retirement
- Under median outcome, account expected to last 25 years post-retirement
- 1% chance of depleting DC assets within 13 years post-retirement with current glide path
- Outcomes slightly improved with higher equity allocation
- After depletion participants will have ~50% replacement from DB and SS sources

GlidePath	Significance Level (Probability of having retirement funds sufficient to reach indicated age)	99%	95%	75%	50%
Current		75	77	82	87
Equity -5%		75	76	81	86
Equity +5%		76	78	83	88
Equity +10%		76	79	84	90
More Equity 2050-2020 Funds		75	77	83	88
Small Down 5% of Total USEQ		75	77	82	87
Small Up 5% of Total USEQ		75	77	82	87
Int'l 35% of Total EQ		75	77	82	87
Int'l 40% of Total EQ		75	77	82	87
100% F for FI		75	78	83	89
100% G for FI		75	77	82	87
Change FI		75	77	82	87
Shift 5-yrs		76	78	84	89
Shift 10-yrs		77	80	86	92
Median GP		77	79	86	93
10-yr Thru Custom		76	79	84	90
Combined Changes		76	79	84	90

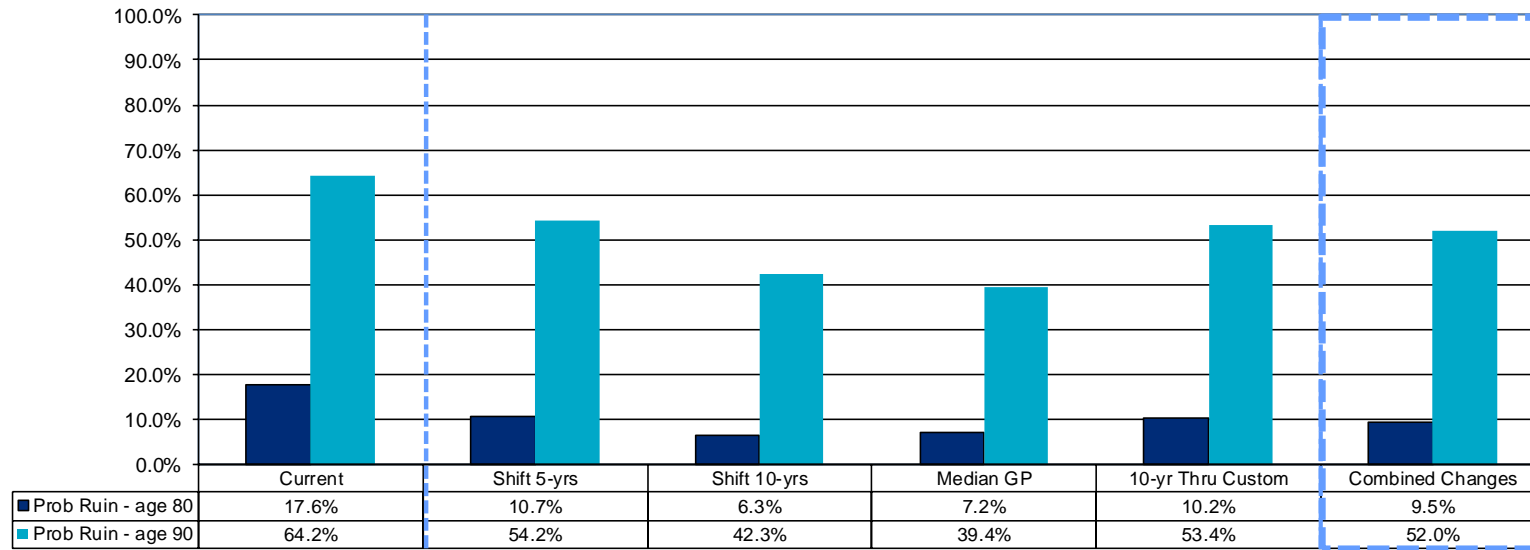
PROBABILITY OF DEPLETING DC ASSETS BY AGE 80 AND 90: 2040 FUND



Probability of Depleting DC Assets

- Probability of depleting DC assets by age 80 can be decreased by taking more equity risk
- Probability of depleting DC assets by age 90 is 50+% for all investment options

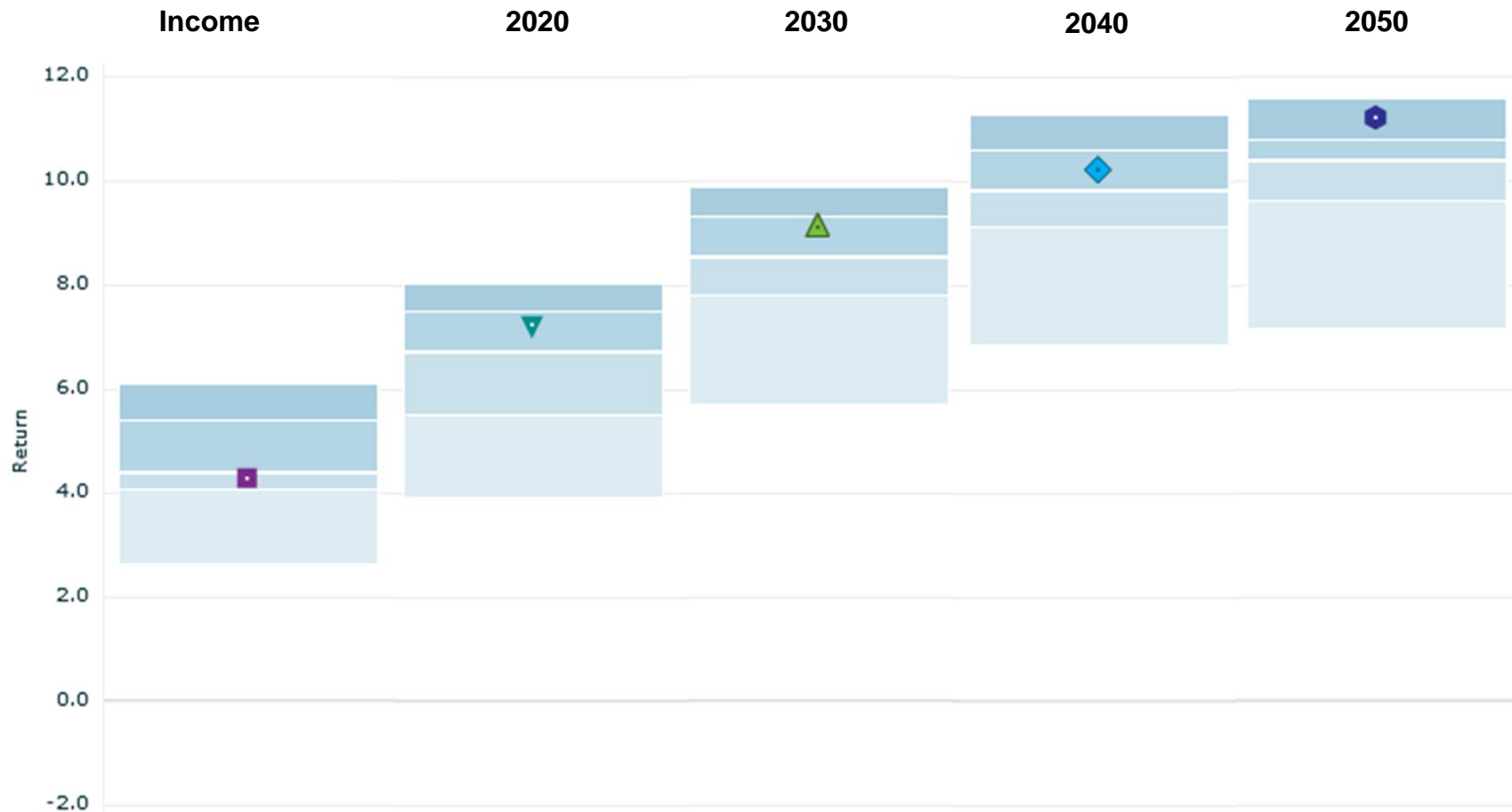
PROBABILITY OF DEPLETING DC ASSETS BY AGE 80 AND 90: 2040 FUND



Probability of Depleting DC Assets

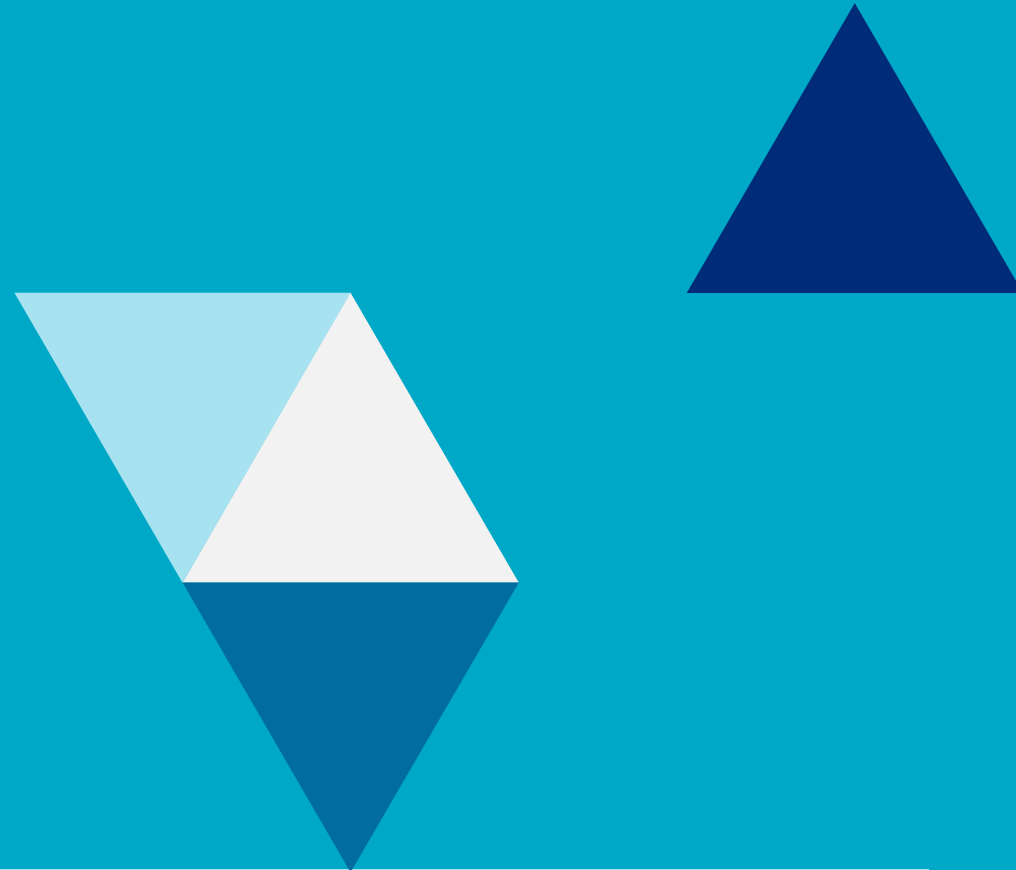
- Probability of depleting DC assets by age 80 can be decreased by taking more equity risk
- Probability of depleting DC assets by age 90 is reduced to under 50% for the most aggressive “Through” design alternatives

5-YEAR PERFORMANCE: ENDING SEPT-2017



	5 yrs (%pa)	5 yrs (%pa)	5 yrs (%pa)	5 yrs (%pa)	5 yrs (%pa)
L Fund Return	4.3 (69)	7.2 (38)	9.1 (33)	10.2 (42)	11.2 (14)
5th Percentile	6.1	8.0	9.9	11.3	11.6
Upper Quartile	5.4	7.5	9.3	10.6	10.8
Median	4.4	6.7	8.5	9.8	10.4
Lower Quartile	4.0	5.5	7.8	9.1	9.6
95th Percentile	2.6	3.9	5.7	6.9	7.2
Number	25	26	27	32	31

SUMMARY AND RECOMMENDATIONS

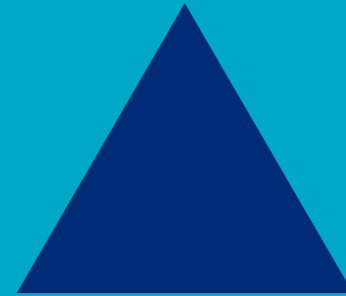


SUMMARY AND RECOMMENDATIONS

- With respect to the glide path allocations, additional equity is favorable in the current low yield environment and over very long time horizons, but it increases volatility of returns and event risk around the target retirement age
 - Among the “To” design alternatives, More Equity 2050 to 2020 balances the advantage from additional growth assets in early to mid-career with managing risk around retirement age
- “Through” designs provide additional improvement in projected drawdown ages
 - 10-year “Through” design with parallel shift provides largest increase in projected drawdown age, but adds significant volatility around retirement
 - 10-year “Through” design with modified shape manages risk around retirement while improving projected outcomes
 - Combining this glide path shape with positive portfolio structure adjustments (increasing I Fund weight and long-term F Fund allocation) provides favorable long-term outcomes at median and under 1-in-20 downside scenarios
- Given post-retirement withdrawal patterns and potential impact on participant outcomes, strong consideration should be given to a “Through” approach

APPENDIX

ALTERNATIVE GLIDE PATHS MARKET SURVEY



CURRENT ASSET ALLOCATION OF ALTERNATIVE GLIDE PATHS

Decrease Equity 5%

Allocations	2050 Portfolio	2040 Portfolio	2030 Portfolio	2020 Portfolio	Income Portfolio
C-Fund	41.0	36.4	31.0	18.3	8.4
S-Fund	13.6	11.2	8.9	4.8	2.1
I-Fund	23.4	20.4	17.1	9.9	4.5
F-Fund	6.9	7.6	7.2	6.8	6.4
G-Fund	15.1	24.4	35.8	60.2	78.6
Total	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios					
Percent Fixed Income	22.0	32.0	43.0	67.0	85.0
Percent Equity	78.0	68.0	57.0	33.0	15.0
Int Eq/Tot Eq	30.0	30.0	30.0	30.0	30.0
S-Fund/Domestic Eq	24.9	23.5	22.3	20.8	20.0
F-Fund/Total FI	31.3	23.8	16.7	10.2	7.5

Increase Equity 5%

Allocations	2050 Portfolio	2040 Portfolio	2030 Portfolio	2020 Portfolio	Income Portfolio
C-Fund	46.3	41.8	36.5	23.8	14.0
S-Fund	15.3	12.8	10.4	6.3	3.5
I-Fund	26.4	23.4	20.1	12.9	7.5
F-Fund	3.8	5.2	5.5	5.8	5.6
G-Fund	8.2	16.8	27.5	51.2	69.4
Total	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios					
Percent Fixed Income	12.0	22.0	33.0	57.0	75.0
Percent Equity	88.0	78.0	67.0	43.0	25.0
Int Eq/Tot Eq	30.0	30.0	30.0	30.0	30.0
S-Fund/Domestic Eq	24.8	23.4	22.2	20.9	20.0
F-Fund/Total FI	31.3	23.8	16.7	10.2	7.5

Increase Equity 10%

Allocations	2050 Portfolio	2040 Portfolio	2030 Portfolio	2020 Portfolio	Income Portfolio
C-Fund	48.9	44.5	39.2	26.6	16.8
S-Fund	16.2	13.6	11.2	7.0	4.2
I-Fund	27.9	24.9	21.5	14.4	9.0
F-Fund	2.2	4.0	4.7	5.3	5.3
G-Fund	4.8	13.0	23.4	46.7	64.7
Total	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios					
Percent Fixed Income	7.0	17.0	28.1	52.0	70.0
Percent Equity	93.0	83.0	71.9	48.0	30.0
Int Eq/Tot Eq	30.0	30.0	29.9	30.0	30.0
S-Fund/Domestic Eq	24.9	23.4	22.2	20.8	20.0
F-Fund/Total FI	31.3	23.8	16.7	10.2	7.5

More Equity 2050 - 2020

Allocations	2050 Portfolio	2040 Portfolio	2030 Portfolio	2020 Portfolio	Income Portfolio
C-Fund	46.3	44.5	39.2	23.8	11.2
S-Fund	15.3	13.6	11.2	6.3	2.8
I-Fund	26.4	24.9	21.5	12.9	6.0
F-Fund	3.8	4.0	4.7	5.8	6.0
G-Fund	8.2	13.0	23.4	51.2	74.0
Total	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios					
Percent Fixed Income	12.0	17.0	28.1	57.0	80.0
Percent Equity	88.0	83.0	71.9	43.0	20.0
Int Eq/Tot Eq	30.0	30.0	29.9	30.0	30.0
S-Fund/Domestic Eq	24.8	23.4	22.2	20.9	20.0
F-Fund/Total FI	31.3	23.8	16.7	10.2	7.5

CURRENT ASSET ALLOCATION OF ALTERNATIVE GLIDE PATHS

International Equity Increased to 35% of Total Equity

	2050	2040	2030	2020	Income
Allocations	Portfolio	Portfolio	Portfolio	Portfolio	Portfolio
C-Fund	40.6	36.3	31.3	19.5	10.4
S-Fund	13.3	11.1	9.0	5.2	2.6
I-Fund	29.1	25.6	21.7	13.3	7.0
F-Fund	5.3	6.4	6.3	6.3	6.0
G-Fund	11.7	20.6	31.7	55.7	74.0
Total	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios					
Percent Fixed Income	17.0	27.0	38.0	62.0	80.0
Percent Equity	83.0	73.0	62.0	38.0	20.0
Int Eq/Tot Eq	35.0	35.0	35.0	35.0	35.0
S-Fund/Domestic Eq	24.7	23.4	22.3	21.1	20.0
F-Fund/Total FI	31.3	23.8	16.7	10.2	7.5

International Equity Increased to 40% of Total Equity

	2050	2040	2030	2020	Income
Allocations	Portfolio	Portfolio	Portfolio	Portfolio	Portfolio
C-Fund	37.4	33.5	28.9	18.0	9.6
S-Fund	12.4	10.3	8.3	4.8	2.4
I-Fund	33.2	29.2	24.8	15.2	8.0
F-Fund	5.3	6.4	6.3	6.3	6.0
G-Fund	11.7	20.6	31.7	55.7	74.0
Total	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios					
Percent Fixed Income	17.0	27.0	38.0	62.0	80.0
Percent Equity	83.0	73.0	62.0	38.0	20.0
Int Eq/Tot Eq	40.0	40.0	40.0	40.0	40.0
S-Fund/Domestic Eq	24.9	23.5	22.3	21.1	20.0
F-Fund/Total FI	31.3	23.8	16.7	10.2	7.5

Small Cap Equity down 5% of Domestic Equity

	2050	2040	2030	2020	Income
Allocations	Portfolio	Portfolio	Portfolio	Portfolio	Portfolio
C-Fund	46.6	41.7	35.9	22.4	11.9
S-Fund	11.5	9.4	7.5	4.2	2.1
I-Fund	24.9	21.9	18.6	11.4	6.0
F-Fund	5.3	6.4	6.3	6.3	6.0
G-Fund	11.7	20.6	31.7	55.7	74.0
Total	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios					
Percent Fixed Income	17.0	27.0	38.0	62.0	80.0
Percent Equity	83.0	73.0	62.0	38.0	20.0
Int Eq/Tot Eq	30.0	30.0	30.0	30.0	30.0
S-Fund/Domestic Eq	19.8	18.4	17.3	15.8	15.0
F-Fund/Total FI	31.3	23.8	16.7	10.2	7.5

Small Cap Equity up 5% of Domestic Equity

	2050	2040	2030	2020	Income
Allocations	Portfolio	Portfolio	Portfolio	Portfolio	Portfolio
C-Fund	40.8	36.5	31.6	19.7	10.5
S-Fund	17.3	14.6	11.8	6.9	3.5
I-Fund	24.9	21.9	18.6	11.4	6.0
F-Fund	5.3	6.4	6.3	6.3	6.0
G-Fund	11.7	20.6	31.7	55.7	74.0
Total	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios					
Percent Fixed Income	17.0	27.0	38.0	62.0	80.0
Percent Equity	83.0	73.0	62.0	38.0	20.0
Int Eq/Tot Eq	30.0	30.0	30.0	30.0	30.0
S-Fund/Domestic Eq	29.8	28.6	27.2	25.9	25.0
F-Fund/Total FI	31.3	23.8	16.7	10.2	7.5

CURRENT ASSET ALLOCATION OF ALTERNATIVE GLIDE PATHS

100% F Fund for Fixed Income

Allocations	2050 Portfolio	2040 Portfolio	2030 Portfolio	2020 Portfolio	Income Portfolio
C-Fund	43.7	39.1	33.8	21.0	11.2
S-Fund	14.4	12.0	9.6	5.6	2.8
I-Fund	24.9	21.9	18.6	11.4	6.0
F-Fund	17.0	27.0	38.0	62.0	80.0
G-Fund	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios					
Percent Equity	83.0	73.0	62.0	38.0	20.0
Int Eq/Tot Eq	30.0	30.0	30.0	30.0	30.0
S-Fund/Domestic Eq	24.8	23.5	22.2	20.9	20.0
F-Fund/Total FI	100.0	100.0	100.0	100.0	100.0

100% G Fund for Fixed Income

Allocations	2050 Portfolio	2040 Portfolio	2030 Portfolio	2020 Portfolio	Income Portfolio
C-Fund	43.7	39.1	33.8	21.0	11.2
S-Fund	14.4	12.0	9.6	5.6	2.8
I-Fund	24.9	21.9	18.6	11.4	6.0
F-Fund	0.0	0.0	0.0	0.0	0.0
G-Fund	17.0	27.0	38.0	62.0	80.0
Total	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios					
Percent Equity	83.0	73.0	62.0	38.0	20.0
Int Eq/Tot Eq	30.0	30.0	30.0	30.0	30.0
S-Fund/Domestic Eq	24.8	23.5	22.2	20.9	20.0
F-Fund/Total FI	0.0	0.0	0.0	0.0	0.0

Change Fixed Income Allocation

Allocations	2050 Portfolio	2040 Portfolio	2030 Portfolio	2020 Portfolio	Income Portfolio
C-Fund	43.7	39.1	33.8	21.0	11.2
S-Fund	14.4	12.0	9.6	5.6	2.8
I-Fund	24.9	21.9	18.6	11.4	6.0
F-Fund	15.3	16.7	13.3	11.8	8.0
G-Fund	1.7	10.3	24.7	50.2	72.0
Total	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios					
Percent Equity	83.0	73.0	62.0	38.0	20.0
Int Eq/Tot Eq	30.0	30.0	30.0	30.0	30.0
S-Fund/Domestic Eq	24.8	23.5	22.2	20.9	20.0
F-Fund/Total FI	90.0	62.0	35.0	19.0	10.0

CURRENT ASSET ALLOCATION OF ALTERNATIVE GLIDE PATHS

5 year Shift

Allocations	2050 Portfolio	2040 Portfolio	2030 Portfolio	2020 Portfolio	Income Portfolio
C-Fund	46.4	41.4	36.8	29.9	11.2
S-Fund	15.5	13.2	10.8	8.2	2.8
I-Fund	26.2	23.4	20.4	16.4	6.0
F-Fund	3.8	5.2	5.3	4.6	6.0
G-Fund	8.2	16.8	26.7	40.9	74.0
Total	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios					
Percent Fixed Income	12.0	22.0	32.0	45.5	80.0
Percent Equity	88.0	78.0	68.0	54.5	20.0
Int Eq/Tot Eq	29.8	30.0	30.0	30.0	30.0
S-Fund/Domestic Eq	25.0	24.2	22.7	21.6	20.0
F-Fund/Total FI	31.3	23.8	16.7	10.2	7.5

10 year Shift

Allocations	2050 Portfolio	2040 Portfolio	2030 Portfolio	2020 Portfolio	2010 Portfolio	Income Portfolio
C-Fund	47.3	43.7	39.1	33.8	21.0	11.2
S-Fund	15.8	14.4	12.0	9.6	5.6	2.8
I-Fund	27.0	24.9	21.9	18.6	11.4	6.0
F-Fund	3.1	4.1	4.5	3.9	4.7	6.0
G-Fund	6.9	13.0	22.5	34.1	57.4	74.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios						
Percent Fixed Income	10.0	17.0	27.0	38.0	62.0	80.0
Percent Equity	90.0	83.0	73.0	62.0	38.0	20.0
Int Eq/Tot Eq	30.0	30.0	30.0	30.0	30.0	30.0
S-Fund/Domestic Eq	25.0	24.8	23.5	22.2	20.9	20.0
F-Fund/Total FI	31.3	23.8	16.7	10.2	7.5	7.5

10 year Through

Allocations	2050 Portfolio	2040 Portfolio	2030 Portfolio	2020 Portfolio	2010 Portfolio	Income Portfolio
C-Fund	46.5	43.7	38.1	25.7	15.5	11.2
S-Fund	15.5	14.4	11.7	7.3	4.1	2.8
I-Fund	26.6	24.9	21.3	14.1	8.4	6.0
F-Fund	3.6	4.1	4.8	5.4	5.4	6.0
G-Fund	7.9	13.0	24.1	47.5	66.6	74.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios						
Percent Fixed Income	11.5	17.0	28.9	52.9	72.0	80.0
Percent Equity	88.5	83.0	71.1	47.1	28.0	20.0
Int Eq/Tot Eq	30.0	30.0	30.0	30.0	30.0	30.0
S-Fund/Domestic Eq	25.0	24.8	23.5	22.2	20.9	20.0
F-Fund/Total FI	31.3	23.8	16.7	10.2	7.5	7.5

CURRENT ASSET ALLOCATION OF ALTERNATIVE GLIDE PATHS

Median GlidePath

	2050	2040	2030	2020	2010	Income
Allocations	Portfolio	Portfolio	Portfolio	Portfolio	Portfolio	Portfolio
C-Fund	48.1	46.0	39.4	30.2	23.7	20.8
S-Fund	16.1	15.2	12.1	8.6	6.3	5.2
I-Fund	27.5	26.2	22.1	16.7	12.8	11.1
F-Fund	2.6	3.0	4.4	4.5	4.3	4.7
G-Fund	5.7	9.6	22.0	40.0	52.9	58.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios						
Percent Fixed Income	8.3	12.6	26.4	44.5	57.2	62.9
Percent Equity	91.7	87.4	73.6	55.5	42.8	37.1
Int Eq/Tot Eq	30.0	30.0	30.0	30.0	30.0	30.0
S-Fund/Domestic Eq	25.0	24.8	23.5	22.2	20.9	20.0
F-Fund/Total FI	31.3	23.8	16.7	10.2	7.5	7.5

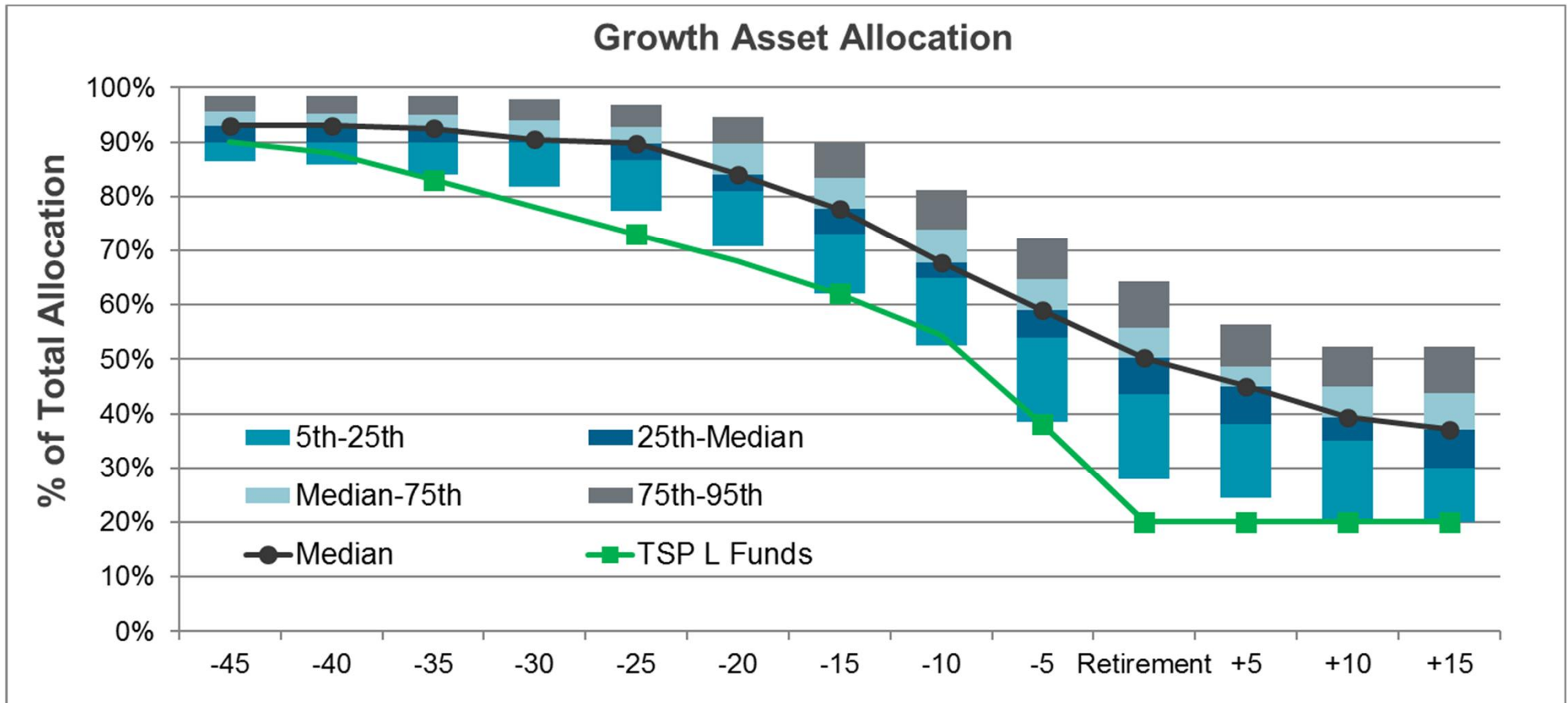
Combined Changes

	2050	2040	2030	2020	2010	Income
Allocations	Portfolio	Portfolio	Portfolio	Portfolio	Portfolio	Portfolio
C-Fund	43.1	40.6	35.4	23.8	14.4	10.4
S-Fund	14.4	13.4	10.9	6.8	3.8	2.6
I-Fund	31.0	29.1	24.9	16.5	9.8	7.0
F-Fund	10.4	15.3	17.9	18.5	13.7	8.0
G-Fund	1.2	1.7	11.0	34.4	58.3	72.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios						
Percent Fixed Income	11.5	17.0	28.9	52.9	72.0	80.0
Percent Equity	88.5	83.0	71.1	47.1	28.0	20.0
Int Eq/Tot Eq	35.0	35.0	35.0	35.0	35.0	35.0
S-Fund/Domestic Eq	25.0	24.8	23.5	22.2	20.9	20.0
F-Fund/Total FI	90.0	90.0	62.0	35.0	19.0	10.0

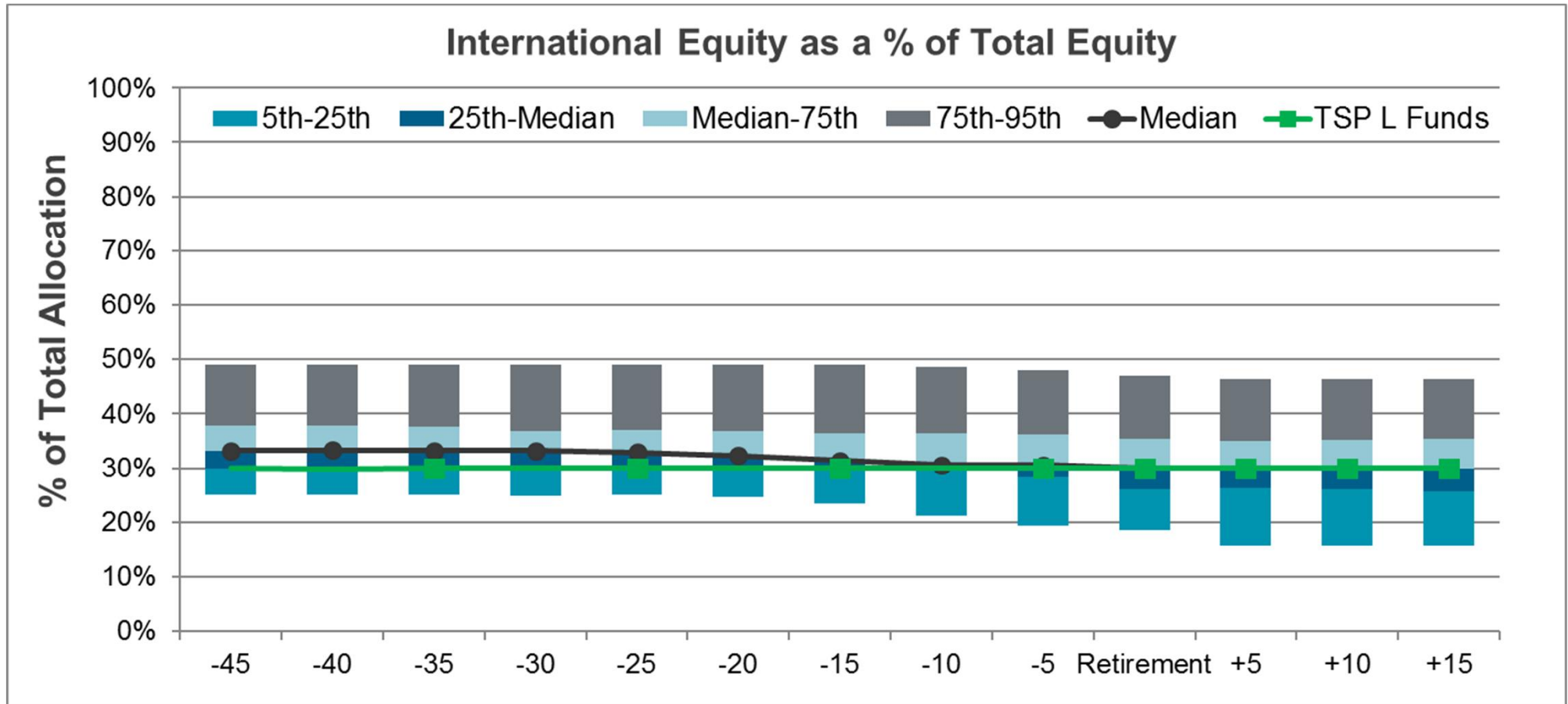
SUMMARY OF QUARTERLY MARKET SURVEY

- Mercer performs a quarterly survey of Target Date Fund providers
- The survey covers 39 Target Date Fund families from 28 providers
- The Thrift Savings Plan asset allocation is somewhat conservative relative to the survey median
 - Lower equity allocations than median across glide path
- The split of international equity vs. total equity is below the survey median
 - Survey median is at 33.2% for long-dated funds and trends down to 30.0% by the income fund
 - For most providers, the international equity allocation includes some emerging markets exposure

GROWTH ASSET ALLOCATION COMPARISON TO MERCER SURVEY



EQUITY ALLOCATION COMPARISON TO MERCER SURVEY



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When interest rates change, we may change our assumptions. However, we are cautious about making changes. We have designed our assumptions to be strategic in nature, so they will typically not be adjusted to short-term market spikes. We use our judgment to determine whether interest rate moves are sustainable. In practice, we continuously review our assumptions and work to refine our methodology as we gain additional information relating to the capital markets, but we do not anticipate changes every time interest rates rise in 25 or 50 basis point increments.

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