Callan

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The North Carolina Supplemental Retirement Plans (NCSRP)

GoalMaker Suitability Study

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Executive Summary: Objective of Analysis

- This study evaluates the suitability of the GoalMaker model portfolio service as the designated investment alternative (DIA) for the North Carolina Supplemental Retirement Plans (NCSRP or the "Plans"). This document—using the 2013 U.S. Department of Labor (DOL) Tips as a guide—evaluates the suitability of GoalMaker through multiple lenses, including track record of the service, expenses, and projected participant outcomes.
  - Notably, the Supplemental Retirement Board of Trustees has responsibility with respect to the methodology and asset allocation underlying GoalMaker for the default glidepath. The recordkeeper does not accept fiduciary duty.
- This study evaluates suitability, not optimality. Though an option may be suitable, that does not imply it is the best possible option for NCSRP participants. Given the tradeoffs between the risks faced by participants, no solution can simultaneously address all risks in an optimal fashion.

Executive Summary: Overview of Analysis

Callan continues to view GoalMaker as a suitable DIA for NCSRP participants.

Several factors are worth the Board's further consideration:

- Participant Experience and Behavior:
  - Participant savings patterns indicate distinct differences in participant savings behavior. The mean (average) balances for both plans are roughly 4-5 times the median (middle) balances. As such, a further analysis of these different savings patterns can provide insight on an appropriate asset allocation and risk posture.
  - Models of participant retirement income sources are highly sensitive to assumptions about tenure, due to the variability in defined benefit (pension) income. NCSRP participants are unlikely to retire with more than ~25 years of tenure.
  - Research indicates that systematic distributions for income are less than 2.5% of total distributions from the plans. It appears that many participants are utilizing the plans as a store of wealth, rather than as a source of regular income. Different cash flow and holdings patterns may inform the asset allocation of portfolios, particularly in retirement.
- Changes to the GoalMaker platform:
  - With Empower's planned changes to the service, the Board may consider conducting a deeper review of the current GoalMaker asset class allocations with the intent to enhance expected participant outcomes through a lens of expected risk & return
    - assessing opportunities to introduce new asset class exposures, eliminate existing ones, or fine-tune current exposures
  - The Board may also weigh how the solution could be impacted going forward—in particular, Empower's continued support of the legacy Prudential service.
    - If the solution were to be discontinued, a new DIA would need to be selected and the appropriate transition and participant communication would need to be considered.

A Review of the DOL Tips

In February 2013, the Employee Benefits Security Administration (EBSA) released its guide on Target Date Retirement Funds – Tips for ERISA Plan Fiduciaries. According to EBSA, the general guidance is geared "to assist plan fiduciaries in selecting and monitoring target date funds (TDFs) and other investment options in 401(k) and similar participant-directed individual account plans."

The guide establishes eight elements for plan sponsors to remember when choosing target date funds:

1
Establish a process for comparing and selecting TDFs

2
Establish a process for the periodic review of selected TDFs

3
Understand the fund's investments — the allocation in different asset classes (stocks, bonds, cash) and individual investments — and how they change over time

4
Review the funds' fees and investment expenses

5
Inquire about whether a custom or non-proprietary target date fund would be a better fit for your plan

6
Develop effective associate communications

7
Take advantage of available sources of information to evaluate the TDF and recommendations you received regarding the TDF selection

8
Document the process

Callan believes **a higher standard** may apply to target date fund decision-making going forward than has been applied in the past. The DOL Tips provide a framework for reviewing the suitability of a target date solution for a specific plan given its demographics and plan design.

NCSRP Overview

Summary Information (as of December 31, 2023)

	NC 401(k) Plan	NC 457 Plan
Eligibility	Employees actively contributing to: • Teachers' and State Employees' Retirement System (TSERS) • Local Governmental Employees' Retirement System (LGERS) • Legislative Retirement System (LRS) • Consolidated Judicial Retirement System (CJRS) • A pension sponsored by a local government Also includes law enforcement officers and participants in the Optional Retirement Program	Employees of participating state and local governmental entities • Full-time, temporary, or part-time employees • Elected and appointed officials • Rehired retired employees
Total NCSRP Assets	$16,040,266,686	
NCSRP GoalMaker Assets	$8,096,786,212 (50%)	

- The NCSRP offer the GoalMaker model portfolio service as the DIA.
- As of December 31, 2023, combined NCSRSP assets were ~$16.0 billion, and roughly half of assets were owned by participants enrolled in GoalMaker.

Sources: NCSRP and Empower

NCSRP GoalMaker Asset Distribution

	December 31, 2023	
	Market Value	Weight
North Carolina SRP 401k & 457		
Tier I: GoalMaker		
Post Retirement Conservative 11+	53,527,247	0.66%
Post Retirement Conservative 6-10	158,185,723	1.95%
Post Retirement Conservative 0-5	404,982,189	5.00%
Pre Retirement Conservative 0-5	315,698,919	3.90%
Pre Retirement Conservative 6-10	197,417,824	2.44%
Pre Retirement Conservative 11-15	152,565,570	1.88%
Pre Retirement Conservative 16-20	116,563,317	1.44%
Pre Retirement Conservative 21-25	98,823,298	1.22%
Pre Retirement Conservative 26+	106,235,753	1.31%
Post Retirement Moderate 11+	62,056,256	0.77%
Post Retirement Moderate 6-10	172,287,380	2.13%
Post Retirement Moderate 0-5	507,185,707	6.26%
Pre Retirement Moderate 0-5	702,990,893	8.68%
Pre Retirement Moderate 6-10	679,627,201	8.39%
Pre Retirement Moderate 11-15	570,095,984	7.04%
Pre Retirement Moderate 16-20	438,830,398	5.42%
Pre Retirement Moderate 21-25	324,091,448	4.00%
Pre Retirement Moderate 26+	374,820,433	4.63%
Post Retirement Aggressive 11+	21,851,986	0.27%
Post Retirement Aggressive 6-10	62,332,059	0.77%
Post Retirement Aggressive 0-5	202,899,044	2.51%
Pre Retirement Aggressive 0-5	386,975,560	4.78%
Pre Retirement Aggressive 6-10	484,694,249	5.99%
Pre Retirement Aggressive 11-15	525,130,960	6.49%
Pre Retirement Aggressive 16-20	426,307,529	5.27%
Pre Retirement Aggressive 21-25	297,441,893	3.67%
Pre Retirement Aggressive 26+	253,167,392	3.13%
Tier I: GoalMaker	**$8,096,786,212**	**100.0%**

Moderate = Default Path

GoalMaker Overview

- GoalMaker is a model portfolio service that considers participant factors and places participants into one of three paths. Upon participant enrollment in the service, GoalMaker receives as inputs:
  - Current participant age
  - Expected participant retirement age (default = 65)
  - Participant preference for conservative, moderate, or aggressive risk tolerance
- Based on these inputs, participants are placed into the conservative, moderate, or aggressive path. Each path uses up to 7 of the NCSRP's core menu investment options as building blocks.
- GoalMaker is a legacy Prudential service that has historically differed from a traditional target date fund series in several ways:
  - GoalMaker's rebalancing process has traditionally functioned differently than with most target date fund glidepaths. Both typically rebalance to the strategic or target allocations monthly or quarterly. However, unlike target date funds, the target GoalMaker allocations do not gradually shift over time. Rather, participants "jump" to new, more conservative age-based allocations based on their birthdate.
  - The GoalMaker model portfolios are not unitizations of the underlying funds.
- Following its announced acquisition of Prudential in 2022, Empower will be implementing several changes to GoalMaker (see following page).

Notably, the Supplemental Retirement Board of Trustees has responsibility with respect to the methodology and asset allocation underlying GoalMaker for the default glidepath. The recordkeeper does not accept fiduciary duty.

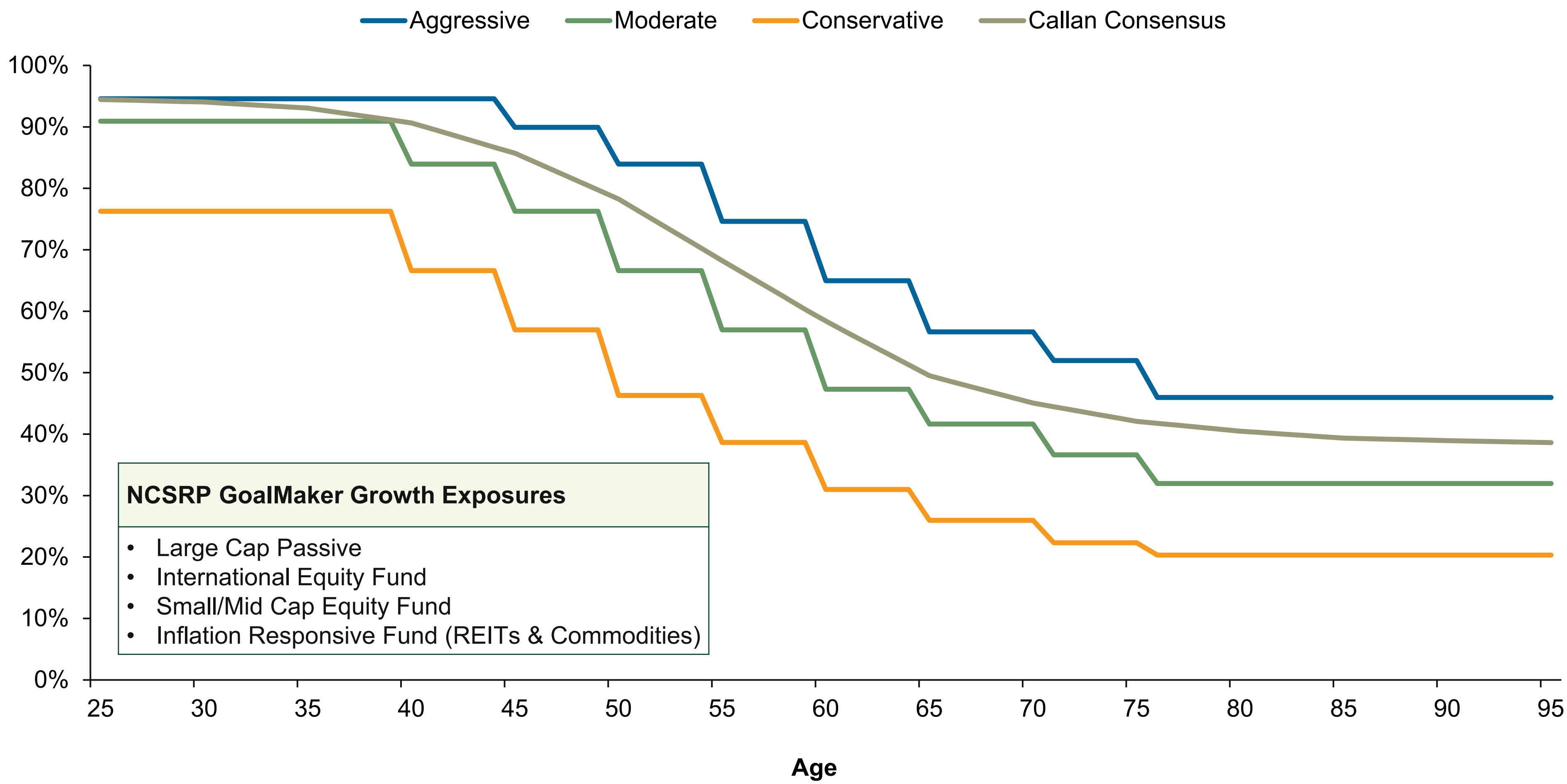
Empower Changes to GoalMaker

- Following its announced acquisition of Prudential in 2022, Empower will be implementing several changes to GoalMaker, detailed below.
- The NCSRP are scheduled to migrate/convert to the Empower recordkeeping system in early February, and the changes to GoalMaker will be effective following the completion of the migration/conversion.

"Original" GoalMaker	"Enhanced" GoalMaker
Participants choose a static GoalMaker model and transition to new, more conservative models upon reaching a specific age range	Participants are mapped to a single North Carolina GoalMaker model that will gradually become more conservative over time
Quarterly rebalancing occurs on a single date for all participants enrolled in GoalMaker	Quarterly rebalancing will occur based on an individual's date of birth
There are 9 model portfolios per risk path (i.e., Aggressive, Moderate, Conservative), and the portfolios include the number of years from retirement as part of their naming convention	The number of model portfolios will increase to a maximum of 14 per risk path, and the naming convention of the model portfolios will more closely resemble that of target date funds (e.g., 2010, 2070)

Source: Empower

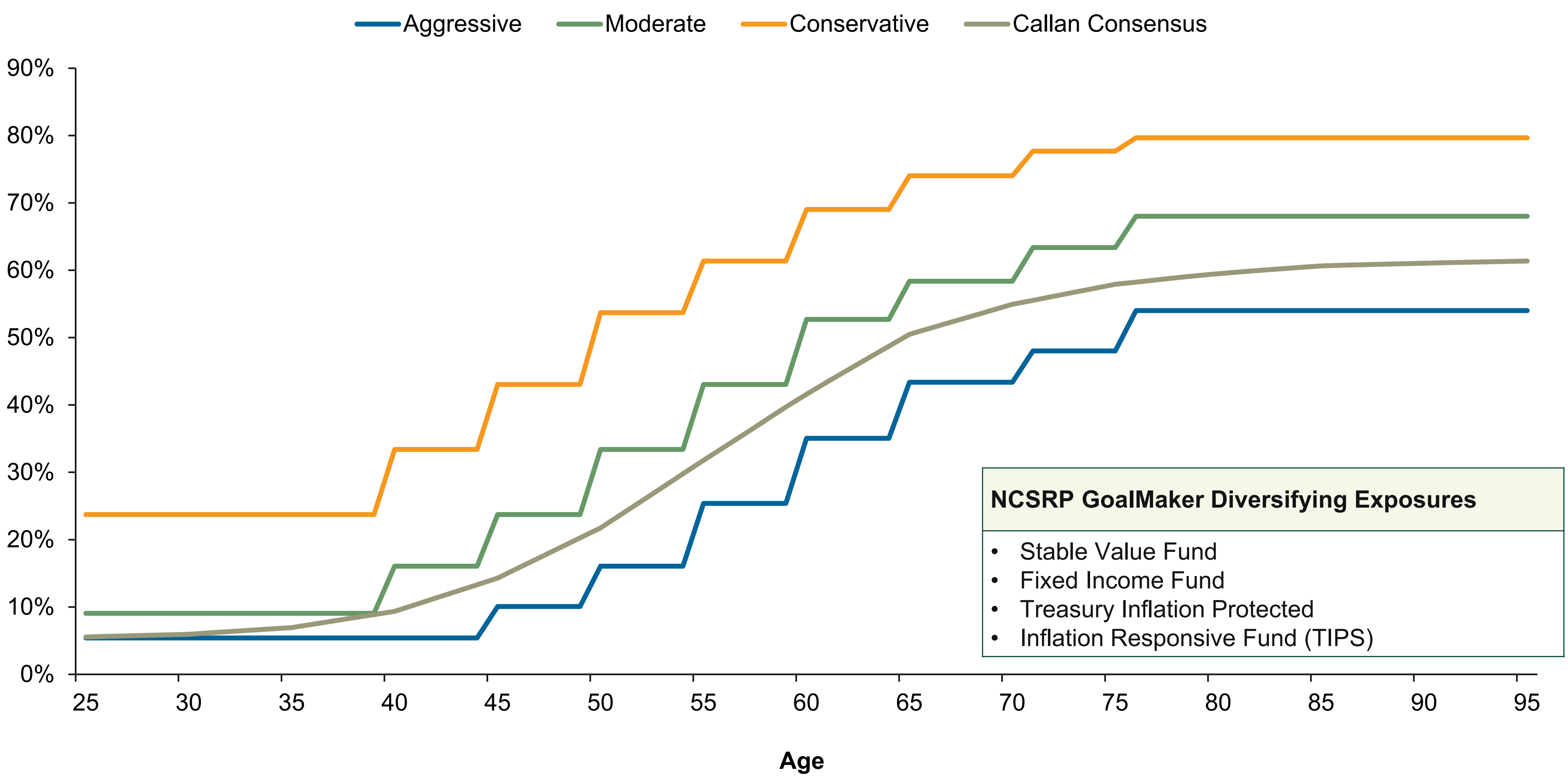
Asset Allocation: Growth Assets*



- The chart shows exposure to equity and other growth-focused assets by participant age.
  - Other growth assets include asset classes such as high yield fixed income and REITs that have had historical risk and return characteristics more comparable to equity than diversifying assets such as core fixed income.

*See the Appendix for a description of growth assets.

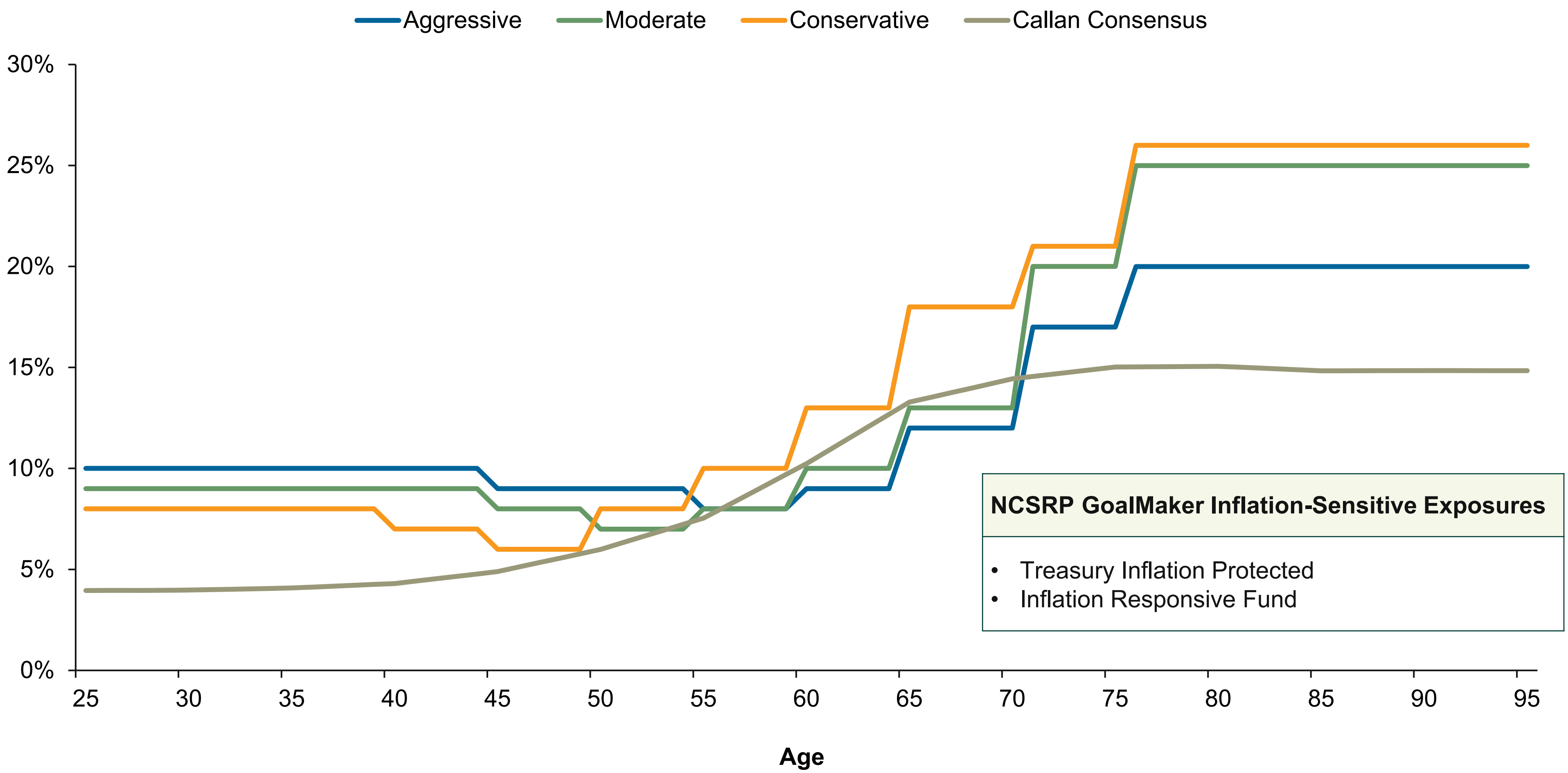
Asset Allocation: Diversifying Assets*



- The chart shows exposure to diversifying assets by participant age.
  – Diversifying assets include asset classes such as short-term fixed income, core fixed income, non-U.S. fixed income, and cash that are intended to provide diversification from growth-focused assets.

*See the Appendix for a description of diversifying assets.

Asset Allocation: Dedicated Inflation-Sensitive Assets*



- The chart shows exposure to dedicated inflation-sensitive assets by participant age.
  - Dedicated inflation-sensitive assets include asset classes such as TIPS, REITs, and commodities that are intended to respond to different types of inflation, and often at different times.

*See the Appendix for a description of inflation-sensitive assets.

Glidepath Design: Underlying Asset Classes

Prevalence of Asset Classes Used by GoalMaker vs. 70+ Target Date Glidepaths

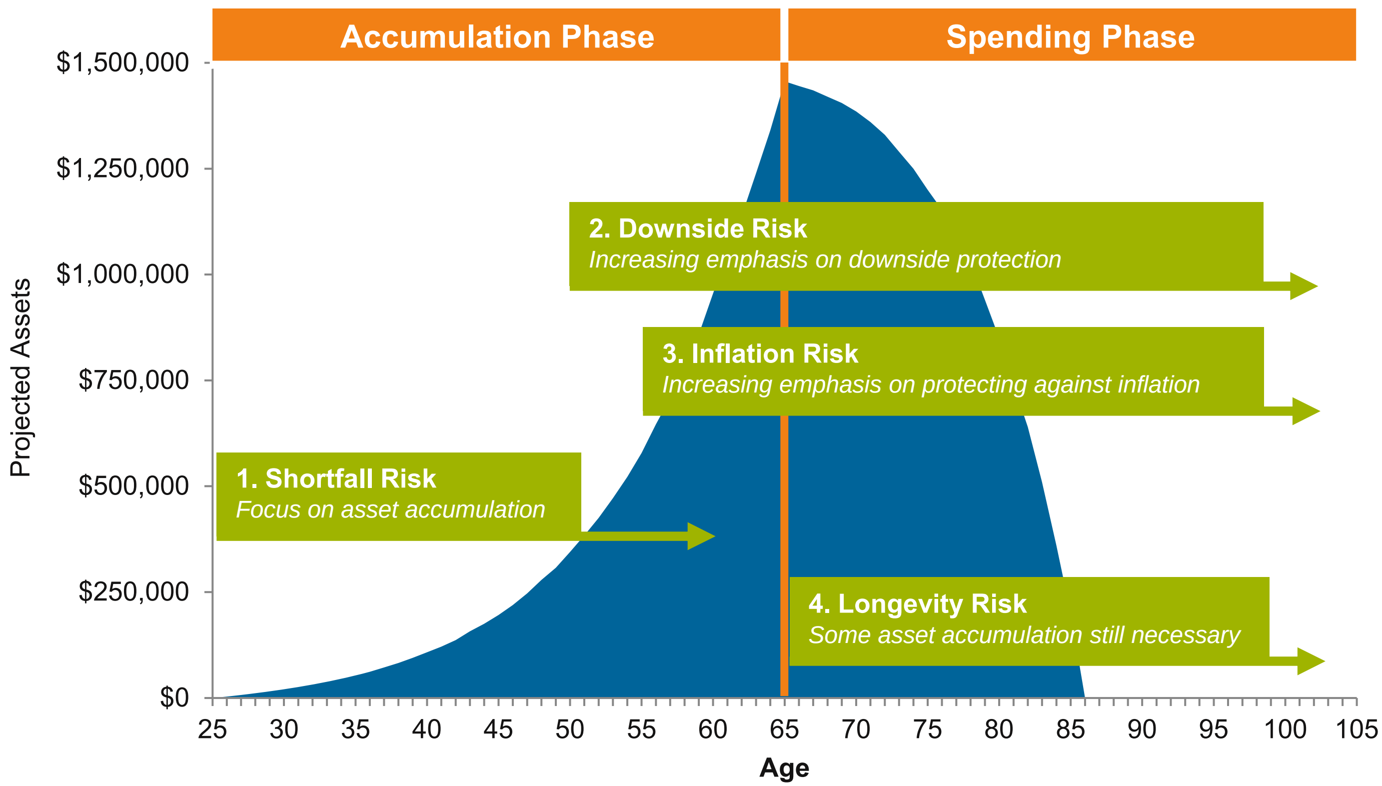
GoalMaker provides exposure to the asset classes that tend to be most prevalent in target date fund glidepaths.

Asset Category	Asset Class	GoalMaker	Prevalence*
Growth Assets (+ Commodities, REITs, Private Real Estate, and Natural Resource Equity)	U.S. Large-Cap Equity	✓	100%
	Developed Non-U.S. Equity	✓	100%
	Emerging Markets Equity	✓	98%
	U.S. Small/Mid-Cap Equity	✓	96%
	High Yield	X	53%
	Emerging Markets Debt	X	28%
	Non-U.S. Small-Cap Equity	✓	13%
	Bank Loans	X	13%
Diversifying Assets (+ TIPS)	U.S. Core/Core Plus Fixed Income	✓	98%
	Short Duration	X	51%
	Cash & Cash Equivalents	X	38%
	Non-U.S. Fixed Income (Unhedged)	X	28%
	Long Government	X	28%
	Non-U.S. Fixed Income (Hedged)	X	23%
	Stable Value	✓	2%
Dedicated Inflation-Sensitive Assets	Intermediate/Long-Term TIPS	✓	77%
	Global REITs	✓	36%
	Commodities	✓	32%
	Short-Term TIPS	X	23%
	Natural Resource Equity	X	11%
	Private Real Estate	X	9%

*Among 70+ off-the-shelf target date fund glidepaths.

"Glidepaths" Seek to Address/Manage Multiple Risks Over a Lifetime

This analysis uses customized inputs (e.g., NCSRP participant salary and deferrals data) and Callan's long-term capital market projections to simulate outcomes over an 80-year time horizon. Callan's glidepath modeling evaluates four key risks.



Shortfall Risk
- Expected real income replacement ratio
- Worse-case real income replacement ratio
- Assets / salary

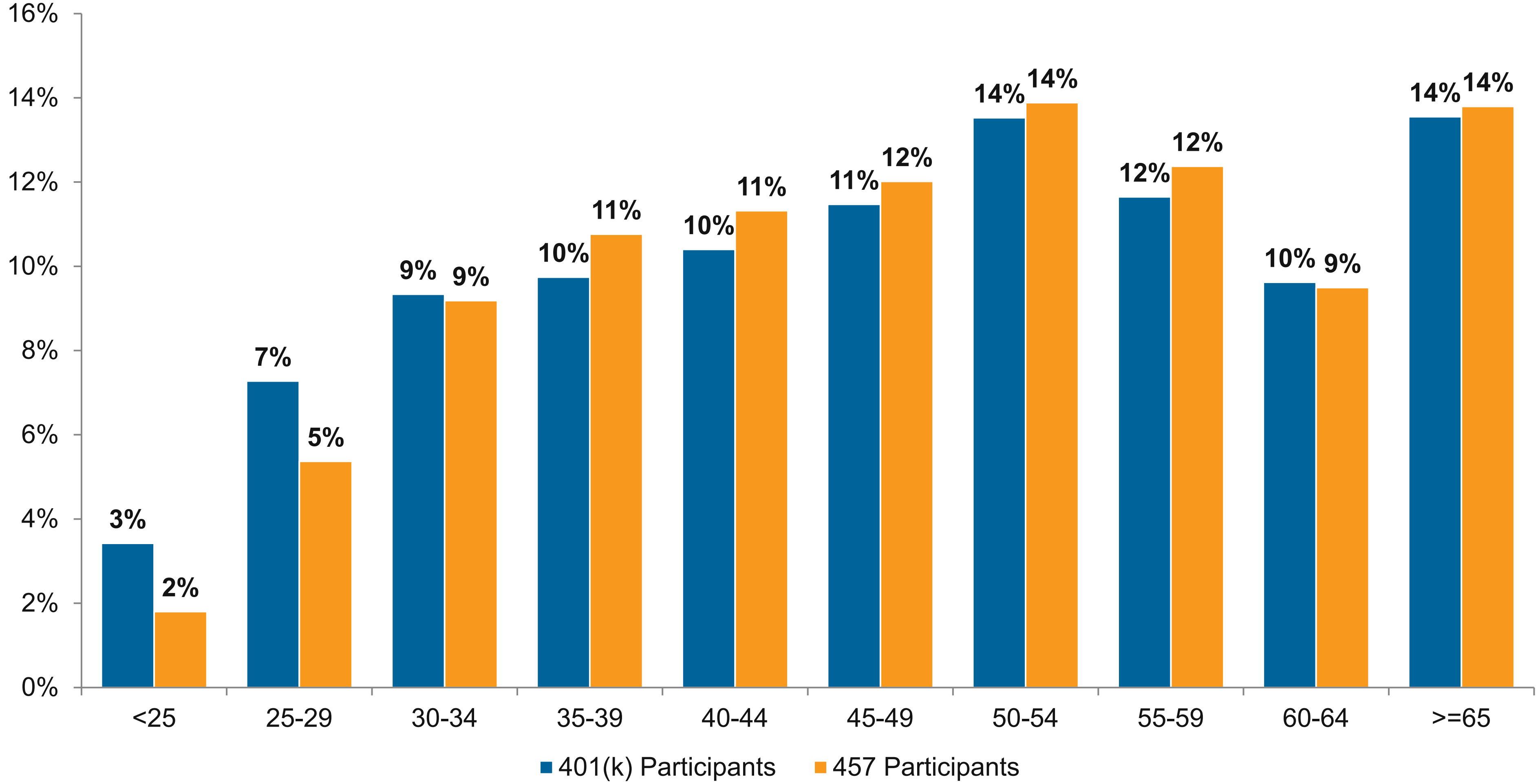
Downside Risk
- Worse-case decline in assets
- Drawdown risk
- Scenario testing

Inflation Risk
- Probability of inflation adversely impacting outcomes

Longevity Risk
- Probability of outliving assets
- Asset life expectancy

Distribution of NCSRP Participants by Age*

Across both Plans, there are more mid- and late-career participants than early-career participants.



*As of Dec. 31, 2023. Source: Empower.

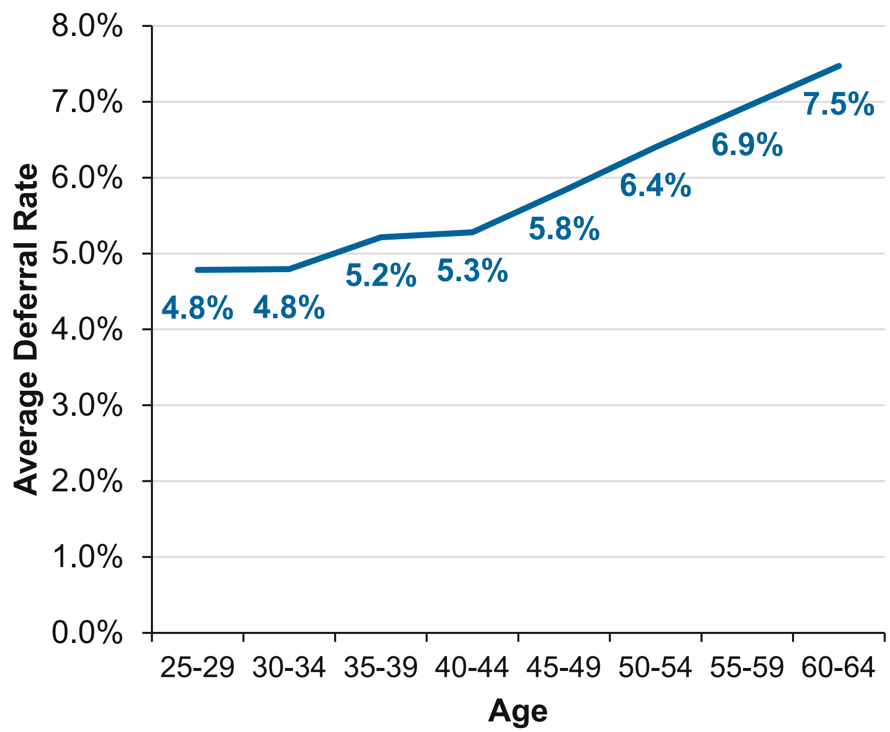
NCSRP Participant Modeling Assumptions and Savings Patterns

Hypothetical “Best-Case” Participant*

- **Assumed savings/investment time horizon of 40 years**
- **Higher proportion of female participants (differing life expectancies impact longevity risk projections)**

Simulation / Modeling Assumptions		
Input	**General**	**Teachers**
Starting Age	25	
Retirement Age	65	
Starting Salary	$45,000	
Salary Growth (Nominal)	6.25% to begin, tapers to 3.25%	7.30% to begin, tapers to 3.25%
Male / Female	30% / 70%	

NCSRP Average Participant Deferral Rates by Age



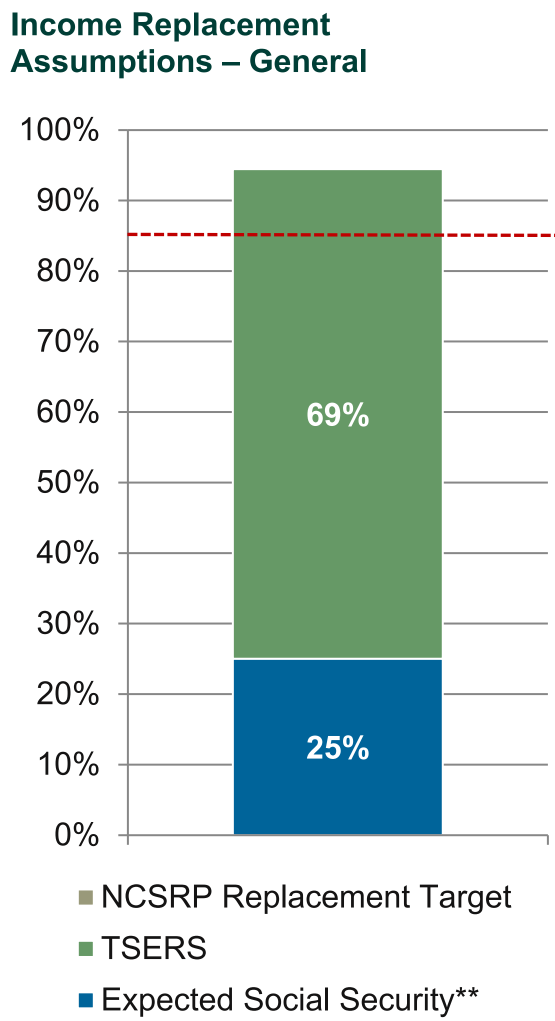
*NCSRP participant data as of Dec. 31, 2023. Source: Empower.

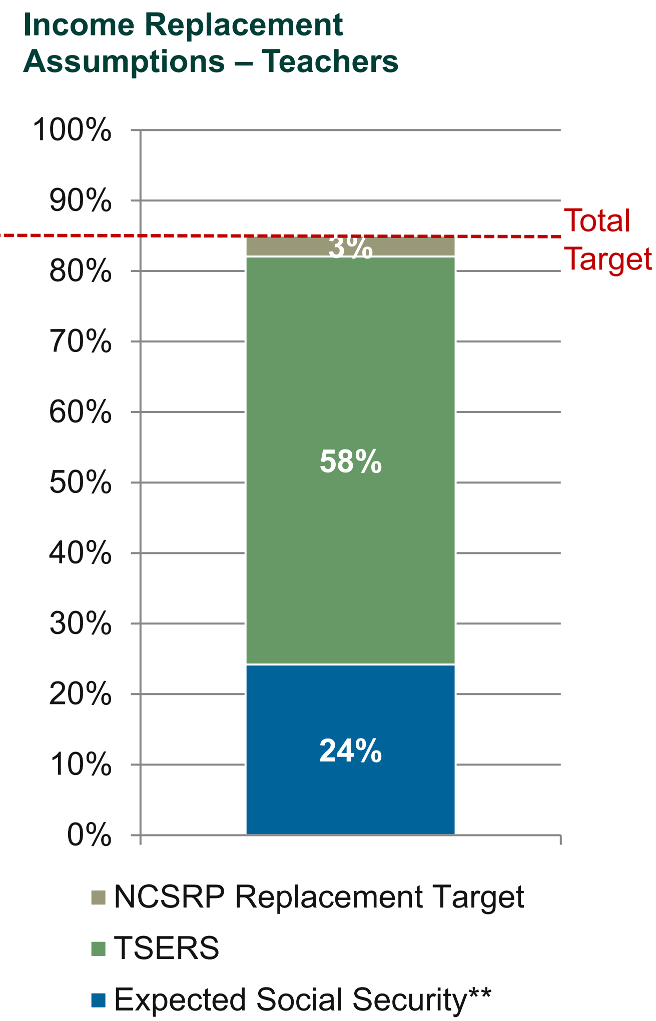
Successful Retirement Outcome: Income Replacement Ratio Assesses Shortfall Risk

Hypothetical "Best-Case" Participant

85% Total Income Replacement Ratio Target

- The income replacement ratio represents a participant's projected annual post-retirement income divided by their projected inflation-adjusted salary in the year before retirement.
- Typically, an individual needs less than 100% income replacement in retirement to maintain the same or a similar standard of living. For NCSRP participants, this analysis uses 85% as the target income replacement ratio.*
- This analysis assumes the NCSRP, TSERS, and Social Security are participants' primary sources of retirement income, a conservative assumption given many participants will have additional income sources.
- If participant experience differs from the assumptions, these projections will differ. Ex: a participant working less than 40 years will have a lower DB benefit and lower income replacement ratio





*Studies have found that income replacement ratios in the range of 80% to 90% are typically sufficient to maintain one's standard of living in retirement. Income Replacement in Retirement, T. Rowe Price 2020 and Can Social Security and 401(k) Savings Be Enough?, Employee Benefit Research Institute 2014.
**The Social Security estimates reflect an expected program funding shortfall by assuming participants will receive 75% of Social Security benefits for which they would currently be eligible, based on the most recent Trustees' report.

Projected Shortfall Risk: Risk of not accumulating enough assets to retire

Hypothetical "Best-Case" Participant

Portfolio / Glidepath	Participant Group	Median DC Replacement Ratio (Age 65)	Worse-Case DC Replacement Ratio (Age 65)[1]	Probability of Reaching Total Replacement Target	Average Growth Assets Exposure (25-65)	Growth Assets at Age 65
GoalMaker Conservative	General	28%	13%	>99%	58%	26%
	Teachers	28%	13%	>99%		
GoalMaker Moderate	General	33%	13%	>99%	75%	42%
	Teachers	32%	13%	>99%		
GoalMaker Aggressive	General	37%	12%	>99%	86%	57%
	Teachers	36%	12%	>99%		
Consensus	General	34%	13%	>99%	80%	49%
	Teachers	33%	13%	>99%		

- Based on observed participant savings patterns, Callan's long-term capital market expectations, and portfolio/glidepath design, participants have the highest median income replacement ratios with the Aggressive path, an unsurprising observation given its high overall equity exposure relative to the Moderate and Conservative paths.

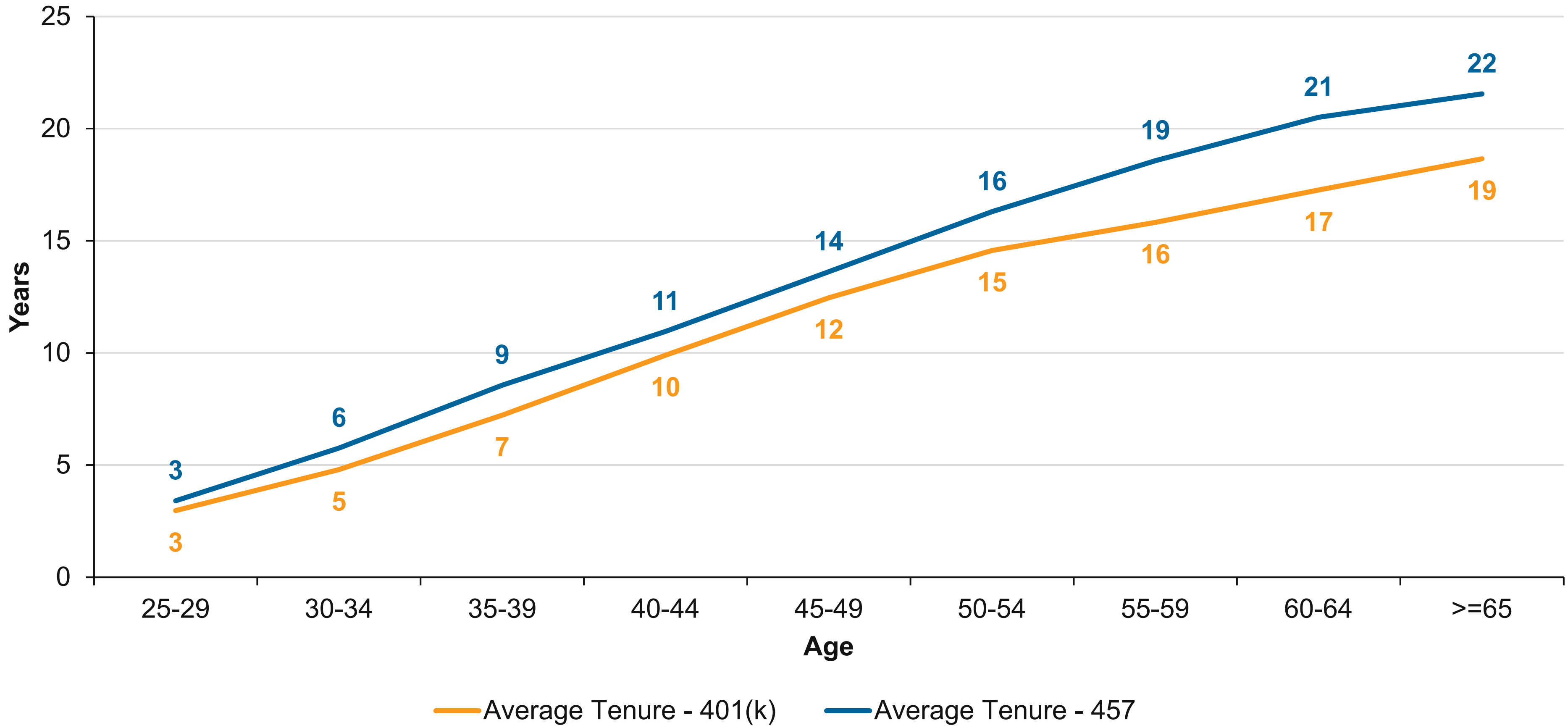
Notes: Glidepath allocations reflect strategic glidepath weights. Forward-looking analytics are derived from a Monte Carlo simulation model that uses Callan's long-term capital markets assumptions (see Appendix) and certain NCSRP participant assumptions. These analytics represent projected and not actual outcomes for defined participant profiles.

[1] "Worse case" is defined as the 97.5th percentile projected DC replacement ratio at age 65.

A Look at Tenure…

Observed average tenure for NCSRP participants is much lower than 40 years.

NCSRP Average Participant Tenure



*NCSRP participant data as of Dec. 31, 2023. Source: Empower.

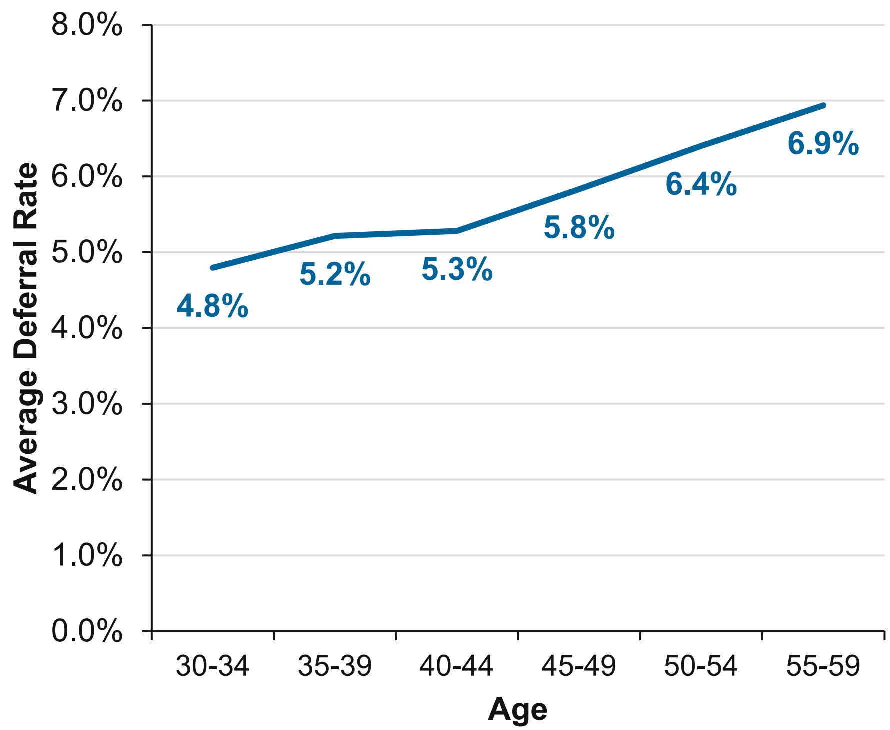
NCSRP Participant Modeling Assumptions and Savings Patterns

Hypothetical "Good-Case" Participant*

- **Assumed savings/investment time horizon of 30 years**
- **Later assumed starting age (30) and earlier assumed retirement age (60)**

Simulation / Modeling Assumptions*		
Input	**General**	**Teachers**
Starting Age	30	
Retirement Age	60	
Starting Salary	$46,000	
Salary Growth (Nominal)	6.25% to begin, tapers to 3.25%	7.30% to begin, tapers to 3.25%
Male / Female	30% / 70%	

NCSRP Average Participant Deferral Rates by Age



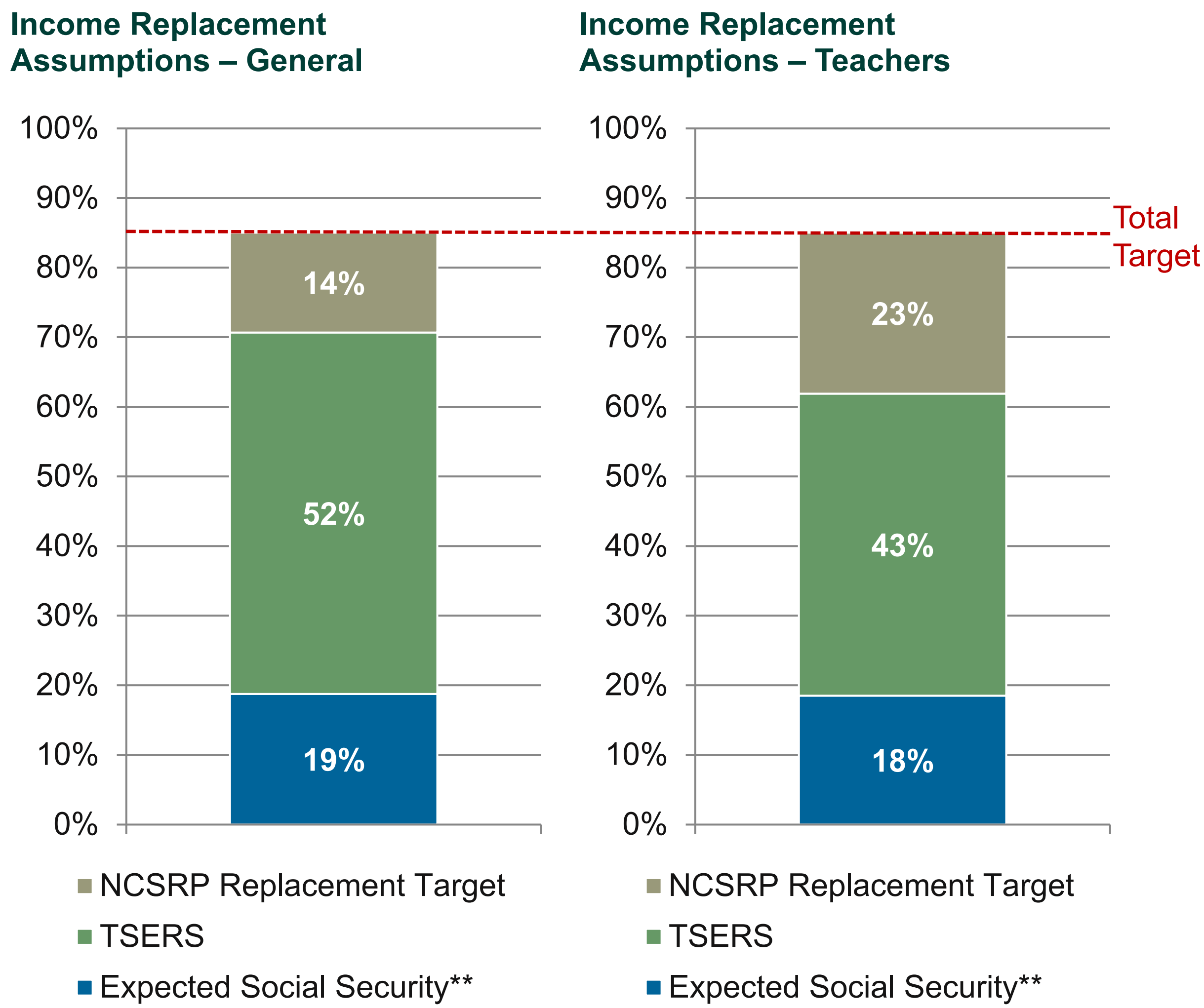
*NCSRP participant data as of Dec. 31, 2023. Source: Empower.

Measuring a Successful Retirement Outcome

Hypothetical "Good-Case" Participant

85% Total Income Replacement Ratio Target

- The income replacement ratio represents a participant's projected annual post-retirement income divided by their projected inflation-adjusted salary in the year before retirement.
- Typically, an individual needs less than 100% income replacement in retirement to maintain the same or a similar standard of living. For NCSRP participants, this analysis uses 85% as the target income replacement ratio.*
- This analysis assumes the NCSRP, TSERS, and Social Security are participants' primary sources of retirement income, a conservative assumption given many participants will have additional income sources.
- The lower 30 year tenure results in lower income from TSERS and Social Security, relying more on SRP income to meet the replacement target.



*Studies have found that income replacement ratios in the range of 80% to 90% are typically sufficient to maintain one's standard of living in retirement. Income Replacement in Retirement, T. Rowe Price 2020 and Can Social Security and 401(k) Savings Be Enough?, Employee Benefit Research Institute 2014.
**The Social Security estimates reflect an expected program funding shortfall by assuming participants will receive 75% of Social Security benefits for which they would currently be eligible, based on the most recent Trustees' report.

Projected Shortfall Risk – Tenure Adjustment

Hypothetical "Good-Case" Participant

Portfolio / Glidepath	Participant Group	Median DC Replacement Ratio (Age 65)	Worse-Case DC Replacement Ratio (Age 65)[1]	Probability of Reaching Total Replacement Target	Average Growth Assets Exposure (25-65)	Growth Assets at Age 65
GoalMaker Conservative	General	13%	6%	41%	58%	26%
	Teachers	13%	6%	7%		
GoalMaker Moderate	General	15%	6%	51%	75%	42%
	Teachers	14%	6%	15%		
GoalMaker Aggressive	General	16%	6%	56%	86%	57%
	Teachers	15%	6%	23%		
Consensus	General	15%	6%	52%	80%	49%
	Teachers	14%	6%	16%		

- Based on observed participant savings patterns, Callan's long-term capital market expectations, and portfolio/glidepath design, participants have the highest median income replacement ratios with the Aggressive path, an unsurprising observation given its high overall equity exposure relative to the Moderate and Conservative paths.

Notes: Glidepath allocations reflect strategic glidepath weights. Forward-looking analytics are derived from a Monte Carlo simulation model that uses Callan's long-term capital markets assumptions (see Appendix) and certain NCSRP participant assumptions. These analytics represent projected and not actual outcomes for defined participant profiles.

[1] "Worse case" is defined as the 97.5th percentile projected DC replacement ratio at age 65.

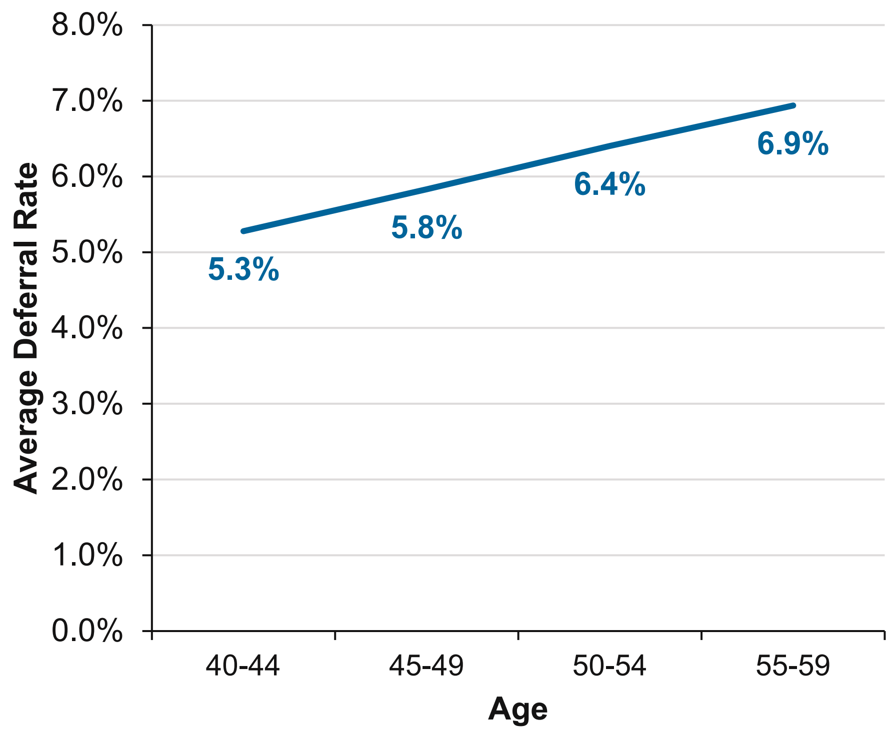
NCSRP Participant Modeling Assumptions and Savings Patterns

Hypothetical "Median-Case" Participant*

- **Assumed savings/investment time horizon of 20 years**
- **Even later assumed starting age (40) and assumed retirement age of 60**

Simulation / Modeling Assumptions*		
Input	**General**	**Teachers**
Starting Age	40	
Retirement Age	60	
Starting Salary	$50,000	
Salary Growth (Nominal)	6.25% to begin, tapers to 3.75%	7.30% to begin, tapers to 3.25%
Male / Female	30% / 70%	

NCSRP Average Participant Deferral Rates by Age



*NCSRP participant data as of Dec. 31, 2023. Source: Empower.

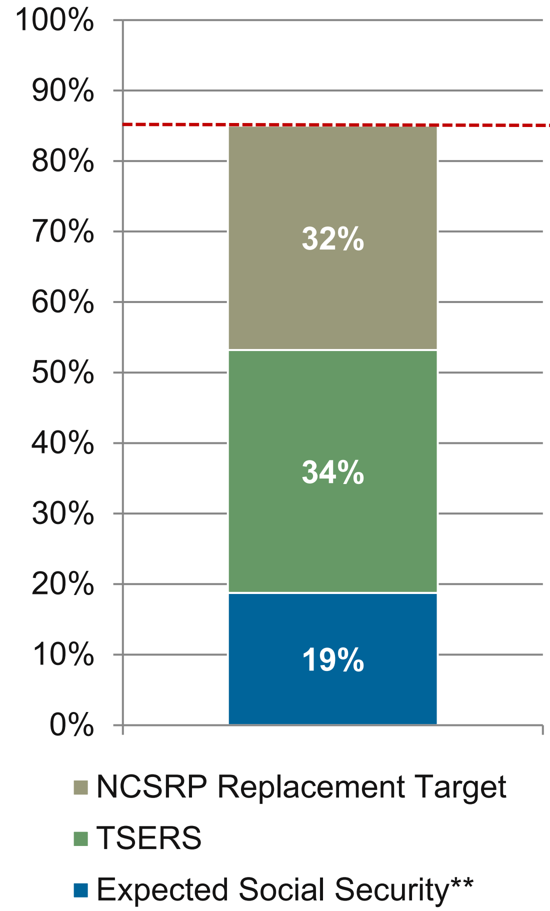
Successful Retirement Outcome: Income Replacement Ratio Assesses Shortfall Risk

Hypothetical "Median-Case" Participant

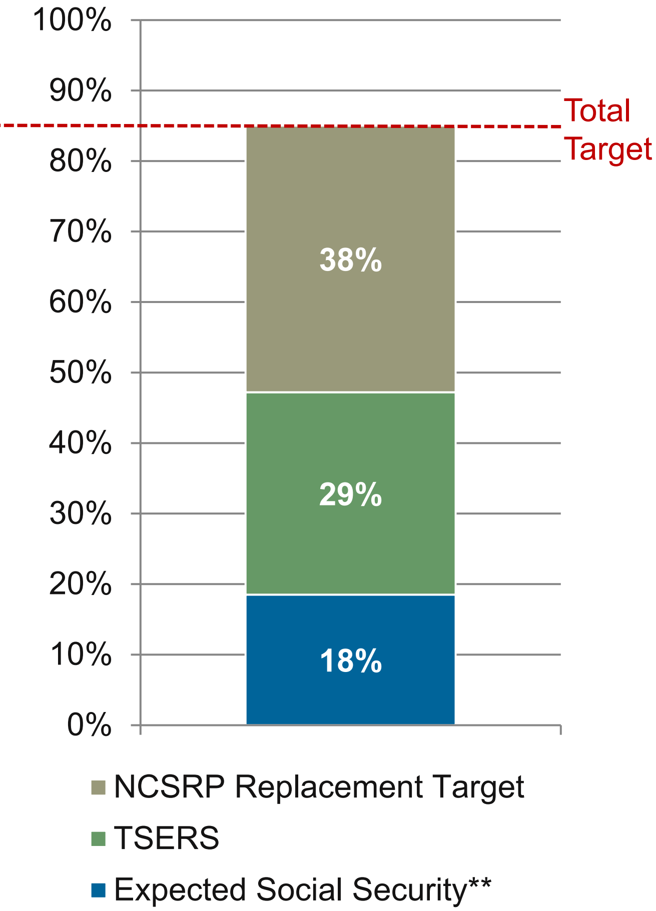
85% Total Income Replacement Ratio Target

- The income replacement ratio represents a participant's projected annual post-retirement income divided by their projected inflation-adjusted salary in the year before retirement.
- Typically, an individual needs less than 100% income replacement in retirement to maintain the same or a similar standard of living. For NCSRP participants, this analysis uses 85% as the target income replacement ratio.*
- This analysis assumes the NCSRP, TSERS, and Social Security are participants' primary sources of retirement income, a conservative assumption given many participants will have additional income sources.
- The lower 20 year tenure results in even lower income from TSERS and Social Security, relying even more on SRP income to meet the replacement target.

Income Replacement Assumptions – General



Income Replacement Assumptions – Teachers



*Studies have found that income replacement ratios in the range of 80% to 90% are typically sufficient to maintain one's standard of living in retirement. Income Replacement in Retirement, T. Rowe Price 2020 and Can Social Security and 401(k) Savings Be Enough?, Employee Benefit Research Institute 2014.
**The Social Security estimates reflect an expected program funding shortfall by assuming participants will receive 75% of Social Security benefits for which they would currently be eligible, based on the most recent Trustees' report.

Projected Shortfall Risk: Risk of not accumulating enough assets to retire

Hypothetical "Median-Case" Participant

Portfolio / Glidepath	Participant Group	Median DC Replacement Ratio (Age 65)	Worse-Case DC Replacement Ratio (Age 65)[1]	Probability of Reaching Total Replacement Target	Average Growth Assets Exposure (25-65)	Growth Assets at Age 65
GoalMaker Conservative	General	6.0%	2.6%	<1%	58%	26%
	Teachers	5.5%	2.5%	<1%		
GoalMaker Moderate	General	6.4%	2.5%	<1%	75%	42%
	Teachers	5.9%	2.3%	<1%		
GoalMaker Aggressive	General	6.7%	2.4%	<1%	86%	57%
	Teachers	6.2%	2.2%	<1%		
Consensus	General	6.5%	2.4%	<1%	80%	49%
	Teachers	6.0%	2.3%	<1%		

- Based on observed participant savings patterns, Callan's long-term capital market expectations, and portfolio/glidepath design, participants have the highest median income replacement ratios with the Aggressive path, an unsurprising observation given its high overall equity exposure relative to the Moderate and Conservative paths.
- Teachers have a lower probability of reaching Total Replacement Target
  – Their higher salary growth rates result in a higher income level to be replaced.
  – Higher salaries result in lower projected replacement from Social Security and TSERS.

Notes: Glidepath allocations reflect strategic glidepath weights. Forward-looking analytics are derived from a Monte Carlo simulation model that uses Callan's long-term capital markets assumptions (see Appendix) and certain NCSRP participant assumptions. These analytics represent projected and not actual outcomes for defined participant profiles.

[1] "Worse case" is defined as the 97.5th percentile projected DC replacement ratio at age 65.

Conclusions

Callan continues to view GoalMaker as a suitable DIA for NCSRP participants.

Summary Findings:

- The GoalMaker portfolios allow North Carolina to leverage the strength and scale of the NCSRP's core menu investment options.
- GoalMaker provides NCSRP participants access to a professional asset allocation service without an explicit cost.
- The model portfolios have performed as expected given their asset allocation.
- Based on participant assumptions and observed savings patterns, projected outcomes for NCSRP participants appear reasonable.

Future Considerations:

- Recognizing the distinct differences across the participant population in savings behavior, tenure, and retirement benefits, additional analysis on the glidepaths may help the Board evaluate whether changes to the glidepaths could benefit participant outcomes.
- With Empower's planned changes to the service, the Board may consider conducting a deeper review of the current GoalMaker asset class allocations through a lens of expected risk & return.
- The Board may also weigh how the solution could be impacted going forward—in particular, Empower's continued support of the legacy Prudential service.
  - If the solution were to be discontinued, a new DIA would need to be selected and the appropriate transition and participant communication would need to be considered.

Appendix

Callan Process Behind a Suitability Study

The 2013 DOL Tips to ERISA Fiduciaries Provide the Framework for Callan's Analysis

DOL Tip	Callan Review Process
Examine whether there have been material changes since the option was selected or last reviewed.	Review changes to the team, philosophy, and/or investment process.
Discuss the possible significance of other characteristics of the participant population such as participation in a traditional defined benefit plan, salary levels, turnover rates, deferral rates, and withdrawal patterns.	Analyze the Plans' demographics to assess the fit of each "glidepath."
Understand the funds' investments, the allocation to different asset classes, and how these change over time.	Review the glidepath construction and risk exposures.
Develop effective employee communications.	Evaluate communication effectiveness of product manager.
Review fees and investment expenses.	Benchmark fees.
Consider information about performance.	Examine performance through multiple lenses (e.g., absolute, risk adjusted) over various time periods.
Inquire whether other options would better fit the Plans and participants.	Identify the pros, cons, and feasibility of other approaches.

NCSRP Investment Structure*

Tier I: Asset Allocation	Tier II: Passive Core	Tier II: Active Core	Tier III: Specialty
Model Portfolios		**Capital Preservation**	
GoalMaker		Stable Value Fund (16%)	
	Core Fixed Income	**Core Plus Fixed Income**	
	Fixed Income Passive (1%)	Fixed Income Fund (15%)	
	Inflation Sensitive		
	Treasury Inflation Protected (2%)		
	Inflation Responsive Fund (4%)		
	U.S. Large-Cap Equity	**U.S. Large-Cap Equity**	
	Large Cap Passive (24%)	Large Cap Core Equity Fund (14%)	
	Non-U.S. Equity	**Non-U.S. Equity**	
	International Passive (1%)	International Equity Fund (15%)	
	U.S. Small/Mid-Cap Equity	**U.S. Small/Mid-Cap Equity**	
	SMID Cap Passive (2%)	Small/Mid Cap Equity Fund (7%)	

Funds in yellow represent building block investment options currently used by GoalMaker.

*Percentage allocations rounded to the nearest whole percent and as of Sept. 30, 2023. Percentage allocations for core tier options include GoalMaker assets. Source: Empower.

Callan 2023 Risk and Returns Assumptions

Summary of Callan's Long-Term Capital Markets Assumptions (2023–2032)

		Projected Return			Projected Risk	2022–2031			vs. 2022	
Asset Class	**Index**	1-Year Arithmetic	10-Year Geometric*	**Real**	Standard Deviation	1-Year Arithmetic	10-Year Geometric*	Standard Deviation	Geometric* Delta	Std Dev Delta
Equities										
Broad U.S. Equity	Russell 3000	8.75%	7.35%	4.85%	18.05%	8.00%	6.60%	17.95%	0.75%	0.10%
Large Cap U.S. Equity	S&P 500	8.60%	7.25%	4.75%	17.75%	7.85%	6.50%	17.70%	0.75%	0.05%
Smid Cap U.S. Equity	Russell 2500	9.60%	7.45%	4.95%	22.15%	8.75%	6.70%	21.30%	0.75%	0.85%
Global ex-U.S. Equity	MSCI ACWI ex USA	9.45%	7.45%	4.95%	21.25%	8.70%	6.80%	20.70%	0.65%	0.55%
Developed ex-U.S. Equity	MSCI World ex USA	9.00%	7.25%	4.75%	20.15%	8.25%	6.50%	19.90%	0.75%	0.25%
Emerging Market Equity	MSCI Emerging Markets	10.45%	7.45%	4.95%	25.70%	9.80%	6.90%	25.15%	0.55%	0.55%
Fixed Income										
Short Duration Gov/Credit	Bloomberg 1-3 Year Gov/Credit	3.75%	3.80%	1.30%	2.30%	1.50%	1.50%	2.00%	2.30%	0.30%
Core U.S. Fixed	Bloomberg Aggregate	4.25%	4.25%	1.75%	4.10%	1.80%	1.75%	3.75%	2.50%	0.35%
Long Government	Bloomberg Long Gov	4.55%	3.70%	1.20%	13.50%	1.85%	1.10%	12.50%	2.60%	1.00%
Long Credit	Bloomberg Long Credit	5.75%	5.20%	2.70%	11.75%	2.60%	2.10%	10.50%	3.10%	1.25%
Long Government/Credit	Bloomberg Long Gov/Credit	5.25%	4.75%	2.25%	11.35%	2.30%	1.80%	10.40%	2.95%	0.95%
TIPS	Bloomberg TIPS	4.10%	4.00%	1.50%	5.30%	1.35%	1.25%	5.05%	2.75%	0.25%
High Yield	Bloomberg High Yield	6.75%	6.25%	3.75%	11.75%	4.40%	3.90%	10.75%	2.35%	1.00%
Global ex-U.S. Fixed	Bloomberg Global Agg ex US	2.70%	2.25%	-0.25%	9.80%	1.20%	0.80%	9.20%	1.45%	0.60%
Emerging Market Sov Debt	EMBI Global Diversified	6.25%	5.85%	3.35%	10.65%	4.00%	3.60%	9.50%	2.25%	1.15%
Alternatives										
Core Real Estate	NCREIF ODCE	6.60%	5.75%	3.25%	14.20%	6.60%	5.75%	14.20%	0.00%	0.00%
Private Infrastructure	MSCI Gl Infra/FTSE Dev Core 50/50	7.15%	6.15%	3.65%	15.45%	7.10%	6.10%	15.45%	0.05%	0.00%
Private Equity	Cambridge Private Equity	11.95%	8.50%	6.00%	27.60%	11.45%	8.00%	27.60%	0.50%	0.00%
Private Credit	N/A	8.00%	7.00%	4.50%	15.50%	6.40%	5.50%	14.60%	1.50%	0.90%
Hedge Funds	Callan Hedge FOF Database	5.80%	5.55%	3.05%	8.45%	4.35%	4.10%	8.20%	1.45%	0.25%
Commodities	Bloomberg Commodity	5.05%	3.50%	1.00%	18.00%	4.05%	2.50%	18.00%	1.00%	0.00%
Cash Equivalents	90-Day T-Bill	2.75%	2.75%	0.25%	0.90%	1.20%	1.20%	0.90%	1.55%	0.00%
Inflation	CPI-U		2.50%		1.60%		2.25%	1.60%	0.25%	0.00%

* Geometric returns are derived from arithmetic returns and the associated risk (standard deviation).

Callan Glidepath Asset Classes

Growth	Diversifying	Inflation Protection
– U.S. Large-Cap Equity	– U.S. Fixed	– TIPS
– U.S. Small/Mid-Cap Equity	– Non-U.S. Fixed	– Commodities
– Non-U.S. Equity	– Hedge Funds	– REITs
– Emerging Markets Equity	– Long Duration	– Private Real Estate
– High Yield	– Stable Value	
– REITs	– Short Duration (Bloomberg Barclays Gov 1-3 yr)	
– Private Real Estate	– Cash	

- Callan's glidepath model projects returns and volatility for 24 asset classes. The broad asset classes are detailed above, while the actual simulations occur at the sub-asset class level (e.g., U.S. vs. global REITs).
- Asset classes are categorized as growth assets, diversifying assets, or inflation-sensitive assets.
  - REITs and private real estate are categorized as both growth assets and inflation-sensitive assets as these asset classes can serve multiple roles within a glidepath.

Simulation Inputs

Plan-Specific Considerations

DOL Tip: Plan sponsors should discuss the significance of other characteristics of the participant population, such as participation in a traditional defined benefit pension plan offered by the employer, salary levels, turnover rates, deferral rates, and withdrawal patterns.

Consideration	NCSRP	Implications
Presence of a DB plan	Many NCSRP participants are covered by a defined benefit plan, meaning the NCSRP serve as supplemental sources of retirement income for those with a DB plan.	The NCSRP, a DC plan (for those covered), and Social Security serve as the primary sources of participants' income replacement for the purposes of this analysis.
Assumed retirement age	NCSRP participants are assumed to retire at age 65.	The assumed starting age and assumed retirement age provide the time horizon over which this analysis assumes participants contribute to and accumulate assets within the NCSRP.
Average deferral rates	NCSRP participant deferral rates as of Dec. 31, 2023, tend to be lower than national averages, potentially attributable to year-end data as well as the more supplemental nature of the Plans.	Deferral rates are a large determinant of successful retirement outcomes and a large driver of projected income replacement.
Male-to-female ratio	Roughly 70% of participants are female.	The male-to-female ratio has an impact on projected longevity risk given expected mortality differences between males and females.
Age profile	The NCSRP have more mid- and late-career participants than early-career participants, a common demographic observation across public DC plans.	Participants face different risks at different points in their lives. For instance, the primary risk for younger participants is generally shortfall risk, whereas late-career and retired participants typically place greater emphasis on limiting longevity risk, downside risk, and inflation risk.

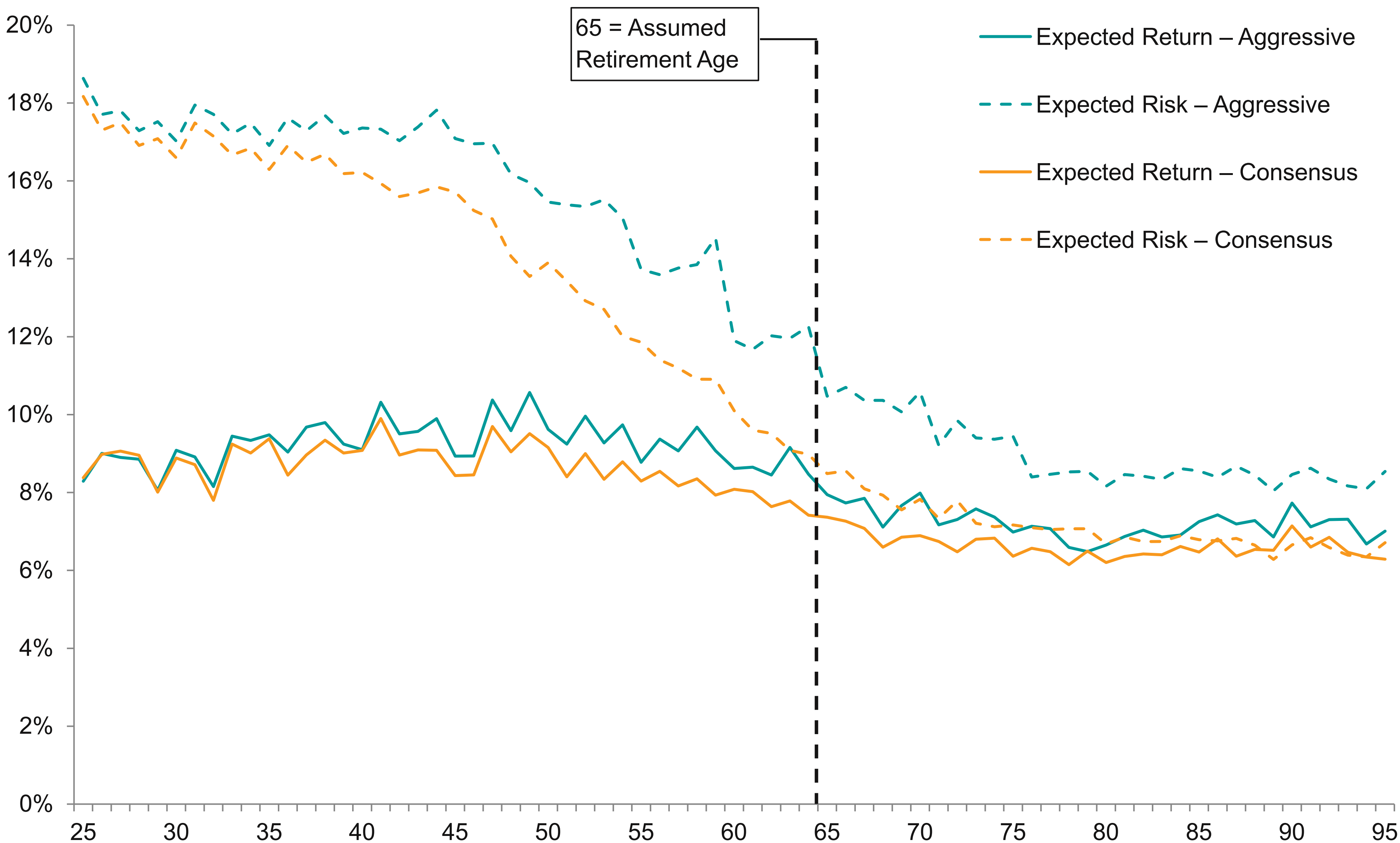
Expected Risk & Return by Age – Conservative

Notes: Glidepath allocations reflect strategic glidepath weights. Forward-looking analytics are derived from a Monte Carlo simulation model that uses Callan's long-term capital markets assumptions (see Appendix) and certain NCSRP participant assumptions. These analytics represent projected and not actual outcomes for defined participant profiles.

Expected Risk & Return by Age – Moderate

Notes: Glidepath allocations reflect strategic glidepath weights. Forward-looking analytics are derived from a Monte Carlo simulation model that uses Callan's long-term capital markets assumptions (see Appendix) and certain NCSRP participant assumptions. These analytics represent projected and not actual outcomes for defined participant profiles.

Expected Risk & Return by Age – Aggressive



Notes: Glidepath allocations reflect strategic glidepath weights. Forward-looking analytics are derived from a Monte Carlo simulation model that uses Callan's long-term capital markets assumptions (see Appendix) and certain NCSRP participant assumptions. These analytics represent projected and not actual outcomes for defined participant profiles.

Projected Pre-Retirement Downside Risk

Risk of volatility and drawdowns, particularly in the pre-retirement period

Portfolio / Glidepath	Number of Diversifying Assets	Ages 50 to 65			
		Rolldown Rate[1]	Average Diversifying Assets Exposure	Expected Standard Deviation	Worse-Case Multi-Year Drawdown[2]
GoalMaker Conservative	3	1.0%	62%	7.0%	-18%
GoalMaker Moderate	3	1.3%	44%	10.2%	-30%
GoalMaker Aggressive	3	1.3%	27%	13.3%	-40%
Consensus	3[3]	1.8%	36%	11.0%	-33%

- In the critical period preceding assumed retirement (e.g., ages 50 to 65), the Aggressive path poses the highest projected downside risk and volatility.
- The GoalMaker paths “shift” participants into new, more conservative portfolios every 5 years. As a result, they pose greater sequencing risk to participants compared to a traditional TDF glidepath that gradually rolls down equity and other growth assets.
- There is an explicit tradeoff between shortfall risk and downside risk.

Notes: Glidepath allocations reflect strategic glidepath weights. Forward-looking analytics are derived from a Monte Carlo simulation model that uses Callan’s long-term capital markets assumptions (see Appendix) and certain NCSRP participant assumptions. These analytics represent projected and not actual outcomes for defined participant profiles.

[1] Rolldown rate measures the average annual decrease in allocation to growth assets.

[2] “Worse case” is defined as the 97.5th percentile multi-year drawdown.

[3] Represents the average across the universe of target date providers.

Projected Inflation Risk

Risk of inflation adversely affecting outcomes

Portfolio / Glidepath	Number of Inflation-Sensitive Assets	Average Inflation-Sensitive Assets Exposure (50-65)	Inflation-Sensitive Assets Exposure at Age 65	Average Inflation-Sensitive Assets Exposure (65-85)
GoalMaker Conservative	3	11%	18%	23%
GoalMaker Moderate	3	9%	13%	20%
GoalMaker Aggressive	3	9%	12%	17%
Consensus	2[1]	9%	13%	15%

- Inflation responsiveness is a function not only of a glidepath's exposure to inflation-sensitive assets but also of the breadth of the exposure. Different asset classes respond to different types of inflation at different times.
- The GoalMaker model portfolios provide exposure to three inflation-sensitive assets: TIPS, global REITs, and commodities, which exceeds the number of inflation-sensitive assets included in the industry-average target date fund glidepath (2).
- The Conservative path provides the highest dedicated inflation-sensitive exposure among the model portfolios. Each path gradually increases its dedicated inflation-sensitive allocation until reaching its terminal allocation 11 years through retirement.

Notes: Glidepath allocations reflect strategic glidepath weights. Forward-looking analytics are derived from a Monte Carlo simulation model that uses Callan's long-term capital markets assumptions (see Appendix) and certain NCSRP participant assumptions. These analytics represent projected and not actual outcomes for defined participant profiles.

[1] Represents the average across the universe of target date providers.

Projected Post-Retirement Downside Risk

Risk of outliving assets / risk of volatility and drawdowns in retirement

		Ages 65-75			Ages 75-105		
Portfolio / Glidepath	Average Growth Assets Exposure (65-85)	Median Geometric Return	Worse-Case Multi-Year Drawdown[1]	Expected Standard Deviation	Median Geometric Return	Worse-Case Multi-Year Drawdown[1]	Expected Standard Deviation
GoalMaker Conservative	22%	5.9%	-8%	4.4%	5.6%	-8%	3.9%
GoalMaker Moderate	36%	6.6%	-16%	6.8%	6.2%	-15%	5.8%
GoalMaker Aggressive	50%	7.3%	-24%	9.5%	6.8%	-25%	8.2%
Consensus	43%	6.7%	-17%	7.4%	6.4%	-18%	6.5%

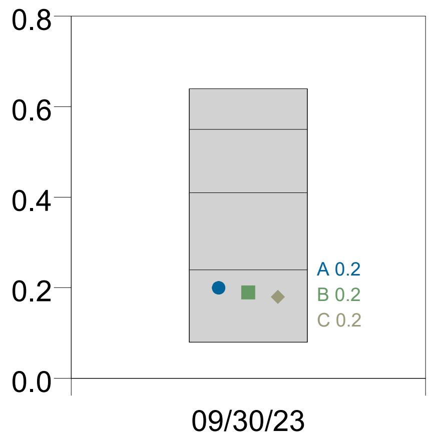
- The GoalMaker model portfolios reach their terminal allocations 11 years through retirement, at which point the Aggressive path features a growth allocation of 46%, compared to 32% for the Moderate path and 20% for the Conservative path. As a result, the Aggressive path poses materially higher projected downside risk and volatility in retirement.
- Relative to the industry-average target date fund glidepath, the Aggressive path poses higher projected downside risk and volatility in retirement, while the Moderate and Conservative paths pose lower projected downside risk and volatility.

Notes: Glidepath allocations reflect strategic glidepath weights. Forward-looking analytics are derived from a Monte Carlo simulation model that uses Callan's long-term capital markets assumptions (see Appendix) and certain NCSRP participant assumptions. These analytics represent projected and not actual outcomes for defined participant profiles.

[1] "Worse case" is defined as the 97.5th percentile multi-year drawdown.

GoalMaker Expense Ratios*

Fee Type: Institutional Net
Group: Passive & Non-Passive Target Date Funds



10th Percentile		0.64
25th Percentile		0.55
Median		0.41
75th Percentile		0.24
90th Percentile		0.08
Aggressive (Equal Weighted)	● A	0.20
Moderate (EW)	■ B	0.19
Conservative (EW)	◆ C	0.18

- The table shows the fee distribution across an off-the-shelf target date peer group comprised of actively, blended, and passively implemented mutual funds and collective investment trusts.
  - Constituent mutual funds may contain revenue sharing embedded within their fees.
  - Peer group fees are inclusive of management fees and administrative fees.
- GoalMaker does not charge an explicit fee for the service. Each portfolio's expense ratio is the weighted expense of the underlying investment options.
- The model portfolios' weighted expense ratios range from 0.17% to 0.22%, and all fall below the median expense ratio of the broad target date peer group (0.41%).
- The model portfolio fees shown in the chart represent each path's equal weighted expense ratio (i.e., the average expense ratio across the model portfolios along the Aggressive path is 20 basis points).

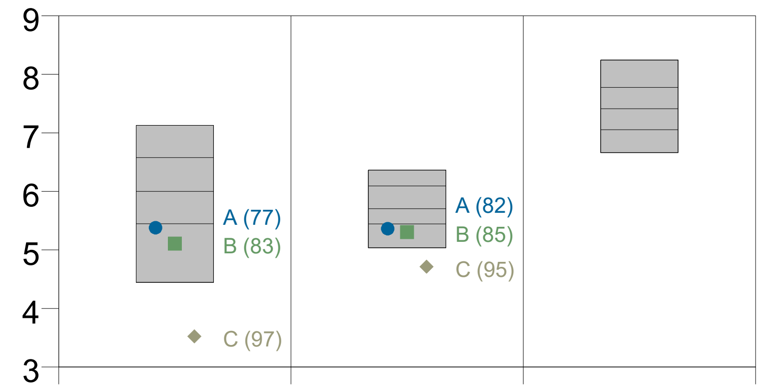
DOL Tip: Review the fees and investment expenses.

*Fee data as of Sept. 30, 2023.

Absolute Returns: Pre Retirement 26+ Years Portfolios

- Each GoalMaker Pre Retirement 26+ Years portfolio underperformed the median 2055 target date fund over the trailing periods shown.

Net-of-Fee Returns for Periods Ended September 30, 2023
Group: Callan Target Date 2055

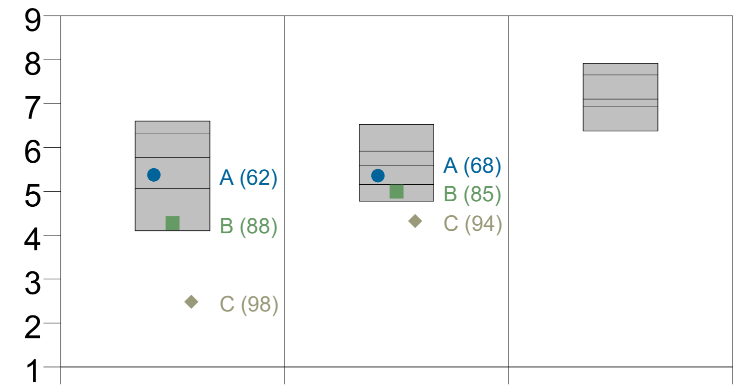


		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		7.1%	6.4%	8.2%
25th Percentile		6.6%	6.1%	7.8%
Median		6.0%	5.7%	7.4%
75th Percentile		5.4%	5.4%	7.1%
90th Percentile		4.4%	5.0%	6.7%
Pre Retirement Aggressive 26+ Years	● A	5.4%	5.4%	--
Pre Retirement Moderate 26+ Years	■ B	5.1%	5.3%	--
Pre Retirement Conservative 26+ Years	◆ C	3.5%	4.7%	--

Absolute Returns: Pre Retirement 21-25 Years Portfolios

- Each GoalMaker Pre Retirement 21-25 Years portfolio underperformed the median 2045 target date fund over the trailing periods shown.

Net-of-Fee Returns for Periods Ended September 30, 2023
Group: Callan Target Date 2045

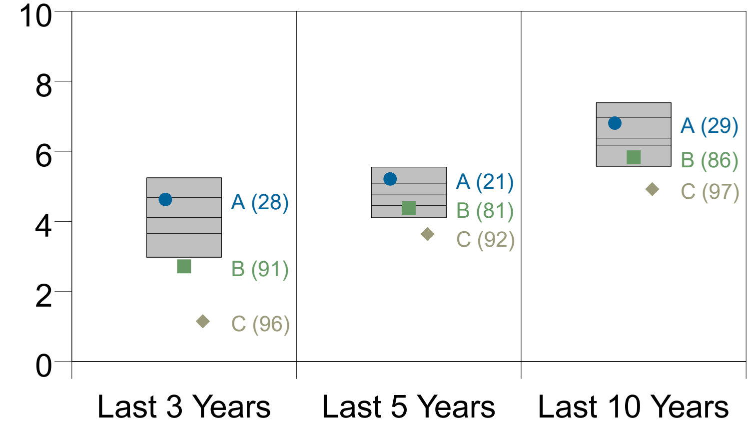


		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		6.6%	6.5%	7.9%
25th Percentile		6.3%	5.9%	7.7%
Median		5.8%	5.6%	7.1%
75th Percentile		5.1%	5.2%	6.9%
90th Percentile		4.1%	4.8%	6.4%
Pre Retirement Aggressive 21-25 Years	● A	5.4%	5.4%	--
Pre Retirement Moderate 21-25 Years	■ B	4.3%	5.0%	--
Pre Retirement Conservative 21-25 Years	◆ C	2.5%	4.3%	--

Absolute Returns: Pre Retirement 11-15 Years Portfolios

- The GoalMaker Pre Retirement Aggressive 11-15 Years portfolio outperformed the median 2035 target date fund over the trailing periods shown, while the Moderate and Conservative portfolios had below-median returns.

Net-of-Fee Returns for Periods Ended September 30, 2023
Group: Callan Target Date 2035

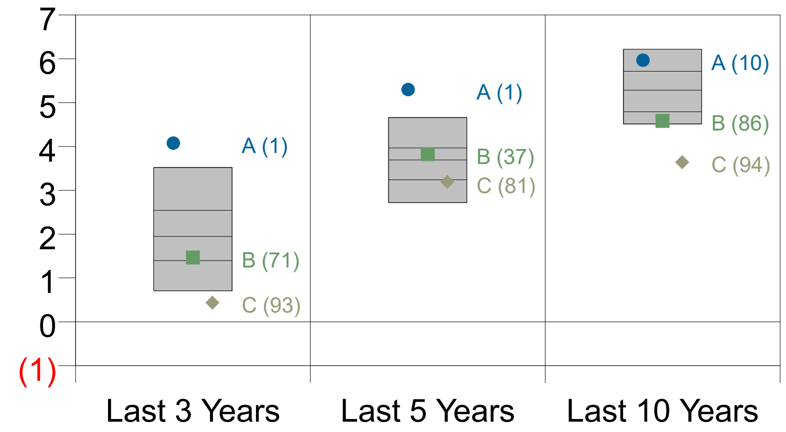


		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		5.2%	5.6%	7.4%
25th Percentile		4.7%	5.1%	7.0%
Median		4.1%	4.8%	6.4%
75th Percentile		3.7%	4.5%	6.2%
90th Percentile		3.0%	4.1%	5.6%
Pre Retirement Aggressive 11-15 Years	● A	4.6%	5.2%	6.8%
Pre Retirement Moderate 11-15 Years	■ B	2.7%	4.4%	5.8%
Pre Retirement Conservative 11-15 Years	◆ C	1.2%	3.6%	4.9%

Absolute Returns: Pre Retirement 0-5 Years Portfolios

- The GoalMaker Pre Retirement Aggressive 0-5 Years portfolio outperformed the median 2025 target date fund over the trailing periods shown, while the Moderate and Conservative portfolios had below-median returns (with the exception of the Moderate portfolio over the trailing 5 years).

Net-of-Fee Returns for Periods Ended September 30, 2023
Group: Callan Target Date 2025



		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		3.5%	4.7%	6.2%
25th Percentile		2.5%	4.0%	5.7%
Median		2.0%	3.7%	5.3%
75th Percentile		1.4%	3.2%	4.8%
90th Percentile		0.7%	2.7%	4.5%
Pre Retirement Aggressive 0-5 Years	A	4.1%	5.3%	6.0%
Pre Retirement Moderate 0-5 Years	B	1.5%	3.8%	4.6%
Pre Retirement Conservative 0-5 Years	C	0.4%	3.2%	3.6%

Risk-Adjusted Returns

- The table displays Sharpe ratios for the GoalMaker portfolios, alongside the median age-aligning target date fund.
- Among the model portfolios, the Aggressive portfolios tended to have the best risk-adjusted performance over the trailing 5 years.
- Relative to medians, the GoalMaker portfolios for participants nearer to the default retirement age (65) tended to have higher risk-adjusted returns than portfolios for participants further from the default retirement age.

Net-of-Fee Sharpe Ratios (as of Sept. 30, 2023)

Portfolio / Fund	Last 5 Years	Last 10 Years
GM Pre Retirement Aggressive 0-5	0.23	0.43
GM Pre Retirement Moderate 0-5	0.18	0.41
GM Pre Retirement Conservative 0-5	0.17	0.40
Median 2025 TDF	0.15	0.42
GM Pre Retirement Aggressive 11-15	0.19	0.42
GM Pre Retirement Moderate 11-15	0.17	0.42
GM Pre Retirement Conservative 11-15	0.16	0.43
Median 2035 TDF	0.18	0.43
GM Pre Retirement Aggressive 21-25	0.18	N/A
GM Pre Retirement Moderate 21-25	0.18	N/A
GM Pre Retirement Conservative 21-25	0.17	N/A
Median 2045 TDF	0.21	0.43
GM Pre Retirement Aggressive 26+	0.18	N/A
GM Pre Retirement Moderate 26+	0.18	N/A
GM Pre Retirement Conservative 26+	0.18	N/A
Median 2055 TDF	0.21	0.43

Down Market Capture

- Down market capture (DMC) is a measure of performance during declining markets. It is measured relative to an index, which has a DMC ratio of 100 when the index is declining.
  - This analysis utilizes the S&P Target Date Indexes as the portfolio and median target date fund benchmarks.
  - The lower the DMC figure, the more defensive the fund/manager.
- Among the model portfolios, the Conservative portfolios have provided the highest degree of downside protection.
- Relative to medians, the Aggressive portfolios have provided less downside protection, while the Moderate and Conservative portfolios have generally provided more downside protection.

Net-of-Fee Down Market Capture (as of Sept. 30, 2023)

Glidepath	Last 5 Years	Last 10 Years
GM Pre Retirement Aggressive 0-5	114	108
GM Pre Retirement Moderate 0-5	93	89
GM Pre Retirement Conservative 0-5	72	68
Median 2025 TDF	105	104
GM Pre Retirement Aggressive 11-15	109	108
GM Pre Retirement Moderate 11-15	96	95
GM Pre Retirement Conservative 11-15	77	77
Median 2035 TDF	102	102
GM Pre Retirement Aggressive 21-25	107	N/A
GM Pre Retirement Moderate 21-25	101	N/A
GM Pre Retirement Conservative 21-25	89	N/A
Median 2045 TDF	103	102
GM Pre Retirement Aggressive 26+	105	N/A
GM Pre Retirement Moderate 26+	103	N/A
GM Pre Retirement Conservative 26+	94	N/A
Median 2055 TDF	102	102

Glossary

Callan Consensus Glidepath – An equally weighted index of the universe of available TDF “series” or “families,” including both mutual funds and collective trusts. The Callan Consensus glidepath is created as an equal-weighted average of the provider glidepaths and will change over time as provider glidepaths evolve and/or the provider universe expands.

Callan Glidepath Universe – The TDF peer group. Represents the same universe of target date funds included in the Callan Consensus glidepath. This includes both “to” and “through” funds and is the peer group used throughout the report.

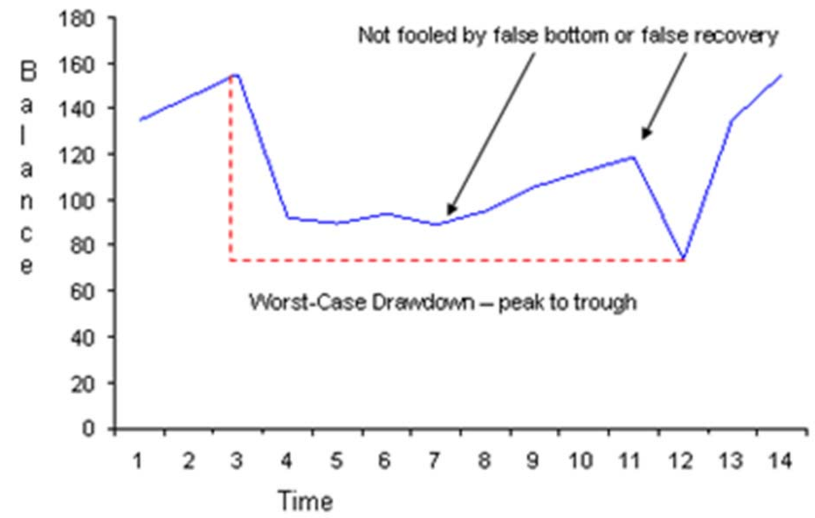
Risk Terms

Dollar-Weighted Risk – Dollar-weighted risk operates on the premise that volatility is more damaging in the later stages of an investor’s lifecycle, when balances are presumably higher. Essentially, the dollar-weighted risk statistic is evaluating volatility in relation to account balance. By projecting dollar-weighted risk, volatility at the beginning of a glidepath is penalized less than volatility later in the glidepath, when the investor has more to lose.

Downside Risk – The risk of short-term volatility and its possible impact on projected outcomes. To analyze downside risk, the construction of the glidepath near retirement is evaluated, in particular its exposure to diversifying assets, the breadth of this exposure, and the steepness of the rolldown of growth assets. Additionally various risk metrics are utilized, including standard deviation, dollar-weighted risk, point-in-time worse-case return, and peak-to-trough worse-case returns.

Glossary (Cont.)

Shortfall Risk – The risk of not accumulating enough assets in the period leading up to retirement. This metric looks at a variety of factors including the expected return, the probability of exceeding the target replacement ratio as well as accumulation metrics such as expected assets/final salary and expected assets/total cumulative contributions (TCC) expect replacement ratio.



Worse-Case Multi-Year Return – As illustrated below, the worse-case multi-year return is the peak-to-trough drawdown. The peak is the maximum value of the balance attained (time = 3). The trough is the minimum value the balance reaches (time = 12). Once the value decreases, this scenario is not "reset" until the account balance rises above its previous peak (time = 14). The maximum drawdown is then calculated as the percentage change in the account value from its peak to trough.

Longevity Risk – The risk of outliving one's assets. To evaluate longevity risk, traditional downside risk metrics such as standard deviation and worse-case returns during retirement are utilized. In addition, the probability of outliving one's assets given the target spending rate is also evaluated.

Inflation Risk – Evaluates how a target date suite is positioned to respond to a high inflationary regime. Criteria examined are the breadth of and exposure to inflation-sensitive asset classes.

Simulation Disclaimer

Callan's TDVantage analytics project a range of wealth accumulation and risk outcomes for target date fund glidepaths over various capital market scenarios and time periods. Callan utilizes a proprietary Monte Carlo simulation model and proprietary capital market assumptions for return, risk and correlations to generate these analytics. The simulations require assumptions relating to the underlying demographics of plan participants.

For purposes of determining income replacement ratios, annuities are based on simulated 30-year Treasury Yields and RP-2014 with fully generational mortality improvement (MP-2014). The annuity is payable for a single life only and provides contractual indexing of 2.5% per annum.

No participant loans are reflected in the projections. Any applicable taxes are not reflected in asset projections or upon spending of assets. Thus, investment earnings accrue tax free, and spending is expressed pretax. IRS tax deductibility contribution limits are not applicable due to the assumptions employed (i.e., simulated annual contributions are always less than $18,000 with median 2.25% inflation going forward). Finally, a 10% federal premature withdrawal penalty is not applied to withdrawals before age 59 1/2.

Callan projects capital markets and various metrics over an 80-year horizon (age 25 to age 105) across 1,000 economic scenarios. Capital market forecasting is based on Callan's proprietary 10-year forward-looking expectations (2021-2030) and very long-term capital market expectations. The 10-year capital market outlook gradually blends into the long-term capital market outlook from year 11 to year 19.

Wealth accumulation and risk metrics shown in this document and reflect the assumptions outlined above.

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