

THRIFT SAVINGS PLAN

LIFECYCLE FUNDS ASSET ALLOCATION:
TO VS. THROUGH DESIGN

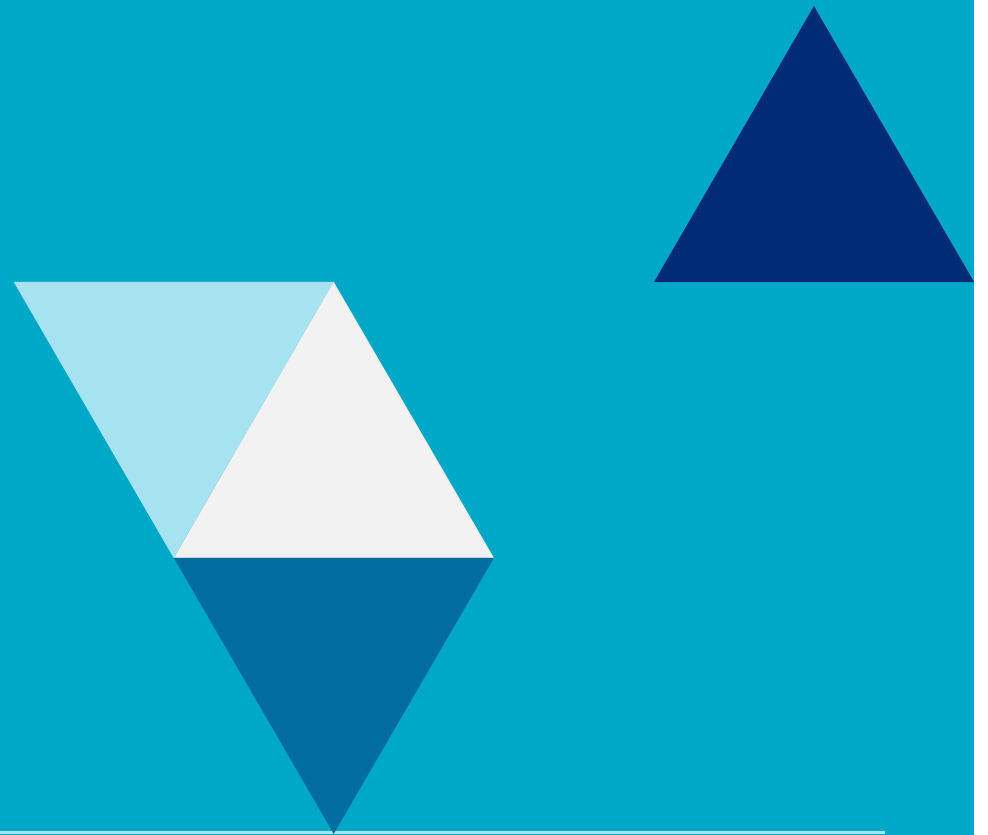
BOARD SUMMARY

May 2017

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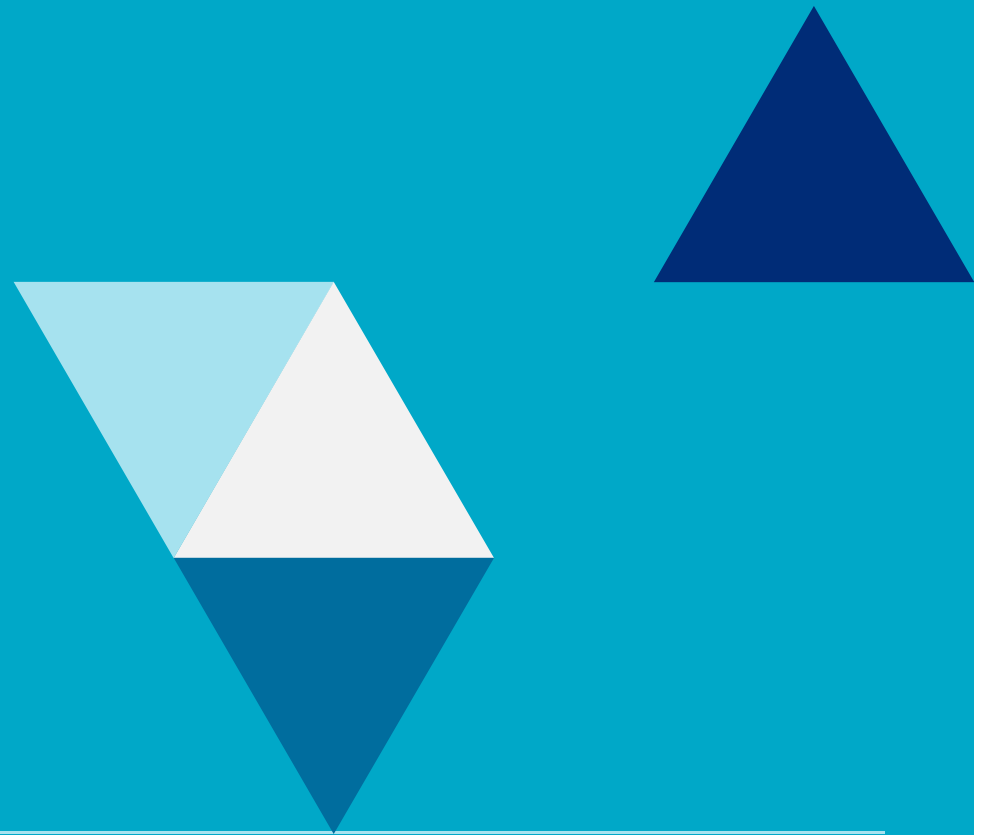
BACKGROUND



BACKGROUND

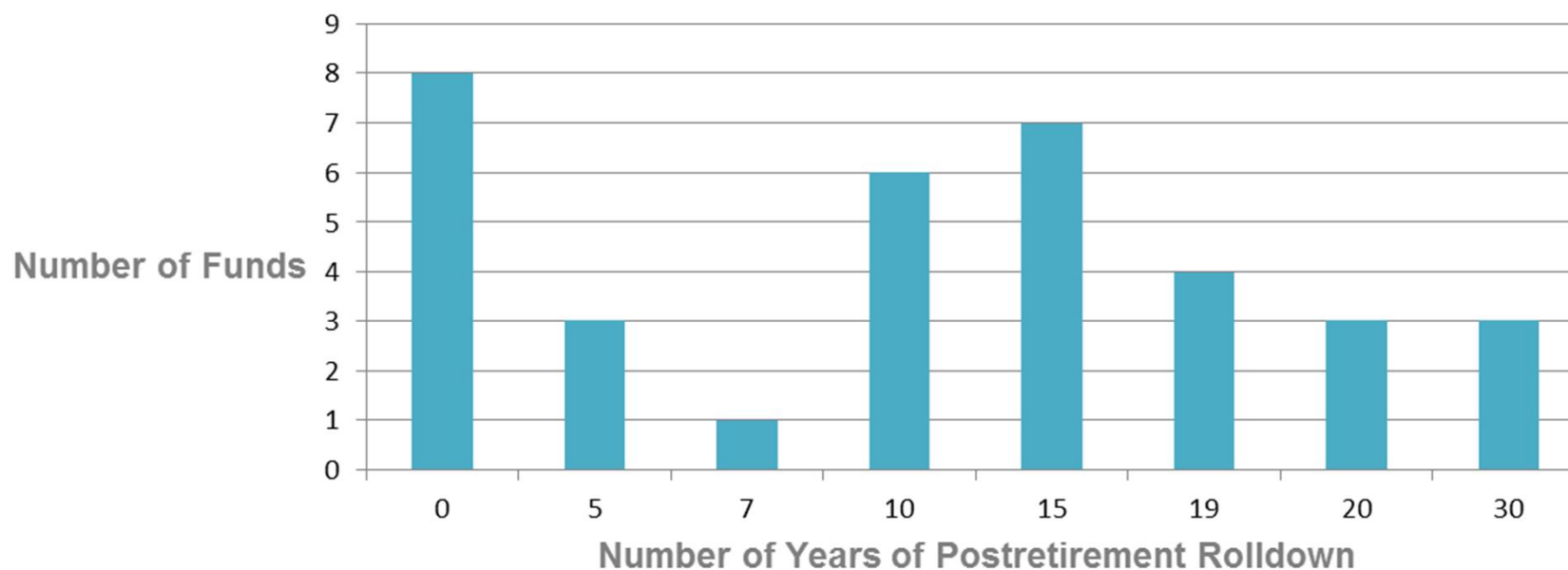
- The Thrift Savings Plan Lifecycle Funds (L Funds) currently follow a “to retirement” design
 - Asset allocation rolls down to the target maturity year, then asset allocation remains constant postretirement
 - For example, 2020 Fund will reach final allocation in July 2020
- The Federal Retirement Thrift Investment Board is interested in exploring hypothetical “through retirement” design glide paths
 - In a “through” design, the asset allocation continues to rolldown from equity to fixed income in the early postretirement years
 - Among off-the-shelf providers, the number of years postretirement to reach the final allocation ranges from 5 to 30 years
- In this analysis, Mercer provides a review of the target date fund market with respect to “to” vs. “through” design, an assessment of Thrift Savings Plan participants distribution elections, and detailed modeling of participant outcomes for the current glide path and four alternative “through” designs

MARKET OVERVIEW



TARGET DATE FUND MARKET SURVEY TO VS. THROUGH DESIGN

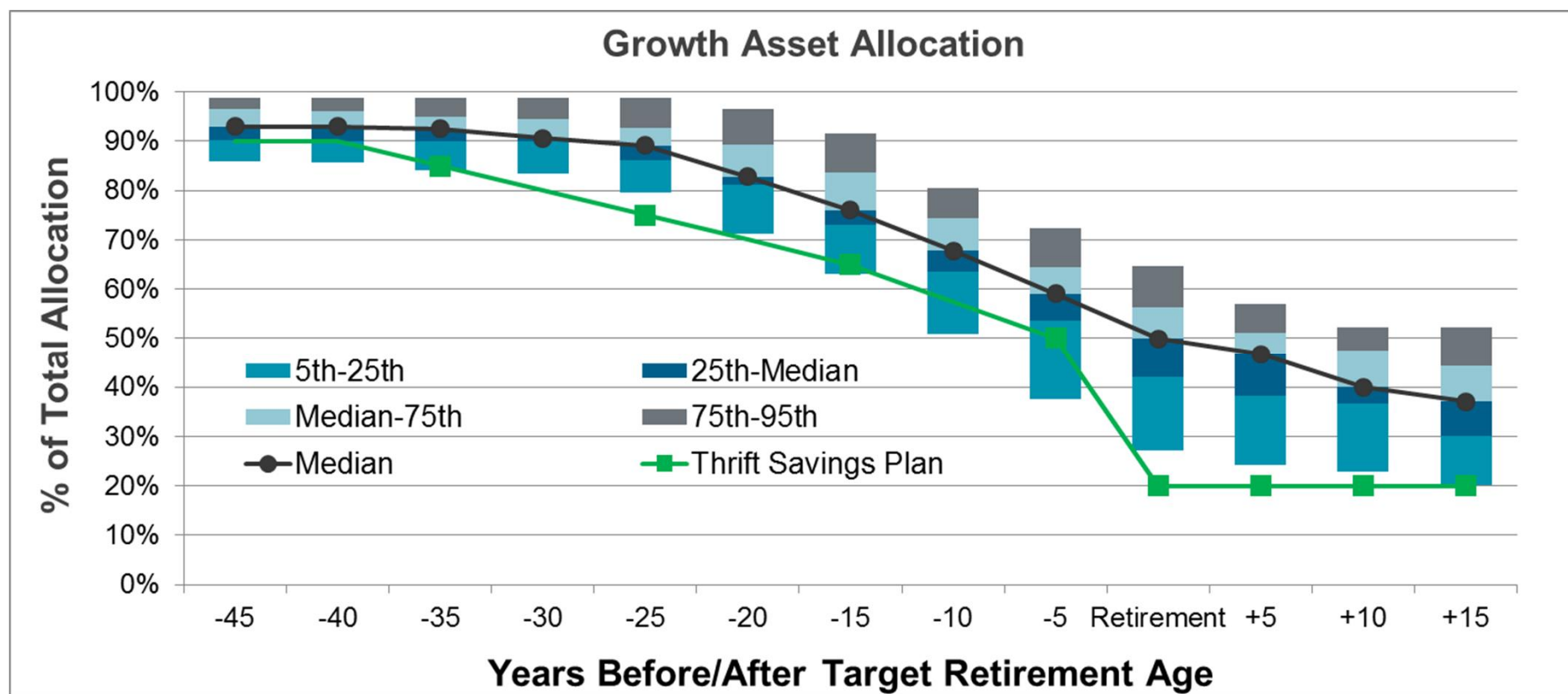
- Over $\frac{3}{4}$ of target date fund series in Mercer's market survey utilize a "through retirement" design approach
 - 27 of 35 have a "through" design, while 8 of 35 use a "to" design
- The postretirement rolldown period varies from just 5 years to 30 years, depending on provider



TARGET DATE FUND MARKET SURVEY

GROWTH ASSET ALLOCATION

- With a conservative “to” design, the L Funds reach a relatively low growth allocation at the target retirement date. Allocations shown are based on an individual assumed to retire in the target maturity year of the fund (e.g. 2030 retirement date for 2030 fund).



PARTICIPANT DEMOGRAPHICS



PARTICIPANT CHARACTERISTICS DISTRIBUTION ANALYSIS

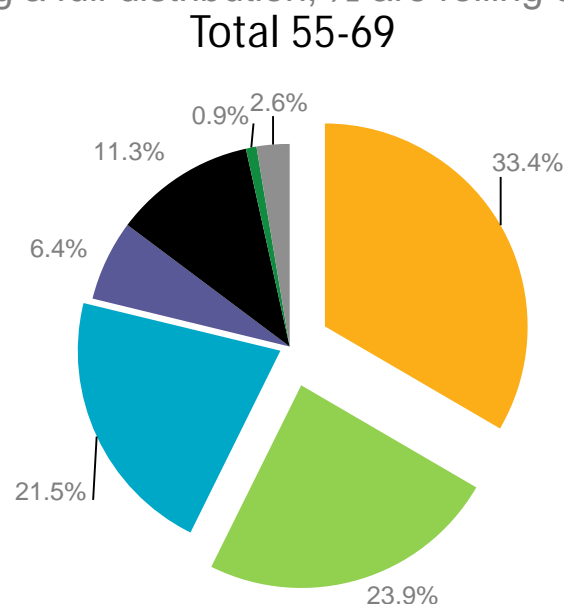
- We collected data on distribution activity for participants terminating at age 55 or later
 - Representative of individuals reaching approximate retirement age
 - Included terminations over the period 1/1/2013 – 12/31/2015, and elections through 12/31/2016
- Generally, if a large majority of participants are taking full distributions from the plan, it may lead to a determination that a “to” design is the best fit
 - If most participants elect cash distribution of their account, a more conservative “to” design would be most appropriate
 - If most participants taking a distribution elect rollovers, they are likely to remain invested with equity exposure, and a more aggressive “to” design could be used
 - According to a 2011 Employee Benefit Research Institute (EBRI) study of Individual Retirement Accounts across over 11 million individuals, the average equity allocation for Rollover IRAs among individuals age 65 and above was approximately 32%, with higher equity allocations for younger age groups
 - A more recent 2015 EBRI study has shown rollover accounts increasing equity exposure² (breakdown by age group specific to rollover accounts is not provided separately in this report)
- A majority of participants remaining invested in the plan (fully or partially) may indicate a “through” design is worthwhile

¹Source: EBRI Study: https://www.ebri.org/pdf/notespdf/EBRI_Notes_05_May-11.IRA.pdf

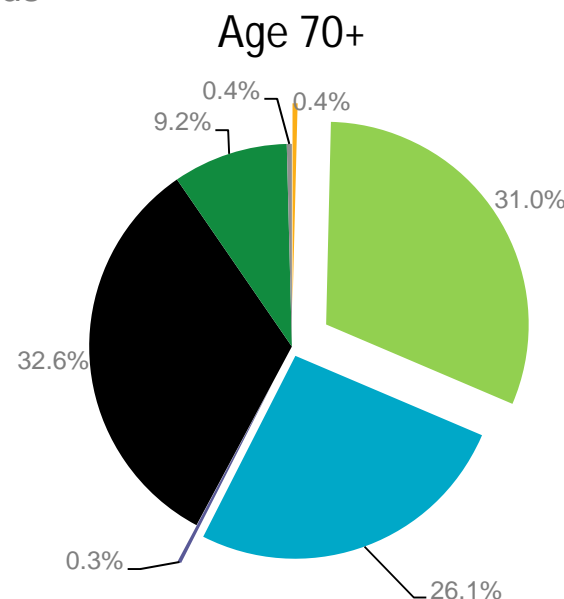
²Source: EBRI Study: https://www.ebri.org/pdf/notespdf/EBRI_Notes_09_Sept15_WBS-IRAs.pdf

PARTICIPANT CHARACTERISTICS DISTRIBUTION ANALYSIS¹

- Among participants terminating between age 55 and 69, approximately ½ of participants remain invested in the Thrift Savings Plan (including those who take partial and/or installment distributions)
 - Roughly ¼ of participants take a full distribution without rollover of their balances
- Beyond age 70, nearly all make a distribution election
 - Nearly 1/3 elect to begin installment payments
- Of those taking a full distribution, ½ are rolling over the funds



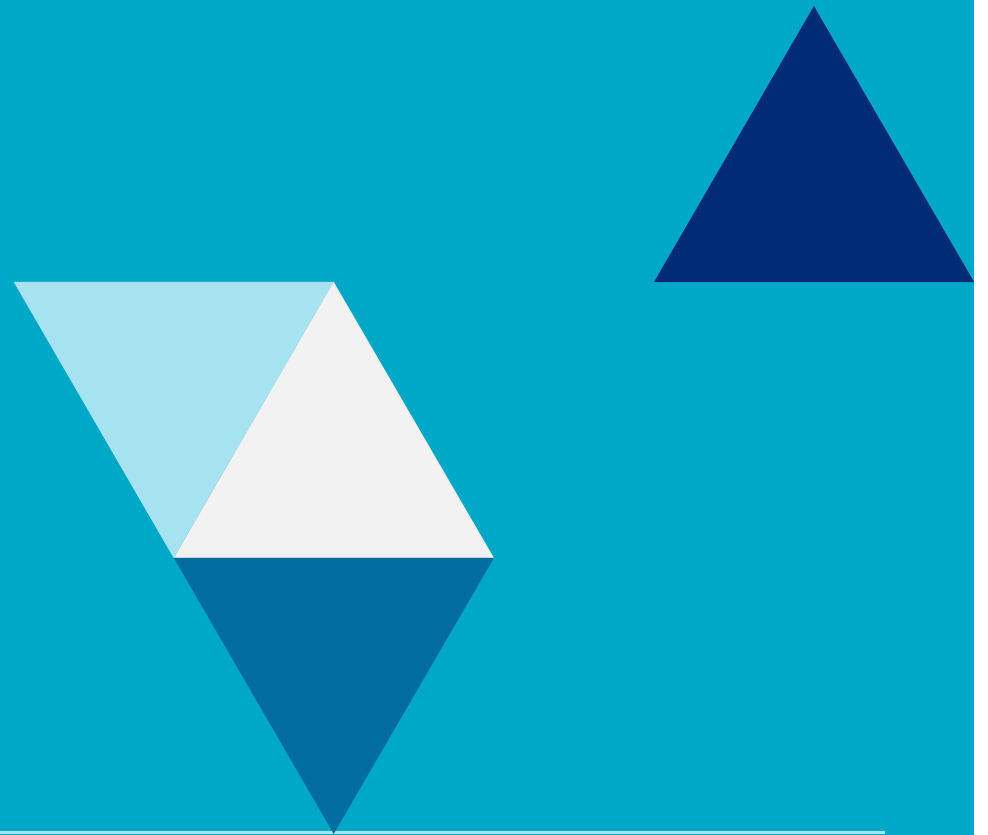
■ No Distribution
■ Full Dist. No Rollover
■ Installment (Incl. w/Partial Distribution)
■ Other/RMD



■ Full Dist. With Rollover
■ Full Dist. No Rollover
■ Partial Distribution
■ Annuity

¹Source: Federal TSP Data.

ALTERNATIVE GLIDE PATHS



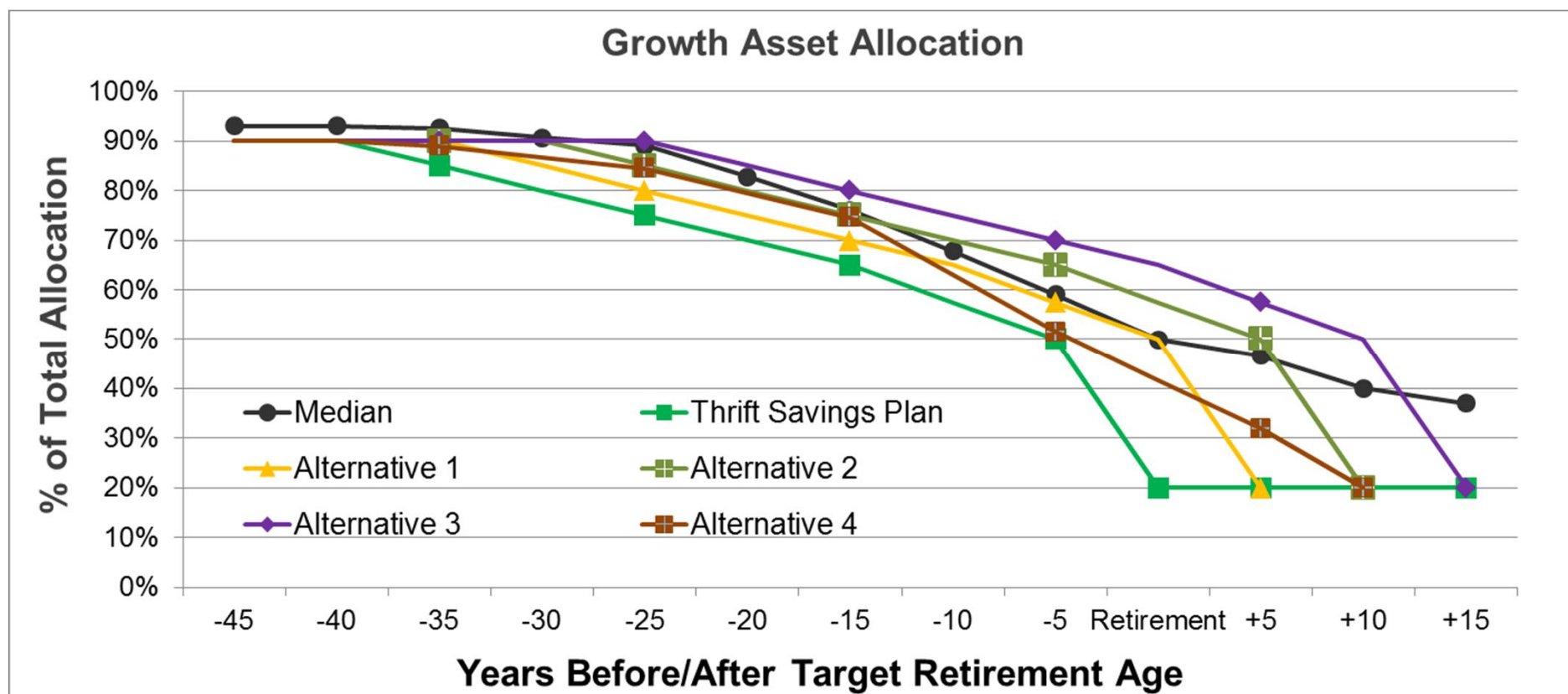
GLIDE PATHS CONSIDERED

- Current glide path (allocations as of July 2016)

	2050	2040	2030	2020	Income
Allocations	Portfolio	Portfolio	Portfolio	Portfolio	Portfolio
C-Fund	44.14	39.55	34.53	24.32	11.20
S-Fund	14.66	12.25	9.92	6.48	2.80
I-Fund	25.20	22.20	19.05	13.20	6.00
F-Fund	3.87	5.57	5.72	5.72	6.00
G-Fund	12.13	20.43	30.78	50.28	74.00
Total	100.0	100.0	100.0	100.0	100.0
Asset Class Ratios					
Percent Fixed Income	16.0	26.0	36.5	56.0	80.0
Percent Equity	84.0	74.0	63.5	44.0	20.0
Int Eq/Tot Eq	30.0	30.0	30.0	30.0	30.0
S-Fund/Domestic Eq	24.9	23.6	22.3	21.0	20.0
F-Fund/Total FI	24.2	21.4	15.7	10.2	7.5

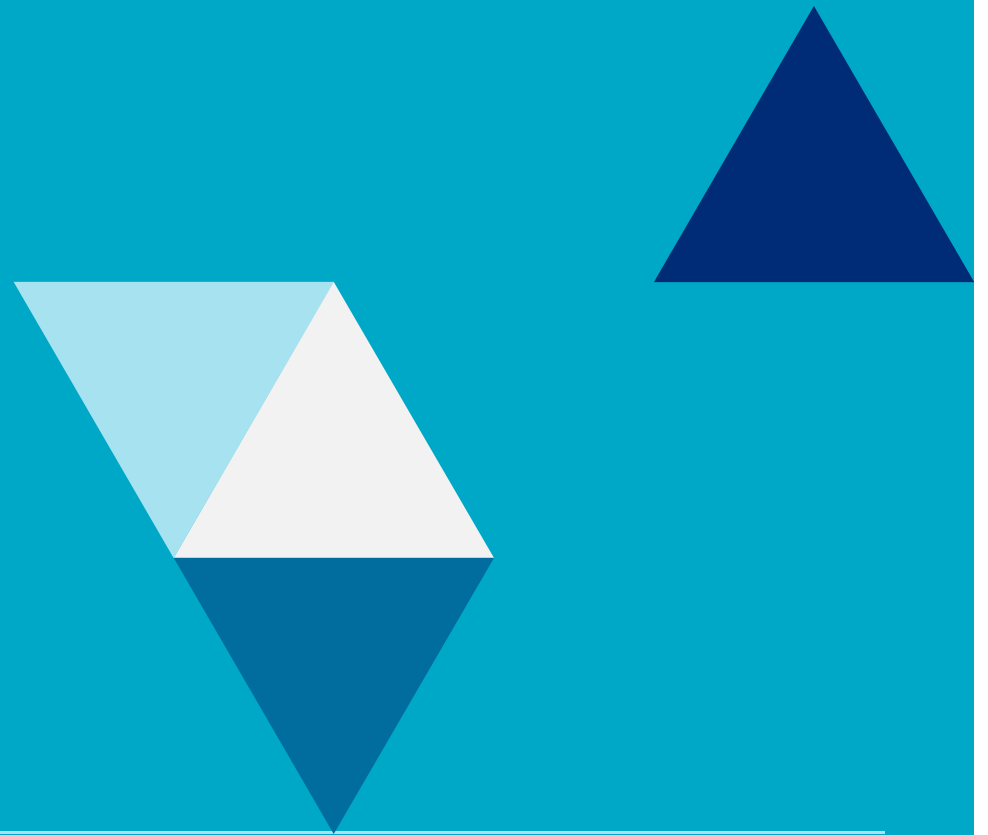
- Alternative glide paths retain allocation between US and Int'l Equity, SMID vs Large Cap US Equity, and F vs G Fund allocation
- Alternative glide paths modeled include 4 “through” alternatives
 - Alternatives 1-3 use the same glide path yet continue to rolldown through retirement
 - 5, 10, and 15 years through retirement
 - Alternative 4 revises the current glide path to glide 10 years through retirement at a more gradual pace
- For purposes of modeling we assumed an immediate change in asset allocation to shift to each new glide path alternative

GROWTH ASSET ALLOCATION



- Alternative 1: 5 year “through” design, current glide path shape
- Alternative 2: 10 year “through” design, current glide path shape
- Alternative 3: 15 year “through” design, current glide path shape
- Alternative 4: 10 year “through” design, modified glide path shape

MODELING RESULTS



2040 FUND RESULTS

For purposes of this illustration, we selected a representative career FERS participant with entry age 36 and retirement at age 61. Results for a 2040 Lifecycle Fund investor -- 37 yr. old FERS employee with a \$70,000 account balance, and currently earning \$74,000/yr. Assumed real wage growth is 1.5%/yr and inflation is 2.2%.

	<u>Current Glide Path</u>	<u>Alternative 1</u>	<u>Alternative 2</u>	<u>Alternative 3</u>	<u>Alternative 4</u>
Median Account Balance at 2040 (real \$)	\$561,686	\$582,784	\$594,929	\$606,172	\$583,091
5th Pct Account Balance at 2040 (real \$)	\$432,225	\$434,132	\$436,722	\$436,017	\$439,353
TSP Median Replacement Ratio at 2040	31%	33%	34%	34%	32%
TSP 5th Pct Replacement Ratio at 2040	21%	21%	21%	21%	21%
Total FERS Median Replacement Ratio* at 2040	77%	78%	79%	80%	78%
Total FERS 5th Pct Replacement Ratio* at 2040	62%	62%	62%	62%	62%
Probability of Decline over Final 2 Yrs.	6.70%	15.50%	18.50%	19.70%	12.30%
Likelihood of 5% or Larger Investment Loss over Final 2 Yrs.	5.90%	15.40%	17.60%	19.30%	12.20%
Assume post-retirement spending is 80% of final inflation adjusted salary.					
Probability account depleted - age 80	51.80%	43.90%	34.10%	28.40%	44.10%
Probability account depleted - age 90	80.20%	74.40%	67.10%	61.60%	74.60%
Probability account depleted - Median Life Expectancy	81.60%	76.40%	69.70%	63.30%	76.70%
Median Drawdown Age	80	82	84	86	82
Drawdown Age at 5th Percentile Downside	73	74	74	75	74

* Includes estimated replacement from Social Security (18% to 22%) and FERS defined benefit (24%)

2030 FUND RESULTS

For purposes of this illustration, we selected a representative career FERS participant with entry age 36 and retirement at age 61. Results for a 2030 Lifecycle Fund investor -- 47 yr. old FERS employee with a \$130,000 account balance, and currently earning \$81,000/yr. Assumed real wage growth is 1.5%/yr and inflation is 2.2%.

	<u>Current Glide Path</u>	<u>Alternative 1</u>	<u>Alternative 2</u>	<u>Alternative 3</u>	<u>Alternative 4</u>
Median Account Balance at 2030 (real \$)	\$390,421	\$404,126	\$412,159	\$419,189	\$400,649
5th Pct Account Balance at 2030 (real \$)	\$319,151	\$319,616	\$321,071	\$319,038	\$321,323
TSP Median Replacement Ratio at 2030	22%	24%	25%	25%	24%
TSP 5th Pct Replacement Ratio at 2030	17%	16%	16%	16%	17%
Total FERS Median Replacement Ratio* at 2030	67%	68%	69%	69%	68%
Total FERS 5th Pct Replacement Ratio* at 2030	59%	58%	58%	58%	58%
Probability of Decline over Final 2 Yrs.	3.00%	12.00%	15.00%	17.20%	8.50%
Likelihood of 5% or Larger Investment Loss over Final 2 Yrs.	4.90%	14.60%	17.10%	19.70%	12.20%
Assume post-retirement spending is 80% of final inflation adjusted salary.					
Probability account depleted - age 80	90.90%	87.70%	81.10%	74.90%	88.40%
Probability account depleted - age 90	97.80%	97.50%	96.10%	95.00%	97.10%
Probability account depleted - Median Life Expectancy	97.80%	97.50%	96.10%	95.00%	97.10%
Median Drawdown Age	74	75	76	76	75
Drawdown Age at 5th Percentile Downside	70	70	71	71	70

* Includes estimated replacement from Social Security (18% to 22%) and FERS defined benefit (24%)

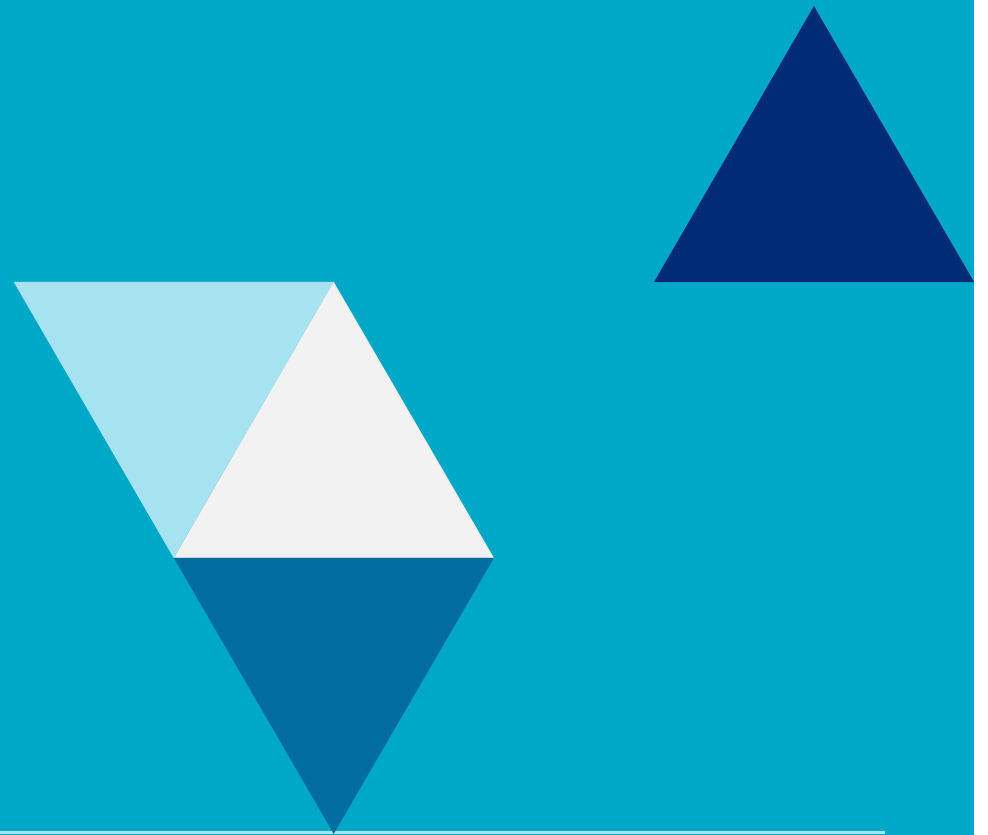
ADDITIONAL CONSIDERATIONS

- A more aggressive “to” design can produce similar improvements in projected balances and drawdown age
 - However, the Income fund would need to be more aggressive than the current Income fund under a “to retirement” approach
 - A “through” design allows for a more conservative Income fund while increasing equity around retirement
- A “through” design generally means administering more funds, since the rolldown period is extended (result could be one to three additional L Funds, depending on rolldown period and
 - The current “to retirement” design for the TSP L Funds effectively manages the volatility of returns approaching the target retirement date and supports good retirement outcomes for plan participants
- Asset allocation is just one factor driving participant outcomes; improving saving rates and retirement age decisions can have a larger impact without the risk tradeoff of more equity exposure
 - We modeled age 62 retirement as well as age 61, and found the improvement in median of one additional year of saving, investing, and earning benefits generally produces more improvement in projected drawdown age than any of the “through” design alternatives

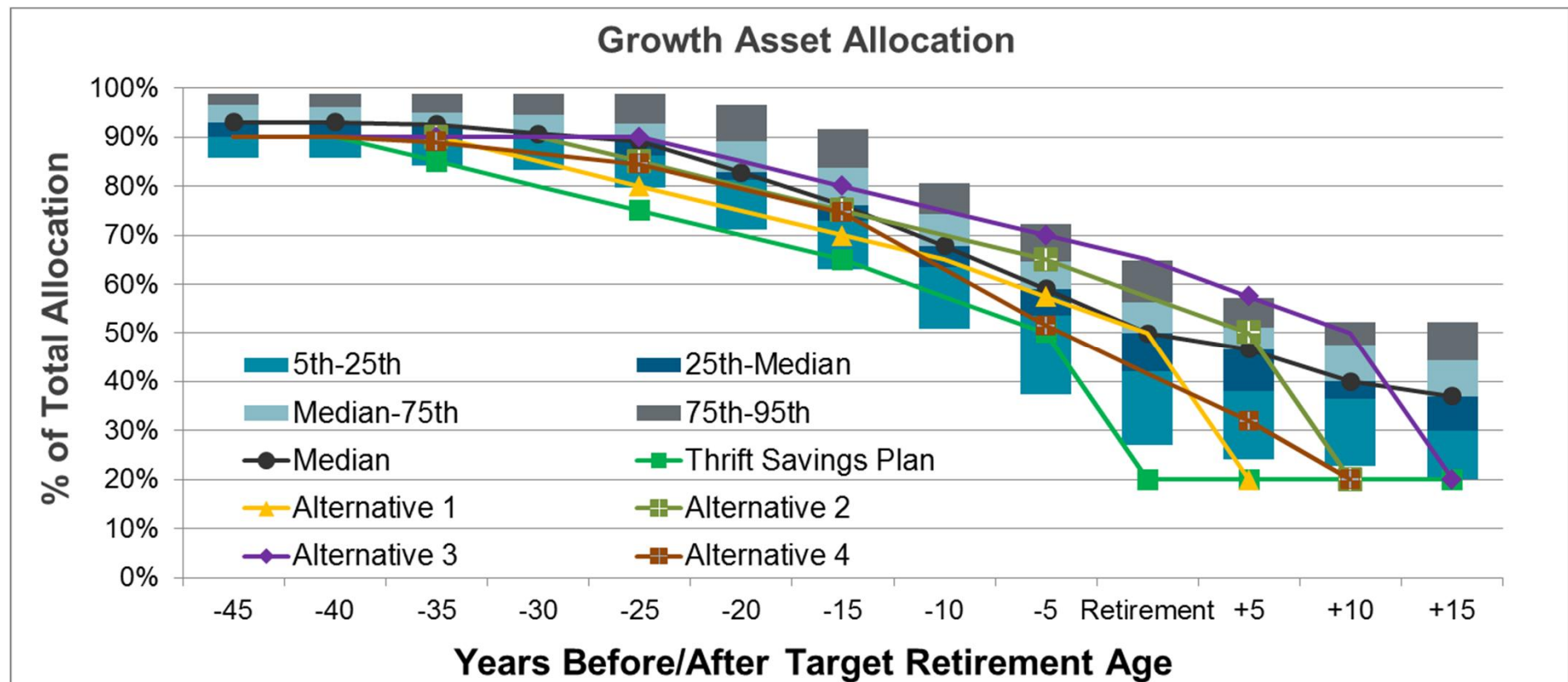
SUMMARY AND RECOMMENDATION

- The current “to retirement” design for the TSP L Funds effectively manages the volatility of returns approaching the target retirement date and supports good retirement outcomes for plan participants
- The “through” retirement design alternatives take on additional volatility in the years around retirement, but they provide potential long-term benefits in terms of projected account balances, replacement ratios, and postretirement drawdown age
- Balancing the tradeoffs we see in the modeling results, we find that shifting to a “through” design is favorable
 - We recommend moving to a 10 year “through” retirement design for the 2030 and longer vintages
 - While Alternative 2 produces more improvement in projected balance and drawdown age, it significantly increases risk in the late career and early retirement years; therefore we recommend Alternative 4 as it provides adequate improvement to long-term potential outcomes and better manages volatility near retirement
 - For participants currently invested in the 2020 vintage, there is less potential impact on participant outcomes due to the shorter time horizon
 - A change in their investment profile may be more disruptive due to their close proximity to the terminal asset allocation and expected retirement age
 - Therefore, we recommend retaining the current rolldown schedule for the 2020 Fund
- We recommend additional analysis on operational procedures related to moving to the new asset allocation and potential costs of maintaining additional L Funds over a longer time period

APPENDIX



GROWTH ASSET ALLOCATION: COMPARISON TO MERCER SURVEY



- Alternative 1: 5 year “through” design, current glide path shape
- Alternative 2: 10 year “through” design, current glide path shape
- Alternative 3: 15 year “through” design, current glide path shape
- Alternative 4: 10 year “through” design, modified glide path shape

DEMOGRAPHIC ASSUMPTIONS

2015 Study Assumptions - Based upon 2014 FERS Data (using December 2014 OPM Data)

Fund	Target Demographic by Age	Age	Salary	Account Balance	Starting Contribution Rate	Salary Growth
2020	51-60	56	\$ 79,000	\$ 170,000	7.40%	3.70%
2030	41-50	46	\$ 78,000	\$ 120,000	6.30%	3.70%
2040	31-40	36	\$ 72,000	\$ 60,000	5.50%	3.70%
2050	<31	26	\$ 58,000	\$ 20,000	4.80%	3.70%

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%

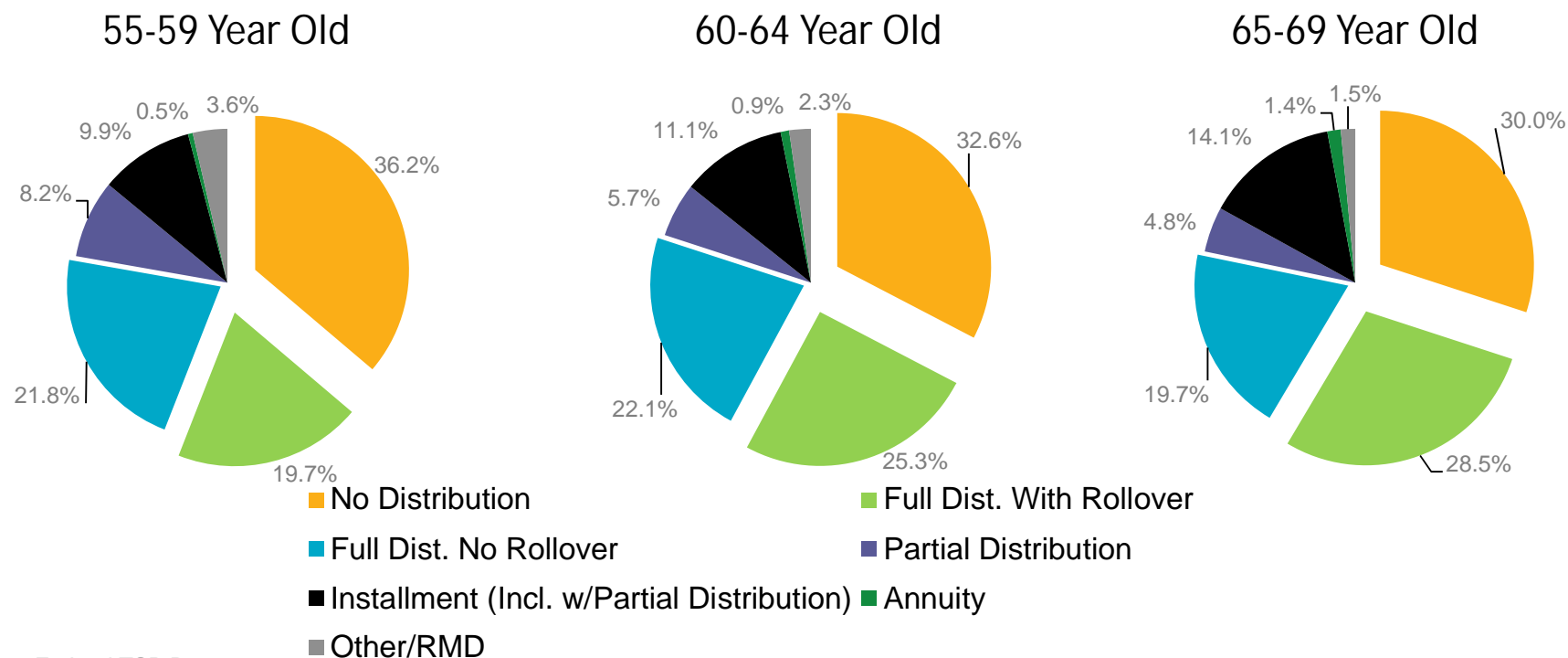
- All demographic assumptions are the same as the 2016 L Fund Asset Allocation study for purposes of comparison
- Account balances are based on data from 2014
 - 2015 account balances have been rolled forward with actual returns and expected contributions
- Salary has been averaged between 2014 and 2015 FERS data
- Estimated contribution rate based on age-range averages across all FERS employees in 2014 averaged with 2015 FERS data
- Auto-enrollment in effect (3% auto deferral rate)

DEMOGRAPHIC ASSUMPTIONS

- Asset accumulation includes both returns on assets and contributions. We assume that a career employee retires at age 61, with 25 years of service for DB accruals
- Match of 5% graded from 1% to 5% depending on employee contribution (100% match rate)
 - Assumed match based on average employee deferral rate at each age
- Consistent with OPM schedules, we assume that workers earn real salary growth of 1.5% over a career
 - With 2.2% inflation, this is 3.7% in nominal terms
- For drawdown purposes, we model the post-retirement spending at 80% of the inflation-adjusted salary at retirement each year
- Average salary and contributions are based on data from 2014 averaged with 2015 data
- Average account balance based on data from 2014 rolled forward with actual returns and expected contributions

PARTICIPANT CHARACTERISTICS DISTRIBUTION ANALYSIS¹

- Among participants terminating between age 55 and 69, approximately ½ of participants remain invested in the Thrift Savings Plan (including those who take partial and/or installment distributions)
- Of those taking a full distribution, ½ are rolling over the funds
- Roughly ¼ of participants take a full distribution without rollover of their balances



¹Source: Federal TSP Data.

CAPITAL MARKET PROJECTIONS

20-YEAR MEAN-VARIANCE AND CORRELATION ASSUMPTIONS

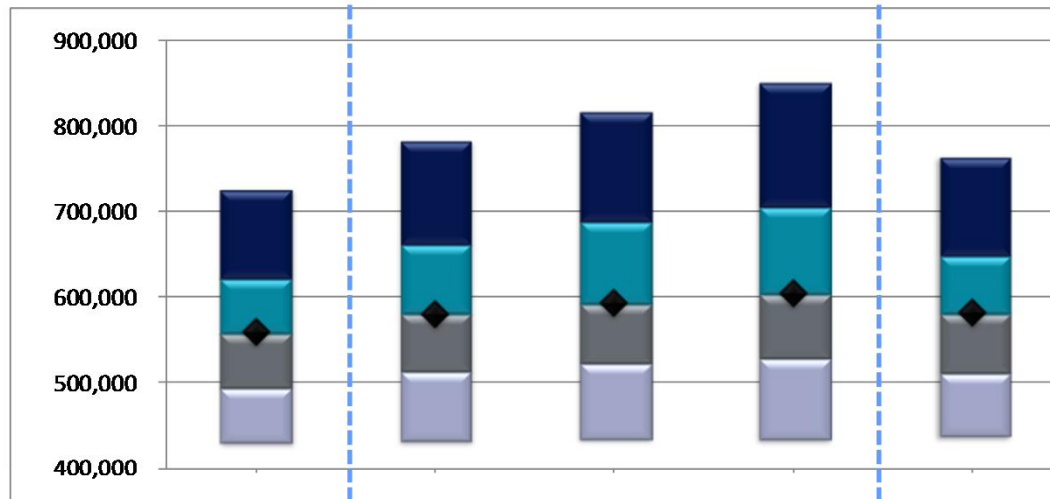
	Fund	Geometric Return	Arithmetic Return	Standard Deviation	LTE Return
2014	C-Fund	6.6%	8.1%	18.1%	7.8%
Study	S-Fund	6.9%	9.0%	22.1%	8.4%
	I-Fund	7.8%	9.7%	20.5%	8.2%
	F-Fund	4.3%	4.4%	5.3%	5.4%
	G-Fund	4.5%	4.5%	1.2%	4.5%
	Inflation	2.5%	2.5%	1.7%	2.5%
2015	C-Fund	6.7%	8.2%	18.1%	7.3%
Study	S-Fund	6.7%	8.9%	22.1%	7.9%
	I-Fund	7.6%	9.4%	20.5%	7.5%
	F-Fund	3.5%	3.6%	5.3%	4.7%
	G-Fund	3.6%	3.6%	1.2%	4.2%
	Inflation	2.2%	2.2%	1.7%	2.2%
2016	C-Fund	6.8%	8.3%	18.1%	7.2%
Study	S-Fund	7.2%	9.4%	22.1%	7.7%
	I-Fund	7.2%	9.0%	20.3%	7.1%
	F-Fund	3.2%	3.3%	5.3%	4.6%
	G-Fund	3.4%	3.4%	1.2%	4.1%
	Inflation	2.2%	2.2%	1.7%	2.2%

	Fund	C-Fund	S-Fund	I-Fund	F-Fund	G-Fund
2014	C-Fund	1.00				
Study	S-Fund	0.91	1.00			
	I-Fund	0.77	0.72	1.00		
	F-Fund	0.11	0.10	0.03	1.00	
	G-Fund	0.00	0.00	0.00	-0.10	1.00
2015	C-Fund	1.00				
Study	S-Fund	0.91	1.00			
	I-Fund	0.77	0.72	1.00		
	F-Fund	0.11	0.10	0.03	1.00	
	G-Fund	0.00	0.00	0.00	-0.10	1.00
2016	C-Fund	1.00				
Study	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

- All assumptions are consistent with the 2016 L Fund Asset Allocation study for purposes of comparison

SUMMARY OF REAL (INFLATION-ADJUSTED) ACCOUNT BALANCES AT MATURITY: 24 YEARS TO RETIREMENT (2040 FUND)

Range of Real Account Balances

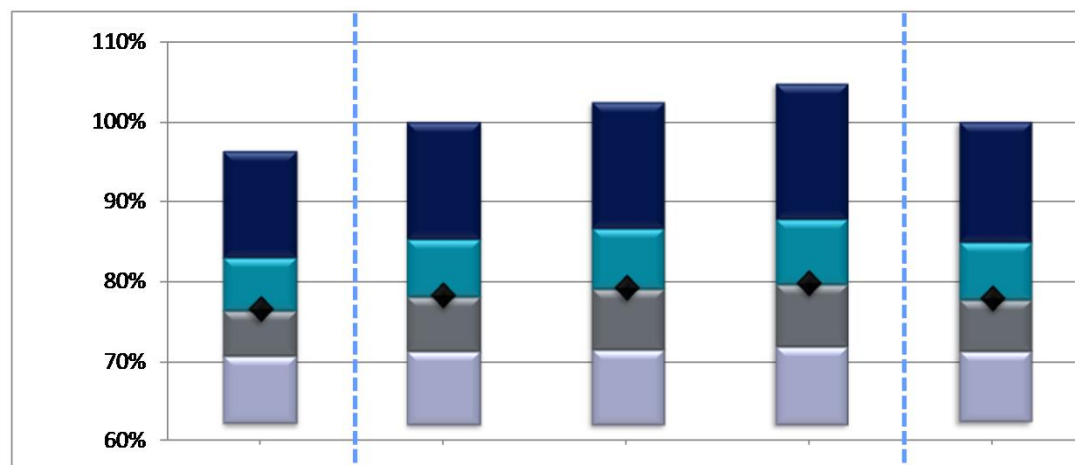


- Higher growth allocation throughout pre-retirement period produces higher balances across all percentiles (1% to 8% increase)
- Alternative 1 and 4 produce similar results at median with slightly different glide path shapes
- Alternatives 2 and 3 are more aggressive, particularly in the years approaching target retirement

		Current	Alternative 1	Alternative 2	Alternative 3	Alternative 4
95 th		728	785	819	854	767
75 th		625	664	692	708	652
50 th		562	583	595	606	583
25 th		496	516	525	532	514
5 th		432	434	437	436	439

RANGE OF REPLACEMENT RATIOS AT MATURITY: 24 YEARS TO RETIREMENT (2040 FUND)

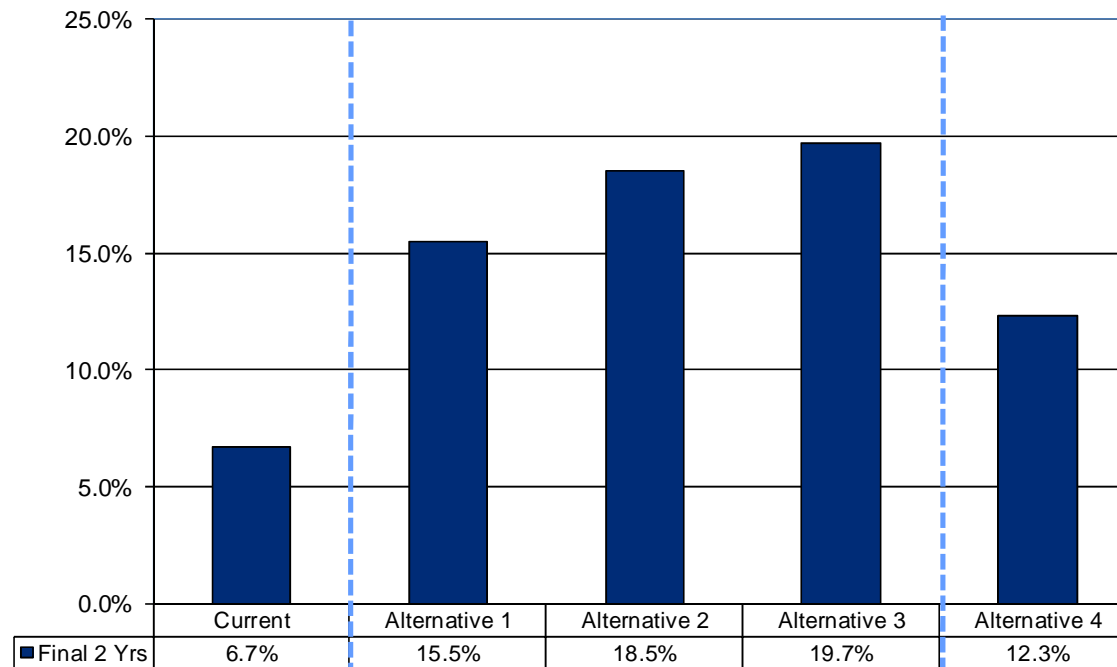
Range of Replacement Ratios



- Higher growth allocation throughout pre-retirement period produces higher replacement ratios across all percentiles (0% to 8% increase)
- DB pension and Social Security are consistent across the glide path alternatives, so the replacement ratio difference is less pronounced

		Current	Alternative 1	Alternative 2	Alternative 3	Alternative 4
95 th		97%	100%	103%	105%	100%
75 th		83%	86%	87%	88%	85%
50 th		77%	78%	79%	80%	78%
25 th		71%	71%	72%	72%	71%
5 th		62%	62%	62%	62%	62%

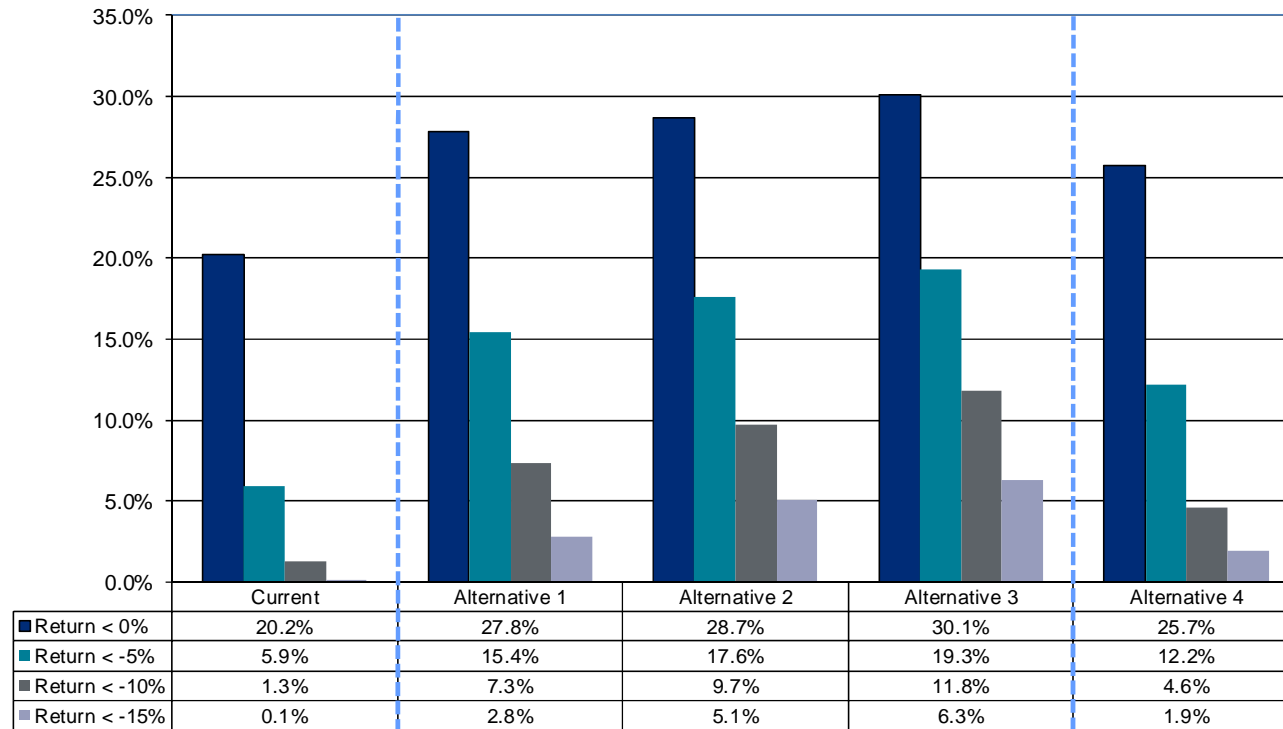
PROBABILITY OF DECLINE IN ACCOUNT BALANCE IN FINAL TWO YEARS BEFORE MATURITY, IN REAL (INFLATION-ADJUSTED) TERMS: 2040 FUND



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
- Higher equity allocation near retirement increases risk of loss

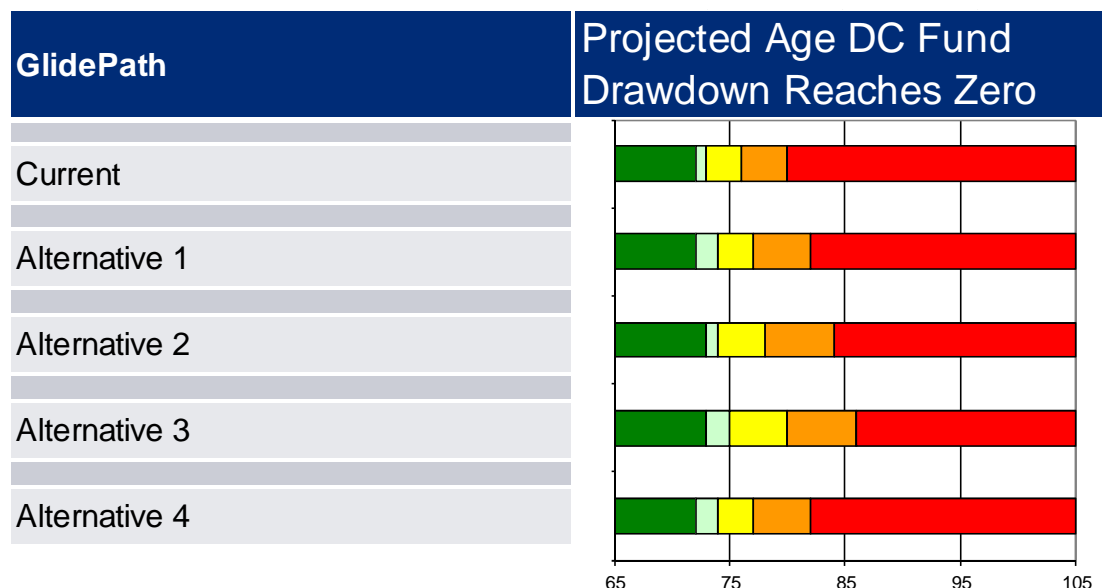
PROBABILITY OF NEGATIVE INVESTMENT RETURNS IN FINAL TWO YEARS BEFORE MATURITY: 2040 FUND




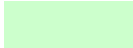


Probability of Investment Loss Final 2 years Pre-Retirement

- This measure is not influenced by the size of account balance or the size of the contributions
- Higher equity allocation near retirement increases chance of loss

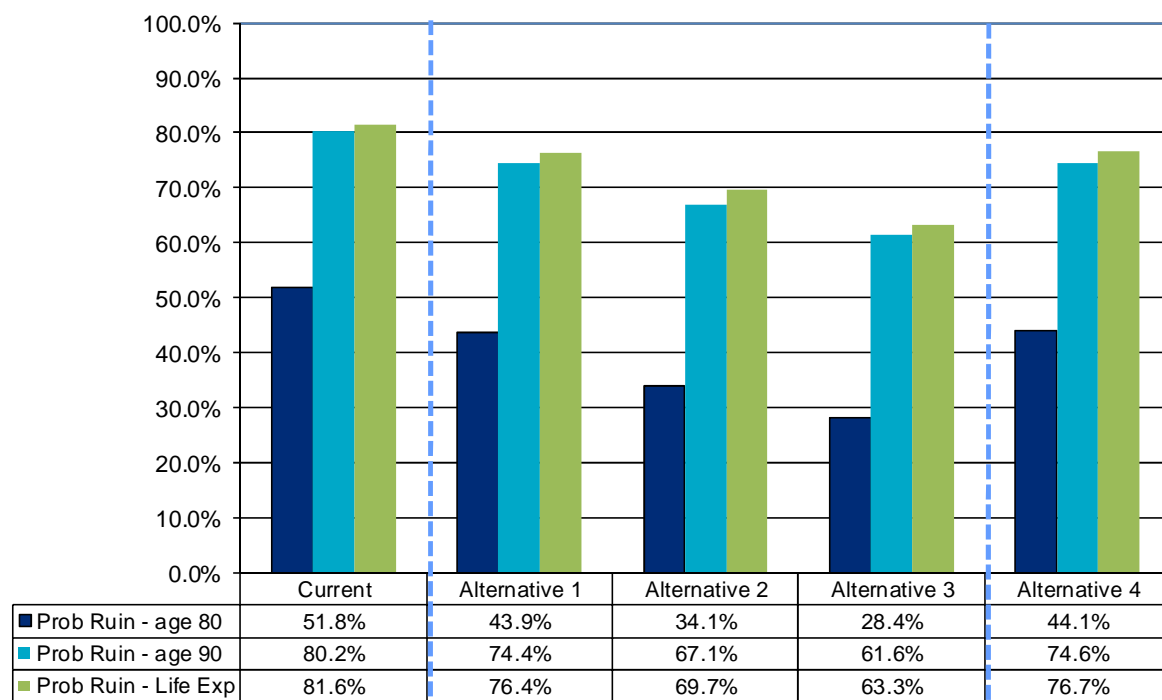
EXPECTED ACCOUNT DEPLETION AGES: 2040 FUND



- A “through” design increases returns in younger post-retirement years and therefore improves account depletion ages across all significance levels

GlidePath	Significance Level (Probability of having retirement funds sufficient to reach indicated age)			
	99%	95%	75%	50%
				
Current	72	73	76	80
Alternative 1	72	74	77	82
Alternative 2	73	74	78	84
Alternative 3	73	75	80	86
Alternative 4	72	74	77	82

EXPECTED ACCOUNT DEPLETION AGES: 2040 FUND

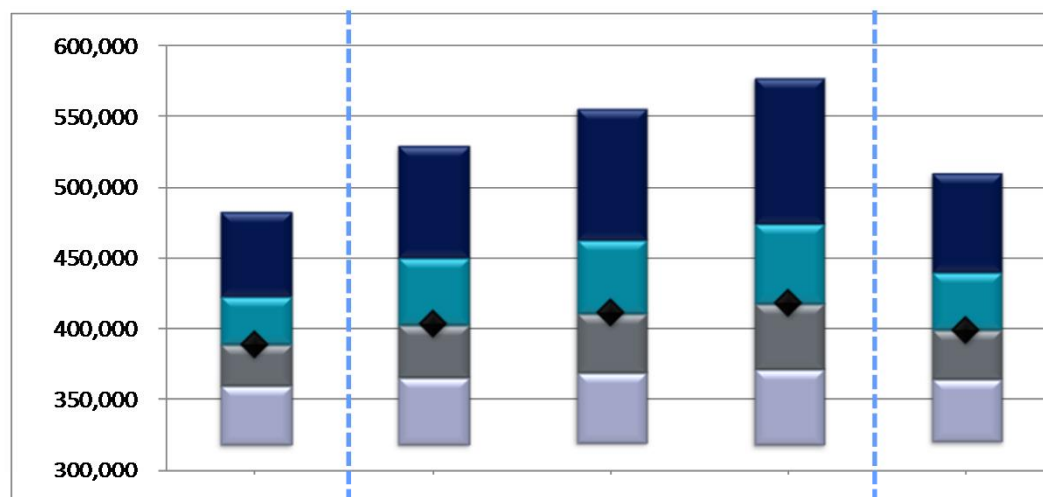


Probability of Depleting DC Assets

- A “through” design increases returns in younger post-retirement years and therefore decreases risk of account depletion at age 80, 90, and median life expectancy
- Life expectancy based upon blended SOA RP-2014 mortality table with MP-2015 generational projections – age 91

SUMMARY OF REAL (INFLATION-ADJUSTED) ACCOUNT BALANCES AT MATURITY: 14 YEARS TO RETIREMENT (2030 FUND)

Range of Real Account Balances

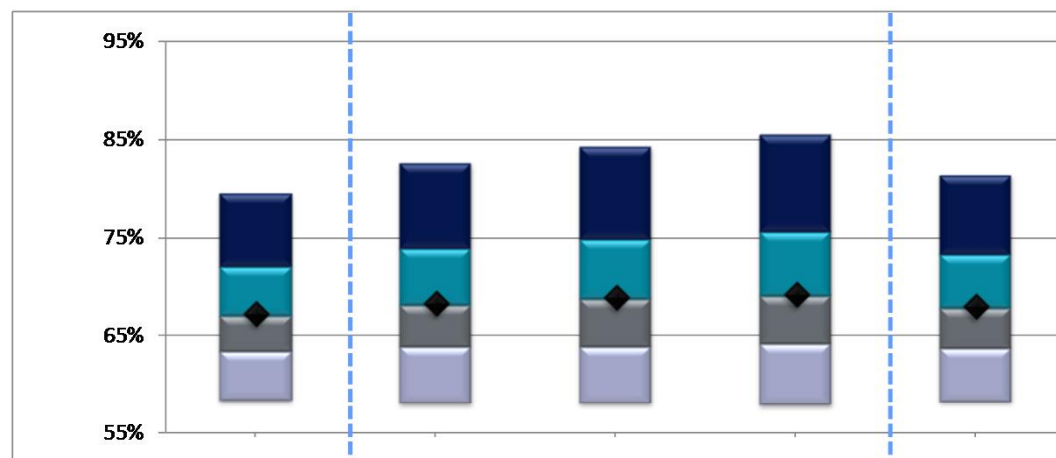


- Higher growth allocation throughout pre-retirement period produces higher balances across all percentiles (0% to 8% increase)
- Alternative 1 and 4 produce similar results at median with slightly different glide path shapes
- Alternatives 2 and 3 are more aggressive, particularly in the years approaching target retirement

		Current	Alternative 1	Alternative 2	Alternative 3	Alternative 4
95 th		484	531	557	579	511
75 th		425	452	465	476	442
50 th		390	404	412	419	401
25 th		361	367	371	372	366
5 th		319	320	321	319	321

RANGE OF REPLACEMENT RATIOS AT MATURITY: 14 YEARS TO RETIREMENT (2030 FUND)

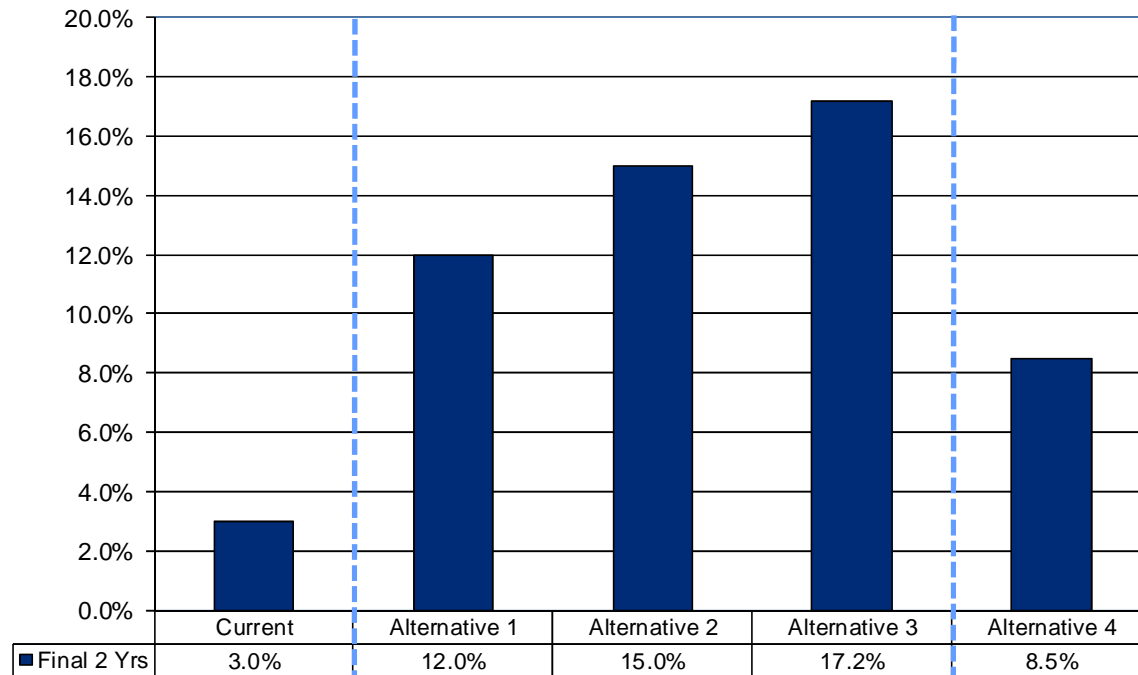
Range of Replacement Ratios



- Higher growth allocation throughout pre-retirement period produces higher replacement ratios across most percentiles (0% to 6% increase)
- DB pension and Social Security are consistent across the glide path alternatives, so the replacement ratio difference is less pronounced

		Current	Alternative 1	Alternative 2	Alternative 3	Alternative 4
95 th		80%	83%	84%	86%	82%
75 th		72%	74%	75%	76%	73%
50 th		67%	68%	69%	69%	68%
25 th		64%	64%	64%	64%	64%
5 th		59%	58%	58%	58%	58%

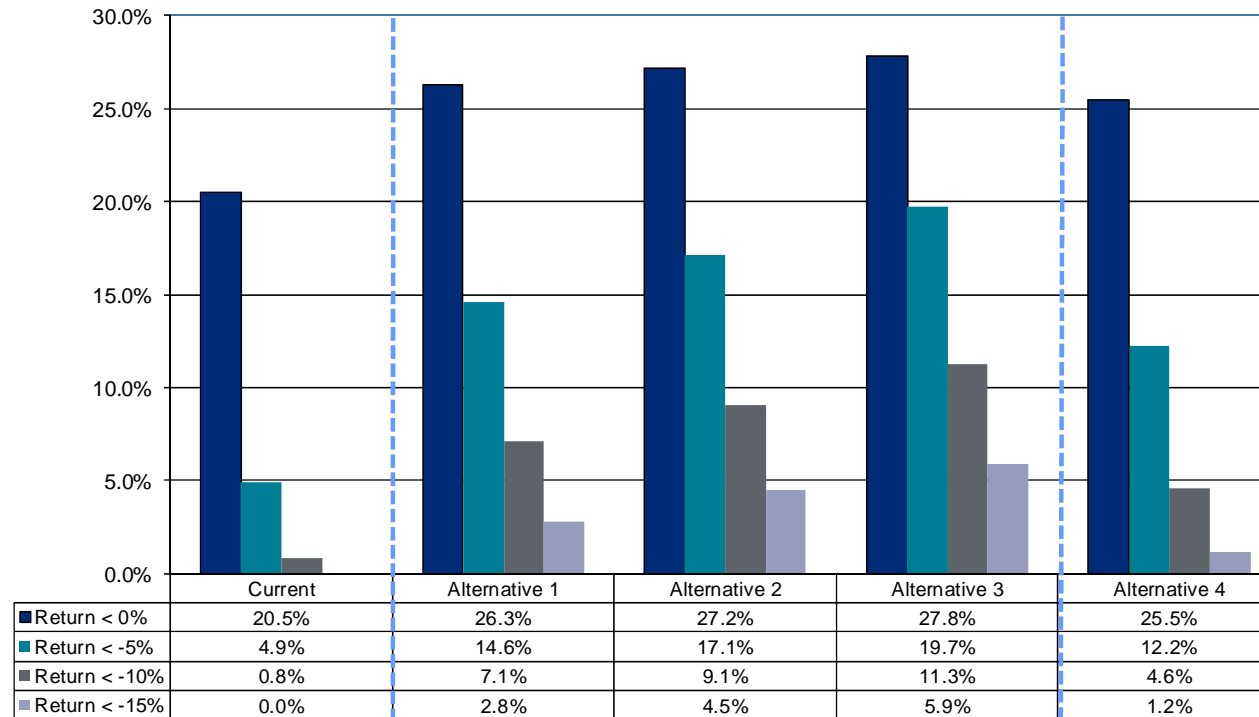
PROBABILITY OF DECLINE IN ACCOUNT BALANCE IN FINAL TWO YEARS BEFORE MATURITY, IN REAL (INFLATION-ADJUSTED) TERMS: 2030 FUND



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
- Higher equity allocation near retirement increases risk of loss

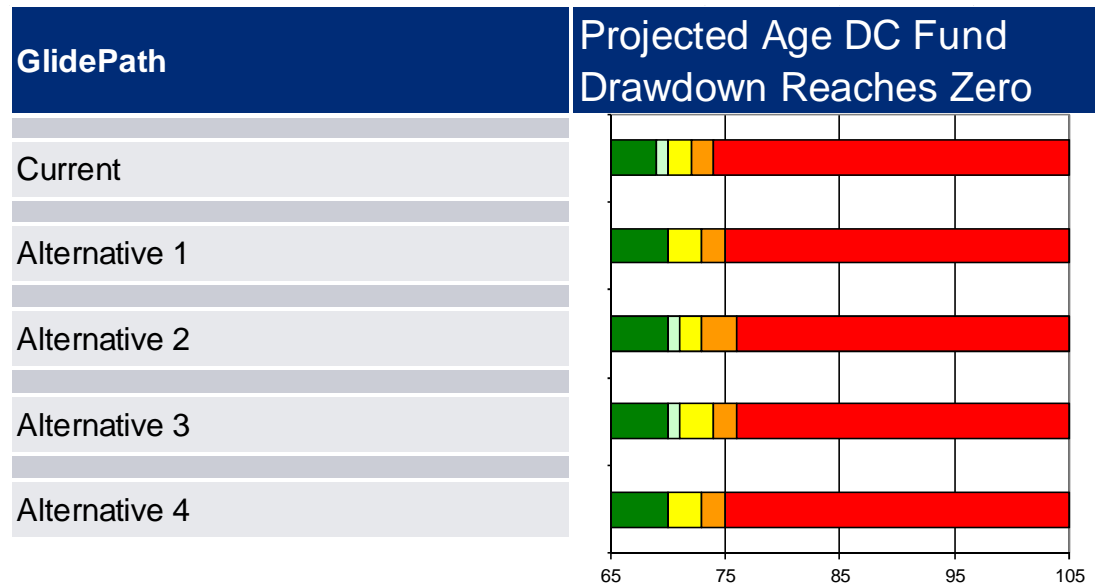
PROBABILITY OF NEGATIVE INVESTMENT RETURNS IN FINAL TWO YEARS BEFORE MATURITY: 2030 FUND




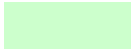


Probability of Investment Loss Final 2 years Pre-Retirement

- This measure is not influenced by the size of account balance or the size of the contributions
- Higher equity allocation near retirement increases chance of loss

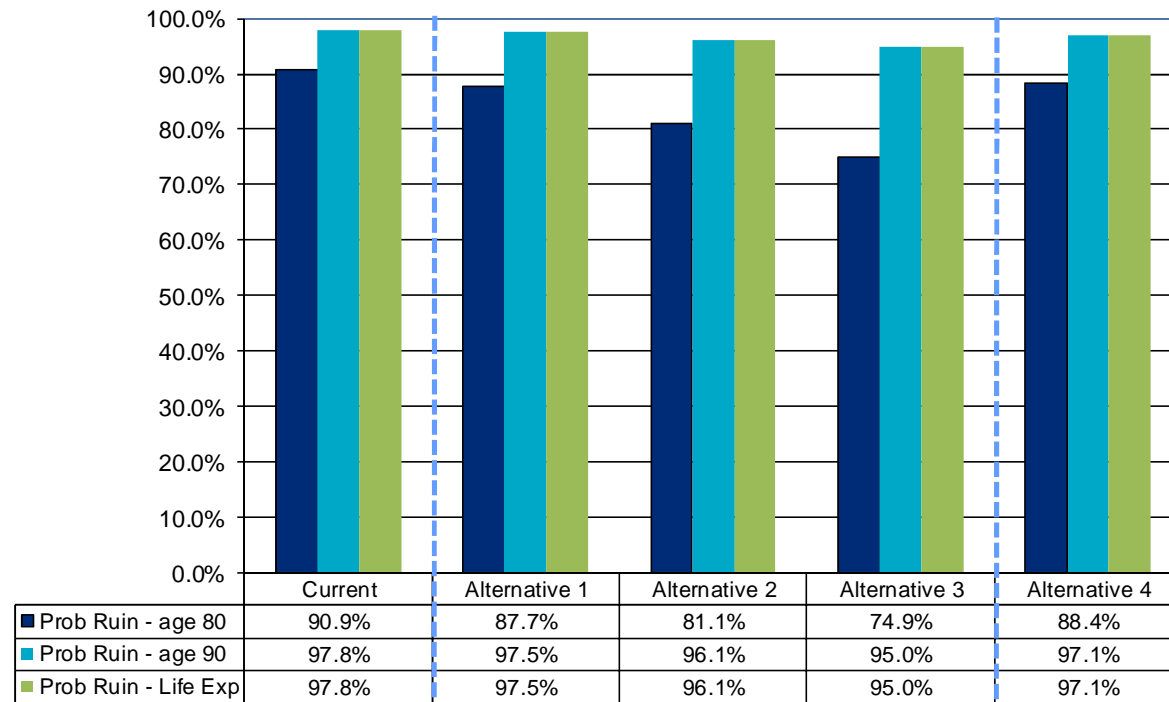
EXPECTED ACCOUNT DEPLETION AGES: 2030 FUND



- A “through” design increases returns in younger post-retirement years and therefore improves account depletion ages across all significance levels

GlidePath	Significance Level (Probability of having retirement funds sufficient to reach indicated age)			
	99%	95%	75%	50%
				
Current	69	70	72	74
Alternative 1	70	70	73	75
Alternative 2	70	71	73	76
Alternative 3	70	71	74	76
Alternative 4	70	70	73	75

EXPECTED ACCOUNT DEPLETION AGES: 2030 FUND








Probability of Depleting DC Assets

- A “through” design increases returns in younger post-retirement years and therefore decreases risk of account depletion at age 80, 90, and median life expectancy
- Life expectancy based upon blended SOA RP-2014 mortality table with MP-2015 generational projections – age 90

SUMMARY OF REAL (INFLATION-ADJUSTED) ACCOUNT BALANCES AT MATURITY: AGE 61 VS 62 RETIREMENT 2040 FUND






Age 61 Retirement

Range of Real Account Balances

		Current	Alternative 1	Alternative 2	Alternative 3	Alternative 4
95 th		728	785	819	854	767
75 th		625	664	692	708	652
50 th		562	583	595	606	583
25 th		496	516	525	532	514
5 th		432	434	437	436	439

Age 62 Retirement

Range of Real Account Balances






		Current
95 th		771
75 th		655
50 th		591
25 th		528
5 th		455

- If a participant chooses to retire one year later the additional year of accruals and investment gains increases median account balance by 29k or 5.2%
 - Outcomes under current L Fund asset allocation with age 62 retirement slightly better than outcomes under Alternatives 1 and 4 with age 61 retirement

RANGE OF REPLACEMENT RATIOS AT MATURITY: 35 YEARS TO RETIREMENT: AGE 61 VS 62 RETIREMENT 2040 FUND






Age 61 Retirement

Range of Replacement Ratios

		Current	Alternative 1	Alternative 2	Alternative 3	Alternative 4
95 th		97%	100%	103%	105%	100%
75 th		83%	86%	87%	88%	85%
50 th		77%	78%	79%	80%	78%
25 th		71%	71%	72%	72%	71%
5 th		62%	62%	62%	62%	62%

Age 62 Retirement

Range of Replacement Ratios

		Current
95 th		104%
75 th		91%
50 th		84%
25 th		78%
5 th		71%

- If a participant chooses to retire one year later the additional year of accruals and investment gains plus added DB+SS increases median replacement ratio by 7%
 - Improvement attributed to the L Funds is approximately 3%
 - In addition to the higher account balance, the annuity conversion factor used to compute the income replacement ratio decreases due to the increase in age from 61 to 62, causing a further increase to the replacement ratio

EXPECTED ACCOUNT DEPLETION AGES: AGE 61 VS 62 RETIREMENT 2040 FUND

Age 61 Retirement

GlidePath	Significance Level (Probability of having retirement funds sufficient to reach indicated age)			
	99%	95%	75%	50%
Current	72	73	76	80
Alternative 1	72	74	77	82
Alternative 2	73	74	78	84
Alternative 3	73	75	80	86
Alternative 4	72	74	77	82

Age 62 Retirement

GlidePath	Significance Level (Probability of having retirement funds sufficient to reach indicated age)			
	99%	95%	75%	50%
Current	72	75	80	88

- If a participant chooses to retire one year later the additional year of accruals and investment gains plus added DB+SS increases 25th percentile drawdown age by 4 years and median age by 8 years

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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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