



BenchmarkDC Presentation

for

North Carolina Retirement Systems
(for the 5 years ending December 31, 2016)



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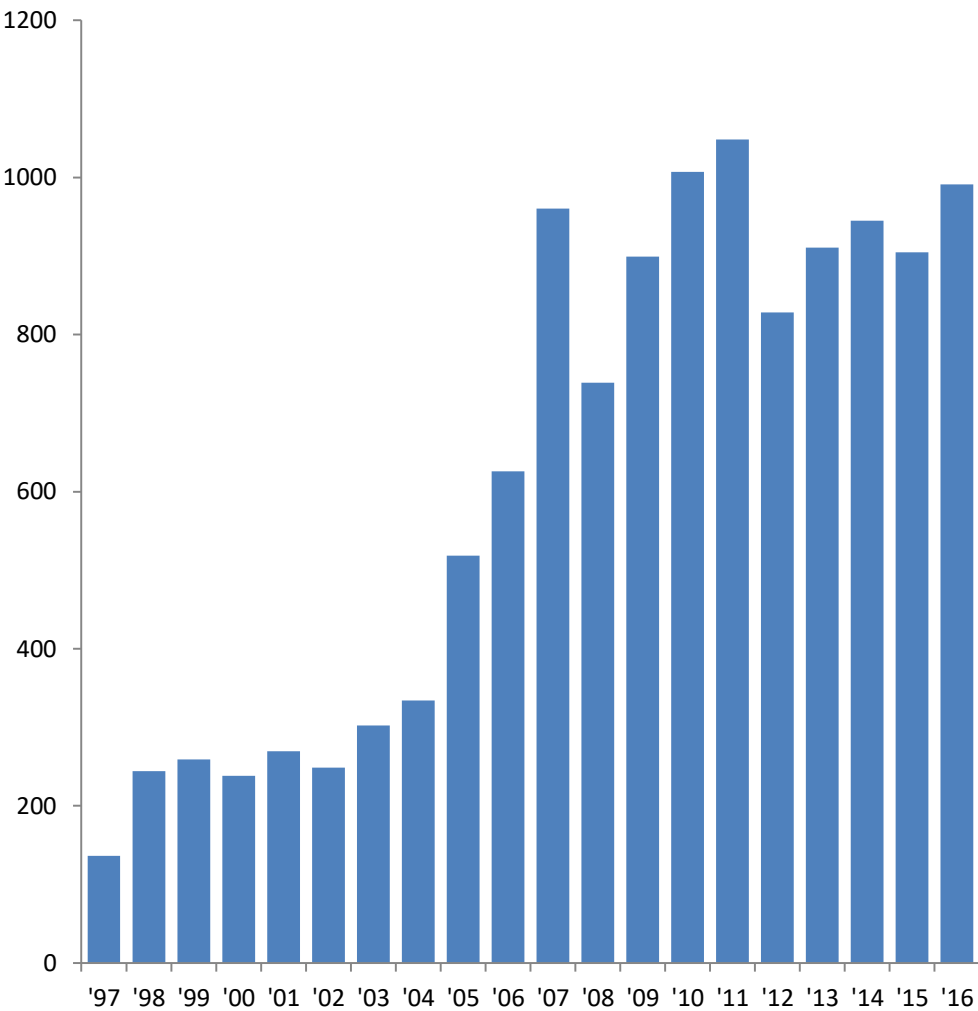
CEM has been benchmarking U.S. DC plans since 1997.

CEM's 2016 DC database consists of 138 U.S. large, blue chip corporate and government plans representing \$991 billion in assets and 8.1 million participants.

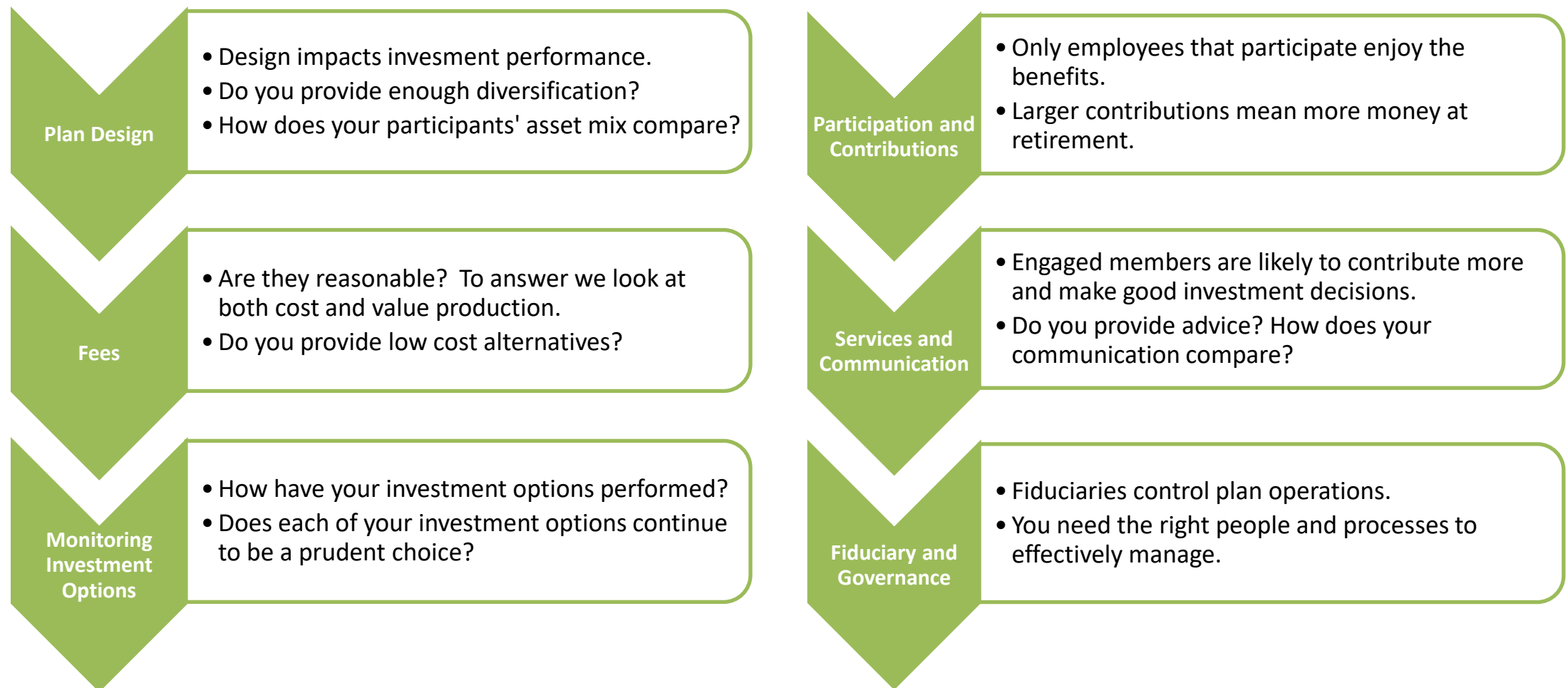
Plan assets range in size from \$72 million to \$50 billion. The median US DC plan has assets of \$5 billion and the average plan has assets of \$7 billion.

We also benchmark Australian DC plans. However, the regulatory and competitive environment is quite different than in the U.S., so their data is not included in this report's analysis.

Participating Defined Contribution Benchmarking assets
in \$USD billions



This BenchmarkDC report enables plan sponsors to assess and document their process for reviewing reasonableness of fees as it compares both costs and value based on the following DC plan success model.



The most valuable comparisons for cost performance are to your custom peer group.

Your peer group is comprised of 12 DC plans, with assets ranging from \$2.3 billion to \$11.8 billion versus your \$9.8 billion. Your peer group is used to benchmark your costs.

Peers	
County of Los Angeles (457)	Minnesota State RS
Federal Reserve OEB	North Carolina RS
Florida State Board of Administration	Ohio Public Employees Def. Comp.
Indiana Public RS	State of Tennessee
Maryland Supplemental Retirement Plans	Utah RS
Michigan Office of Retirement Services	Virginia RS

The names of the above fund sponsors in your peer group are confidential and may not be disclosed to third parties. All other information in this report is confidential and may not be disclosed to third parties without the express written mutual consent of CEM Benchmarking Inc. and North Carolina Retirement Systems.

By design your peers are similar to your plan in assets and average account balance because these factors impact costs.

Comparison of plan characteristics

	Your plan	Peers	U.S. universe
# of plan sponsors	1	12	138
Plan assets			
- Smallest to largest	\$9.8 BN	\$2.3 BN - \$11.8 BN	\$72 mil - \$49.6 BN
- Median	\$9.8 BN	\$6.7 BN	\$4.8 BN
- Median excluding employer stock	\$9.8 BN	\$6.7 BN	\$4.2 BN
Account balance of average participant			
- Median	\$33,000	\$48,000	\$135,000
- Median excluding employer stock	\$33,000	\$48,000	\$122,000
Average # of plan participants	298,337	154,084	58,743
% retired or separated with assets in plan	20%	28%	26%
Average % of assets in employer stock	0%	0%	10%
Average % of assets indexed	31%	52%	59%
Average # of investment options	13	14	16
Corporate, Public	Public	0 Corp, 12 Public	110 Corp, 28 Public

Highlights



Plan Design

- Your plan has 13 investment options (we count Target Date funds as one option) which compares to a peer average of 13.8 and a U.S. Universe average of 16.4.
- Your default option is your GoalMaker which is similar to target retirement date funds. Target retirement date funds are the default option for 83% of your peers and 84% of U.S. universe plans.

Returns

- Your 5-year total net return was 8.5%. This compares to the U.S. Universe average of 8.7% and peer average of 7.8%. Your plan had more assets in U.S. stock options which performed well over this period but that was offset by more stable value asset which had lower returns.

Fees

- Your total plan cost of 0.47% was above your benchmark cost of 0.40%. Your costs are higher mainly because:
Added cost from active versus indexed options

Participation and Contributions

- Relative to your peers, your participation rate (your 33% of eligible employees versus 70% peer median) is lower and your contribution rate (your employee average contribution of 54% per active participant versus 51% peer median) is higher.
- Within your Plans 59.8% of participants use GoalMaker and 43.0% of total Plan assets are in GoalMaker portfolios. The Plan offers these portfolios in lieu of custom target date funds. By way of comparison, 16.0% of assets, on average, are held within target date funds, within your the peer group.

Services and Communication

- You do not offer the services of a financial adviser. All of your peers offer both computer based financial advice and financial advisers. Though what is important and valuable to your participants may differ than those of your peers. Though your plan does offer education sessions via group and one-on-one.

Fiduciary and Governance

- Your fiduciary and governance process appears to be well documented.

Choosing an investment line up and the default option are two of the most important plan design decisions you have.

Asset mix is a primary driver of long term returns. Asset mix depends on the investment options available. You have 13 investment options compared to a peer average of 13.8 and a U.S. universe average of 16.4.

The default option is important as behavioural research shows that participants will often opt for the default investment option.

Your default option is similar to target retirement date funds. North Carolina Supplemental Retirement Plans offer GoalMaker as an asset allocation service for no additional cost provided by Prudential, it helps members allocate balances to thirteen investment options that are best suited to their risk profile. This service rebalances assets quarterly. Target retirement date funds are the default option for 83% of your peers and 84% of U.S. universe plans.

More and more plans are also realizing offering a decumulation option is also important. You do offer a guaranteed lifetime income product. It is offered out of the plan by 58% of your peers and 18% of the U.S. universe.

Type and number of investment options

	Your Plan	Peer Average	Universe Average
Employer Stock		0.0	0.7
Stock U.S.	6	5.2	6.0
Stock Non U.S. & Global	3	2.0	2.7
Bonds	2	2.5	2.7
Stable Value	1	1.0	0.7
Cash, Money Market		0.6	0.6
Target Retirement Date		0.8	0.9
Balanced		0.7	0.9
Mutual Fund Window		0.2	0.1
Participant Brokerage Account		0.4	0.4
Priv Eq, REIT, Other	1	0.5	0.9
Total	13	13.8	16.4

Default option

	Your Plan	Peer Average	U.S. Universe
Balanced		8%	7%
Target Retirement Date	Yes	83%	84%
Managed accounts		0%	1%
Stable Value		0%	1%
Money Market		0%	0%
Other		0%	1%
No default option		8%	7%
Total		100%	100%

The tables below compare your participants' average asset mix relative to the Peer average.

As fiduciaries, reviewing allocation to stable value and cash should be done regularly.

Your plan participants' cash and stable value holdings were 32% in 2012 and 25% in 2016. In comparison, the peer average cash and stable value holdings were 26% in 2012 and 19% in 2016.

Asset Mix -Your Plan

	2012	2013	2014	2015	2016
Target & Balanced *	0%	0%	0%	0%	0%
Stock U.S.	45%	45%	46%	45%	44%
Stock Non U.S.	13%	15%	15%	15%	15%
Employer Stock	0%	0%	0%	0%	0%
Bonds	11%	10%	10%	11%	11%
Stable Value	32%	27%	26%	26%	25%
Cash, Money Market	0%	0%	0%	0%	0%
Priv Eq, REIT, Other	0%	3%	4%	4%	4%
Self-dir. Windows	0%	0%	0%	0%	0%

Asset Mix - Peer Plans

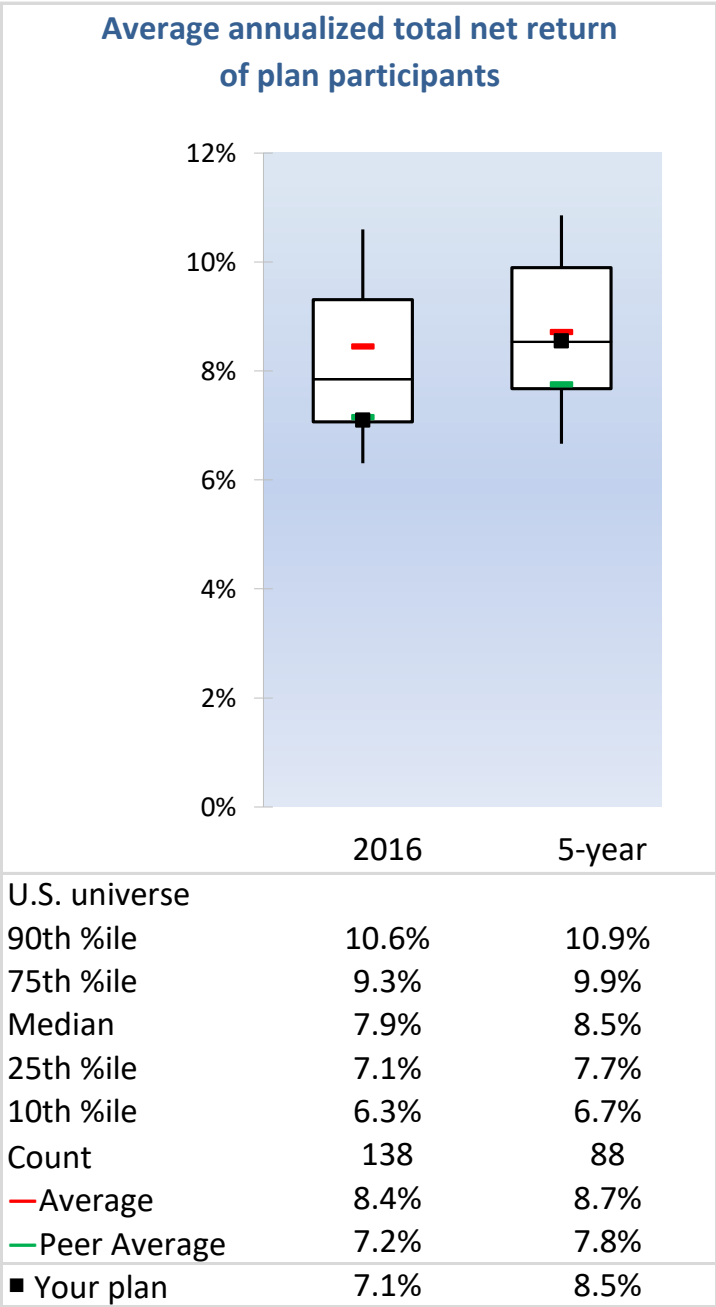
	2012	2013	2014	2015	2016
Target & Balanced *	19%	20%	18%	19%	19%
Stock U.S.	31%	36%	38%	37%	37%
Stock Non U.S.	7%	8%	8%	8%	8%
Employer Stock	0%	0%	0%	0%	0%
Bonds	14%	12%	13%	13%	13%
Stable Value	24%	18%	17%	17%	16%
Cash, Money Market	3%	2%	2%	2%	2%
Priv Eq, REIT, Other	2%	2%	3%	3%	3%
Self-dir. Windows	1%	1%	1%	1%	2%

* 43% of North Carolina Supplemental Retirement Plans DC Assets are in GoalMaker. GoalMaker is an asset allocation service for no additional cost provided by Prudential, it helps members allocate balances to 13 investment options best suited to their risk profile and time horizon. This service rebalances assets quarterly.

Your plan participants' average 5-year total net return was 8.5%.

Average total net return measures the change in the average participants' account balance as a result of their weighted investment returns.

As a fiduciary, it is important to understand why the average total net return performance of your plan differs from other plans over time.



Reasons why your 5-year total net return was above the peer average

Reason	+Increased/- Decreased Your Return
Higher asset mix returns (allocation). On average, your participants were in more of the higher, and fewer of the lower, performing asset categories.	0.6%
Higher asset category returns (selection). Asset category returns reflect investment option performance and the mix of option styles in the category.	0.1%
All other differences	0.1%
Total (equals your participants' return minus the peer average)	0.8%

The primary reason for differences in net total return are caused by differences in asset mix and asset category returns.

The best performing asset category of the past 5 years was U.S. Stock, which had an average category return of 14.5%. This compares to the poorest performing asset category return of 0.2%, which was cash.

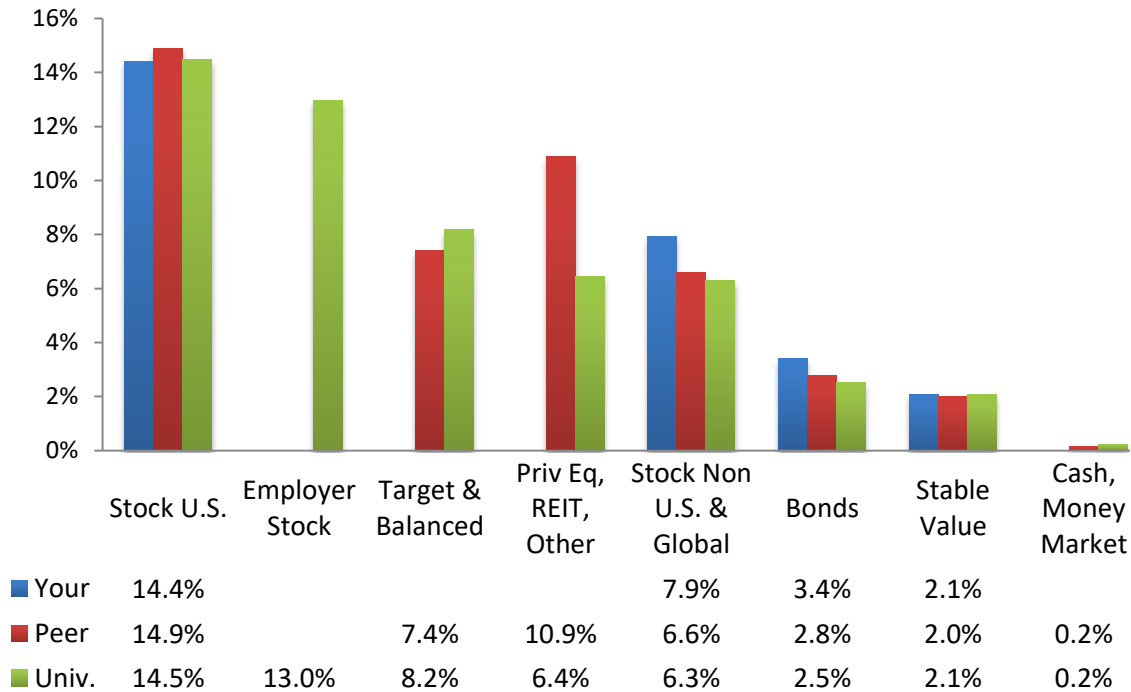
Differences in asset category return reflects both investment option performance and the mix of styles (for example broad, mid cap) in the category.

Your 5 year asset mix is compared to your peers and the U.S. universe on the table below.

5 year Average Asset Mix

	Your Plan	Peer Average	U.S. Universe Average
Stock U.S.	45%	36%	31%
Employer Stock	0%	0%	13%
Target & Balanced *	0%	19%	21%
Priv Eq, REIT, Other	2%	1%	1%
Stock Non U.S. & Global	14%	8%	7%
Bonds	10%	13%	8%
Stable Value	29%	21%	15%
Cash, Money Market	0%	2%	4%
Total	100%	100%	100%

Average net returns by major asset category
(5-years ending Dec 2016, annualized)

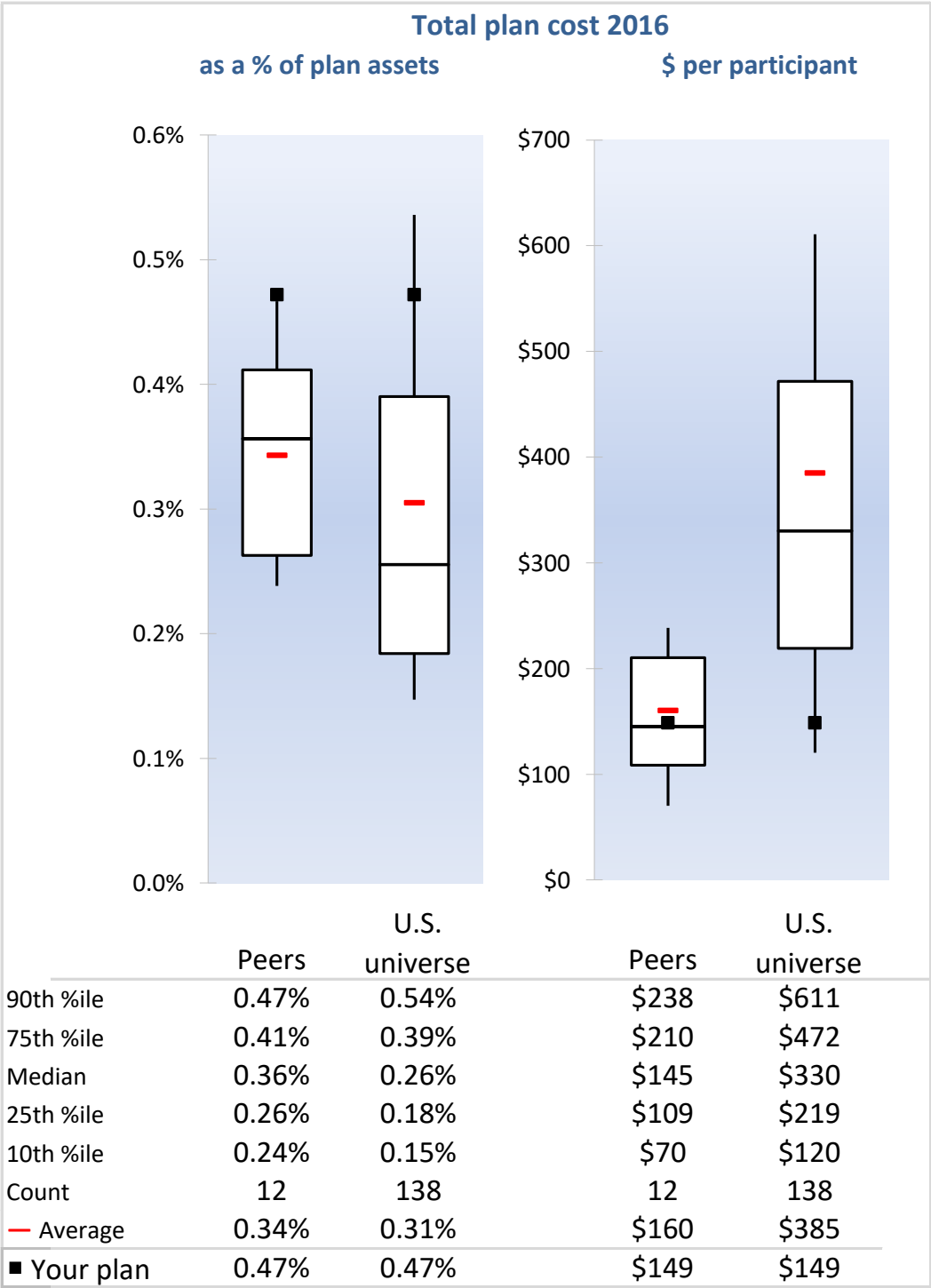


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Your plan's total cost was 0.47% of total plan assets or \$149 per participant.

Your peers' average total cost was 0.34% of total plan assets or \$160 per participant.

As a fiduciary, it is very important that you assess whether your costs are reasonable. But comparing total plan costs provides only limited insight because differences in total cost primarily reflect differences in asset mix, plan size and average account balance.

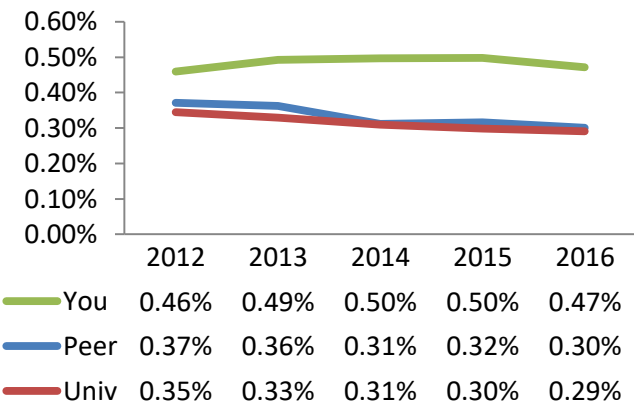


Your total plan costs have been relatively stable over the past 5 years.

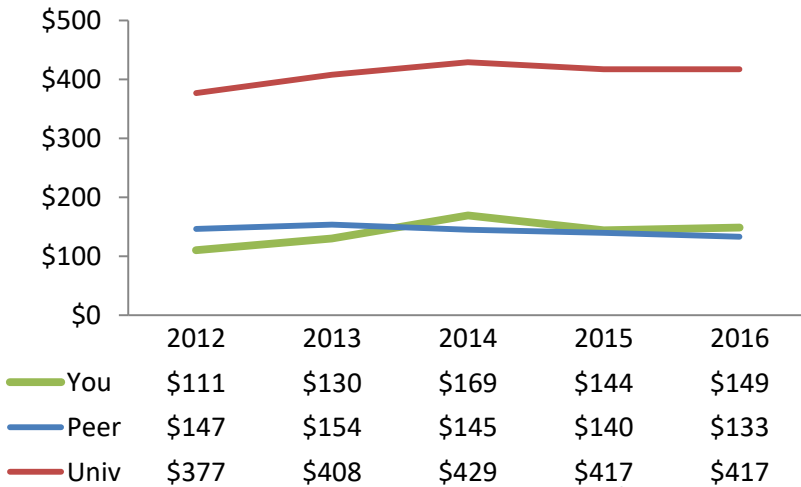
Total plan costs have decreased for the U.S. universe, from 0.35% of plan assets in 2012 to 0.29% in 2016.

The primary reason for the decline is that indexed assets increased from 51% of total 'indexable assets' in 2012 for the U.S. universe to 60% in 2016.

Trend in total plan costs - % of assets



Trend in Total Plan Costs - \$ per participant



Trend analysis is based on the 106 universe funds and 15 peers with 5 consecutive years of data.

Are your total plan costs reasonable?

CEM calculates a benchmark cost for your plan based on the median cost that your peers pay for your plan participants' mix of investment options. Your total plan cost was 0.47%. This was 0.07% above your peer-based benchmark cost of 0.40%.

Being high or low cost is neither good nor bad in and of itself. But as fiduciaries you should understand where and why you are paying more (or less) than peers and be comfortable that you are receiving value for what you are paying. Reasons for your plan's 0.07% excess cost are summarized in the following table.

Your total plan cost versus benchmark

	\$000's	%
Total plan cost	\$44,392	0.47%
Peer-based benchmark cost	\$37,746	0.40%
Excess cost	\$6,646	0.07%

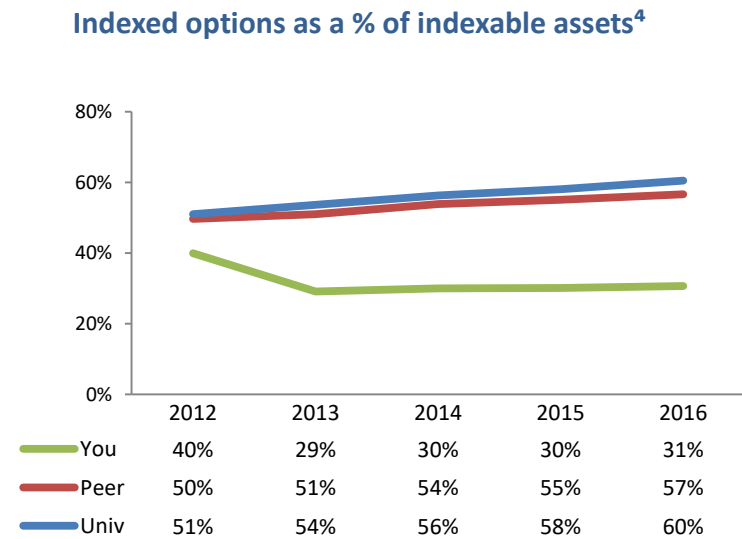
Reasons for your plan's higher cost

Reason	+Excess/-Savings	
	\$000s	%
Paying similar for similar-style investment options	\$196	0.00%
Added cost from active versus indexed options	\$3,631	0.04%
Higher administrative expenses	\$356	0.00%
Less assets in mutual fund windows	-\$35	0.00%
Adjustment for economies of scale, advantage	\$2,497	0.03%
Total excess cost	\$6,646	0.07%

Costs impact long term returns and are controllable. One way of reducing costs is to offer indexed options.

Most plans offer a number of indexed options as does your plan. The middle table indicates the cost savings from using indexed options versus active mandates.

Though past performance is not an indicator of future performance, our U.S. universe of participants' active mandates have generally outperformed indexed mandates even after costs have been taken into account.



Indexed options by asset class¹

Does your plan offer an indexed option for:	Your plan	Peer	U.S. Universe
Stock U.S. Broad or Large Cap	Yes	92% Yes	97% Yes
Stock U.S. Small Cap		50% Yes	55% Yes
Stock U.S. Mid Cap	Yes	33% Yes	43% Yes
Stock Non U.S. & Global	Yes	75% Yes	79% Yes
Bonds	Yes	67% Yes	78% Yes
Target & Balanced		50% Yes	66% Yes

1. An option is considered indexed when the percent of passive management is greater than or equal to 80%.

Cost Savings from Indexed Options

Asset Class	U.S. Universe Average Cost ²		
	Indexed	Active	Savings
Stock U.S. Broad or Large Cap	0.03%	0.42%	0.40%
Stock U.S. Small Cap	0.05%	0.65%	0.60%
Stock U.S. Mid Cap	0.05%	0.63%	0.58%
Stock Non U.S. & Global	0.09%	0.58%	0.50%
Bonds	0.05%	0.30%	0.26%
Target & Balanced	0.09%	0.36%	0.28%

2. Costs include investment management fees only.

Performance of Indexed vs. Active Options

Asset Class	10-year Net Value Added ³ U.S. Universe Average	
	Indexed	Active
Stock U.S. Broad or Large Cap	-0.06%	-0.28%
Stock U.S. Small Cap	0.03%	0.51%
Stock U.S. Mid Cap	0.05%	0.32%
Stock Non U.S. & Global	0.11%	0.32%
Bonds	-0.18%	0.25%
Target & Balanced	-0.15%	-0.05%

3. Includes only funds with 10 consecutive years of data for each asset class.

The table below compares how administration expenses are paid and allocated. This is a potential fiduciary risk area as there can be fee allocation disparity.

When administration expense is paid from the expense ratio of investment options some investment options pay more as a percentage of assets.

Participants with larger balances usually pay a higher dollar cost eventhough the largest administration cost, recordkeeping, tends to be priced per participant.

Paying administration expenses from the expense ratio of investment options

	You	Peers	U.S. Universe
Plans that pay all or part of administrative expenses from the expense ratio of investment options	Yes	33% Yes	53% Yes

Allocating expenses

	You	Peers	U.S. Universe
How are the recordkeeping or administration costs allocated to participants?			
a. An asset based fee		29%	26%
b. A flat fee per participant	Yes	57%	61%
c. A combination of asset based fee and flat fee		14%	14%
d. Other		0%	0%

The table below compares your individual investment options relative to your peers for cost and the U.S. universe for performance. Pay particular attention to your default option and those with outlier (highlighted in red) characteristics.

Investment Option	Cost, Invest. Mgr. 2016					Net Return 2016					Net Value Added 2016					Net Return 5-year					Net Value Added 5-year				
	Your	Peer Med	Rank vs. Peer			Your	Univ Med	Rank vs. Univ			Your	Univ Med	Rank vs. Univ			Your	Univ Med	Rank vs. Univ			Your	Univ Med	Rank vs. Univ		
			Low	Avg	High			Low	Avg	High			Low	Avg	High			Low	Avg	High			Low	Avg	High
BlackRock - NC Large Cap Passive Fund	0.01%	0.02%	■	■	■	11.9%	12.0%	■	■	■	-0.1%	0.0%	■	■	■	14.5%	14.6%	■	■	■	-0.2%	0.0%	■	■	■
Multi-Mgr - NC Large Cap Growth Fund	0.42%	0.39%	■	■	■	0.4%	8.3%	■	■	■	-6.7%	-2.7%	■	■	■	13.6%	14.8%	■	■	■	-0.9%	0.1%	■	■	■
Multi-Mgr - NC Large Cap Value Fund	0.38%	0.39%	■	■	■	16.8%	8.3%	■	■	■	-0.5%	-2.7%	■	■	■	14.9%	14.8%	■	■	■	0.1%	0.1%	■	■	■
BlackRock - NC SMID Cap Passive Fund	0.01%	0.05%	■	■	■	17.7%	16.2%	■	■	■	0.1%	0.0%	■	■	■	14.5%	15.0%	■	■	■	0.1%	0.0%	■	■	■
Multi-Mgr - NC SMID Growth Fund	0.66%	0.64%	■	■	■	8.6%	11.1%	■	■	■	-1.1%	-2.5%	■	■	■	13.3%	14.0%	■	■	■	-0.6%	-0.2%	■	■	■
Multi-Mgr - NC SMID Value Fund	0.61%	0.64%	■	■	■	20.6%	11.1%	■	■	■	-4.6%	-2.5%	■	■	■	16.1%	14.0%	■	■	■	1.0%	-0.2%	■	■	■
Multi-Mgr - NC International Equity Fund	0.45%	0.50%	■	■	■	5.5%	1.3%	■	■	■	0.5%	-1.0%	■	■	■	6.0%	7.0%	■	■	■	0.5%	0.6%	■	■	■
BlackRock - NC International Passive fund	0.03%	0.07%	■	■	■	5.1%	4.7%	■	■	■	0.1%	0.4%	■	■	■	4.9%	5.7%	■	■	■	-0.5%	0.1%	■	■	■
Multi-Mgr - NC Global Equity Fund	0.55%	0.52%	■	■	■	6.0%	2.9%	■	■	■	-2.5%	-2.6%	■	■	■	11.8%	11.2%	■	■	■	1.9%	0.4%	■	■	■
Multi-Mgr - NC Fixed Income Fund	0.16%	0.25%	■	■	■	4.0%	3.4%	■	■	■	1.3%	0.7%	■	■	■	3.7%	3.0%	■	■	■	0.6%	0.8%	■	■	■
BlackRock - NC Fixed Income Passive fund	0.02%	0.04%	■	■	■	2.6%	2.6%	■	■	■	-0.1%	-0.1%	■	■	■	2.9%	2.2%	■	■	■	-0.1%	-0.1%	■	■	■
Galliard - NC Stable Value Fund	0.34%	0.29%	■	■	■	2.0%	1.8%	■	■	■	1.0%	1.0%	■	■	■	2.1%	2.0%	■	■	■	1.0%	1.1%	■	■	■
PIMCO - Inflation Responsive Fund	0.86%	0.58%	■	■	■	10.5%	9.3%	■	■	■	3.7%	0.3%	■	■	■	n/a	0.1%	■	■	■	n/a	-0.6%	■	■	■

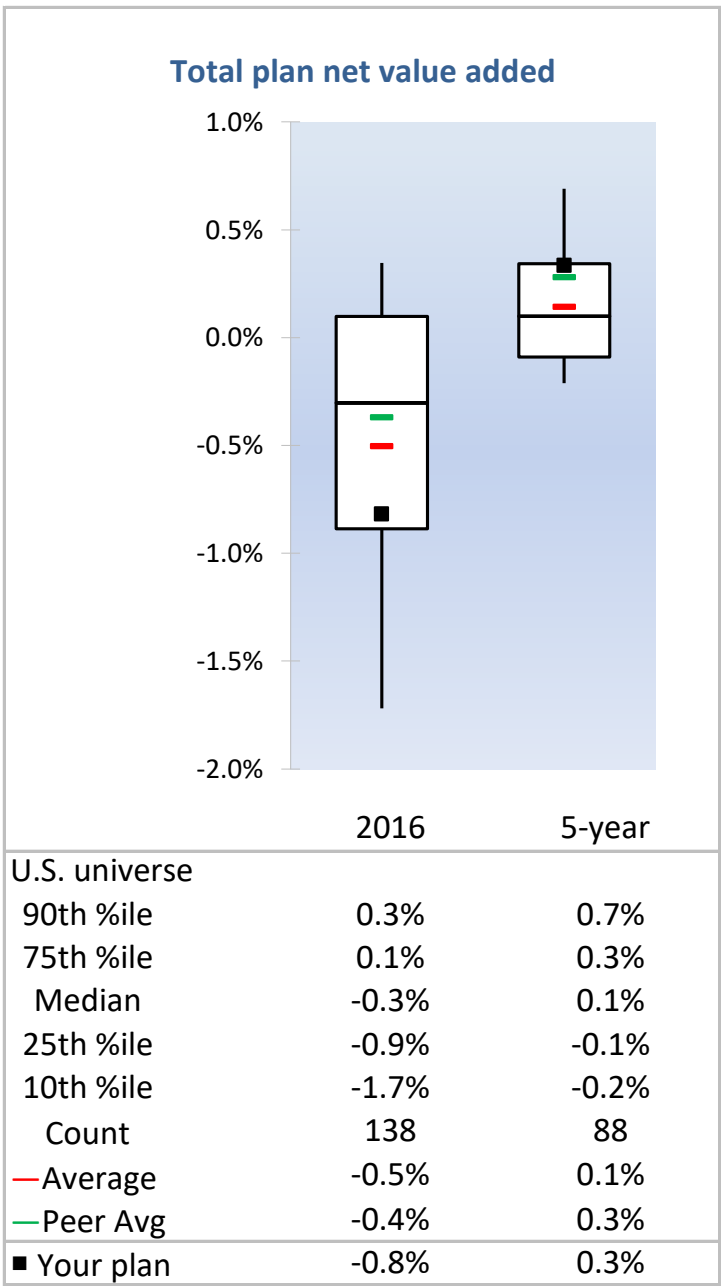
The ranking scale of 5 boxes are as follows: lowest and highest boxes are the bottom 10% (Low), top 10% (High). The mid boxes are divided into 3 approximately equal segments: 10%-36% (Below Average), 36%-63% (Average), 63%-90% (Above Average).

Performance highlighted in red if costs are higher than 90% of the peers' costs, or if returns or value added are in the bottom 10% relative to the universe

Your plan's total net value added from all investment options was -0.8% in 2016 and 0.3% for the 5 year period ending 2016.

Though we look at each of your investment options' performance in detail previously, it is also useful to review your plan's total net value added performance in aggregate.

Monitoring total plan value added serves a very different fiduciary purpose than monitoring the value added from individual investment options. Total plan value added shows you whether your process for adding and dropping investment options over time has been effective.



1. Employer stock's value added impact was neutralized by setting its benchmark return equal to its actual total return.

High participation and high contributions results in more retirement assets for more members and can be useful for evaluating DC plan success.

Some factors that impact participation rates:

- Whether participation is mandatory. Participation is mandatory for 10% of your peers.
- Whether the DC plan is the primary or supplemental retirement savings vehicle for participants. Your plan is considered supplemental.
- Auto enrollment. Your plan does not have auto enrollment. 36% of peer plans have auto enrollment.

Some factors that impact contribution rates:

- Initial default participation rate with auto enrollment. The initial default participant deferral rate for your peers is 5.0%.
- Incentives such as employer match. Your plan had an employer match. 82% of the U.S. universe has an employer match.
- Automatic increases in deferrals. Of the 68% of plans with auto enrollment, 35% had automatic increases. Your plan did not answer the questions about automatic increases.

Participation and Contribution rates

	Your Plan	Peer Median	Rank vs. Peers			
			%ile	Low	Avg	High
Participation rates						
% of eligible employees that participate	33%	70%	30%			
% making voluntary contributions	54%	51%	60%			
% receiving maximum employer match	n/a	84%	n/a			
Contribution rates						
Employer contributions per active participant	\$747	\$1,118	30%			
Employee contributions per active participant	\$1,432	\$2,438	18%			
Average account balance per participant	\$32,738	\$48,135	36%			

Services you provide, particularly education and advice, are key to participant success and also impact costs.

	Your Plan	Peer Average	Universe Average
Is individual financial counseling/investment advice available?	No	50% yes	67% yes
If yes, is it provided via:			
a. A computer-based model	n/a	0% yes	19% yes
b. Investment advisers	n/a	0% yes	5% yes
c. Both computer and investment advisers	n/a	100% yes	76% yes
Does your plan offer financial education via:			
a. Group meetings	Yes	100% yes	79% yes
b. Individual meetings	Yes	100% yes	64% yes
Do participants receive projections of annual income in retirement:			
a. In their participant statements	No	42% yes	33% yes
b. Online	Yes	92% yes	86% yes
c. Via separate communication	Yes	33% yes	38% yes
Does your plan have marketing campaigns to:			
a. Increase employee deferral rates?	Yes	92% yes	82% yes
b. Increase participation by eligible non-participants?	Yes	58% yes	70% yes
c. Educate on savers tax credit?	No	42% yes	19% yes
d. Improve diversification from employer stock?	n/a	0% yes	34% yes

Fiduciary structure and good governance are also key to DC plan success.

Fiduciary structure, process and documentation

	You	Peers	U.S. Universe
Who are the fiduciaries named in the plan document as having control over the plan's operation (If the employer sponsoring the plan is named, indicate who currently acts as the internal fiduciary on behalf of the employer):			
a. The Board of Directors of the plan sponsor		55% yes	13% yes
b. A specified title or person such as the CEO or CFO		9% yes	3% yes
c. A committee	Yes	27% yes	79% yes
d. Other		9% yes	5% yes
If a committee is the named fiduciary:			
a. Number of committee members	9	7.3	6.0
b. Number of committee meetings in the past year	10	9.7	5.4
c. Are the minutes of each meeting documented	Yes	100% yes	99% yes
Are the 'named' fiduciaries:			
a. Provided with formal training as to their role and responsibilities	Yes	83% yes	86% yes
b. Required to sign an 'acknowledgement of responsibility' form	Yes	73% yes	29% yes
Have third-parties been appointed as fiduciaries to serve as:			
a. Investment manager with full discretionary powers for selecting, monitoring and replacing the plan's investment options	Yes	25% yes	8% yes
b. Investment advisor to provide advice regarding the selection and retention of plan	Yes	83% yes	56% yes
c. Plan administrator responsible for regulatory filings, disclosures to participants and hiring plan service providers if no other fiduciary has that responsibility	Yes	58% yes	32% yes
Is there documentation that identifies the process for:			
a. Selection and monitoring of third-party fiduciaries and other plan service providers	Yes	100% yes	82% yes
b. Investment policy	Yes	100% yes	95% yes
c. Oversight of internal employees involved in operating the plan (i.e., internal fiduciaries, HR staff enrolling employees in the plan, posting deferrals, etc.)	Yes	83% yes	76% yes
d. Fulfilling administration responsibilities (regulatory filings, disclosures to participants)	Yes	92% yes	79% yes

Appendix A - Reason 1: Paying same for similar-style investment options

Cost impact of paying more/-less for your plan's investment options

Provider - Option Name	Asset Class ¹ & Implementation Style	Your Plan	Cost Peer Median	More/-Less (A)	Average Assets \$mills (B)	Cost/-Savings in \$000s (A X B X 1000)
BlackRock - North Carolina Large Cap Passive Fund	Stock U.S. Large Cap - indexed	0.01%	0.02%	-0.01%	1,332	-176
Multi-Mgr - North Carolina Large Cap Growth Fund	Stock U.S. Large Cap	0.42%	0.39%	0.03%	888	281
Multi-Mgr - North Carolina Large Cap Value Fund	Stock U.S. Large Cap	0.38%	0.39%	-0.01%	904	-112
BlackRock - North Carolina SMID Cap Passive Fund	Stock U.S. Mid Cap - indexed	0.01%	0.05%	-0.04%	233	-100
Multi-Mgr - North Carolina SMID Growth Fund	Stock U.S. Mid Cap	0.66%	0.64%	0.02%	358	70
Multi-Mgr - North Carolina SMID Value Fund	Stock U.S. Mid Cap	0.61%	0.64%	-0.04%	467	-165
Multi-Mgr - North Carolina International Equity Fund	Stock Non U.S.	0.45%	0.50%	-0.05%	563	-298
BlackRock - North Carolina International Passive Fund	Stock Non U.S. - indexed	0.03%	0.07%	-0.05%	46	-20
Multi-Mgr - North Carolina Global Equity Fund	Stock Global	0.55%	0.52%	0.02%	809	186
Multi-Mgr - North Carolina Fixed Income Fund	Bonds Broad	0.16%	0.25%	-0.09%	625	-543
BlackRock - North Carolina Fixed Income Passive Fund	Bonds Broad - indexed	0.02%	0.04%	-0.02%	406	-81
Galliard - North Carolina Stable Value Fund	Stable Value (ex GIC)	0.34%	0.29%	0.05%	2,407	1,155
PIMCO - Inflation Responsive Fund*	Other	0.86%	0.86%	0.00%	382	0
Total					9,415	196

1. The stock asset classes combine the styles: growth, value, broad. Therefore, one reason costs may be higher or lower is differences in proportions of these styles. Starting on page 40 costs are compared on an uncombined basis by style.

Appendix A - Reason 2: Added cost from active versus indexed options

The active premium is the incremental cost of active management relative to indexed options (based on peer costs).

Cost Impact of Investment Options Being More/-Less Actively Managed

Indexable Option Types ¹	% Actively Managed			Average Assets \$mills (D)	Cost/-Savings in \$000s ⁴ A x (B-C) x D
	Active Premium ² (A)	Your Plan (B)	Peer Average ³ (C)		
Stock U.S. Broad or Large Cap	0.37%	56.8%	45.3%	3,123	1,329
Stock U.S. Mid Cap	0.59%	77.7%	60.6%	1,057	1,069
Stock Non U.S.	0.43%	92.6%	55.7%	609	964
Stock Global	0.52%	100.0%	100.0%	809	0
Bonds Broad	0.21%	60.1%	47.6%	1,031	270
Total		69%	56%	6,627	3,631
Total as a % of plan assets					0.04%

1. Only option types where both indexed and active management styles are relevant are shown. Thus employer stock, stable value funds and loans are excluded from assets for the purpose of this comparison.
2. The active premium is the additional cost of external active management relative to passive management for each asset class (based on the peer group).
3. The total peer average is weighted by your plan's assets in indexable options. The total peer average is 48% when weighted by each peer's assets in indexable options.
4. Cost/-Savings for each option type equals the amount by which you are more/-less actively managed than the peer average, multiplied by the active premium multiplied by your plan's average assets in the option type.

Appendix A - Reason 3: Equal administrative expenses

Your plan's total administrative expenses were 0.13% of total plan assets. This was the same as the comparable peer median cost of 0.13%.

Cost impact of differences in administrative expenses

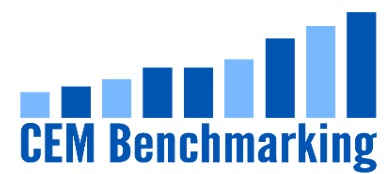
Administrative Service	Cost as a % of plan assets		Cost/ -Savings	
	Your Plan	Peer Benchmark ¹	%	\$000s
	(A)	(B)	(A - B)	
Total administrative expenses after rebates	0.13%	0.13%	0.00%	356.4

1. Peer Benchmark = Peer median admin cost per member (\$41) x Total number of your fund's members (298,337) / Your fund's average holdings

Appendix A - Reason 4: Lower mutual fund window assets

Cost Impact of Mutual Fund Windows (MFW)

MFW Assets as a % of Total Assets			MFW Premium ¹ (B)	Cost/ -Savings	
Your Plan	Peer Average	More/ -Less (A)		% (A X B)	\$000s
0.0%	0.1%	-0.1%	0.61%	0.00%	-\$35



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RETIREMENT SYSTEMS DIVISION

STEVEN C. TOOLE
EXECUTIVE DIRECTOR

To: Supplemental Retirement Board of Trustees
From: Mary Buonfiglio, Deputy Director, Supplemental Plans
Date : September 21, 2017
Re: CEM Benchmarking Report

The CEM Benchmarking Report is a valuable tool for the Supplemental Retirement Board of Trustees (Board) and staff to help assess the Plans' performance. The report's value lies in its analysis of several important Plan features that are monitored by the Board, including fees, fund performance and Total Net Value Added. This memo shares some observations from the report that highlight matters important to the Board and the oversight of the North Carolina Plans.

Active and Passive Management Styles

Report Finding:

While cost is not the only factor to be considered in the assessment of performance, the Plan cost of 0.47% is higher than the benchmark cost of 0.40%. This is primarily due to the use of active versus indexed investment options.

Observation:

Plan expenses will be reduced upon the completion of the Plan Design project scheduled for September 29, 2017. At that time, four white label funds will be closed and two new funds will be created, which hold a greater proportion of indexed assets. In the NC Large Cap Core Fund, investment management fees will decrease from the two former fund fees of 0.37% and 0.43%, to 0.31% on nearly \$2 billion in Plan assets. In the NC SMID Cap Core Fund, fees from the two former fund fees of 0.55% and 0.63% will be replaced with a new fee of 0.55% on approximately \$1 billion.

Stable Value Holdings

Report Findings:

While the Plans' five-year total net return of 8.5% compares favorably to the U.S. average of 8.7% and peer average of 7.8%, performance was offset by more stable value assets, which had lower returns.

Observation:

The weighting to NC Stable Value Fund is higher than the peer group, which points to an opportunity for targeted messaging to participants (particularly those who "defaulted" into SV prior



RETIREMENT SYSTEMS DIVISION

STEVEN C. TOOLE
EXECUTIVE DIRECTOR

to 2010) who steadfastly remain in the NC Stable Value Fund, encouraging them to reassess whether their asset allocations continue to match their retirement plans and risk profile. GoalMaker continues to be an effective tool for assisting participants who would like help in determining the appropriate asset mix for their retirement savings.

Early career participants have been of particular concern to the Board and staff. Staff has analyzed our participant data and determined that, of the approximate 43,000 Plan participants age 25 to 34, 90% hold 5% or less of their total assets in the NC Stable Value Fund. The remaining (approximately 10%) have a higher percentage of their portfolio in the NC Stable Value Fund, representing as much as 35%.

In addition, the “Target & Balanced Fund holdings” reported on page 8 of the CEM Benchmarking Report contains holdings that include stable value funds. This could lead to an under-reporting of the actual percentage of stable value assets represented in peer plans.

Administrative Costs

Report Findings:

The Plans’ administrative fees average \$149 per participant, compared to the peer average of \$160, and the universe average of \$383. When converted to basis points, Plan administrative fees are 0.47%, versus a peer average of 0.34%, and a universe average of 0.30%.

Observation:

The NC Supplemental Plans have an average participant account balance of \$33,000, versus the peer average of \$48,000 and the universe average of \$136,000. This difference in average account size explains the difference in the dollar-versus-basis point fee analysis.

As detailed in Mercer’s Recordkeeper Benchmarking Report presented to the Board in March, an important factor to consider in the analysis of administrative fees is the service level provided by the Plans’ recordkeeper. In particular, the Plans’ 16 field educational counselors provide a significant resource for one-on-one, confidential educational assistance to support participants and potential participants, as well as the nearly 1000 employers who offer the Plans.

Summary

Staff find significant value in the CEM Benchmarking Report and hope to continue to use this resource in discussions with the Board about opportunities to better meet the needs of participants, potential participants, and employers.