

HEALTH WEALTH CAREER

NORTH CAROLINA SUPPLEMENTAL RETIREMENT PLANS

INVESTMENT STRATEGY DISCUSSION

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C O N T E N T

- DC Trends and Investment Structure
- Active vs. Passive
- Liquidity Sleeves
- Brokerage Window
- Retirement Income
- Benchmark Review
- ETF Discussion
- Appendix

KEY TAKEAWAYS FROM SUB-COMMITTEE MEETING

Category	Action	Rationale	Next Steps
Plan Structure	Consolidate the style specific domestic equity options into two core offerings (large cap and SMID cap) in order to reduce style biases across participant base.	Value bias exists, particularly among the Small/Mid Cap options. Consolidation could also reduce confusion among participants and improve asset allocation	North Carolina IMD and Mercer to work on the construction of the underlying Large and Small/Mid Cap Funds
Liquidity Sleeve	Consider adding liquidity sleeves to all active funds to manage daily cash flows in the funds and lower fund costs	Currently, participant cash flows are hitting the manager accounts. Adding an index component to each of the funds would limit the need for managers to hold or raise cash unexpectedly.	North Carolina and IMD to work on the target liquidity sleeve allocation in each active Fund.
Brokerage Window	Do not offer a brokerage window in the Supplemental Retirement Plans	Only small percentage of participants actually use brokerage windows. They also come with higher fees, administrative complexities and regulatory concerns	None
Use of ETFs	Do not utilize ETF's in the Supplemental Retirement Plans, although they may be an option for the 403 (b) Plan, which is limited to mutual funds	ETF's are less cost effective (can't use NC's Scale) and can provide administrative complexities for the Supplemental Retirement Plans record-keeper and custodian	None

NC CURRENT INVESTMENT STRUCTURE

Tier I Target Date Funds	Tier II - A Passive Core Options	Tier II - B Active Core Options	Tier III Specialty Options
Goal Maker		Stable Value Fund Galliard Stable Value	
	Fixed Income BlackRock Debt Index	Fixed Income Fund JP Morgan Core Bond Prudential Core Plus	
		Inflation Responsive Fund PIMCO IRMAF	
	Large Cap Equity BlackRock Equity Index	Large Cap Value Fund Hotchkis & Wiley Large Cap Value Delaware Large Cap Value Robeco BP Large Cap Value	
		Large Cap Growth Fund Sands Capital Large Cap Growth Wellington Opportunistic Growth Loomis Large Cap Growth	
	Small/Mid Cap Equity BlackRock Russell 2500 Index	Small/Mid Cap Value Fund Hotchkis & Wiley SMID Value Earnest Partners SMID Cap Value Wedge SMID Cap Value	
		Small/Mid Cap Growth Fund TimesSquare SMID Growth Brown Advisory SMID Growth	
		Global Equity Fund Wellington Global Opportunities Arrowstreet Global Equity ACWI	
	International Equity BlackRock ACWI ex US Index	International Equity Fund Baillie Gifford ACWI ex US Growth Mondrian ACWI ex US Value	

NC RECOMMENDED INVESTMENT STRUCTURE

Tier I Target Date Funds	Tier II - A Passive Core Options	Tier II - B Active Core Options	Tier III Specialty Options
Goal Maker		Stable Value Fund Galliard Stable Value	
	Fixed Income BlackRock Debt Index	Fixed Income Fund JP Morgan Core Bond Prudential Core Plus	
		Inflation Responsive Fund PIMCO IRMAF	
	Large Cap Equity BlackRock Equity Index	Large Cap Equity Fund	
	Small/Mid Cap Equity BlackRock Russell 2500 Index	Small/Mid Cap Equity Fund	
		Global Equity Fund Wellington Global Opportunities Arrowstreet Global Equity ACWI	
	International Equity BlackRock ACWI ex US Index	International Equity Fund Baillie Gifford ACWI ex US Growth Mondrian ACWI ex US Value	

Consolidates style specific options into blended approach

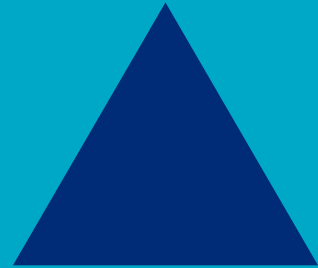
UNDERSTANDING NORTH CAROLINA'S PARTICIPANT BEHAVIORS*

Category	Measure	Score	Comments
Diversification	Large number of single fund balance holders (over 33% of non-GoalMaker participants)	Consideration	Targeted communication opportunity
	High allocation to Stable Value Fund across all age groups for participants outside of the GoalMaker Funds	Consideration	Targeted communication opportunity
	Strong use of GoalMaker Program (over 59% of participants)	No Action Required	Review glidepaths of the program to make sure they are appropriate.
Style Bias	Value bias among the mid/small cap options	Consideration	Consolidating style options to core lends to a more balanced style exposure
Market Cap Bias	NC participants exhibit a smaller capitalization bias relative to the Russell 3000 benchmark	Consideration	Streamlining US equity options simplifies choices and lends to better asset allocation decisions
Home Country Bias	NC participants are significantly underweight non-US equity (by 30% in most age groups)	Consideration	Home country bias has benefited participants recently, but portfolio theory supports global approach. Targeted communication opportunity
Conservative Allocation	Younger NC participants outside of the Goalmaker program generally have a very conservative allocation	Consideration	Targeted communication opportunity on the importance of capital appreciation and compounding returns over time

No Action Required
 Consideration
 Action Required

* Full demographic analysis available upon request

DC TRENDS AND INVESTMENT STRUCTURE



DC LITIGATION BECOMES GROWTH INDUSTRY

- Explosion in DC litigation heightens risk for plan fiduciaries
 - More law firms are pursuing DC litigation
 - Litigation is moving down stream to smaller plans
 - Solicitation of plan participants has increased
- Recent lawsuits expand areas of litigation, including
 - Fee sharing arrangements between managed-account provider and recordkeeper
 - Offering, and (paradoxically) not offering a stable value fund
 - Offering inappropriate investment class (e.g., sector fund)
 - Excessive fees related to custom target-date funds
 - Higher-priced share classes for proprietary funds accessed through brokerage window
 - Delaying implementation of investment fee reductions



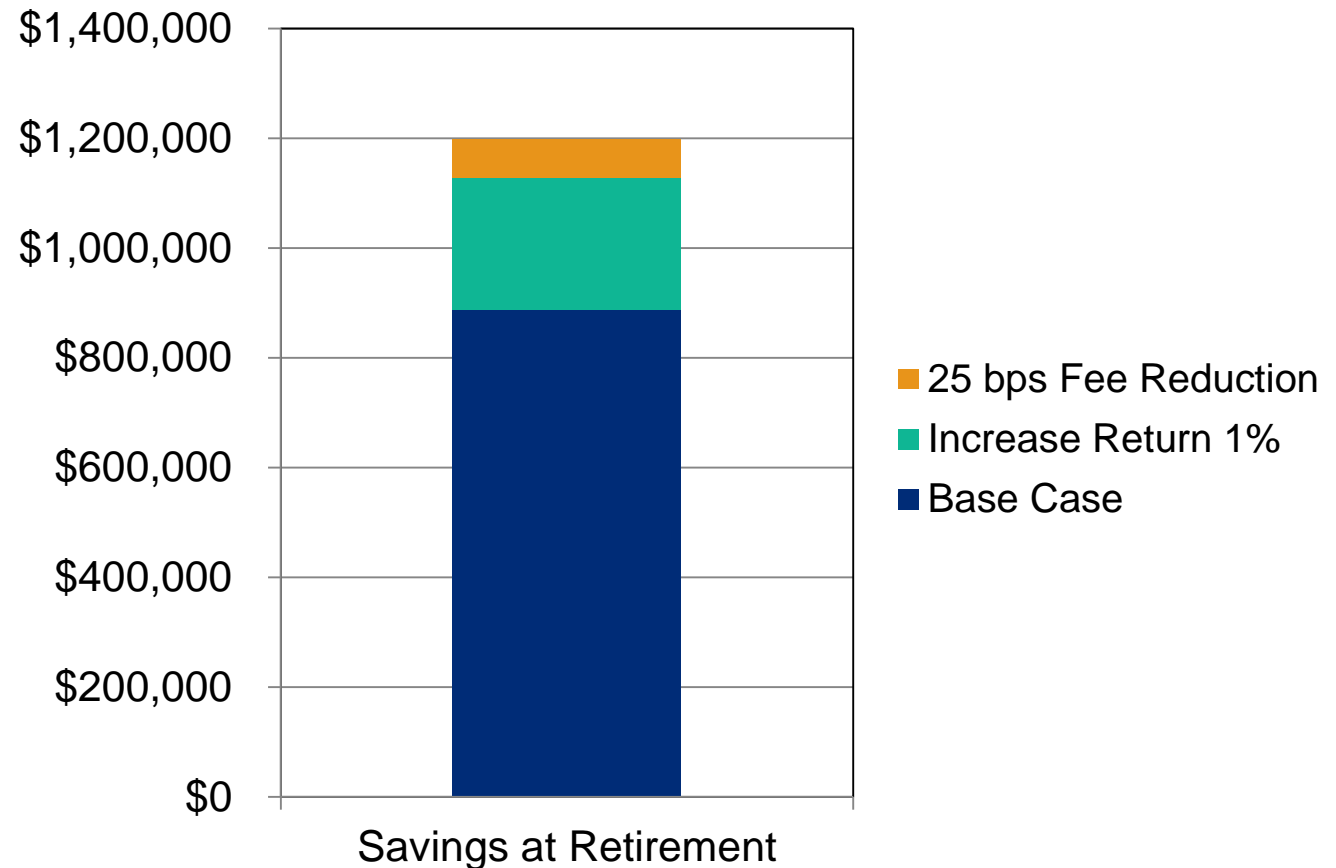
Committees should ensure that process, oversight, training, execution and documentation are all functioning at the highest level.

BUILDING A SUCCESSFUL DC PROGRAM FOCUS ON BETTER PARTICIPANT OUTCOMES

Wealth Accumulation

Many levers beyond investment returns

Holistic DC plan management services with the goal of better financial outcomes for Plan participants



Base Case Assumptions: Starting salary \$40,000 at age 25, Balance at age 65, 2.5% annual salary increase, 9% total annual contribution, 7% return assumption, 75bps fees

BEST PRACTICES FOR DC PLANS



Review investment lineup to ensure that it meets the needs of participants- offering a streamlined approach with diversified choices.



Evaluate target date fund to ensure that approach and glidepath is appropriate for participant base.



Use participant demographics to inform changes to the line up and offerings.



The choice of investment vehicle can materially impact fees.



Plan sponsors should benchmark and negotiate investment fees regularly.



Alternatives to mutual funds should be considered as they increasingly become available to DC Plans.

Mercer's Investment Philosophy

Streamlined Line up	Broad use of institutional vehicles
Best in class managers	Use of custom, multi-manager funds
Customize to employee profile	Disaggregated fees

DC PLAN STATISTICS

	2016 PLANS PONSOR DC Survey	PSCA Annual Survey
Average number of investment options offered	18.9	16.0
Median number of investment options offered	15.0	
Median number of passive investment options offered	4.0	
% of Plans offering alternative investments	6.0%	8.8%
% of Plans offering ETFs	6.0%	0.0%
% of Plans offering a lifetime income option		9.5%
Average number of investment options held by participants	4.2	
Median number of investment options held by participants	4.0	
% of Plans who re-enrolled participants not invested in default	3.6%	
% of Plans using annual re-enrollment campaigns	25.8%	
% of all Plans offering brokerage window	18.7%	
% of mega Plans offering brokerage window	49.6%	
Plans using automatic enrollment	63.7%	69.7%
Plans offering auto escalation (of those that offer AE)	72.2%	66.7%

SOURCE: 2016 DC PLAN SPONSOR DEFINED CONTRIBUTION SURVEY – MEGA PLANS (>\$1B); 58TH ANNUAL PSCA SURVEY OF PROFIT SHARING AND 401(K) PLANS (REFLECTING 2014 PLAN EXPERIENCE- PLANS WITH >5,000 PARTICIPANTS)
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INVESTMENT STRUCTURE PHILOSOPHY

BEHAVIORAL FINANCE - ONE SIZE DOES NOT FIT ALL

“Do it for me” Investor

- Rarely reviews portfolio
- No engagement in investment allocation decisions
- Lacking in investment knowledge, interest and/or time to proactively manage investments
- Wants professional assistance managing investment exposure over time

“Guide me” Investor

- Reviews overall investment allocation occasionally
- Wants control over major shifts in allocation
- Limited engagement on implementation, rebalancing and other shorter-term issues

“Let me do it” Investor

- Frequently reviews portfolio
- Utilizes full range of investment options
- Wants to control all key investment allocation decisions

ALTERNATIVE 1: SEGMENTED ACTIVE EQUITY OPTIONS

Do it for me	Guide me		Let me do it
Tier I Target Date Options	Tier II Passive Core Options	Tier III Active Core Options	Tier IV Specialty Options
Target Date Funds		Capital Preservation	
	Diversified Fixed Income	Diversified Fixed Income	
		Real Assets	
	US Large Cap Equity	US Large Cap Equity	
	US SMID Cap Equity	US SMID Cap Equity	
	World ex-US Equity	World ex-US Equity	

One fund per category allows for focus on asset allocation through building blocks.

ALTERNATIVE 2: CONSOLIDATE ACTIVE EQUITY TO ONE GLOBAL OPTION

Do it for me	Guide me		Let me do it
Tier I Target Date Options	Tier II Passive Core Options	Tier III Active Core Options	Tier IV Specialty Options
Target Date Funds		Capital Preservation	
	Diversified Fixed Income	Diversified Fixed Income	
		Real Assets	
	Large Cap Equity	Global All Cap Equity	
	Small/Mid Cap Equity		
	World ex-US Equity		
			Brokerage Window (Optional)

Maintains asset class building blocks within the index tier. Consolidates active equity into one custom global portfolio.

ACTIVE VS PASSIVE CONSIDERATIONS

- For those clients who prefer an alternative approach to active versus passive management, we explore alternative options.

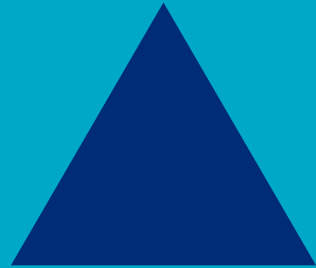
Alternative 1: Passive Only	Alternative 2: Active Options in Less Efficient Markets		Alternative 3: Blended Options
Guide me	Guide me		Guide me
Tier II Passive Core Options	Tier II Passive Core Options	Tier III Active Core Options	Tier II Core Options
		Capital Preservation	
Diversified Fixed Income	Diversified Fixed Income	Diversified Fixed Income	Diversified Fixed Income
Real Assets		Real Assets	Real Assets
US Large Cap Equity	US Large Cap Equity		US Large Cap Equity
US SMID Cap Equity	US SMID Cap Equity	US SMID Cap Equity	US SMID Cap Equity
World ex-US Equity	World ex-US Equity		World ex-US Equity
		Emerging Markets	

ACTIVE VS PASSIVE CONSIDERATIONS

- In the context of DC plans, we do believe there is benefit in providing plan participants with a choice between active and passive management in the major asset categories that predominantly cover the investable landscape. This building block approach provides participants with:
 - A low cost, index choice within each asset category
 - A managed choice with the potential opportunity for value added at a higher fee
- The below construct is most prevalent within Mercer’s client base.

Guide me	
Tier II Passive Core Options	Tier III Active Core Options
	Capital Preservation
Diversified Fixed Income	Diversified Fixed Income
	Real Assets
US Large Cap Equity	US Large Cap Equity
US SMID Cap Equity	US SMID Cap Equity
World ex-US Equity	World ex-US Equity

ACTIVE VS. PASSIVE

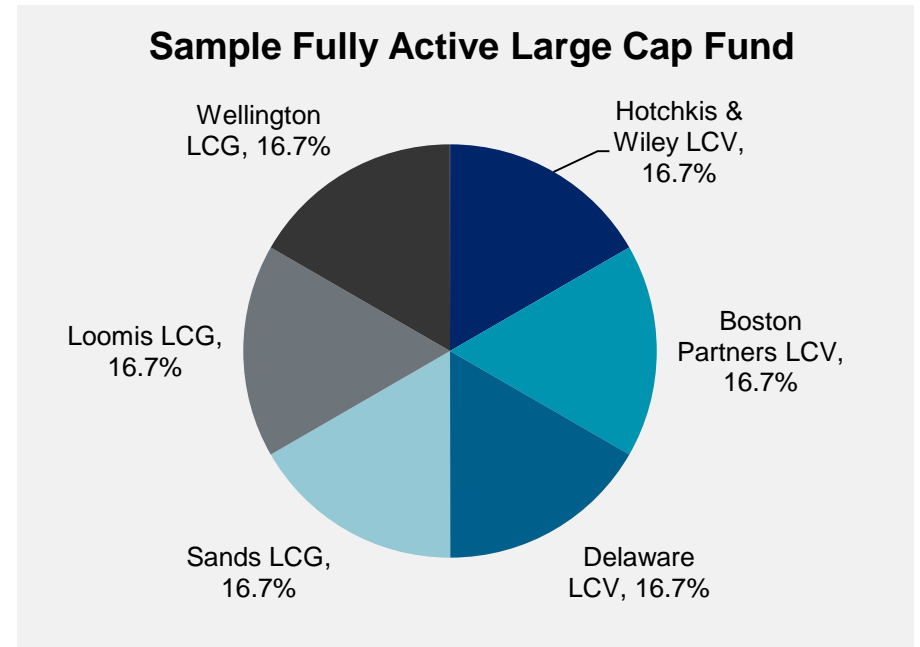
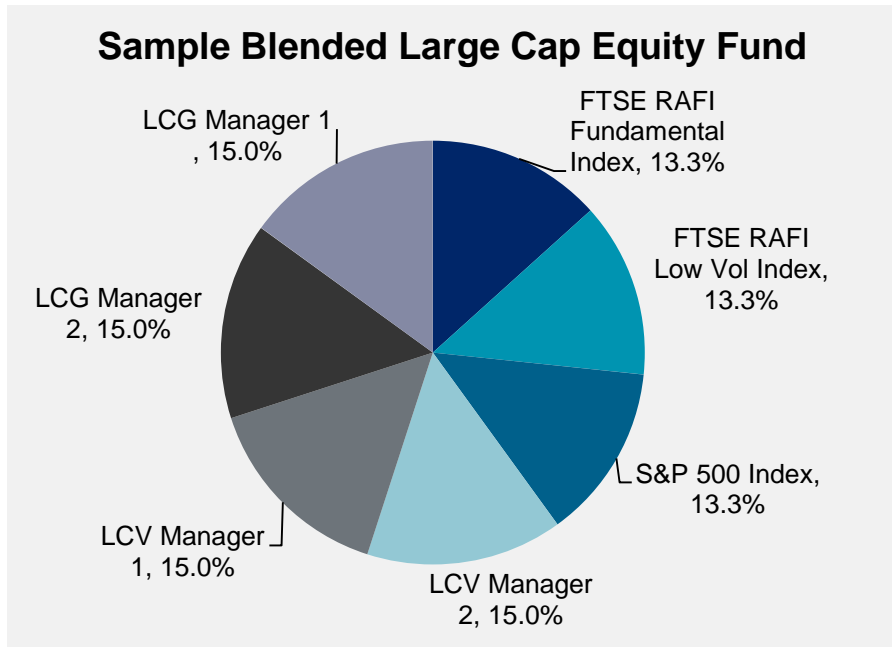


NORTH CAROLINA ACTIVE OFFERINGS

Guide me
Tier III Active Core Options
Diversified Fixed Income
Large Cap Growth
Large Cap Value
Mid/Small Cap Value
Mid/Small Cap Growth
World ex-US Equity
Global Equity

- Even though there are fewer market opportunities and the median active manager performance has trailed the market benchmark, North Carolina has been able to construct their large cap investment funds with high tracking error managers that complement one another. Additionally, North Carolina has negotiated an attractive fee schedule given assets.
- Mercer believes that there are more market opportunities in the mid/small cap market and historically active managers have been able to add alpha over the benchmark.
- Historically global equity managers have had trouble adding alpha net of fees, although NC Fund has had success due to strong performance of underlying managers and the lower negotiated fees
- US fixed income managers have been able to add value historically and we believe there are market opportunities given the cap weighted construction of the Barclays Aggregate Index (Treasury and Agency debt represents over one third of the index).

INVESTMENT PHILOSOPHY OF ACTIVE TIER



What is the Active Tier Philosophy?

- 1) How active should the active options be?
- 2) Would a blended approach be preferred over a fully active portfolio?
- 3) Should there be a different philosophy depending on each markets' efficiency?
- 4) Is there a target fee budget or target risk budget?

SAMPLE LARGE CAP EQUITY FUND

Performance characteristics vs. Russell 1000 in \$US over 7 yrs ending September-16

Comparison with the US Equity Large Cap Equity universe (Percentile Ranking) (monthly calculations)



	Ret (%pa)	Std Dev (%pa)	Ret/SD	TE (%pa)	IR	Up Cap (%)	Down Cap (%)
■ Consol LC	14.8 (10)	12.7 (82)	1.2(8)	1.4(96)	1.1(1)	104.2 (31)	95.1 (82)
▼ LCV/LCG	13.2 (40)	14.4 (23)	0.9(59)	2.5(77)	0.0(40)	115.1 (11)	108.2 (16)
○ RU1000	13.2 (40)	13.0 (71)	1.0(33)	0.0(100)	-	100.0 (49)	100.0 (58)
5th Percentile	15.4	16.0	1.2	6.2	0.6	122.2	113.8
Upper Quartile	13.8	14.3	1.0	4.3	0.2	107.0	105.8
Median	12.9	13.5	1.0	3.3	-0.1	99.7	101.1
Lower Quartile	11.9	12.9	0.9	2.6	-0.4	91.7	96.9
95th Percentile	9.9	11.6	0.7	1.6	-0.9	76.5	85.3
Number	616	605	605	605	605	605	605

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LCV/LCG ASSUMES 50/50 SPLIT OF CURRENT FUNDS

SAMPLE LARGE CAP EQUITY FUND EXPECTED RETURNS – (10 YEAR ASSUMPTIONS)

Sample LC Portfolio

	Weight	Passive Compound Return	Active Net Rtn	Active Risk (TE)	Info Ratio	Fee	Total Risk (SD)	Total Net Return (Comp Geo)
S&P 500 Index	13.3%	6.7%	0.00%	0.0%	0.00	0.01%	18.06%	6.65%
FTSE RAFI 1000 Index	13.3%	6.7%	0.20%	2.0%	0.10	0.08%	18.53%	7.23%
MSCI US Low Vol Index	13.3%	6.8%	0.50%	5.0%	0.10	0.08%	14.62%	7.02%
LCV Manager 1	15.0%	6.7%	0.75%	5.0%	0.15	0.50%	18.74%	7.30%
LCV Manager 2	15.0%	6.7%	0.60%	4.0%	0.15	0.31%	18.50%	7.19%
LCG Manager 1	15.0%	6.7%	1.28%	8.5%	0.15	0.52%	19.96%	7.63%
LCG Manager 2	15.0%	6.7%	0.60%	4.0%	0.15	0.41%	18.50%	7.19%
Total	100.0%	6.7%	0.29%	1.3%	0.23	0.28%	17.57%	6.99%

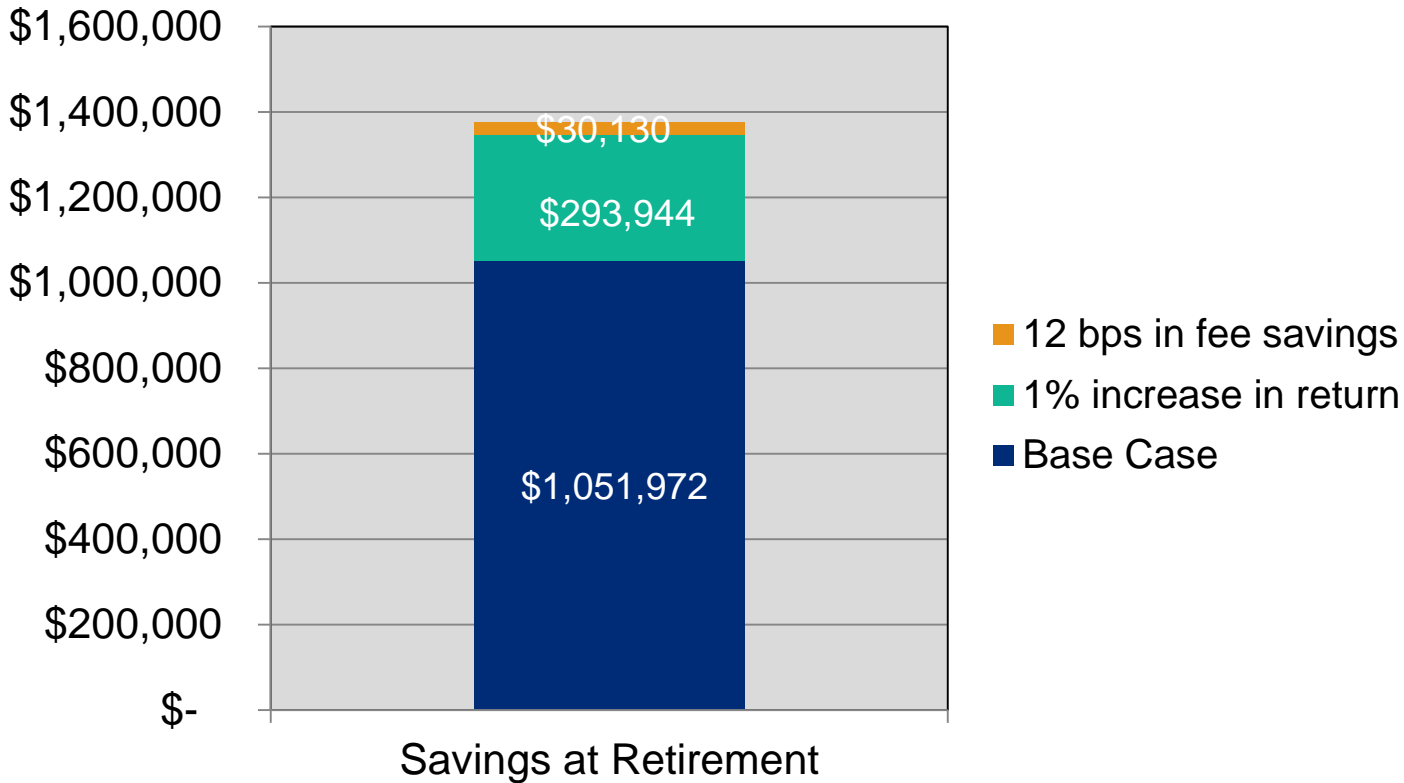
50/50 split of LCG/LCV Funds

	Weight	Passive Compound Return	Active Net Rtn	Active Risk (TE)	Info Ratio	Fee	Total Risk (SD)	Total Net Return (Comp Geo)
Hotchkis LCV	16.7%	6.7%	0.8%	5.00%	0.15	0.50%	18.7%	7.3%
Delaware LCV	16.7%	6.7%	0.6%	4.00%	0.15	0.30%	18.5%	7.2%
Sands LCG	16.7%	6.7%	1.3%	8.50%	0.15	0.52%	20.0%	7.6%
Loomis LCG	16.7%	6.7%	0.6%	4.00%	0.15	0.40%	18.5%	7.2%
Wellington LCG	16.7%	6.7%	0.6%	4.00%	0.15	0.35%	18.5%	7.2%
Boston Partners LCV	16.7%	6.7%	0.6%	4.00%	0.15	0.34%	18.5%	7.2%
Total	100.0%	6.7%	0.34%	2.28%	0.15	0.40%	18.2%	6.98%

Risk adjusted return projected to be higher for the proposed LC portfolio, given the lower overall risk of the portfolio.

*Projected fees based target weights and 9/30/16 assets of the Large Cap Growth and Value Funds, using NC's negotiated fee schedules

FEE SAVINGS CAN HAVE A LARGE IMPACT ON RETIREMENT SAVINGS OVER A LIFETIME



- Over a participant's lifetime, saving 12 basis points annually can make a big dollar impact at retirement (30K)

Base Case Assumptions: Starting salary \$40,000 at age 25, Balance at age 65, 2.5% annual salary increase, 9% total annual contribution, 7% return

GUIDING PRINCIPLES MERCER'S BELIEFS

- We believe that the success of active management at the investor level is driven by three interconnected considerations:



- That is, active management should be pursued in markets (if any) which offer the opportunity for the skilled investment manager to better forecasts and results provided its insights can be implemented fully, cost-effectively and the investor's governance structure and behaviours conform to certain standards.

MARKET POTENTIAL FACTORS TO CONSIDER

	BREADTH	INSIGHT	DIVERSIFICATION
PRINCIPLE	WIDE POOL OF INVESTMENT OPPORTUNITIES	AVAILABILITY OF BETTER INFORMATION OR BETTER JUDGEMENT OVER THE AVAILABLE INFORMATION	NOT OVERLY DEPENDENT ON SINGLE SECTORS OR SECURITIES
DRIVERS	<ul style="list-style-type: none"> • Breadth of market <ul style="list-style-type: none"> – Number of investible securities • Market liquidity <ul style="list-style-type: none"> – Ideally, a market should have sufficient liquidity that positions can be efficiently implemented – Not be so liquid as a result of efficiency that any price discrepancy has disappeared too quickly to be captured by active management 	<ul style="list-style-type: none"> • Information flow <ul style="list-style-type: none"> – What is the quality of the available information/ research on a security? – How fast and widely is that information disseminated? • Degree of institutionalization <ul style="list-style-type: none"> – What level of sophistication does a 'typical' investor exhibit in a particular marketplace, do they have access to quality research or information on a security? • Non profit maximising participants <ul style="list-style-type: none"> – For example, regulations, taking positions to meet other goals (e.g. liability driven investors) • Efficient trading <ul style="list-style-type: none"> – Do highly efficient trading and settlement systems exist in the market in order to effectively capture opportunities? 	<ul style="list-style-type: none"> • Low correlation <ul style="list-style-type: none"> – Level of differentiation in stocks/sectors in a market, that is, low correlation amongst securities in a market is ideal from an active management perspective • Market structure / concentration <ul style="list-style-type: none"> – Ideally, a market should not be highly concentrated in a small number of large names, so positions taken by active managers are more symmetric in nature

ACTUAL DELIVERY OF OUTPERFORMANCE EQUITY MARKETS

- The following tables show the historical excess returns of the median manager across equity markets over the 1,3,5 and 10 years to 31 December 2015, on both a gross and net of fees basis.
- ‘Chain linked’ annual medians have been used to reduce survivorship bias issues.
- To highlight evidence of ‘alpha’ we have ranked the 10 year excess historical performance of each asset class on the following basis:
 - The results on a gross and net of fee basis indicate:
 - The median developed global equity manager has modestly outperformed the index on a gross of fees basis in the long term. Fees have eroded the alpha gained over the 10 year period to December 2015
 - US large cap equity managers have provided some evidence of outperformance, gross of fees, over time. However, there is no evidence of outperformance net of fees, across any periods analysed
 - Strong evidence of outperformance by the median small cap manager over the 10 year period
 - The median emerging market manager has provided evidence of outperformance over the 10 years gross of fees. However, high fees have eroded most the alpha gained, with net results behind over the 10 year period

ALPHA RANKING (% P A)	
H I G H	Greater than 2.00%
G O O D	1.00% to 2.00%
M E D I U M	0.50% to 1.00%
S O M E	0.00% to 0.50%
L O W	Less than 0.00%

EQUITY MARKETS: ACTIVE MANAGER RELATIVE PERFORMANCE, GROSS OF FEES

ASSET CLASS	MEDIAN VERSUS INDEX (GROSS OF FEES) ¹ (% PA)				TYPICAL FEE HURDLE ³	ALPHA RANKING ²
	1 YEAR	3 YEARS	5 YEARS	10 YEARS		
Global Equity	0.40	-0.17	-0.50	0.38	0.66	SOME
Global ex-US Equity	0.60	0.32	0.46	0.94	0.65	MEDIUM
US Large Cap Equity	0.30	0.19	0.04	0.08	0.50	SOME
Global ex-US Small Cap Equity	4.40	3.18	2.95	1.69	0.89	GOOD
US Small Cap Equity	2.30	1.82	2.00	1.03	0.79	GOOD
Emerging Markets Equity	1.00	1.36	1.02	0.74	0.88	MEDIUM

¹ 'Chain linked' median manager annual return versus index in \$US to 31 December 2015. Indices used are provided in the Appendix

² Evidence of skill grading ("alpha ranking") based on rolling 10 year median of universe and index returns

³ Based on Mercer's Global Asset Management Fee Survey 2014 for a \$100m mandate. \$US Segregated vehicles have been used where available

EQUITY MARKETS: ACTIVE MANAGER RELATIVE PERFORMANCE, NET OF FEES

ASSET CLASS	MEDIAN VERSUS INDEX (NET OF FEES) ¹ (% PA)				ALPHA RANKING ²
	1 YEAR	3 YEARS	5 YEARS	10 YEARS	
Global Equity	-0.26	-0.83	-1.16	-0.28	LOW
Global ex-US Equity	-0.05	-0.33	-0.19	0.29	SOME
US Large Cap Equity	-0.20	-0.31	-0.46	-0.42	LOW
Global ex-US Small Cap Equity	3.51	2.29	2.06	0.80	MEDIUM
US Small Cap Equity	1.51	1.03	1.21	0.24	SOME
Emerging Markets Equity	0.12	0.48	0.14	-0.14	LOW

¹ 'Chain linked' median manager annual return versus index in \$US to 31 December 2015. Results obtained by deducting the average manager fee shown on previous slide

² Evidence of skill grading ("alpha ranking") based on annual rolling 10 year relative returns

ACTUAL DELIVERY OF OUTPERFORMANCE FIXED INCOME MARKETS

- The following tables show the historical excess returns of the median manager across fixed income markets over the 1,3,5 and 10 years to 31 December 2015, on both a gross and net of fees basis.
- ‘Chain linked’ annual medians have been used to reduce survivorship bias issues
- To highlight evidence of ‘alpha’ we have ranked the 10 year excess historical performance of each asset class on the following basis:
 - The results on a gross and net of fee basis indicate:
 - Evidence of historic alpha in all aggregate bond markets, gross of fees, and after fees
 - Evidence of historic outperformance by the median non-government global, and US fixed income managers.
 - Evidence of historical alpha in high yield debt gross of fees, but only modest alpha, net of fees, over the 10 year period
 - Little evidence of historical alpha in emerging market debt, gross and net of fees

ALPHA RANKING (% P A)	
H I G H	Greater than 1.00%
G O O D	0.50% to 1.00%
M E D I U M	0.25% to 0.50%
S O M E	0.00% to 0.25%
L O W	Less than 0.00%

FIXED INCOME MARKETS: ACTIVE MANAGER RELATIVE PERFORMANCE, GROSS OF FEES

ASSET CLASS	MEDIAN VERSUS INDEX (GROSS OF FEES) ¹ (% PA)				TYPICAL FEE HURDLE ²	ALPHA RANKING ³
	1 YEAR	3 YEARS	5 YEARS	10 YEARS		
Global Fixed	0.20	0.38	0.68	0.64	0.35	GOOD
US Fixed	0.20	0.38	0.48	0.63	0.28	GOOD
US Government	0.40	-0.02	-0.41	-0.15	0.23	LOW
Global Non-Government	0.50	0.76	0.70	0.95	0.35	GOOD
US Non-Government	0.50	0.56	0.67	0.74	0.29	GOOD
Global High Yield	2.10	1.71	1.05	0.68	0.50	GOOD
Emerging Markets Debt	-1.00	-0.84	-0.21	0.15	0.55	SOME

¹ 'Chain linked' median manager annual return v index in \$US to 31 December 2015. Indices used are provided in the Appendix

² Based on Mercer's Global Asset Management Fee Survey 2014 for a \$100m mandate. \$US Segregated vehicles have been used where available

³ Evidence of skill grading ("alpha ranking") based on annual rolling 10 year relative returns

FIXED INCOME MARKETS: ACTIVE MANAGER RELATIVE PERFORMANCE, NET OF FEES

ASSET CLASS	MEDIAN VERSUS INDEX (NET OF FEES) ¹ (% PA)				ALPHA RANKING ²
	1 YEAR	3 YEARS	5 YEARS	10 YEARS	
Global Fixed	-0.15	0.03	0.33	0.29	MEDIUM
US Fixed	-0.08	0.10	0.20	0.35	MEDIUM
Global Government	0.00	0.51	0.67	0.36	MEDIUM
US Government	0.17	-0.25	-0.64	-0.38	LOW
Global Non-Government	0.15	0.41	0.35	0.60	GOOD
US Non-Government	0.21	0.27	0.38	0.45	MEDIUM
Global High Yield	1.60	1.21	0.55	0.18	SOME
Emerging Markets Debt	-1.55	-1.39	-0.76	-0.40	LOW

¹ 'Chain linked' median manager annual return versus index in \$US to 31 December 2015. Results obtained by deducting the average manager fee shown on previous slide

² Evidence of skill grading ("alpha ranking") based on annual rolling 10 year relative returns

IMPACTS

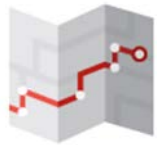
LIMITS ON MANAGERS' BEST IDEAS PORTFOLIOS

ALPHA CAPACITY



- Investment ideas have a limited capacity for investment.

PRODUCT DESIGN



- Historically, many investment products have often been over-diversified due to:
 - A limited market for concentrated best ideas portfolios (until more recent years)
 - Managers' business models require a range of mandates to meet market needs
 - Managers are incentivised to ration best ideas portfolios

INCENTIVE STRUCTURE



- Assets under management drives revenue, profitability and market-value of investment management firms.
 - A manager just needs to avoid underperforming to risk termination and reduction in assets under management
- Performance based fees, if well structured, can provide a better alignment between the manager and the client.

EQUITY MARKETS CONCLUSION

Asset class	Market opportunity (ex ante)	Actual manager results (ex-post) ¹	Active management conviction	Rationale	Preference
US Large Cap	Low	Low	Low	<ul style="list-style-type: none"> • High institutional ownership, the availability of information, greater number of analyst coverage and liquidity makes the large cap market efficient • No evidence of historic alpha by the median US large cap manager over periods analysed, net of fees 	For passive management (in particular alternative indexation), unless investor has ability to use high tracking error mandates and has robust governance structure
Small Cap	High	High	High	<ul style="list-style-type: none"> • Inefficient market due to less available information, fewer market participants and lower institutional ownership • Long data history available showing strong evidence of added value by active managers 	Clear preference for active management
Global Emerging Markets	High	Low	Medium	<ul style="list-style-type: none"> • Relatively inefficient and highly volatile markets provide opportunity • Alpha has generally been added by active managers gross of fees, but results after the high fees in the sector are modest or negative over all periods. • However, even passive managers typically modestly underperform in this sector 	For active management if: <ul style="list-style-type: none"> • Investors have strong conviction in managers' skill • Attractive manager fees can be negotiated (compared to the typically high fees in the sector)

¹ Based on "alpha ranking" score of fixed income markets on annual rolling 10 year relative returns to 31 December 2015

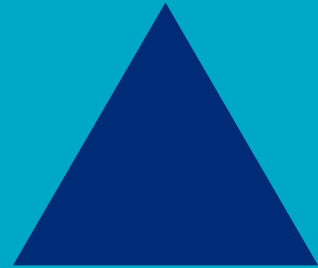
FIXED INCOME MARKETS

CONCLUSION

Asset class	Market opportunity (ex ante)	Actual manager results (ex-post) ¹	Active management conviction	Rationale	Preference
Fixed Income (broad based)	Medium	Medium	Medium	<ul style="list-style-type: none"> Evidence of added value by active managers, net of fees, across all markets except Europe 	For active management if: <ul style="list-style-type: none"> Investors have strong conviction in managers' skill Manager fees are reasonable and targets are aligned
Credit	Medium	Medium	Medium	<ul style="list-style-type: none"> Offers active management potential for the skilled investor able to anticipate downgrades, defaults, misclassifications Asymmetry of risk of sector also favours active management Evidence of added value by active managers, gross of fees, though alpha eroded by fees in the UK 	For active management if: <ul style="list-style-type: none"> Investors have strong conviction in managers' skill Manager fees are reasonable and targets are aligned
Global High Yield	High	Some	Medium	<ul style="list-style-type: none"> Less efficient market should provide opportunities for active managers Some evidence that the median manager has added value after fees. Passive managers tend to underperform the index by a material margin in this sector 	For active management if: <ul style="list-style-type: none"> High conviction in managers' skill Attractive fees relative to sector norms
Emerging Market Debt	High	Low	Medium	<ul style="list-style-type: none"> Offers high raw market potential for outperformance; fewer market participants than developed and low overall correlations to other asset classes Long data history available showing little evidence of added value by active managers 	For active management if: <ul style="list-style-type: none"> Investors have strong conviction in managers' skill

¹ Based on "alpha ranking" score of fixed income markets on annual rolling 10 year relative returns to 31 December 2015

LIQUIDITY SLEEVES

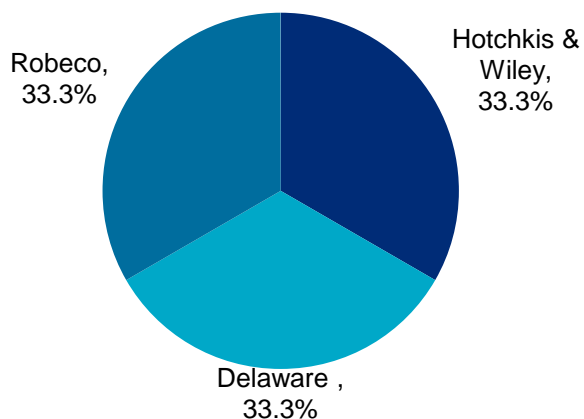


LIQUIDITY SLEEVES

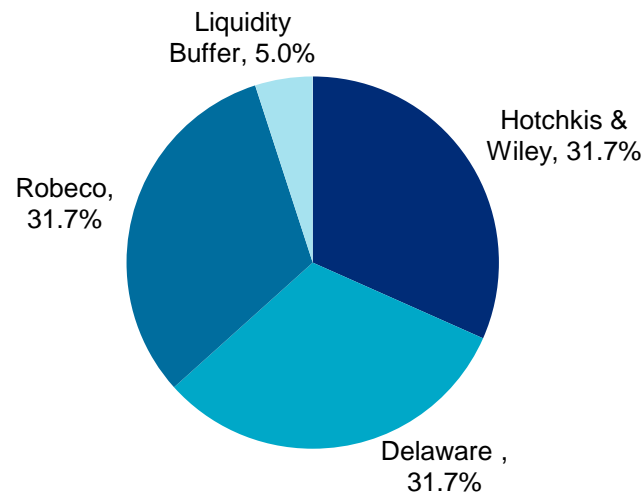
- Historically, fund transfer requests were satisfied through Prudential and they used a line of credit to facilitate participant moves
- After the move to BNY Mellon as the custodian, investment managers are having to sell securities in certain situations in order to fund the participant flows
- Mercer believes that a liquidity sleeve will help enable investment managers maintain full market exposure
- Liquidity sleeve will help manage portfolio trading to eliminate the need for forced selling, minimize transaction costs and the associated performance drag

CUSTOM FUND CONSTRUCTION

NC LCV Target Allocation

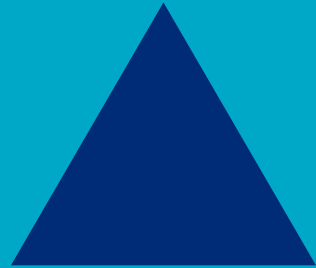


NC LCV Target Allocation with Liquidity Buffer



- Adding in a liquidity buffer can help reduce transaction costs associated with participant cash flows and rebalancing
- This will also enable the underlying investment managers to remain fully invested
- Should eliminate cash drag of the underlying investment managers
- A buffer of 5% is generally our starting point but could be reduced depending on typical flows within each specific Fund.

BROKERAGE WINDOW



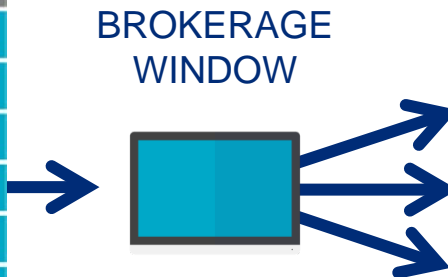
BROKERAGE WINDOWS

WHAT ARE THEY?

- A brokerage window is a self-directed investment feature that gives plan participants access to investment options not available in the core lineup.

CORE LINEUP

Tier I Target Date Options	Tier II Passive Core Options	Tier III Active Core Options	
Target Date Funds 5-year increments		Capital Preservation	
	Diversified Fixed Income	Diversified Fixed Income	
		Real Assets/Inflation-Protected	
	Large Cap Equity		Large Cap Value Equity
			Large Cap Growth Equity
	Small/Mid Cap Equity		Small/Mid Cap Value Equity
			Small/Mid Cap Growth Equity
	World ex-US Equity		World ex-US Equity



Available options can include:

- Mutual Funds
 - ETF's
- Individual Stocks
 - Bonds
 - CD's
 - Options

Decision of what to offer is client specific

BROKERAGE WINDOWS

DIFFERENT TYPES

Brokerage window investments:

- May include individual stocks, bonds, CD's, Options, ETFs, and/or Mutual Funds through a broker assigned by the recordkeeper
- Can restrict classes of securities, or individual securities – such as company stock
- Breadth of window varies by recordkeeper

OPEN VS LIMITED CHOICE

- Open-ended window – virtually unlimited funds
- Limited choice – Committee selects specific funds to be made available

MUTUAL FUND WINDOW

- Brokerage window that is limited to investing in mutual funds

HYBRID WINDOW

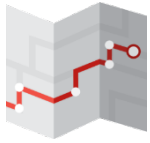
- May invest in mutual funds and ETFs but not in individual securities
- Range of mutual funds available is virtually unlimited
- Range of ETFs available may not be as extensive

BROKERAGE WINDOWS

ADVANTAGES/DISADVANTAGES

	Brokerage Window	Mutual Fund Window	Hybrid Window
Advantages			
Access to wide array of investment options	✓	✓	✓
Appeals to sophisticated participants and those who want greater choice	✓	✓	✓
No major litigation involving brokerage window investment losses to date	✓	✓	✓
Some windows allow intraday trading	✓	✓	✓
Investing in “pooled” funds counters risks with investing in single securities		✓	✓
Fees tend to be lower than in fully open brokerage window		✓	✓
Disadvantages			
Investment risk is greater in individual securities and non-diversified funds	✓	✓	✓
Fiduciary obligations, risks and oversight responsibilities are less clear	✓	✓	✓
May increase plan auditing fees	✓	✓	✓
Can present challenges when transitioning recordkeepers	✓	✓	✓
Investment fees typically higher as retail investors (retail fees for mutual funds, individual security commissions, etc.)	✓	✓	✓
Once offered, may be difficult to eliminate or freeze	✓	✓	✓
Plan sponsor may need to select which ETFs to offer			✓

BROKERAGE WINDOWS MERCER VIEW



Mercer does not recommend all clients offer a Brokerage Window. However, they may be suitable for some clients.

The decision to offer a brokerage window should be based on each Plan's unique situation and participant demographics.

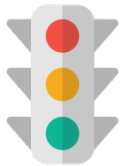


Offering a brokerage window is a fiduciary decision and as such several considerations must be addressed:

- Fees
- Underlying investment offerings
- Restrictions
- Compliance
- Communications



In most cases, Mercer recommends limiting investments to mutual funds and exchange traded funds (ETF's), and excluding individual stocks, bonds, options and master limited partnerships (MLP's).



Plan sponsor may want to consider setting limits on the amount of assets that can be transferred into the brokerage window.

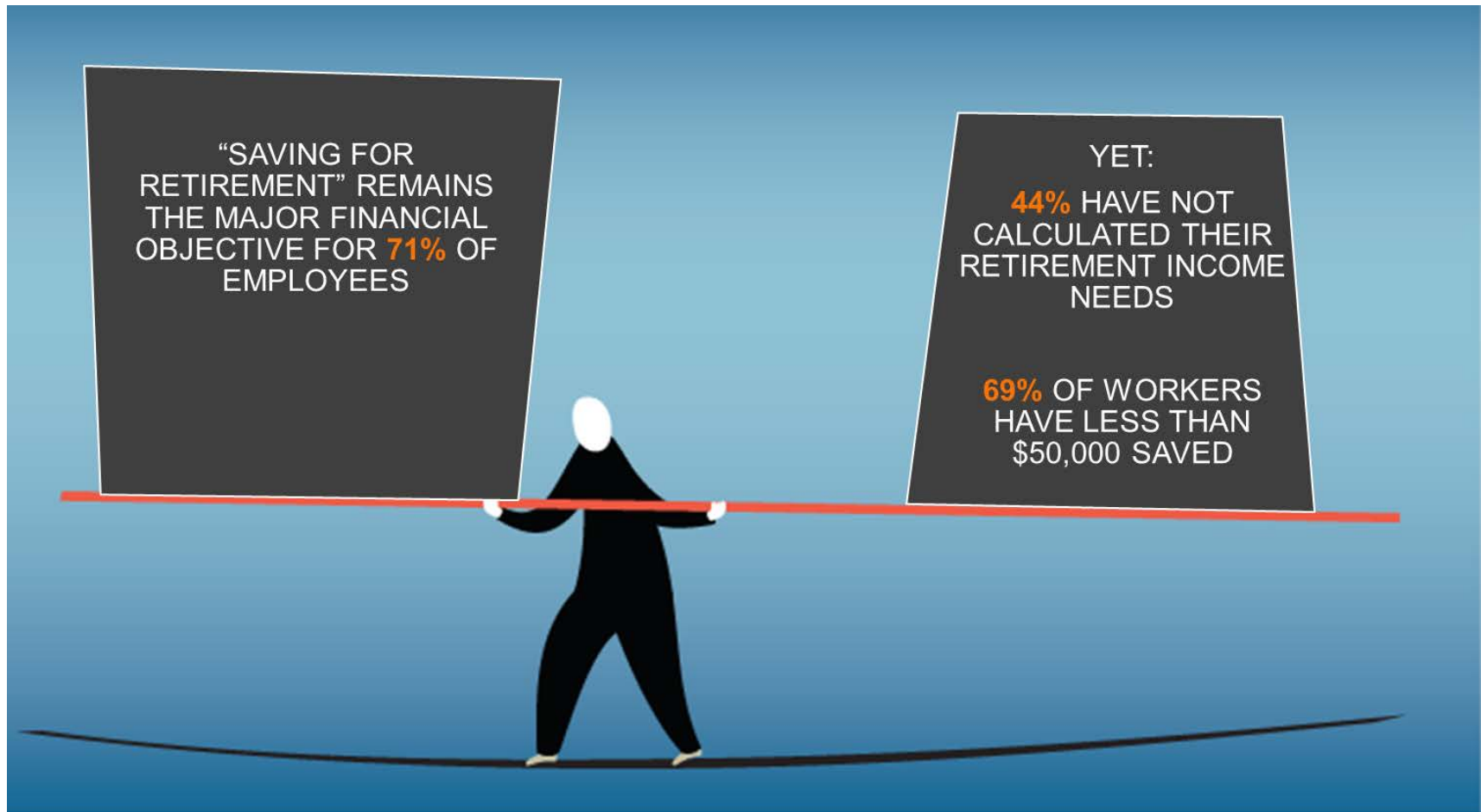


Self-Directed Brokerage Windows have come under scrutiny recently by the DOL. Mercer expects to see more regulation in the future, not less.

RETIREMENT INCOME

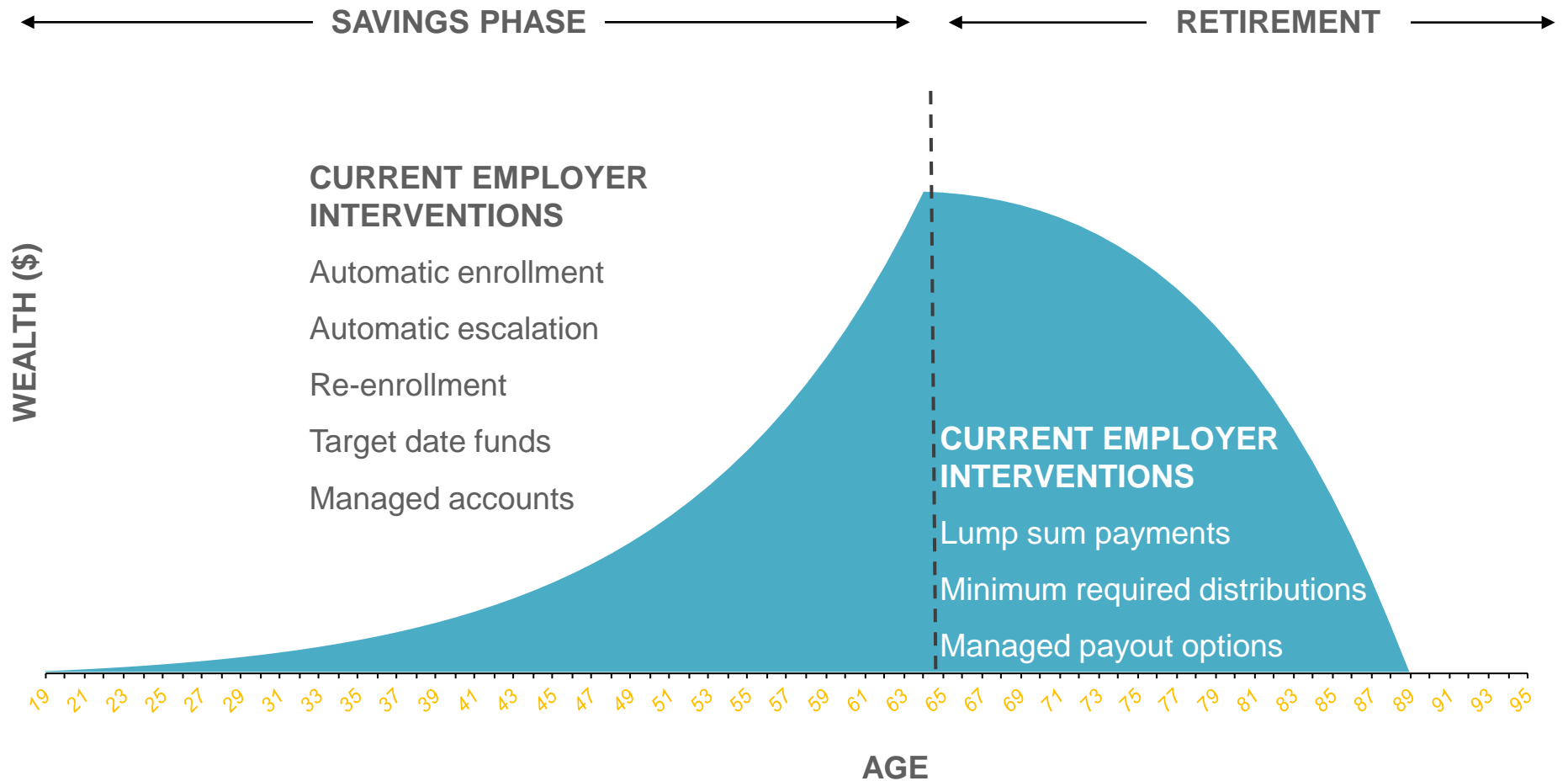


RETIREMENT TOP EMPLOYEE CONCERN

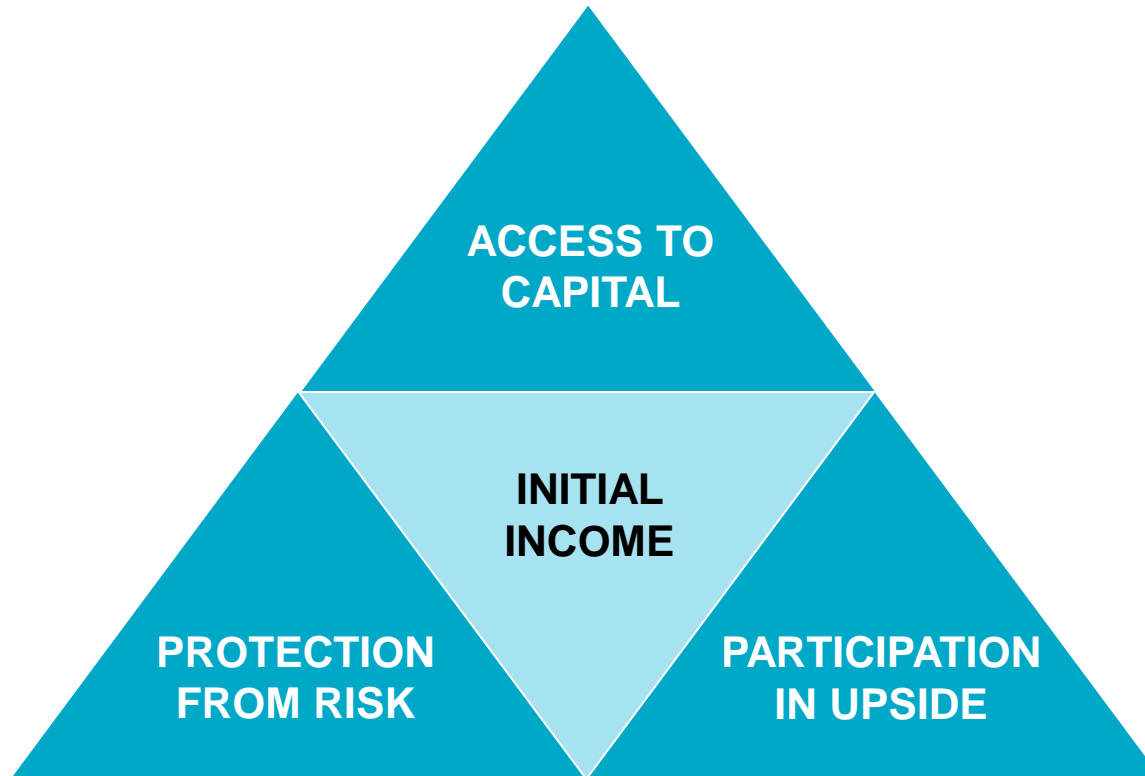


Sources: Online interviews of 1,506 current 401(k) participants in June 2013, Mercer Workplace Survey, November 2013 and 2014 Retirement Confidence Survey, EBRI Issue Brief, No. 397, March 2014

EMPLOYERS HAVE NOT FOCUSED EMPLOYEES ON MAXIMIZING INCOME



SOLVING FOR THE RETIREMENT TRILEMMA THE CHALLENGE REMAINS



Current retirement income solutions struggle to solve for the competing retiree objectives

EMPLOYEES ARE LOOKING FOR OPTIONS HOW TO ADDRESS INCOME CHALLENGES

What do employees want most from their DC Plans?

Want steady income stream	67%
Want protection of principal	47%
Want ability to withdraw part or all of savings without penalty or fees	41%
Want well-diversified mix of investments	39%

But only 6.1% of retiring employees elected an annuity according to GAO study, so maybe **flexibility** to withdraw is more important than steady income stream

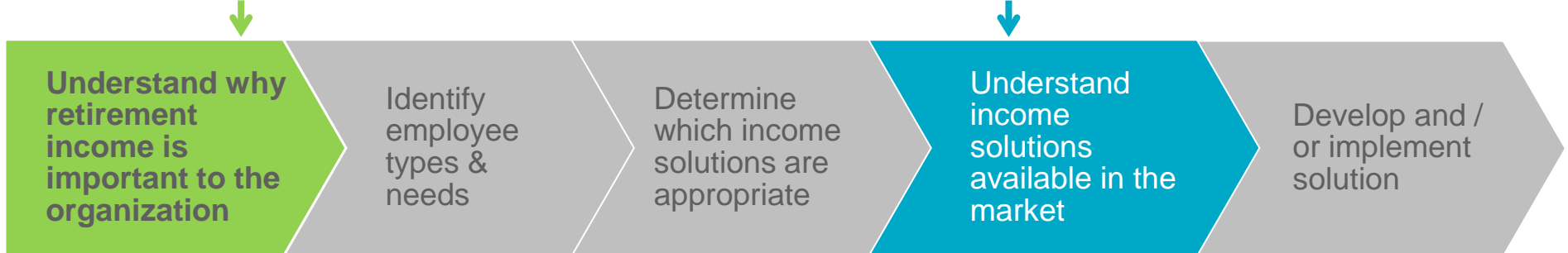
Yet Advisors seem to be busy: Sold nearly \$230BN last year mostly variable annuities

Source: AllianceBernstein Research Survey, Inside the Mind of Plan Participants and Sponsors, 2012

A USEFUL ROADMAP

Employers/sponsors should start here

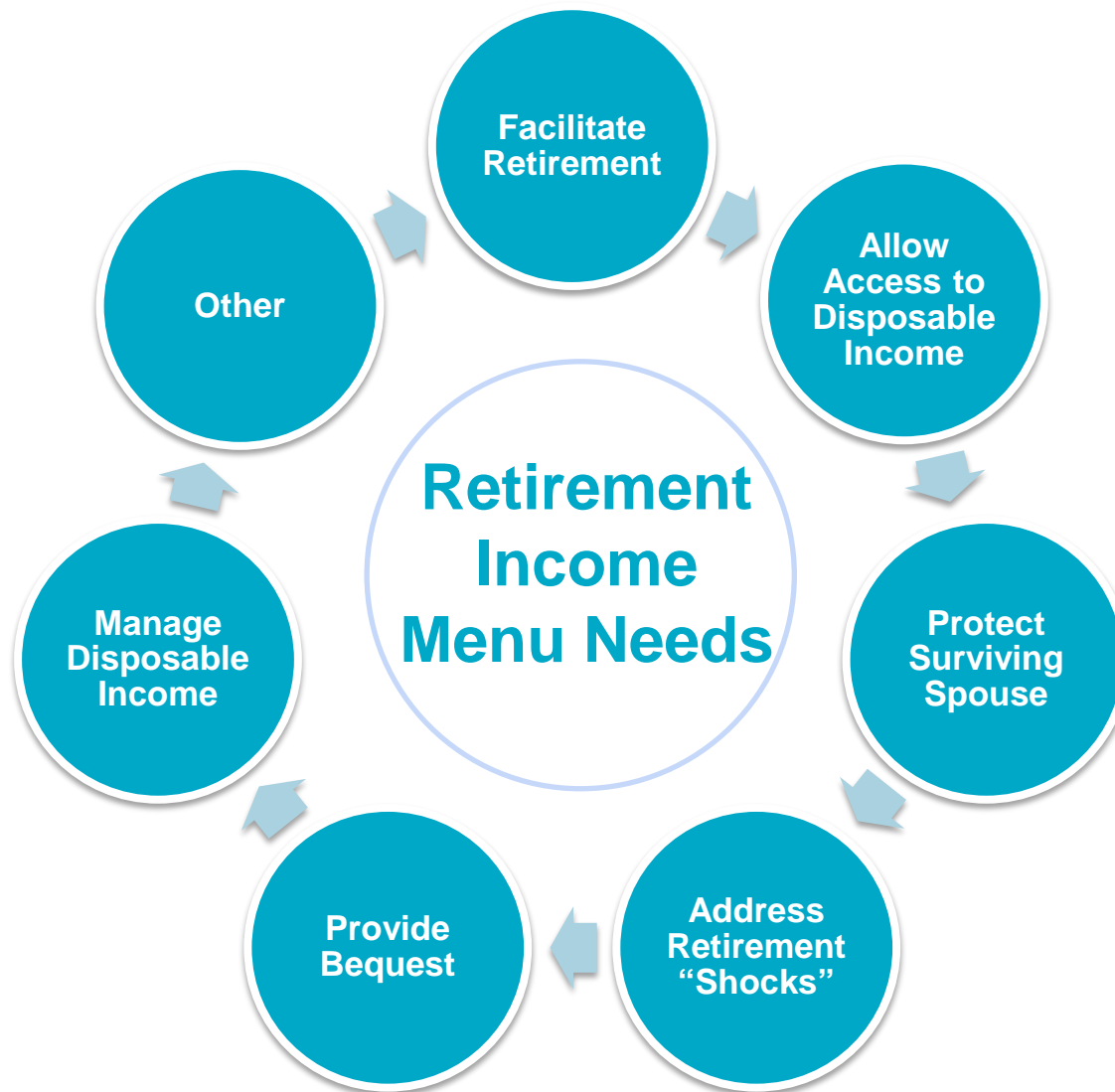
Employers/sponsors typically start here



Few plan sponsors have considered whether or not deploying a retirement income solution is optimal to meet the needs of their diverse participant base



THEIR DIVERSE RETIREMENT INCOME NEEDS

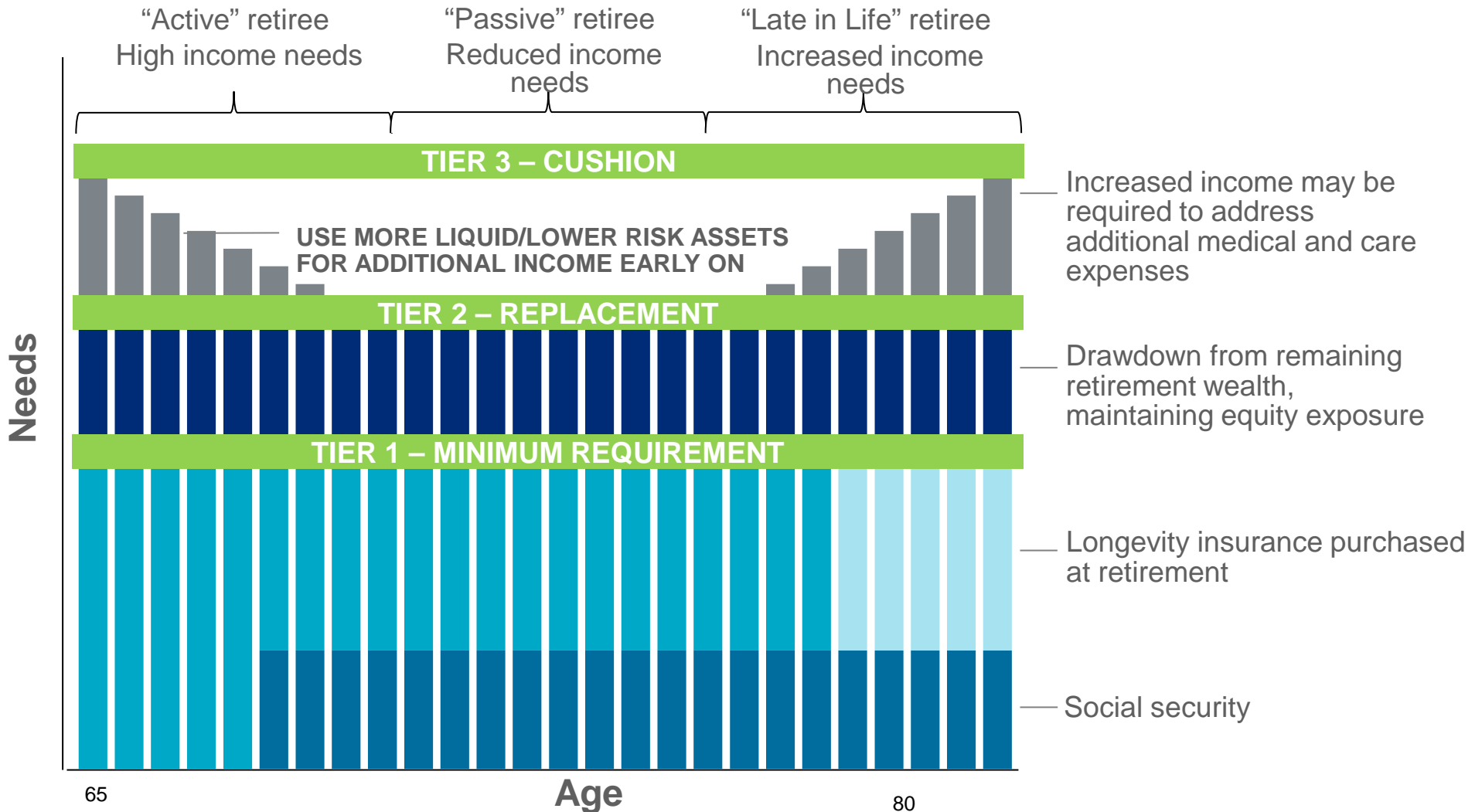


INCOME NEEDS SHIFT THROUGHOUT RETIREMENT

“Active” Retiree (~65-75)	“Passive” Retiree (~75-85)	“Late in Life” Retiree (~85+)
<ul style="list-style-type: none"> • Still physically active • Want to travel – holidays, see grandchildren • High (as possible) income needs 	<ul style="list-style-type: none"> • Less physically active but generally healthy • More likely to be “stay at home” • Income needs reduce 	<ul style="list-style-type: none"> • Less physically active, increased health issues • May need long-term care assistance • Increased income needs due to health and long-term care



INCOME AND EXPENSE NEEDS ALIGN UNDER MOST CIRCUMSTANCES



RETIREMENT INCOME PRINCIPLES

Construct

Build a solid income floor

Design to the “U”

Leverage buying power

Know your fiduciary position

Engage

Offer flexibility through an Income Menu

Provide assistance

Avoid too rapid drawdown

Execute

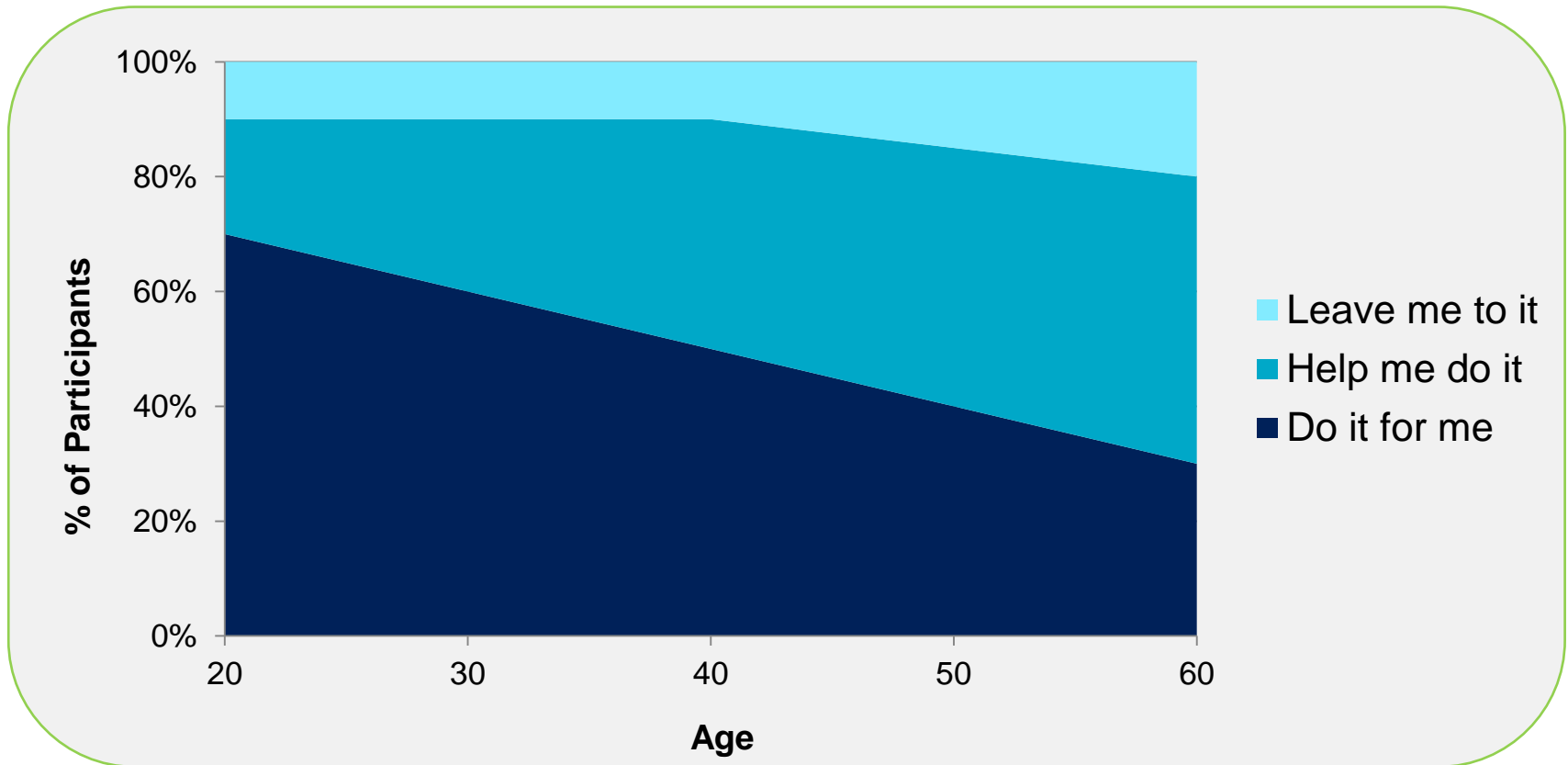
Integrate workforce planning

Put all wealth to work

Manage through the life cycle

Manage market and longevity risks

AND THE EVOLUTIONARY NATURE OF THEIR ENGAGEMENT



Analysis conducted by Mercer suggests participants become more engaged in their retirement planning as they near retirement; it is important to know where your participants fall on this spectrum

RETIREMENT INCOME MENU

	Do it for me	Help me do it		Leave me to it
Investment Structure and Elections	Target Date Funds ('TDF')	Core Options & Managed Accounts		Specialty Options
Retirement Income Solutions	Purchase into DB Plan Annuity with DC Assets	Income Advice Service	Social Security Optimization Tool	Simple Planning and Projection Tools
	Target Date Fund with Annuity Component	Managed Account with Income Component	Annuity Bidding Service (SPIA, DIA, Longevity Annuity)	Minimum Required Distributions
	Design-Based Accumulation Annuity Strategy	Hybrid Strategies (GMWB) / In-Plan Annuities	Managed Payout ★	Installment Payments ★
				Lump Sum Payment ★

= current NC options
 ★ = most commonly available

SPIA = Single Premium Immediate Annuity; DIA = Deferred Income Annuity

BENCHMARK REVIEW



BENCHMARK REVIEW

Characteristics of a valid benchmark¹:

- 1) Specified in advance
- 2) Appropriate – Benchmark is consistent with the manager's investment style
- 3) Measurable – The benchmark's return is readily calculable on a reasonably frequent basis
- 4) Unambiguous – Identities and weights of securities are clearly defined
- 5) Reflective of current investment options – The manager has current knowledge of the securities in the benchmark
- 6) Accountable: The manager is aware and accepts accountability for the constituents and performance of the benchmark
- 7) Investable: It is possible to simply hold the benchmark

1) CFA Institute Investment Series

BENCHMARK REVIEW – ACTIVE OPTIONS

Active Investment Options	Current Benchmark
<p>North Carolina Fixed Income Fund</p> <ul style="list-style-type: none"> JPMorgan Core Fixed Income Prudential Core Plus Fixed Income 	<p>Barclays Aggregate Index</p> <ul style="list-style-type: none"> Barclays Aggregate Index Barclays Aggregate Index
<p>North Carolina Inflation Sensitive Fund</p> <ul style="list-style-type: none"> PIMCO Inflation Responsive Multi Asset 	<p>PIMCO IRMAF Index</p> <ul style="list-style-type: none"> PIMCO IRMAF Index
<p>North Carolina Large Cap Value Fund</p> <ul style="list-style-type: none"> Hotchkis & Wiley Large Cap Value Delaware Large Cap Value Boston Partners Large Cap Value 	<p>Russell 1000 Value Index</p> <ul style="list-style-type: none"> Russell 1000 Value Index Russell 1000 Value Index Russell 1000 Value Index
<p>North Carolina Large Cap Growth Fund</p> <ul style="list-style-type: none"> Sands Large Cap Growth Wellington Opportunistic Growth Loomis Sayles Large Cap Growth 	<p>Russell 1000 Growth Index</p> <ul style="list-style-type: none"> Russell 1000 Growth Index Russell 3000 Growth Index Russell 1000 Growth Index

BENCHMARK REVIEW

Active Investment Options	Current Benchmark
<p>North Carolina SMID Value Fund</p> <ul style="list-style-type: none"> Hotchkis & Wiley SMID Cap Value EARNEST Partners SMID Cap Value WEDGE SMID Cap Value 	<p>Russell 2500 Value Index</p> <ul style="list-style-type: none"> Russell 2500 Value Index Russell 2500 Value Index Russell 2500 Value Index
<p>North Carolina SMID Growth Fund</p> <ul style="list-style-type: none"> TimesSquare SMID Cap Growth Brown Advisory SMID Cap Growth 	<p>Russell 2500 Growth Index</p> <ul style="list-style-type: none"> Russell 2500 Growth Index Russell 2500 Growth Index
<p>North Carolina International Equity Fund</p> <ul style="list-style-type: none"> Baillie Gifford ACWI ex US Growth Mondrian ACWI ex US Value 	<p>MSCI ACWI ex US Index</p> <ul style="list-style-type: none"> MSCI ACWI ex US Index MSCI ACWI ex US Index
<p>North Carolina Global Equity Fund</p> <ul style="list-style-type: none"> Wellington Global Opportunities Arrowstreet Global Equity ACWI 	<p>MSCI ACWI Index</p> <ul style="list-style-type: none"> MSCI ACWI Index MSCI ACWI Index
<p>North Carolina Stable Value Fund</p> <ul style="list-style-type: none"> Galliard 	<p>T-Bills + 1% Index</p> <p>3 Year Constant Maturity Yield and T-Bills +1.50%</p>

BENCHMARK REVIEW

- North Carolina's Investment Management Agreements (IMA) with each underlying investment manager specifies the benchmark and performance objective
- Current benchmarks are measurable, unambiguous and the investment managers have knowledge of the securities in the universe
- The equity indices utilized by the investment managers are investable and can be replicated
- There are two instances when the underlying investment manager benchmark does not match the fund level benchmark (Wellington Opportunistic Growth and Galliard Stable Value)
- In Mercer's Performance Evaluation Reports, the Wellington Opportunistic Growth strategy is benchmarked against the Russell 3000 Growth Index
- We believe this is the appropriate index for the strategy, given that it is constructed in three different sleeves: large cap, mid cap, and small cap. The allocation to each sleeve is determined by the composition of large, mid and small companies within the Russell 3000 Growth Index.
- Given the composition of the Russell 3000 Growth Index (over 80% of Index is comprised of large cap securities), we believe the Wellington strategy still fits within the context of the Large Cap Growth Fund but it should be benchmarked against the Russell 3000 Growth Index.

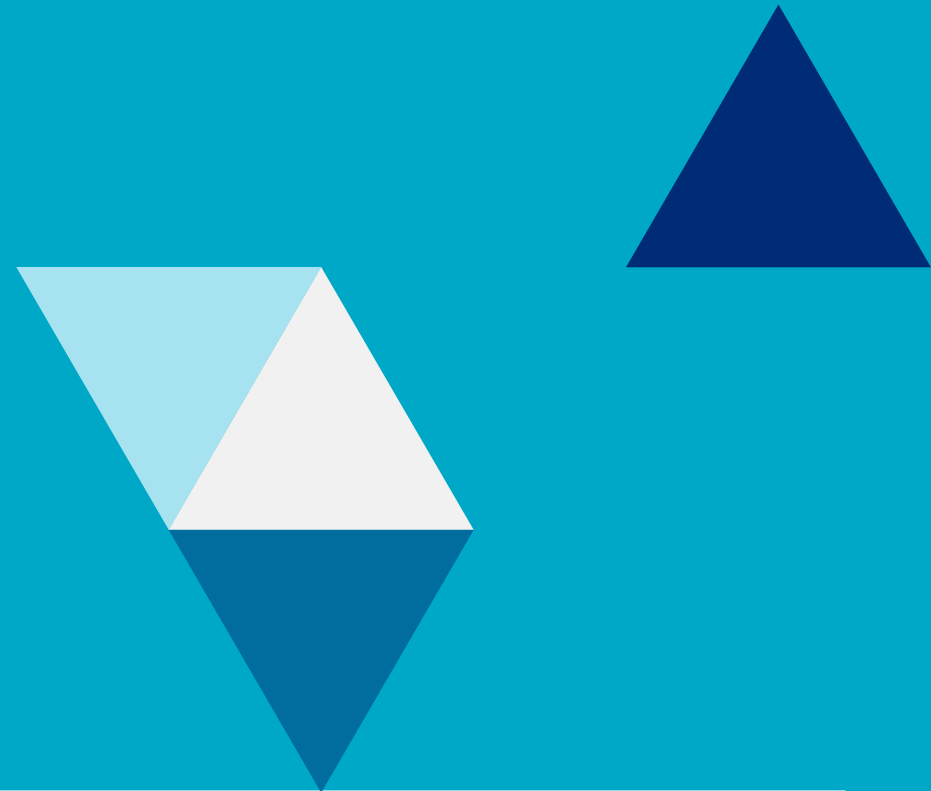
GALLIARD STABLE VALUE BENCHMARK

- **Investment Objective** – Provide safety of principal and secondary objective is to maintain consistency of returns with minimal volatility, while maintaining a stable credited rate of interest
- Galliard believes the appropriate benchmark is the **3 Year Constant Maturity Treasury (CMT) Yield**, in order to maintain a consistent return stream, volatility and duration
- 3 Year CMT Yield is not an investable benchmark but there are no investable benchmarks that get the same accounting treatment as stable value contracts.
- Each underlying short and intermediate sub-advisor is benchmarked against an appropriate investable benchmark
- Mercer believes that the 3 Year CMT Yield should be used as the primary benchmark based on the most recent IMA and discussion with Galliard but also believes 3 Month T-Bills + 150 bps should be shown as a secondary benchmark

Strategy	3 MONTH	YTD	1 YR	3 YR	5 YR
North Carolina Stable Value Fund	0.51%	1.44%	1.92%	1.86%	2.15%
3 Year Constant Maturity Treasury Yield	0.21%	0.70%	0.98%	0.93%	0.73%
ML 3 Month T-Bill + 150 bps	0.47%	1.37%	1.79%	1.63%	1.61%

Performance as of 9/30/16

ETF DISCUSSION



NORTH CAROLINA ETF REVIEW

North Carolina Investment Options	Inception Date	IM Expense	Since Inception Net Return	Since Inception Tracking Error	ETF Alternative	IM Expense	Net Return (from Inception Period of NC Fund)	Since Inception Tracking Error (from Inception Period of NC Fund)
NC Fixed Income Passive	09/10	0.02%	3.35%	0.21%	iShares Core US Aggregate Bond	0.05%	3.30%	0.08%
NC Large Cap Passive	03/09	0.01%	16.59%	0.07%	iShares Core S&P 500	0.04%	16.63%	0.03%
NC SMID Cap Passive	03/09	0.01%	18.05%	0.13%	iShares Core S&P Mid-Cap ETF ¹	0.07%	18.28%	2.24%
NC International Passive	03/09	0.03%	9.39%	1.81%	iShares MSCI ACWI ex US	0.33%	9.07%	0.55%

- Mercer confirmed that Prudential does not currently offer ETF's as available options within a 403 (b) Plan currently. There are some ETF's that wouldn't be allowed because they are not "regulated investment companies" under IRC Section 851 (a).

1) iShares Core S&P Mid-Cap ETF is benchmarked against the Russell MidCap Index rather than the Russell 2500 Index for the NC SMID Cap Passive Fund

APPENDIX



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