



Defined Contribution Plans Advisory Committee (DCPAC) Meeting

1111 East Main Street, Pavilion Building, Richmond

Thursday, 12/2/2021

1:00 - 3:00 PM ET

1. Welcome & Introductions

2. Meeting Minutes

Adoption of the Minutes from the September 2, 2021 Meeting
DCPAC Minutes 09-02-2021 - Page 2

3. Administration

a. Annual Administrative Expense Reports

DCPAC Annual Cost Update November 2021 - Page 8

b. Administrative Reports & Communications

2021 Q3 Administrative Summary - Page 13

i. DC Plans and Hybrid Plan Update

ii. ORPHE

ORPHE Employer Update Report

iii. DC Plans Consultant RFP

4. Investments

DC Investments - Page 45

a. Performance Reports

b. CEM Defined Contribution Plans Survey

5. Other Business

a. Code of Ethics

b. VRS Legislative Package

VRS Legislation Talking Points - Page 67

22100416D - Page 68

6. Discussion of New Ideas

7. 2022 Meetings

a. ORPHE Annual Employer Update

(not a meeting of the DCPAC)

b. 2022 DCPAC Meetings

i. March 24, 2022 at 1:00 p.m.

ii. June 2, 2022 at 1:00 p.m.

iii. September 8, 2022 at 1:00 p.m.

iv. December 1, 2022 at 1:00 p.m.

8. Adjournment

9. Appendix

(for informational purposes only, will not be reviewed in detail during the meeting)

457 Plan CEM DC Results 2020 - Page 74

TIAA ORPHE CEM DC Results 2020 - Page 94

Public comment will not be accepted at this meeting.

Minutes

The Defined Contribution Plans Advisory Committee (DCPAC) of the VRS Board of Trustees met on September 2, 2021, with the following members present:

Committee Members:

Hon. J. Brandon Bell, Chair
Dr. Susan Gooden
Shannon Irvin (attended remotely under § 2.2-3708.2(A)(1)(b))
Rick Larson
Brenda Madden
David Winter (attended remotely under § 2.2-3708.2(A)(3))

Members of the Board of Trustees:

O'Kelly E. McWilliams, III*
Michael Disharoon*
William Garrett*

VRS staff members in attendance:

Trish Bishop, Steve Cerreto*, Jeanne Chenault, Michael Cooper*, Josh Fox*, Brian Goodman*, Kelly Hiers, KC Howell, Robert Irving, Ciara Lawson*, Joyce Monroe*, Teresa Nguyen*, Rebecca Nicholas*, Laura Pugliese, Kristy Scott*, Michael Scott*, Jillian Sherman, Jennifer Schreck*, Ashley Spradley*, Stacy Taylor*, Peter Thompson, Bridgette Watkins*, Rachel Webb* and Cindy Wilkinson.

Also in attendance were Latosha Johnson*, Virginia Department of Planning and Budget; and Denise Fortune*, Voya.

**Attended remotely*

The meeting convened at 1:03 p.m.

Chairman Bell welcomed committee members, board members, VRS staff, representatives from other stakeholder groups and members of the public.

Mr. Bell took a roll call of each DCPAC member for attendance purposes:

Dr. Gooden – Present
Ms. Irvin – Present
Mr. Larson – Present
Ms. Madden – Present
Mr. Winter – Present
Mr. Bell – Present

APPROVAL OF MINUTES

Upon a motion by Mr. Bell, with a second by Dr. Gooden, the minutes of the June 24, 2021 meeting were approved.

Mr. Bell asked for each Committee member to vote on the motion:

Dr. Gooden - Aye
Ms. Irvin – Aye
Mr. Larson – Aye
Ms. Madden – Aye
Mr. Winter – Aye
Mr. Bell – Aye

DCPAC APPOINTMENTS

Trish Bishop, VRS Director, informed the Committee of a nomination to a vacant seat on the DCPAC. The Committee reviewed the biography of Meghan Coates, who is recommended for appointment to fill Ms. Seay's unexpired term ending June 20, 2022. Ms. Seay stepped down from the Committee due to her retirement.

Upon a motion by Mr. Bell, with a second by Ms. Irvin, the Committee concurred in the nomination of Ms. Coates and moved to present the nomination to the Administration and Personnel Committee for recommendation to the Board of Trustees.

RBA: Appointment of DCPAC Member

Request for Board Action: *The Board appoints Meghan Coates to fill the unexpired term of Kathleen T. Seay, which ends June 20, 2022.**

Mr. Bell asked for each Committee member to vote on the motion:

Dr. Gooden – Aye
Ms. Irvin – Aye
Mr. Larson – Aye
Ms. Madden – Aye
Mr. Winter – Aye
Mr. Bell – Aye

**Subsequent to the DCPAC meeting, Ms. Coates withdrew her name from consideration for the DCPAC. Staff has reached out to the Virginia Municipal League and Virginia Association of Counties for a new recommendation to fill this seat on the DCPAC.*

DC PLANS INVESTMENTS UPDATE

Laura Pugliese, Portfolio Manager, Defined Contribution Plans, provided an overview of the Annual Investments Review as of June 30, 2021 to the DCPAC.

DC Plans Investment Belief Statements

Ms. Pugliese provided final revisions of the VRS Defined Contribution Plans Investment Belief Statements, which resulted from a comprehensive review that began in April 2021 by the Committee and staff. Ms. Pugliese noted the additional revisions provided further clarification and improved sentence structure. She put forth a recommendation for the DCPAC to approve the revisions and recommend revisions to the Board.

Upon a motion by Mr. Bell, with a second by Ms. Madden, the Committee recommended approval of the following action to the full Board:

RBA: Approve Revisions to The Defined Contribution Plans Investment Belief Statements

Request for Board Action: *The VRS Board of Trustees approves revisions to the VRS Defined Contribution Plans Investment Belief Statements.*

The Board adopts these Investment Belief Statements pursuant to the duty to oversee investments under the standard set forth in Code of Virginia § 51.1-124.30. Moreover, Code of Virginia § 51.1-124.22 authorizes the Board to promulgate regulations and procedures and make determinations necessary to carry out the provisions of Title 51.1.

Mr. Bell asked for each Committee member to vote on the motion:

Dr. Gooden - Aye
Ms. Irvin – Aye
Mr. Larson – Aye
Ms. Madden – Aye
Mr. Winter – Aye
Mr. Bell – Aye

Annual Investments Review

Ms. Pugliese provided an overview of the DCPAC duties and responsibilities as required by the Charter, including the duty to review trends and best practices, assist staff with identifying potential asset classes and investment strategies, review the VRS Defined Contribution Plans Investment Belief Statements and DC Plans Investment Policy Statements, and provide recommendations to the Board as needed. She

noted there were no recommended changes at this time to the two DC Plans Investment Policy Statements for the unbundled and bundled program structures.

Ms. Pugliese provided an overview of the Annual Investments Review as of June 30, 2021 to the DCPAC. Total DC Plan assets in the unbundled DC Plans structure and bundled ORPHE structure was \$6.6 billion for the Fiscal Year ending June 30, 2021. She informed the Committee that no changes were made to either the unbundled DC plans investment platform or the bundled TIAA ORPHE investment platform.

Ms. Pugliese provided a review of the investment performance and annual operating expenses in the unbundled DC Plans and bundled TIAA ORPHE Retirement Choice (RC) contract for the Fiscal Year ending June 30, 2021.

Ms. Pugliese shared with the Committee that the complete annual investment review package was included in the appendix.

ADMINISTRATIVE REPORTS AND COMMUNICATIONS UPDATE

Kelly Hiers, DC Plans Administrator, provided an update on the VRS Defined Contribution Plans for the second quarter ending June 30, 2021. Ms. Hiers shared the total assets and accounts under management across all DC plans as of June 30, 2021.

Ms. Hiers informed the Committee that the final renewal of the contract for the current record keeper for the unbundled DC Plans ends December 31, 2024. She provided an overview of the projected timeline as it relates to the request for proposal (RFP) for a new contract for a record keeper, starting with the issuance of a Consultant RFP in September 2021 to assist with developing and issuing the record keeper RFP. Ms. Hiers noted that due to the complexity and customization of the unbundled DC Plans, an 18 to 24-month implementation period to onboard a new record keeper is needed if there is a change.

Ms. Hiers shared that VRS DC Plans was the recipient of the 2021 NAGDCA Leadership Award in two categories: COVID-19 Virtual Response and Technology, and Interactive Multimedia for Interactive Virtual Tools.

DC Plans and Hybrid Plan Update

Ms. Hiers provided an update on total assets and accounts in the COV 457 and Virginia Cash Match plans through June 30, 2021. She also provided an overview of total assets and accounts in the VRS Hybrid Retirement Plan and highlighted hybrid plan participation, noting the overall participation in hybrid voluntary contributions and number of hybrid plan members making voluntary contributions.

Ms. Hiers provided an overview of the population of hybrid plan members also eligible for the Commonwealth of Virginia 457 Deferred Compensation Plan. She shared that analysis is conducted on a quarterly basis to identify trends in this population and also to evaluate opportunities to improve communications and outreach efforts to members not maximizing voluntary contributions to the Hybrid 457 Plan and missing out on employer matching contributions.

Ms. Hiers provided an overview of the second quarter DC Plans goal focused on Asset Retention, including asset retention metrics in the unbundled DC plans. She provided an overview of assets by age and employment status, distribution type in the COV 457 and Hybrid 401(a) plans, rollovers and unforeseen emergency withdrawals (UEWs). Ms. Hiers noted the year-over-year decrease in UEWs from 2019 to 2020 due to the availability of coronavirus-related distributions and the moratorium on evictions and foreclosures as a result of the pandemic. Ms. Hiers informed the Committee of new and ongoing asset retention efforts, including targeted communications to separated individuals, outbound calls to participants who have rolled amounts greater than \$100,000 out of the plan, and resources specifically designed for participants eligible for distribution.

ORPHE Update

Ms. Hiers provided an overview by provider of total ORPHE assets, participants and average balances for the second quarter of 2021.

Ms. Hiers informed the Committee of amendment changes to the TIAA ORPHE contract, effective October 1, 2021. She noted the changes will include the implementation of multiple performance standards, finalization of updates not captured or completed in the previous contract amendment, and a pricing reduction to the revenue requirement from \$66 per year for unique participants in the active Retirement Choice (RC) contract to \$28 per year for all unique participants, including participants in the inactive legacy contracts. Ms. Hiers shared that there were several contributing factors to the pricing change, including higher total plan assets and average account balances held by participants, more plan administration efficiencies and automated processes, technology platform enhancements, and competitive pressures among plan administration record keepers.

Ms. Hiers provided an update on efforts underway to retire the existing Quarterly Service Review provided by MissionSquare and replace with three high-level dashboards that focus on primary plan metrics. Ms. Hiers informed the Committee the dashboards are in the development phase and encouraged Committee members to share feedback as to any information or metrics they would like to see presented.

The Committee thanked Ms. Hiers for her presentation.

OTHER BUSINESS

Discussion of New Ideas

There was no discussion of new ideas.

UPCOMING DEFINED CONTRIBUTION PLANS ADVISORY COMMITTEE MEETINGS

Mr. Bell confirmed the following DCPAC meeting dates for 2021:

The next meeting of the DCPAC will take place on December 2nd from 1:00 p.m. to 4:00 p.m.

The ORPHE Annual Employer Update is scheduled for September 30th, as required by the DCPAC Charter. This is not a DCPAC Committee meeting, however members may attend if interested.

ADJOURNMENT

Mr. Larson made a motion to adjourn the meeting. Ms. Madden seconded the motion.

There being no further business, Mr. Bell adjourned the meeting at 2:21 p.m.

J. Brandon Bell, Chair
Defined Contribution Plans Advisory Committee

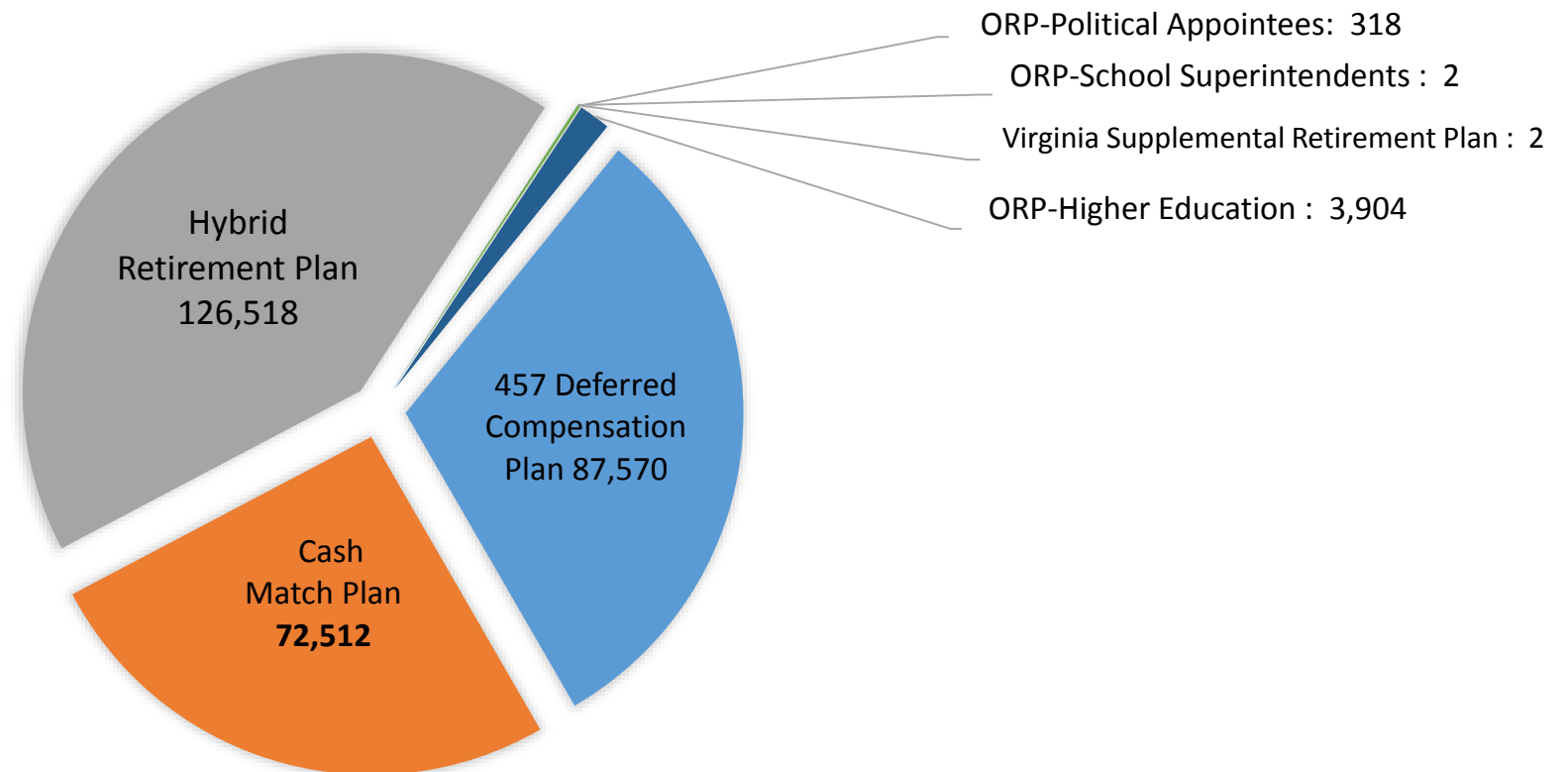
Defined Contribution Plans Annual Cost Update

Defined Contribution Plans Advisory Committee (DCPAC)
December 2, 2021

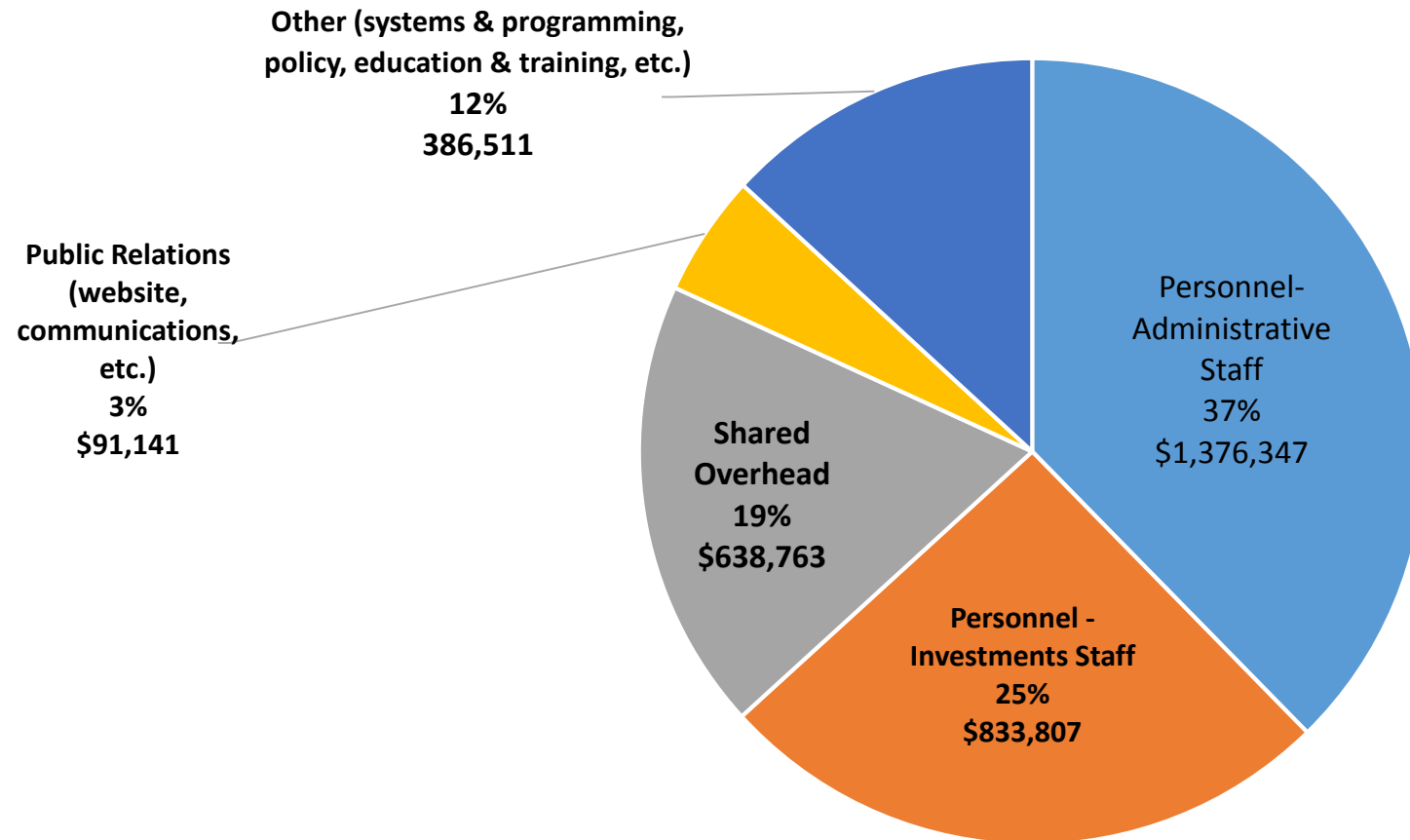


FY 2021 DC Plan Participant Counts

Summary of Participant Plan Counts: 290,889



Total administrative expenses of \$3.30 million; detailed as follows:



FY 2021 Expenditures



Administrative Expenses Summary

Defined Contribution (DC) Plans Administrative Expenses Fiscal Year 2021									
Primary Functions	Activity Description	COV 457 Deferred Comp CD 375	Cash Match CD 376	Hybrid CD 600	Va. Suppl Retirement CD 380	Optional Retirement Plans			Total Costs for All DC Plans
						School Super. (ORPSS) CD 377	Political Appointees (ORPPA) CD 378	Higher Education (ORPHE) CD 379	
DCPAC	Per Diem Checks	\$ 5,392	\$ 9,635	\$ 6,710	\$ -	\$ -	\$ 41	\$ 268	\$ 22,045
Personnel Service - Defined Contributions	Staff to administer DC Plans	244,802	216,545	677,719	-	40	11,272	225,970	1,376,347
Personnel Service - Investments*	Staff to oversee DC Plans investments	256,432	227,875	335,331	-	-	1,226	12,943	833,807
Direct Charges:	Ice Miller	13,420	4,988	10,237	-	-	-	3,957	32,602
	Miscellaneous (Postage, Printing, Dues, Subscriptions)	-	-	-	-	-	-	2,060	2,060
Shared Overhead Costs	Occupancy, Parking, Phone, Human Resources, Desktop/Network Support	94,232	57,023	381,938	-	-	5,718	99,853	638,763
Support Functions									
Executive Leadership	Oversight of DC Plans	14,032	6,538	19,381	-	44	218	3,404	43,617
Imaging	Image DC forms	-	3,041	-	-	-	-	-	3,041
Education and Training	DC Plans Training	24,261	5,190	31,038	-	-	2,929	38,493	101,910
Employer Representatives	Outreach to Employers	1,130	1,005	1,407	-	-	40	60	3,641
Finance	Support DC Plans	-	-	38,408	-	-	-	2,863	41,271
Legislative Affairs	VRS Liaison with DCPAC	2,112	748	-	-	-	16	112	2,989
Policy & Planning	VRS Liaison with DCPAC	17,065	13,023	20,420	-	8,515	9,302	20,376	88,700
Public Relations	Website, Brochures, etc.	10,410	11,645	30,463	-	-	-	38,624	91,141
Systems & Programming	Support DC Plans	14,533	12,034	20,997	-	-	63	648	48,275
Total Costs		\$ 697,822	\$ 569,289	\$ 1,574,048	\$ -	\$ 8,598	\$ 30,825	\$ 449,629	\$ 3,330,211
Participants		87,570	72,512	126,518	2	2	381	3,904	290,889
Annual Cost Per Participant		\$ 7.97	\$ 7.85	\$ 12.44	-	-	\$ 80.90	\$ 115.17	-

*Starting in FY 2019, Investment personnel costs are allocated across plans according to participant count.
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Cost Trends: FY 2017- FY 2021



	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
COV 457	\$647,174	\$705,921	\$881,610	\$834,892	\$697,822
Participants	77,623	79,397	80,189	87,033	87,570
Annual Cost per Participant	\$8.34	\$8.89	\$10.99	\$9.59	\$7.97
Cash Match	\$413,893	\$344,977	\$432,190	\$472,760	\$569,290
Participants	70,201	70,881	71,089	72,351	72,512
Annual Cost per Participant	\$5.90	\$4.87	\$6.08	\$6.53	\$7.85
Hybrid	\$561,800	\$617,632	\$1,045,544	\$1,320,393	\$1,574,048
Participants	68,009	85,179	102,845	118,279	126,518
Annual Cost per Participant	\$8.26	\$7.25	\$10.17	\$11.16	\$12.44
VSRP	\$0	\$0	\$6,163	\$0	\$0
Participants	2	2	2	2	2
Annual Cost per Participant	-	-	-	-	-
ORPSS	\$4,948	\$4,357	\$58	\$14,332	\$8,598
Participants	2	2	2	2	2
Annual Cost per Participant	-	-	-	-	-
ORPPA	\$76,627	\$100,627	\$58,777	\$38,364	\$30,825
Participants	341	334	372	383	381
Annual Cost per Participant	\$224.71	\$301.28	\$158.00	\$100.17	\$80.90
ORPHE	\$913,539	\$694,196	\$450,527	\$435,678	\$449,629
Participants	5,406	4,210*	4,218	4,273	3,904
Annual Cost per Participant	\$168.99	\$164.89*	\$106.81	\$101.96	\$115.17
Summary:					
Total Costs	\$2,617,981	\$ 2,467,710	\$2,874,869	\$3,116,419	\$3,330,212
Total Participants	221,584	240,005	258,717	282,323	290,889

*FY 2018 ORPHE figures include the withdrawal of the College of William and Mary (CWM) on 12/31/17

FY 2021 Highlights:

- Plan reviews were performed for all DC Plans.

VRS Defined Contribution Plans

3rd Quarter 2021
(July - September)

Administrative Summary
December 2, 2021

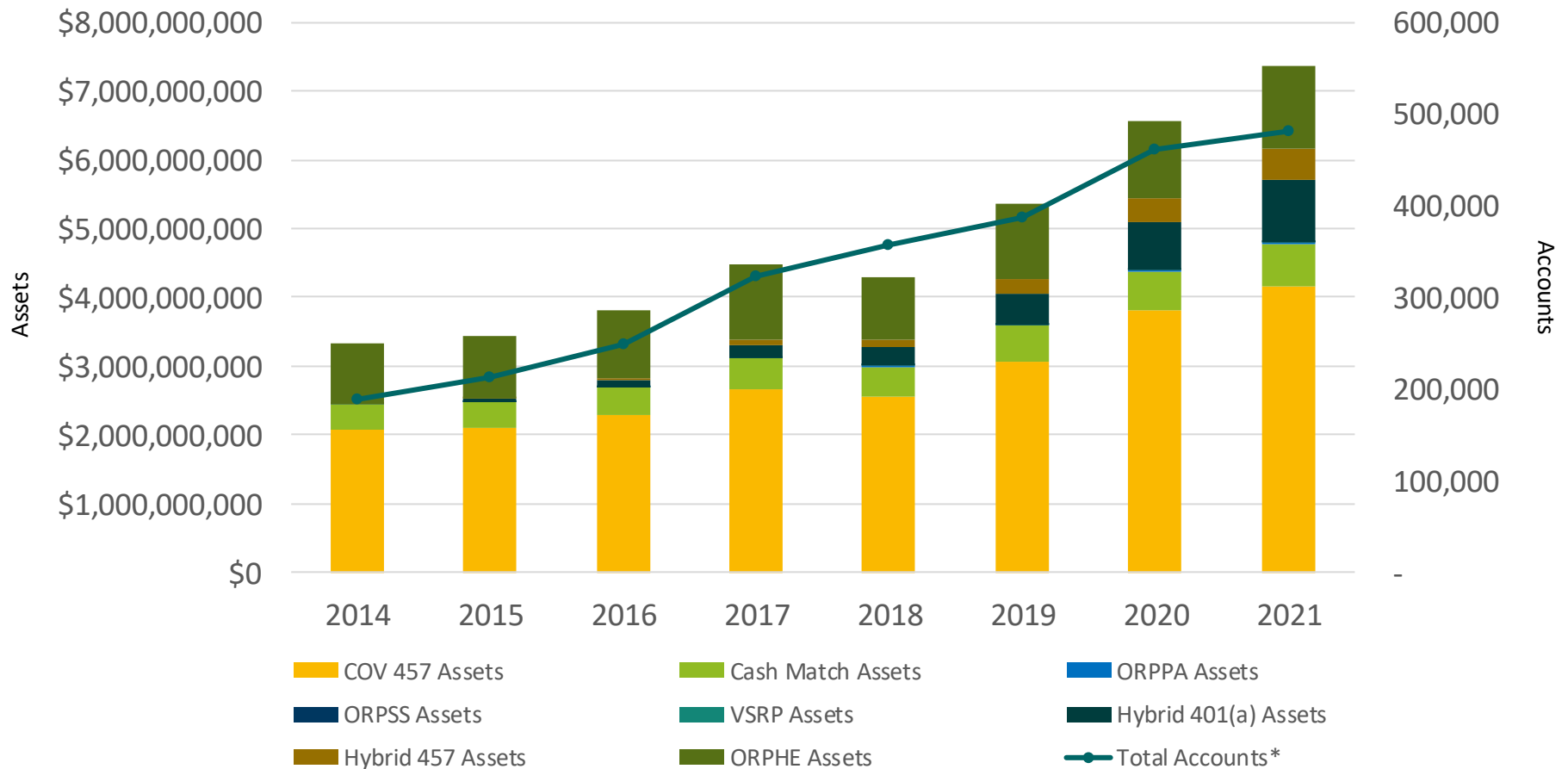


Topic	Slide Number(s)
Total Assets & Accounts	3
DC Plans Performance Dashboards	4-9
Unbundled Plans Updates	10-11
COV 457 & Cash Match Plans	12-14
Hybrid Retirement Plan	15-17
Focus: Increasing Enrollments and Contributions	18-26
ORPHE	27-29
DC Plans Unbundled Recordkeeper Contract Update	30-31

Total Assets and Accounts Over Time



Totals as of 9/30/2021	Assets	Accounts	Accounts ↑ 2% since June 30, 2021
	\$7,365,655,914	481,538	



Note: Data reflects totals as of calendar year end and includes ORPHE selected providers and MissionSquare participant, beneficiary, forfeiture & reserve accounts. 2021 data is through September 30, 2021.
 *Does not indicate unique participants.

DC Plans Performance Dashboards

VRS Defined Contribution Plans

July 1, 2021 – September 30, 2021

DCP
Virginia Retirement System

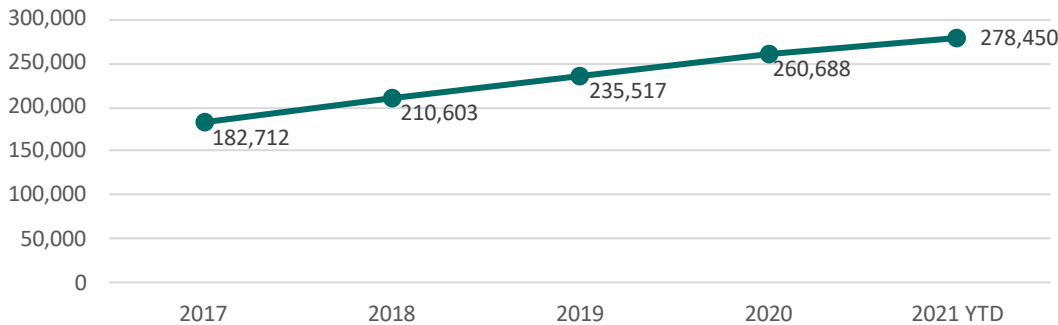


VRS Defined Contribution Plans¹

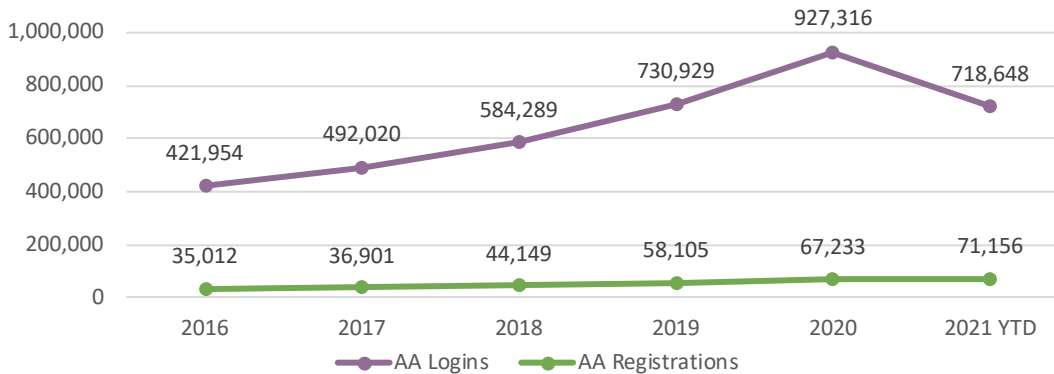
3rd Quarter 2021 – DC Plans Metrics

Total Assets²: \$6,298,245,081.45 Total Accounts²: 472,470

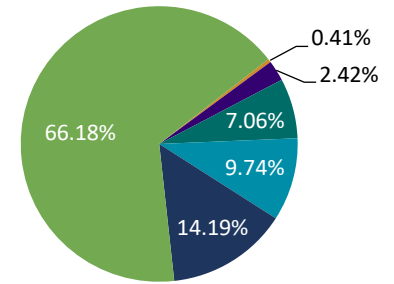
Unique Participants



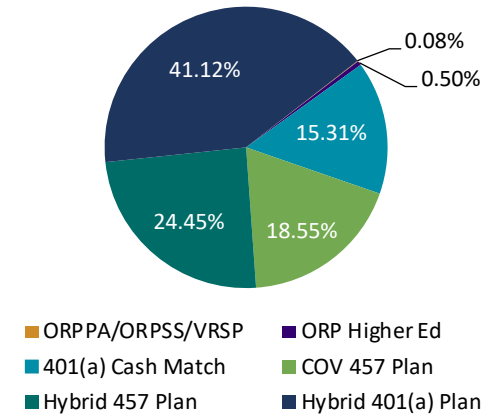
Account Access Registrations & Logins



Assets Under Management



Accounts Under Management



Top 10 Visited Pages³

1. Hybrid Retirement Plan Landing Page
2. COV 457 Retirement Plan Landing Page
3. Hybrid 457 Voluntary Contributions
4. myVRS Login
5. Account Access Login
6. Hybrid Retirement Plan Education
7. Virginia Cash Match Landing Page
8. COV 457 Plan Info
9. Hybrid Forms
10. Hybrid Plan Group Life Insurance

VRS Defined Contribution Plans

3rd Quarter 2021 – DC Plans Participant Engagement

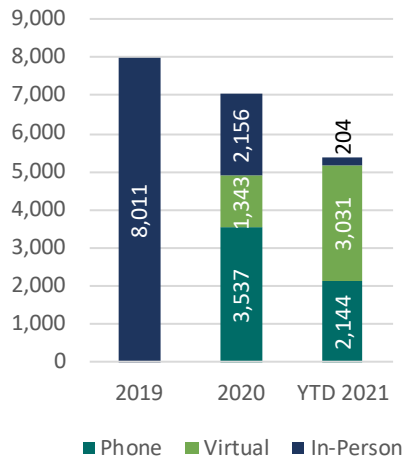
Call Center – Participant Services

- 41,272 calls received YTD 2021
- 63,953 calls received in 2020
- 61,384 calls received in 2019

Current call trends:

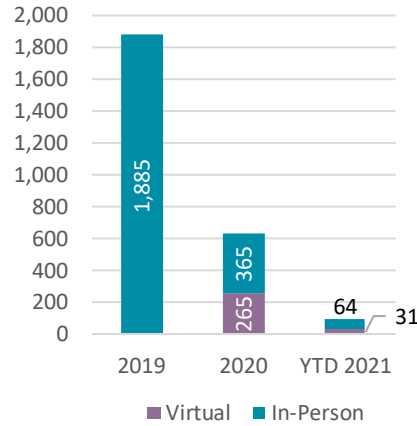
1. Withdrawals
2. General inquiries
3. Deferrals
4. Internet assistance
5. Indicative data

Individual Account Reviews

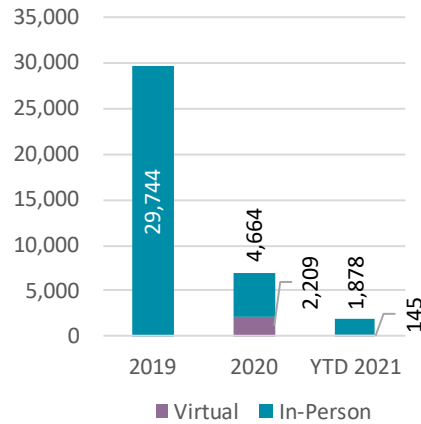


Participant Sessions

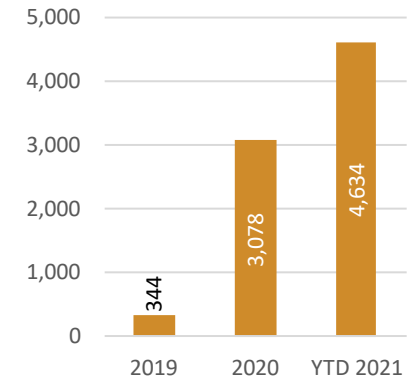
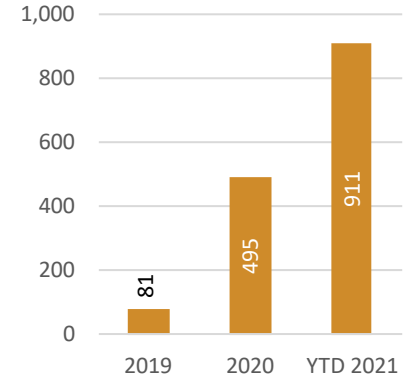
Group Meetings



Participant Attendance



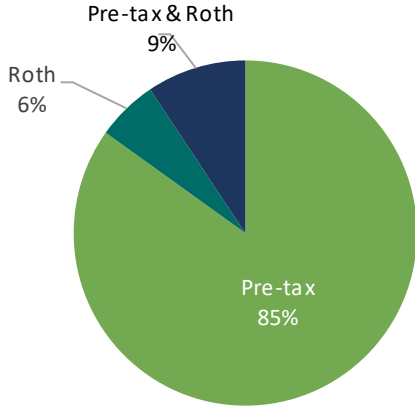
Webinars



VRS Defined Contribution Plans

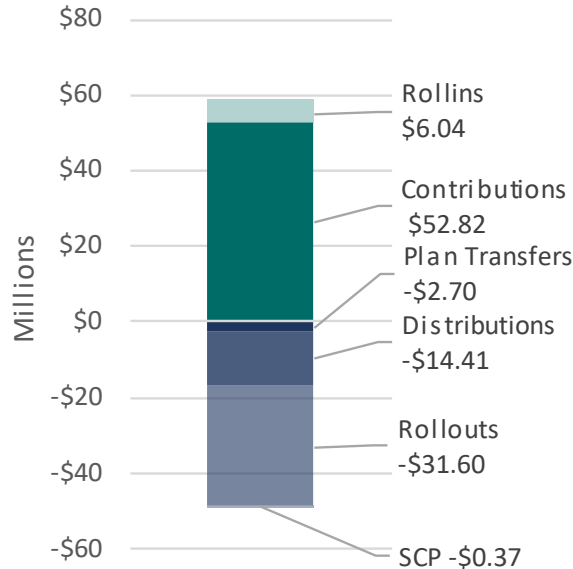
3rd Quarter 2021 – COV 457 Plan, Virginia Cash Match Plan

Deferral Type



Average pre-tax deferral per pay = \$164.80
Average Roth deferral per pay = \$167.09

Contributions/Distributions⁵



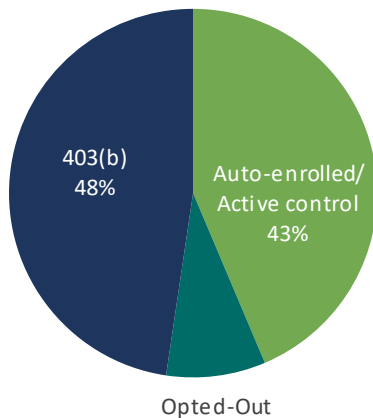
COV 457 Participation Rates

- State⁴ 36.28%
- Non-state 10.01%

Top 10 Fund Holdings

1. Stock \$1,492,196,664
2. Target Date Portfolios \$1,377,955,114
3. Stable Value \$620,659,721
4. Small/Mid-Cap Stock \$441,439,857
5. International Stock \$209,044,261
6. Bond \$170,751,136
7. Global Real Estate \$102,789,454
8. TD Ameritrade \$92,370,670
9. Money Market \$83,537,910
10. Inflation-Protected Bond \$53,488,831

Auto Enrollment



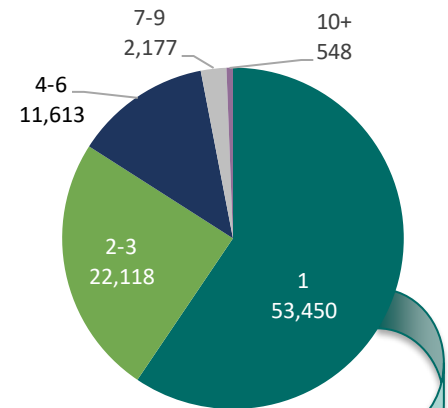
Participant Status Overview⁶

159,347 total accounts

58% Active
42% Separated

\$1,996m assets at-risk

of Funds Held by Participants

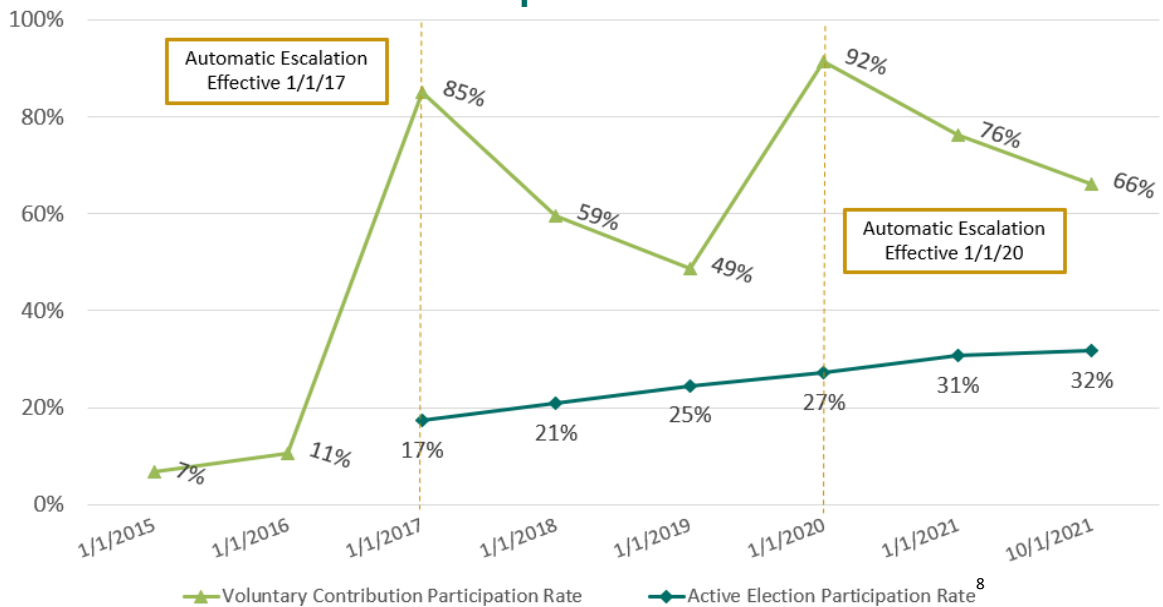


81% of this population is invested in a single TDP

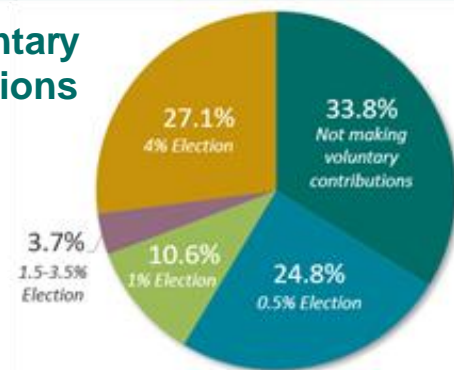
VRS Defined Contribution Plans

3rd Quarter 2021 – Hybrid Retirement Plan – 401(a) & 457(b)

Participation Rates⁷



Voluntary Elections



Top 10 Fund Holdings

1. Target Date Portfolios	\$1,248,798,233
2. Stock	\$45,124,907
3. Small/Mid-Cap Stock	\$15,587,690
4. Money Market	\$7,439,965
5. International Stock	\$7,431,089
6. Stable Value	\$4,851,505
7. Global Real Estate	\$3,466,014
8. High-Yield Bond	\$2,850,281
9. Bond	\$2,796,272
10. TD Ameritrade	\$2,794,785

Participant Status Overview⁶

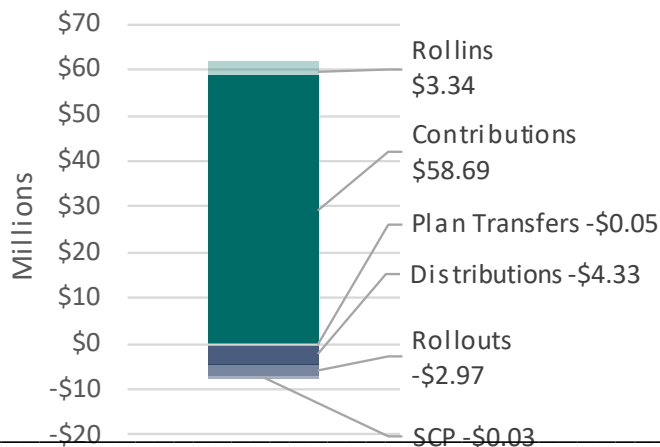
309,752 total accounts

74% Active

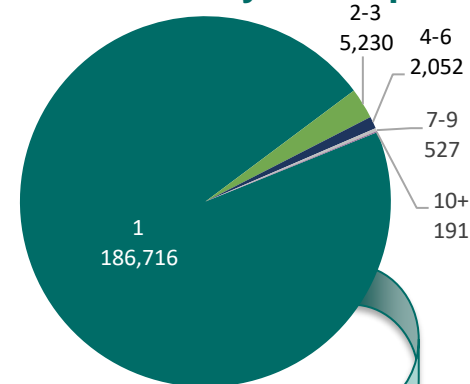
26% Separated

\$218.7m assets at-risk

Contributions/Distributions⁵



of Funds Held by Participants



99.5% of this population is invested in a single TDP

VRS Defined Contribution Plans

3rd Quarter 2021 – DC Plans Metrics

Source Information/Additional Footnotes

All data unless noted otherwise was provided by MissionSquare Retirement and is as of 9/30/2021.

1. Includes DC plans record kept by MissionSquare Retirement.
2. Total assets and accounts include beneficiaries and excludes forfeiture and reserve accounts.
3. Web statistics provided by Google Analytics.
4. Includes employees at higher education institutions who are also eligible for a 403(b).
5. Cash Flow Definitions
 - Rollins – Contributions into a participant’s account from a retirement plan or IRA.
 - Contributions – Payroll contributions from a participant’s paycheck.
 - Plan Transfers – Transfer of funds between VRS retirement plans.
 - Distributions – Consists of auto enrollment refunds, required minimum distributions (RMDs) unforeseen emergency withdrawals and full, partial, installment and de minimis requests
 - Rollouts – Withdrawal request sent to another retirement plan or IRA
 - SCP – A request to transfer employee contribution funds from the plan to VRS to purchase service credit. Please note, SCP is not permitted from the H401 plan.
6. Active Participants do not have a termination date on file and may not have made a contribution during the quarter. Terminated Participants have a termination date on file.
7. Source: 10/1/21 Active Hybrid Member Demographics Report.
8. Active Election participation rate includes members who had a self-selected voluntary election on file prior to the automatic escalation that occurred on 12/16/19.

Unbundled DC Plans – MissionSquare Contract Amendment

MissionSquare Contract Amendment #6 - formalized multiple modifications



Mid-year strategy meeting help Monday, November 22, 2021.

1

Adds an additional performance standard requiring field staff to visit all VRS covered employers each year

2

Waives annual fees for members under certain circumstances

3

Extends financial planning services to all VRS members regardless of DC Plan participation or eligibility

Coronavirus-Related Distributions (CRDs)



Available during 2020 from the Hybrid 457 Plan, Virginia Cash Match Plan, and the COV 457 Plan.



\$25.4m distributed to 2,785 unique participants.



CRDs may be paid back by the end of 2023.

To date, none have been repaid.

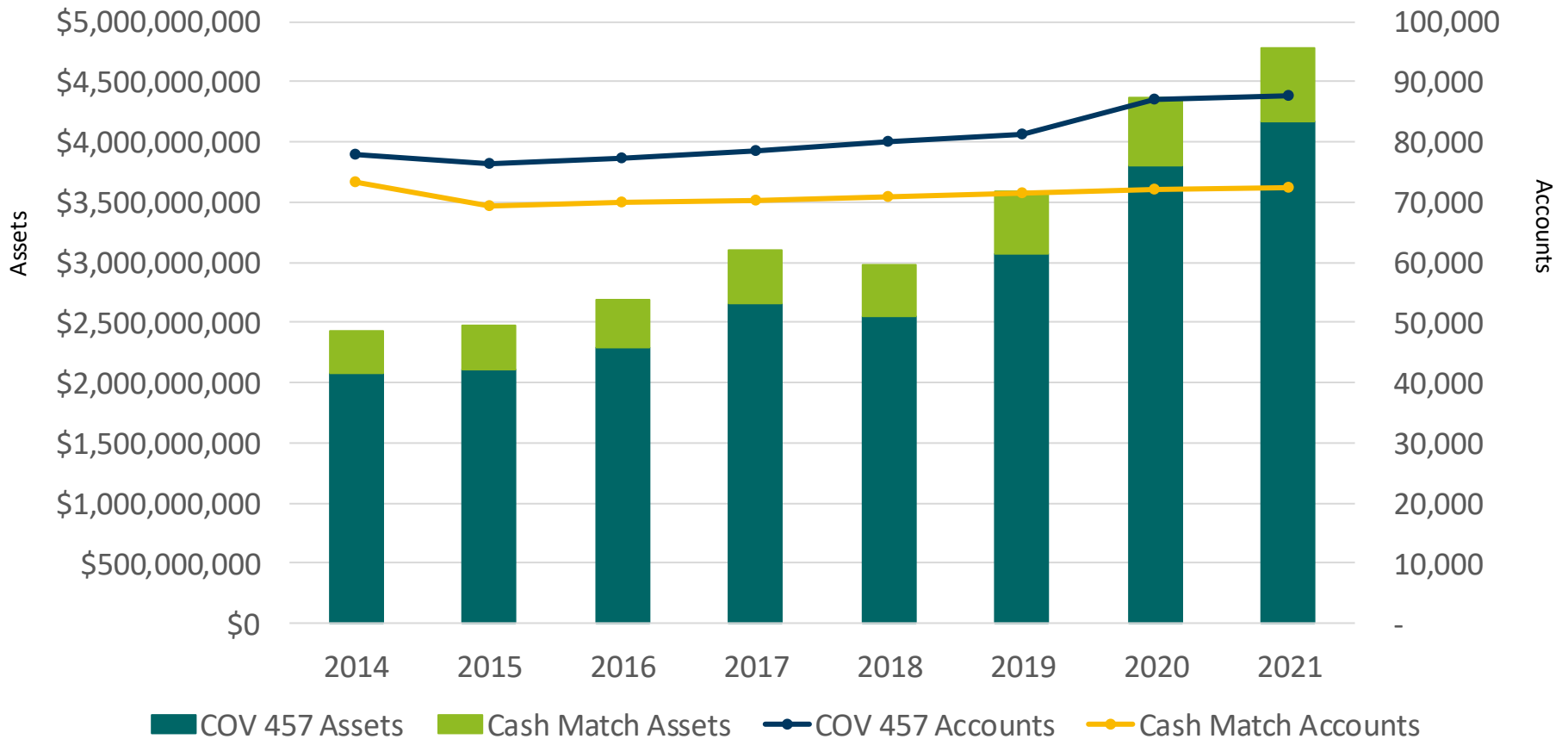


Reminder letter of repayment option being mailed to impacted participants in January.

COV 457/Cash Match Plan Assets and Accounts



Totals as of 9/30/2021	Assets	Accounts	Little change to assets and accounts since June 30, 2021
COV 457	\$4,168,479,646	87,622	
Cash Match	\$613,276,890	72,328	



Note: Data reflects totals as of calendar year end and includes Mission Square participant, beneficiary, & reserve accounts. 2021 data is through September 30, 2021.

COV 457 Plan Eligibility Campaign

Campaign Goals

- Increase awareness of plan availability
- Promote participation
- Encourage use of other available tools


Key Messaging

Promote starting small to be inclusive of a variety of income levels

Financial Wellness and Financial Planning resources available to all



Saving for the future got you upside down?



Enroll in the Commonwealth of Virginia 457 Plan.

Take a small step toward a more confident financial future.

Tools and resources to help you save for retirement.

- varetire.org/457
- Paycheck Calculator
- myVRS Financial Wellness
- Financial Planning Services

DCP
Virginia Retirement System

COV 457 Plan Eligibility Campaign



Take a small step today. Remember, saving can be slow and steady.

Your employer offers the Commonwealth of Virginia 457 Deferred Compensation Plan as an additional way for you to save for your future.

Here's how to get moving.

Start small. Begin saving as little as \$10 and increase the amount over time. By investing early, your money has more time to grow and work for you. Use the Paycheck Calculator to see the potential impact to your take-home pay.

Choose your tax benefit. You can select pre-tax contributions, which means you'll pay taxes on your contributions and earnings later. Or opt for Roth after-tax contributions to pay taxes now, for qualified tax-free withdrawals later.



Your future is just a step away.

Enroll now at varetire.org/457, scan the QR code or call VRS-DC-PLAN1 (877-327-5261). If hearing impaired (TDD), call 800-669-7471.

Your DC Plans Retirement Specialist.

Sherrel Addison
saddison@missionsq.org | 202-759-7201



DCP

Virginia Retirement System

MissionSquare Retirement
777 North Capitol Street, NE
Washington, DC 20002-4240

- **Audience:** Eligible* but not participating state employees** and local government/school subdivision employees that have adopted the plan

- **37,042** employees
- January 2022 mailing

- Includes contact information for local representative

*Hybrid members were excluded from the population.

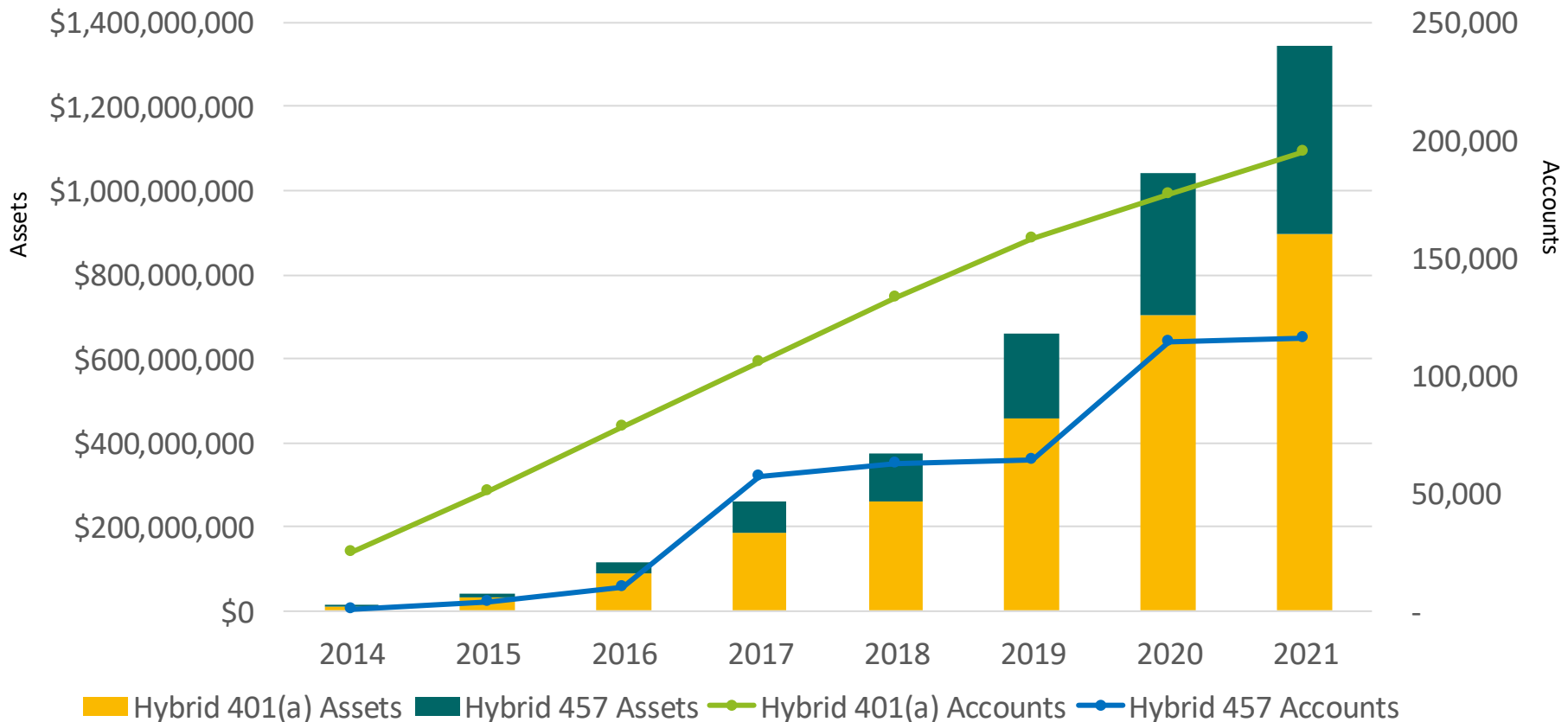
**Higher education employees were also excluded, as they will be covered under a separate campaign.

Hybrid Retirement Plan Assets and Accounts (DC only)



Totals as of 9/30/2021	Assets	Accounts
Hybrid 401(a)	\$898,723,657	195,060
Hybrid 457	\$444,386,072	115,517

Assets ↑ 3%
Accounts ↑ 3%
since June 30, 2021



Note: Data reflects totals as of calendar year end and includes Mission Square participant, beneficiary, & for future accounts; 2021 data is through September 30, 2021.

Hybrid Retirement Plan Participation Highlights

Overall participation in Hybrid Voluntary Contributions – 66%

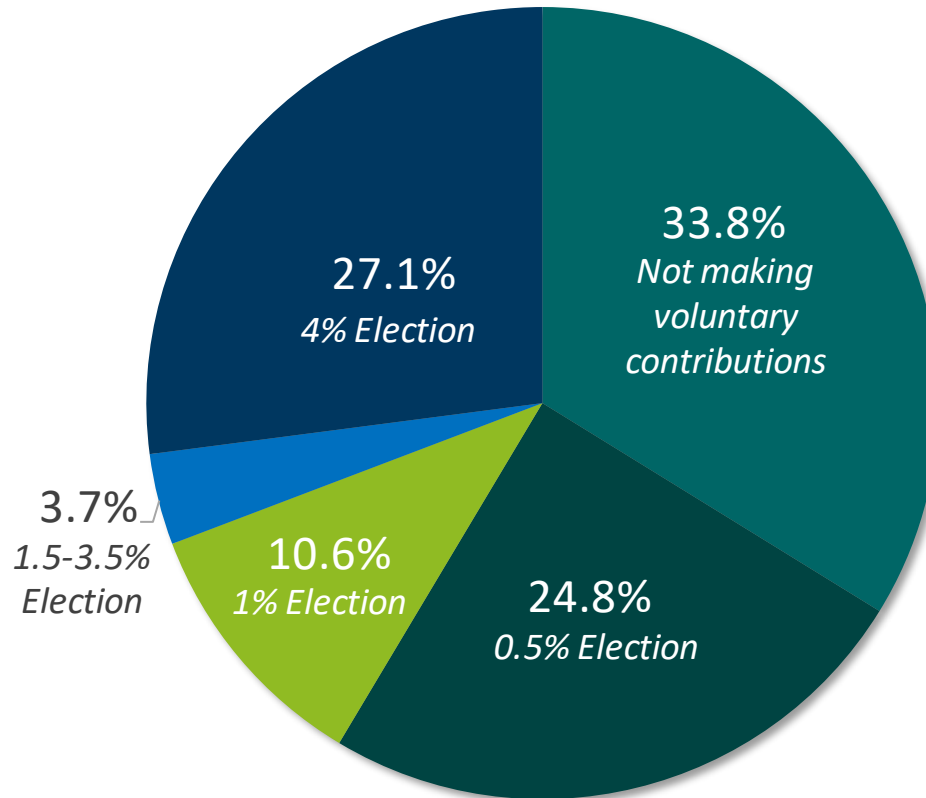
Active Election Participation – 32%

Of members making voluntary contributions

41% are maximizing at 4%
54% are at 1% or less

Voluntary Contribution Elections

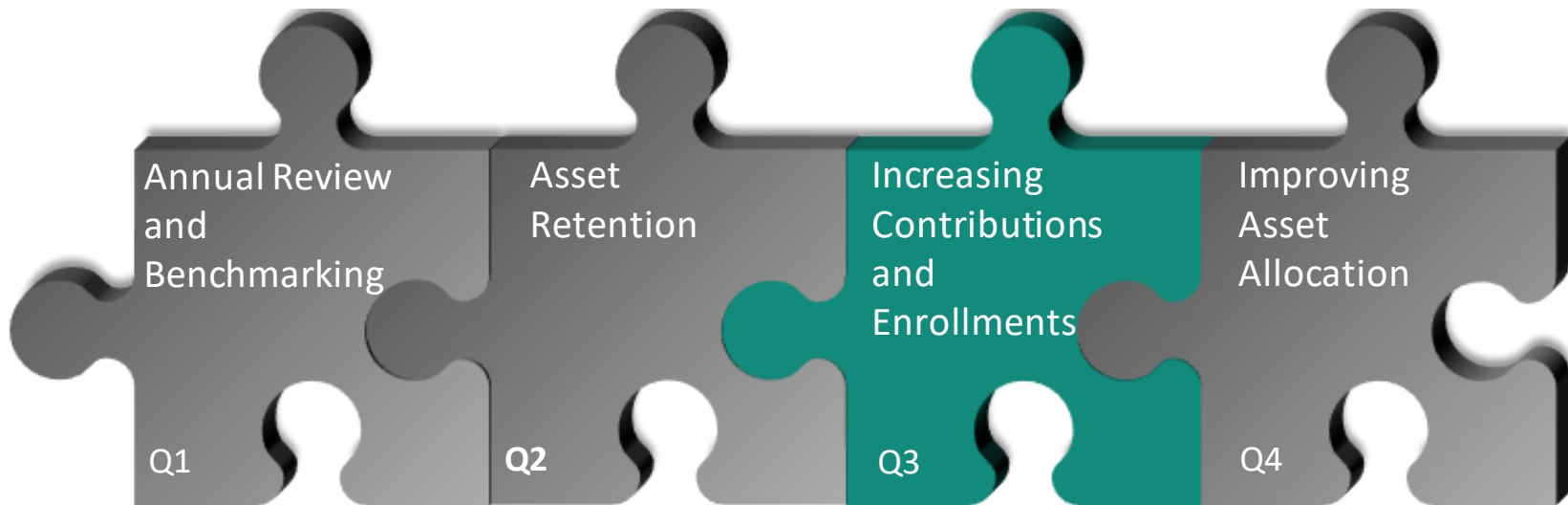
Voluntary contribution percentages for active hybrid plan members effective October 1, 2021



Voluntary Contribution Percentages

■ 0.0% ■ 0.5% ■ 1.0% ■ 1.5-3.5% ■ 4.0%

Increasing Contributions and Enrollments



COV 457 Population Statistics

Total Eligible COV 457 Population	
Total Count	164,260
Average Salary	\$58,507
Average Age	47

For those actively contributing:

- Average Salary is **\$67,790**
- Average age is **49**
- Median COV deferral is **\$40**
- Average plan balance is **\$51,372**

31% of participants eligible for the COV 457 Plan are active hybrid members*

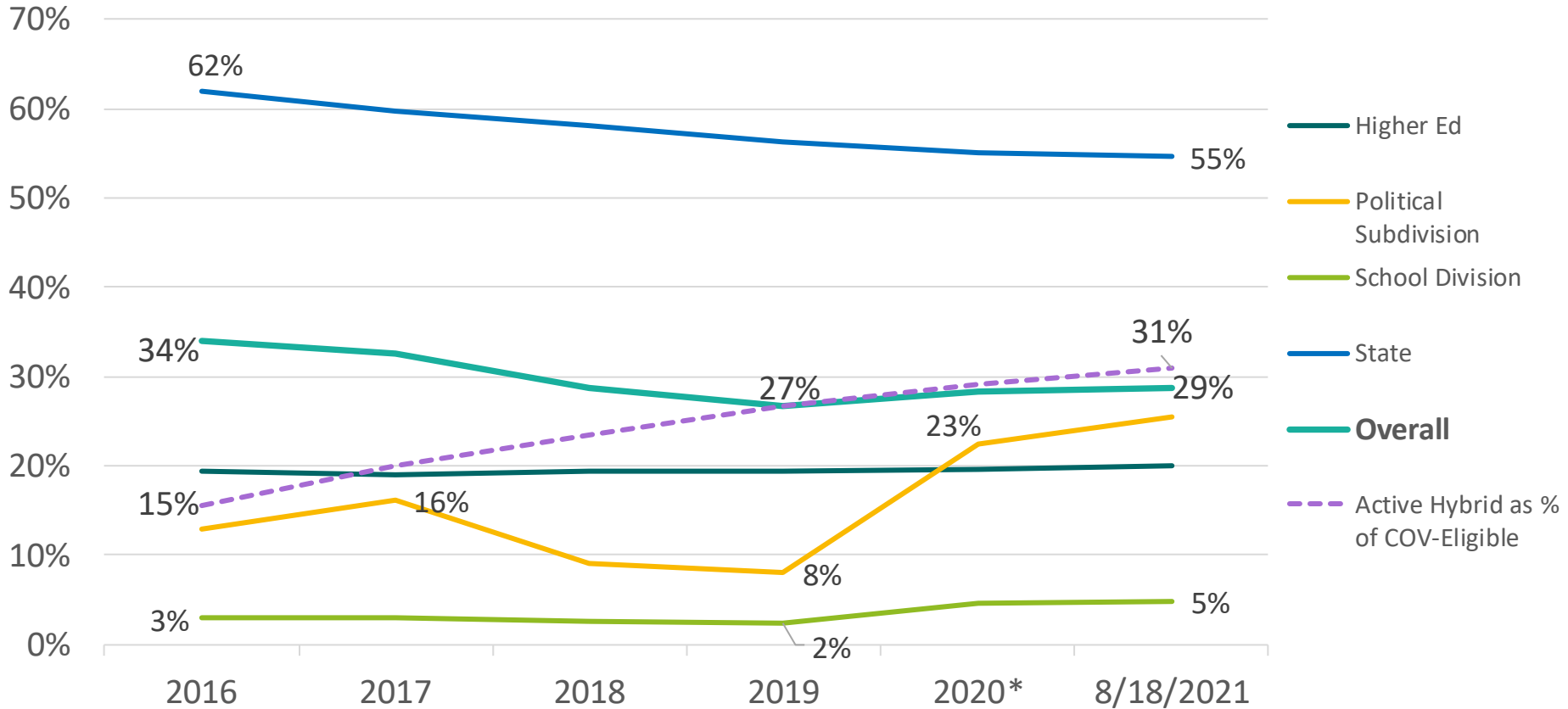
- For COV 457-eligible hybrid members:
- Average Salary is **\$37,004**
 - Average Age is **40**

- For hybrid members actively contributing to the COV 457:
- Average Salary is **\$68,687**
 - Average Age is **45**
 - Median COV deferral is **\$50**
 - Average plan balance is **\$15,820**

Data is as of 8/18/21.

*Includes members who are in an Active status with MissionSquare Retirement under the

COV 457 Participation Rate Over Time

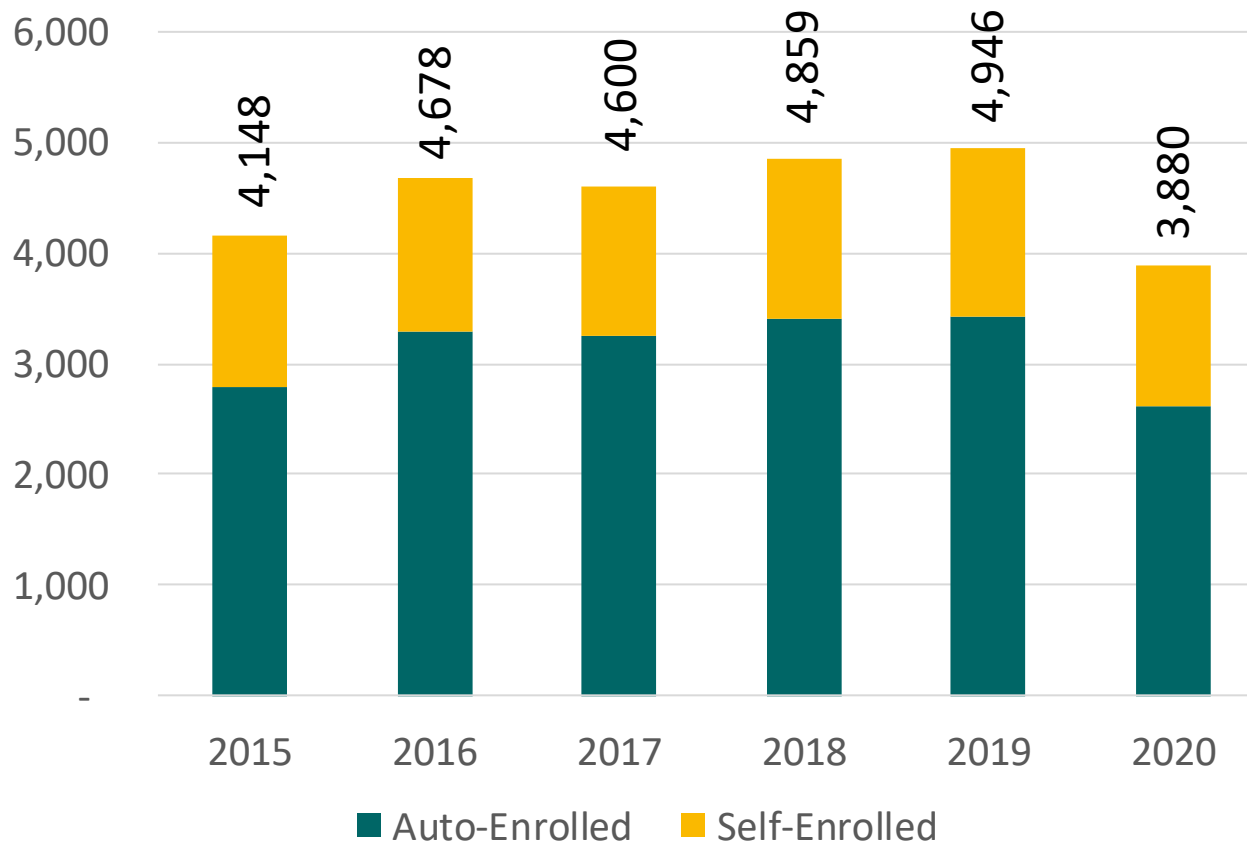


State continues to have the highest participation rate, likely due to automatic enrollment, which no longer occurs with hybrid members.

*The City of Virginia Beach & Virginia Beach Schools adopted the COV 457 Plan in June 2018 and transitioned assets from their legacy plan in January 2020, resulting in increases in participation rates for political subdivisions and school divisions.

COV 457 Plan New Enrollments

Auto-enroll opt-outs rate has steadily increased from approximately 7% in 2016 to 9.4% at the beginning of 2021.
Decreased enrollments in 2020 due to decreased hiring.



Hybrid Population Statistics

Total Hybrid Population	
Average Salary	\$48,487
Average Age	40
Average Days in Plan	975

The **average salary** for hybrid plan members:

- Making a **4% VC** is **\$58,966**
- Making a **0% VC** is **\$43,290**

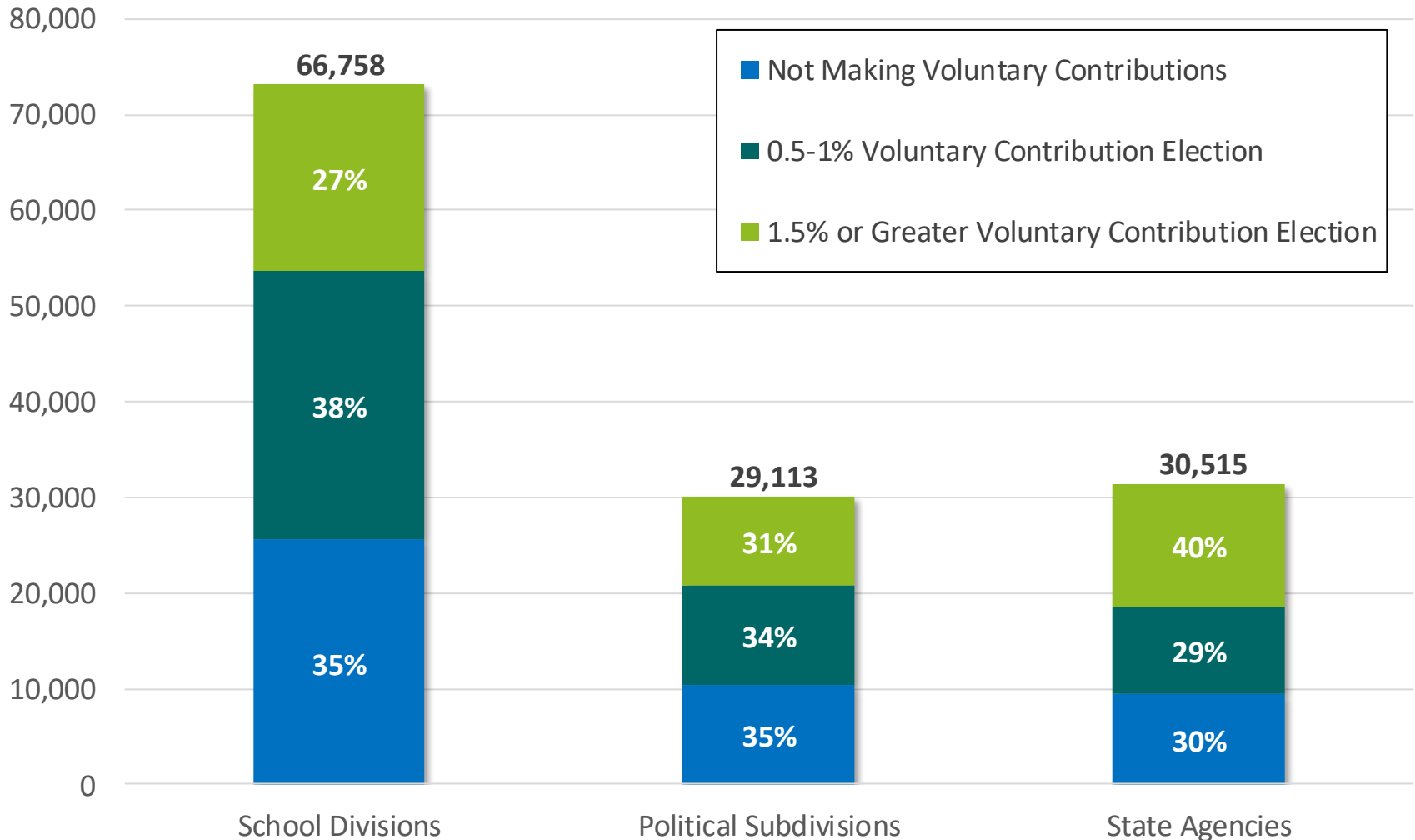
The **average age** for hybrid plan members:

- Making a **4% VC** is **42**
- Making a **0% VC** is **37**

The **average number of days** a member has been in the hybrid plan:

- Making a **4% VC** is **1,223**
- Making a **0% VC** is **307**

Hybrid Retirement Plan Members by Employer Type



Communication Efforts

- Videos, flyers, splash screens, web sliders, National Retirement Security Month, etc.

MEET YOUR MATCH

Contribute **4%** for a **2.5%** employer match!

Take Action

National Retirement Security Month

October 2021

Simple Steps to a Secure Fin

October is National Retirement Security Month, a gn Consider these simple steps to help secure your fin

HOW TO INCREASE YOUR HYBRID VOLUNTARY CONTRIBUTIONS

Savings Toolkit

01:48



P System



COV 457 Splash Screen

Be a savings superhero

The Commonwealth of Virginia 457 Deferred Compensation Plan makes it easy to be a savings superhero. Increase your contribution now and choose SmartStep to automatically increase your contribution each year, with less impact to your paycheck.



Select One:

I'm ready to increase my contribution to help improve my future savings outlook.

Save more now

I want to increase my contributions by a set amount each year automatically.

Choose a SmartStep month and amount

I am not interested in saving more for my future at this time.

Wait to save

6,762 participants*
took action after
seeing the screen
through September
30, 2021.

80% increased
contributions.

*Implemented 2/26/2021 and viewable by COV 457 eligible participants. If participant is also covered by the Hybrid Retirement Plan, the splash screen is only viewable if Hybrid contributions have already been maximized.

Hybrid Splash Screen

4,607 members* took action after seeing the screen through September 30, 2021.


94% increased contributions.

Take Action With Voluntary Contributions!

As a Hybrid Retirement Plan member, you are eligible for an employer match on your voluntary contributions. When you contribute 4 percent, your employer contributes 2.5 percent. The sooner you start saving, the better prepared you'll be for your future.

To take full advantage of the employer match, make the maximum 4 percent voluntary contribution to your Hybrid 457 Deferred Compensation Plan before contributing to the Commonwealth of Virginia 457 Deferred Compensation Plan or any other supplemental retirement plan offered by your employer. Also, contributions to multiple 457 plans count toward the IRS annual contribution limit.

MEET YOUR MATCH
Contribute **4%** for a **2.5%** savings match!



Select One:

<p>I'm ready to save 4 percent and maximize my hybrid voluntary contributions.</p> <p>Save 4 percent now</p>	<p>I want to increase my hybrid voluntary contributions by a different amount.</p> <p>Choose an amount to save</p>	<p>I am not interested in saving more for my future at this time.</p> <p>Wait to save</p>
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*Implemented 12/16/2019 and viewable by active Hybrid plan members that have not maximized Hybrid voluntary contributions.

Administrative Summary

ORPHE



ORPHE Totals*			
	6/30/2021	9/30/2021	% Change
Assets	\$1,222,066,549	\$1,214,686,093	-1%
Participants	10,566	10,619	1%
Average Balance	\$115,660	\$114,388	-1%



DCP	
	9/30/2021
Assets	\$152,648,701
Participants	2,351
Average Balance	\$64,929

34% of new hires YTD have elected DCP as their provider.

TIAA**	
	9/30/2021
Assets	\$1,062,037,393
Participants	8,268
Average Balance	\$128,452

66% of new hires YTD have elected TIAA as their provider.

*Excludes deselected providers. Fidelity became a deselected provider effective 1/1/2020.

**Includes Bank/RA and RBC contracts. - Defined Contribution Plans Advisory Committee (DCPAC) Meeting 12/2/2021

Annual Employer Update

September 30th, 2021

21 attendees

13 institutions represented



Annual Open Enrollment

October 1-31, 2021

4 live webinars held

31 attendees

Recorded webinar available
online

CREF Money Market Fund Fee Waiver

In order to avoid participants experiencing a loss in the CREF Money Market Fund due to the low interest environment, TIAA applied for and received a short-term fee waiver in April 2020.

- The waiver is set to expire on December 31, 2021, which means that the fund will go negative, and participants will experience negative returns.
- Communications have included email, mail, and account alerts to impacted participants.
- Fees that were waived will be recouped once yields are positive.

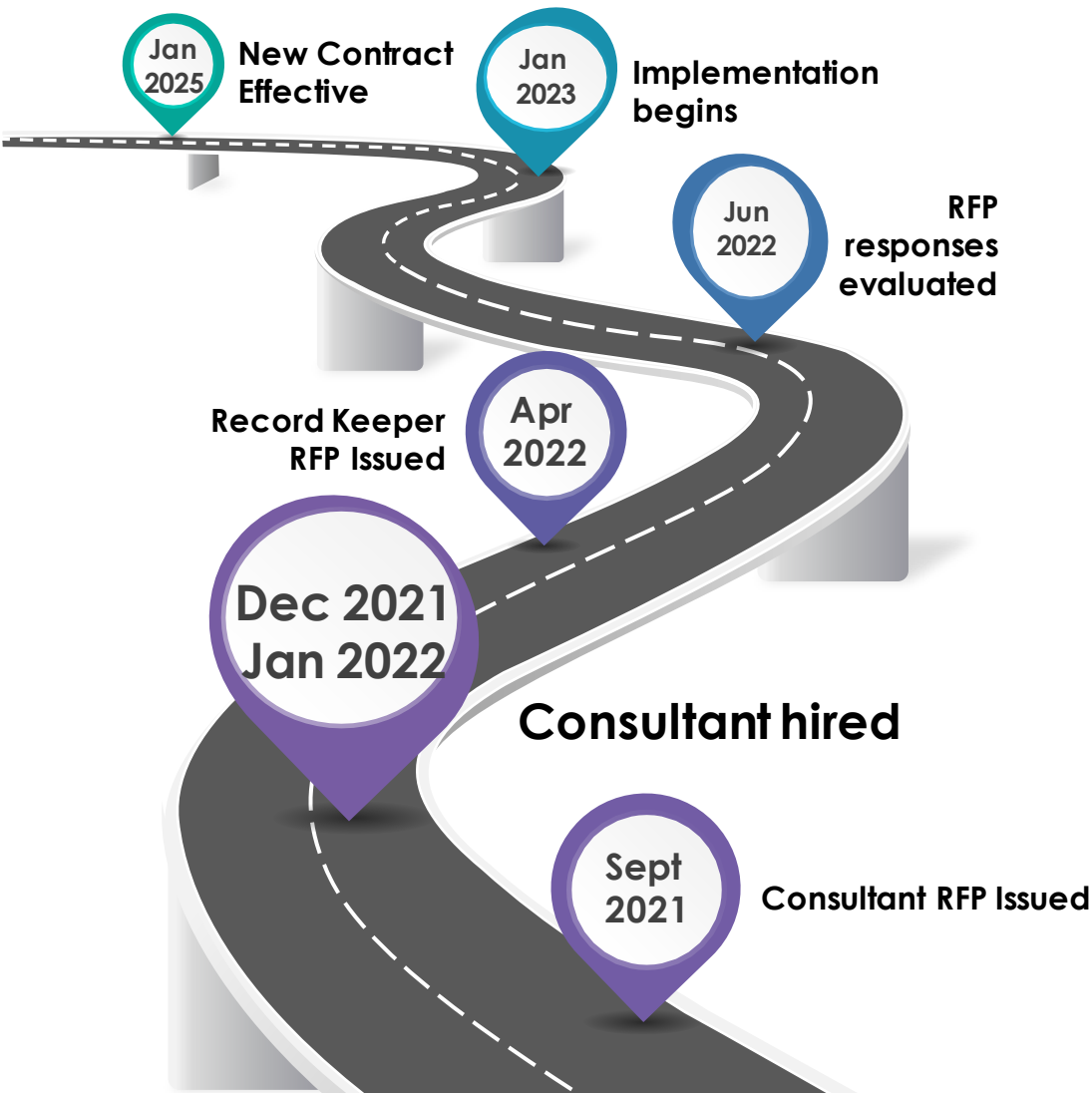
Fund has been deselected and is no longer available for participants to select. All assets are in the GRA/RA contracts, which VRS no longer monitors.

Participants may elect to transfer assets from the GRA/RA contracts to the RC contract, which offers the BlackRock Money Market Fund.

As of 9/30/2021
Participants impacted – 1,118
Assets - \$12,987,758

14% decrease from
12/31/2020

Unbundled Record Keeper Contract



Project Status

- Consultant RFP closed on 10/30/2021
- 4 responses received and are under review
- Next Milestone – Finalist Interviews with consultants and contract negotiations

Thank You!





Virginia
Retirement
System

DC Plans Investments

December 2, 2021





Performance



CEM 2020 DC Survey Highlights

Unbundled DC Plans Performance



Defined Contribution Plans Advisory Committee Report
Unbundled Plans Investment Performance

Below are the totals for the period ending October 31, 2021. Returns greater than one year are annualized.

Investment Options	1 Month	3 Months	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs / Since Inception ¹	Fund Expense Ratio ²	Inception Date	Market Value	% of Market Value ²⁷	% of Participants Selecting an Option ²⁸
	%	%	%	%	%	%	%	%		\$	%	%
Do-It-For-Me: Target Date Portfolios^{3,4}												
Retirement Portfolio	2.05	0.85	6.46	14.85	10.82	8.03	6.51	0.08	8/1/05	438,367,016	6.7	5.6
Custom Benchmark	2.06	0.87	6.48	14.88	10.77	7.99	6.45					
Target Date 2025 Portfolio	2.50	1.21	8.33	18.93	12.02	9.66	8.13	0.08	7/5/06	356,739,835	5.4	6.4
Custom Benchmark	2.51	1.23	8.35	18.94	11.95	9.58	8.04					
Target Date 2030 Portfolio	3.11	1.70	10.54	23.58	13.40	10.93	9.01	0.08	8/1/05	346,126,265	5.3	8.0
Custom Benchmark	3.12	1.72	10.56	23.60	13.33	10.84	8.89					
Target Date 2035 Portfolio	3.69	2.16	12.69	28.21	14.73	12.16	9.84	0.08	7/5/06	354,074,366 ²⁴	5.4	9.1
Custom Benchmark	3.69	2.18	12.70	28.19	14.64	12.04	9.69					
Target Date 2040 Portfolio	4.22	2.58	14.64	32.50	15.91	13.25	10.55	0.08	8/1/05	305,046,312	4.6	9.2
Custom Benchmark	4.23	2.60	14.64	32.46	15.81	13.11	10.40					
Target Date 2045 Portfolio	4.66	2.92	16.24	36.01	16.89	14.05	11.13	0.08	7/5/06	288,546,641	4.4	10.4
Custom Benchmark	4.66	2.93	16.21	35.94	16.77	13.89	10.96					
Target Date 2050 Portfolio	4.90	3.11	17.10	37.88	17.41	14.42	11.49	0.08	9/30/07	288,871,880	4.4	12.0
Custom Benchmark	4.90	3.11	17.04	37.77	17.28	14.26	11.32					
Target Date 2055 Portfolio	4.96	3.15	17.25	38.18	17.51	14.47	11.69	0.08	5/19/10	341,486,158	5.2	16.1
Custom Benchmark	4.96	3.16	17.21	38.13	17.39	14.32	11.51					
Target Date 2060 Portfolio	4.96	3.15	17.23	38.16	17.50	14.45	10.69	0.08	11/17/14	153,375,023	2.3	12.1
Custom Benchmark	4.96	3.16	17.20	38.12	17.39	14.32	10.55					
Target Date 2065 Portfolio	4.95	3.14	17.20	38.07	n/a	n/a	19.57	0.08	9/23/19	9,090,056	0.1	1.9
Custom Benchmark	4.96	3.15	17.19	38.11	n/a	n/a	19.64					
Help-Me-Do-It: Individual Options												
Money Market Fund ^{5,6}	0.01	0.03	0.13	0.16	1.20	1.33	0.72	0.08	11/1/99	97,229,991	1.5	2.0
FTSE 3 Month Treasury Bill Index	0.00	0.01	0.04	0.05	1.08	1.12	0.60					
Yield as of 10/31/21: 0.12% ⁷												
Stable Value Fund ^{8,9}	0.13	0.37	1.34	1.67	2.15	2.07	1.94	0.24	2/1/95	635,725,016	9.7	7.4
Custom Benchmark ¹⁰	0.06	0.16	0.45	0.52	1.27	1.62	1.43					
Yield as of 10/31/21: 1.49% ¹¹												
Bond Fund ¹²	-0.03	-1.08	-1.58	-0.47	5.66	3.14	3.06	0.03	11/1/99	176,011,559	2.7	3.6
Bloomberg U.S. Aggregate Bond Index	-0.03	-1.08	-1.58	-0.48	5.63	3.10	3.00					
Inflation-Protected Bond Fund ¹³	1.13	0.23	4.71	7.10	8.46	4.77	3.14	0.03	7/30/02	57,419,823	0.9	1.5
Bloomberg U.S. TIPS Index	1.13	0.24	4.69	7.07	8.37	4.66	3.05					
High-Yield Bond Fund ¹⁴	-0.12	0.16	6.76	12.61	7.65	6.56	6.81	0.40	5/31/04	52,629,249	0.8	1.8
ICE BofA U.S. High-Yield BB-B Constrained Index	-0.17	0.33	3.67	9.05	7.36	6.09	6.51					
Stock Fund ¹⁵	7.01	5.13	24.07	42.95	21.53	18.97	16.25	0.01	11/1/99	1,677,395,304	25.5	10.5
S&P 500 Index	7.01	5.13	24.04	42.91	21.48	18.93	16.21					
Small/Mid-Cap Stock Fund ¹⁶	4.91	3.93	19.43	49.50	18.45	16.36	14.29	0.02	11/1/99	494,417,268	7.5	6.0
Russell 2500 Index ¹⁷	4.90	3.91	19.41	49.43	18.43	16.31	14.21					
International Stock Fund ¹⁸	2.29	0.98	9.30	31.09	12.63	10.23	7.68	0.06	11/1/99	230,427,237	3.5	4.9
MSCI ACWI ex-U.S. IMI Index ¹⁹	2.27	0.96	9.19	30.90	12.38	9.97	7.35					
Global Real Estate Fund ²⁰	5.97	1.32	22.08	43.04	10.47	7.94	9.00	0.08	10/1/02	115,500,292	1.8	3.1
FTSE EPRA/NAREIT Developed Index ²¹	5.98	1.14	21.30	42.12	9.63	7.00	8.29					
VRSIP ²²	1.25	2.64	13.79	24.29	11.34	10.53	9.96	0.60	7/1/08	52,546,410 ²⁵	0.8	0.5
VRS Custom Benchmark ²³	-1.32	1.32	10.16	19.30	10.20	9.79	9.31					

VRSIP and benchmark returns are reported with a one month lag. [Return information shown is as of September 30, 2021.] [Market value as of September 30, 2021 was \$52,593,918.]

Do-It-Myself: Self-Directed Brokerage Account												
TD Ameritrade	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	104,000,874	1.6	0.2
Total										\$6,575,026,575²⁶		

- 1 If the fund was not in existence for 10 years, fund and corresponding benchmark returns shown represent performance from the since inception date.
- 2 Fund investment advisers may voluntarily agree to waive expenses. Expense waivers may be terminated at any time.
- 3 The Target Date Portfolios invest in units of BlackRock's LifePath Index Funds O. The LifePath Index Funds O invest in the master LifePath Index Funds F. The inception dates shown reflect the inception dates of the master LifePath Funds F. The inception dates for most LifePath Funds O were 12/9/11. The 2055 Fund's O inception date was 12/12/11, the 2060 Fund's O inception date was 1/2/15, and the 2065 Fund's O inception date was 9/23/2019. Returns prior to Funds' O inception dates are those of the Funds F with deductions taken for Funds O investment management fees.
- 4 Benchmarks are calculated using blended returns of third-party indices that proportionately reflect the respective weightings of the Portfolios' asset classes. Weightings are adjusted quarterly to reflect the Portfolios' asset allocation shifts over time. Indices currently used to calculate the custom benchmarks are: Russell 1000 Index, Russell 2000 Index, MSCI ACWI Ex-U.S. IMI Index, Bloomberg U.S. Aggregate Bond Index, Bloomberg U.S. TIPS Index, FTSE EPRA/NAREIT Developed Index and the Bloomberg Commodity Index Total Return.
- 5 The Money Market Fund invests in units of BlackRock's Short-Term Investment Fund W. The inception date shown reflects the VRS Defined Contribution Plan's investment strategy inception date. Returns of the Fund from July 2012 through July 2016 represent performance of other BlackRock funds. Returns prior to July 2012 represent performance by the previous investment manager, State Street Global Advisors. All performance returns are linked.
- 6 An investment in a money market fund is not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency. Although the Fund seeks to preserve the value of your investment it is possible to lose money by investing in the Fund.
- 7 The current yield more closely reflects the earnings of the Fund than the total net return information.
- 8 The inception date shown reflects the VRS Defined Contribution Plans investment strategy inception date.
- 9 Direct transfers from the Stable Value Fund to the Money Market Fund (considered a "competing fund") are not permitted. Before transferring to the Money Market Fund, participants must first transfer to a "non-competing" fund for 90 days. Optional Retirement Plan for Higher Education (ORPHE) participants who want to make a direct exchange to another ORPHE provider, must first exchange to a "non-competing" fund on the MissionSquare Retirement investment platform for 90 days.
- 10 Effective August 2016, the benchmark represents a hypothetical return generated by the monthly yields of actively traded U.S. Treasuries based on [50% 2- year maturity + 50% 3- year maturity] plus an annualized spread of 0.25% and is representative of the Fund's expected return profile, given how the Fund is managed and book value accounting treatment. Prior to August 2016 the custom benchmark was based on the monthly yield of actively traded U.S Treasuries with a 3-year maturity plus an annualized spread of 0.50%. The benchmark returns are linked.
- 11 The current yield more closely reflects the earnings of the Fund than the total net return information. There is no guarantee that the Fund will earn the current yield in the future.
- 12 The Bond Fund invests in units of BlackRock's U.S. Debt Index Fund M. The U.S. Debt Index Fund M invests in the master Fund F. The inception date shown reflects the VRS Defined Contribution Plans strategy inception date. Performance returns are linked to the previous investment manager. Returns prior to July 2012 represent performance by State Street Global Advisors.
- 13 The Inflation-Protected Bond Fund invests in units of BlackRock's U.S. Treasury-Inflation Protected Securities Fund M. The U.S. Treasury Inflation-Protected Securities Fund M invests in the master Fund F. The inception date shown reflects the inception date of the master Fund F. The inception date of BlackRock's U.S. Treasury Inflation-Protected Securities Fund M was July 20, 2012. Returns prior to Fund M's inception date are those of Fund F with deductions taken for Fund M's investment management fees.
- 14 The High-Yield Bond Fund invests in units of JPMorgan's Corporate High-Yield Fund-Investment Class. The inception date shown reflects the date the current investment team at JPMorgan commenced management responsibility of the Fund. Performance reflects the investment manager's returns for the aforementioned Fund with deductions taken for investment management fees negotiated by VRS and fund administrative expenses.
- 15 The Stock Fund invests in units of BlackRock's Equity Index Fund F. Performance represents BlackRock's returns for the master Fund F with deductions taken for management fees negotiated by VRS and fund administrative expenses. The inception date shown reflects the VRS Defined Contribution Plans investment strategy inception date. Performance returns are linked to the previous investment manager. Returns prior to July 2012 represent performance by State Street Global Advisors.
- 16 The Small/Mid-Cap Stock Fund invests in units of BlackRock's Russell 2500 Index Fund F. Performance represents BlackRock's returns for the master Fund F with deductions taken for investment management fees negotiated by VRS and fund administrative expenses. The inception date shown reflects the VRS Defined Contribution Plans strategy inception date. Performance returns are linked to the previous investment manager. Returns prior to July 2012 represent performance by State Street Global Advisors.
- 17 Effective July 2012, the performance benchmark is the Russell 2500 Index. Prior to July 2012, the performance benchmark was the Russell Small Cap Completeness Index. The benchmark returns are linked.
- 18 The International Stock Fund invests in units of BlackRock's MSCI ACWI ex-U.S. IMI Index Fund F. Performance represents BlackRock's returns for the master Fund F with deductions taken for investment management fees negotiated by VRS and fund administrative expenses. The inception date shown reflects the VRS Defined Contribution Plan's investment strategy inception date. Returns from July 2012 through July 2016 represent performance of another BlackRock Fund. Returns prior to July 2012 represent performance by the previous manager, State Street Global Advisors. All performance returns are linked.
- 19 Effective August 2016, the performance benchmark is the MSCI ACWI ex.-U.S. IMI Index. It was the MSCI World ex-U.S Index from July 2012 through July 2016 and prior to July 2012 it was the MSCI EAFE Index. The benchmark returns are linked.
- 20 The Global Real Estate Fund invests in units of BlackRock's Developed Real Estate Index Fund F. Performance represents BlackRock's returns for the master Fund F with deductions taken for investment management fees negotiated by VRS and fund administrative expenses. The inception date shown reflects the VRS Defined Contribution Plans investment strategy inception date. The Fund transitioned from a U.S. domestic REIT fund to a global real estate fund during July 2012. Performance returns are linked to the previous investment manager. Returns prior to July 2012 represent performance by State Street Global Advisors.
- 21 Effective July 2012, the performance benchmark is the FTSE EPRA/NAREIT Developed Index. Prior to July 2012, the performance benchmark was the Dow Jones U.S. Select REIT Index. The benchmark returns are linked.
- 22 The inception date shown reflects the date the VRS Investment Portfolio (VRSIP) was unitized.
- 23 The VRS Custom Benchmark is a blend of the asset class benchmarks at policy weights.
- 24 Includes Pending Account VRSIP amount of \$445,203.12
- 25 Includes Preliminary Investment Portfolio Account - PIP amount of \$0.
- 26 Includes \$5,790,973 held in the administrative Special Accounts.
- 27 May not equal 100% due to rounding.
- 28 The data reflects the percentage of participants who selected a particular investment option as of September 30, 2021. There were 473,270 participant accounts as of September 30, 2021 across all unbundled DC plans.

All fund performance returns shown reflect all fund management fees and expenses, but do not reflect the Plan administrative fee charged by MissionSquare Retirement which would further reduce the returns shown.

All calculations assume reinvestment of dividends and capital gains. All returns are calculated in U.S. dollars. Performance returns are provided by BlackRock, Galliard Capital Management, JPMorgan, Bank of New York Mellon, and MissionSquare Retirement. Benchmark returns are provided by BlackRock, Russell/Mellon Analytical Services, Galliard, and MissionSquare Retirement. Although data is gathered from sources believed to be reliable, we cannot guarantee completeness or accuracy.

Plan Administrative Fee: An annual record keeping and communication services fee of \$30.50 is deducted from participant accounts on a monthly basis (approximately \$2.54 per month). Only one annual fee of \$30.50 is deducted from participant accounts for those participants participating in more than one Commonwealth of Virginia defined contribution plan.

TIAA ORPHE Performance



Defined Contribution Plans Advisory Committee Report
TIAA RC Contract Investment Performance

Below are the totals for the period ending October 31, 2021. Returns greater than one year are annualized.

Investment Options	1 Month	3 Months	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs / Since Inception ¹	Fund Expense Ratio ²	Inception Date	Market Value	% of Market Value ¹⁹	% of Participants Selecting an Option ²⁰
	%	%	%	%	%	%	%	%		\$	%	%
Target Date Portfolios^{3,4}												
BlackRock LifePath Index Retirement Fund O	2.05	0.85	6.46	14.85	10.82	8.03	6.51	0.08	8/1/05	29,125,624	8.3	9.5
Custom Benchmark	2.06	0.87	6.48	14.88	10.77	7.99	6.45					
BlackRock LifePath Index 2025 Fund O	2.50	1.21	8.33	18.93	12.02	9.66	8.13	0.08	7/5/06	22,885,109	6.5	7.1
Custom Benchmark	2.51	1.23	8.35	18.94	11.95	9.58	8.04					
BlackRock LifePath Index 2030 Fund O	3.11	1.70	10.54	23.58	13.40	10.93	9.01	0.08	8/1/05	31,070,318	8.9	8.7
Custom Benchmark	3.12	1.72	10.56	23.60	13.33	10.84	8.89					
BlackRock LifePath Index 2035 Fund O	3.69	2.16	12.69	28.21	14.73	12.16	9.84	0.08	7/5/06	24,269,847	6.9	9.0
Custom Benchmark	3.69	2.18	12.70	28.19	14.64	12.04	9.69					
BlackRock LifePath Index 2040 Fund O	4.22	2.58	14.64	32.50	15.91	13.25	10.55	0.08	8/1/05	27,136,003	7.8	9.8
Custom Benchmark	4.23	2.60	14.64	32.46	15.81	13.11	10.40					
BlackRock LifePath Index 2045 Fund O	4.66	2.92	16.24	36.01	16.89	14.05	11.13	0.08	7/5/06	23,460,186	6.7	10.2
Custom Benchmark	4.66	2.93	16.21	35.94	16.77	13.89	10.96					
BlackRock LifePath Index 2050 Fund O	4.90	3.11	17.10	37.88	17.41	14.42	11.49	0.08	9/30/07	13,496,985	3.9	8.0
Custom Benchmark	4.90	3.11	17.04	37.77	17.28	14.26	11.32					
BlackRock LifePath Index 2055 Fund O	4.96	3.15	17.25	38.18	17.51	14.47	11.69	0.08	5/19/10	6,038,479	1.7	5.6
Custom Benchmark	4.96	3.16	17.21	38.13	17.39	14.32	11.51					
BlackRock LifePath Index 2060 Fund O	4.96	3.15	17.23	38.16	17.50	14.45	10.69	0.08	11/17/14	1,261,326	0.4	2.2
Custom Benchmark	4.96	3.16	17.20	38.12	17.39	14.32	10.55					
BlackRock LifePath Index 2065 Fund O	4.95	3.14	17.20	38.07	n/a	n/a	19.57	0.08	9/23/19	1,134,871	0.3	0.7
Custom Benchmark	4.96	3.15	17.19	38.11	n/a	n/a	19.64					
Individual Options												
BlackRock Short-Term Investment Fund W⁵	0.01	0.03	0.13	0.16	1.20	1.33	0.79	0.08	7/1/03	5,876,773	1.7	8.0
FTSE 3 Month Treasury Bill Index	0.00	0.01	0.04	0.05	1.08	1.12	0.60					
Yield as of 10/31/21: 0.12% ⁶												
BlackRock U.S. Debt Index Fund M⁷	-0.03	-1.08	-1.58	-0.47	5.66	3.14	3.06	0.03	6/6/96	9,102,218	2.6	18.9
Bloomberg Barclays U.S. Aggregate Bond Index	-0.03	-1.08	-1.58	-0.48	5.63	3.10	3.00					
BlackRock U.S. TIPS Fund M⁸	1.13	0.23	4.71	7.10	8.46	4.77	3.14	0.03	7/30/02	5,300,318	1.5	12.8
Bloomberg Barclays U.S. TIPS Index	1.13	0.24	4.69	7.07	8.37	4.66	3.05					
BlackRock Equity Index Fund J⁹	7.01	5.13	24.07	42.95	21.53	18.97	16.26	0.01	3/5/97	37,829,050	10.8	25.0
S&P 500 Index	7.01	5.13	24.04	42.91	21.48	18.93	16.21					
BlackRock Russell 2500 Index Fund M¹⁰	4.91	3.92	19.42	49.48	18.43	16.35	14.35	0.04	9/30/08	9,657,061	2.8	4.4
Russell 2500 Index	4.90	3.91	19.41	49.43	18.43	16.31	14.25					
BlackRock MSCI ACWI ex-U.S. IMI Index Fund M¹¹	2.29	0.97	9.26	31.03	12.58	10.19	7.24	0.11	2/28/11	17,912,902	5.1	18.9
MSCI ACWI ex-U.S. IMI Index	2.27	0.96	9.19	30.90	12.38	9.97	6.93					
BlackRock MSCI ACWI IMI Index Non-Lendable Fund M¹²	4.91	3.26	16.92	38.37	17.60	14.94	11.19	0.05	4/12/13	46,825,008	13.4	33.5
MSCI ACWI IMI Index	4.86	3.18	16.84	38.18	17.32	14.59	10.82					
TIAA Real Estate Account¹³	1.86	5.38	13.31	14.05	6.12	5.57	7.27	0.87	10/2/95	9,847,023	2.8	27.3
Custom Composite Benchmark ¹⁴	n/a	n/a	n/a	n/a	n/a	n/a	n/a					
TIAA Traditional Annuity RC^{15,16,17,18}	0.29	0.86	2.96	3.63	3.89	3.98	4.18	0.45	8/1/05	22,580,970	6.5	29.0
Self-Directed Brokerage Account												
TIAA - Self-Directed Account	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5,370,243	1.5	0.8
Total										\$350,180,314		

Footnotes >

- 1 If the fund was not in existence for 10 years, fund and corresponding benchmark returns shown represent performance from the since inception date.
- 2 Fund investment advisers may voluntarily agree to waive expenses. Expense waivers may be terminated at any time.
- 3 The BlackRock LifePath Index Funds O invest in the master LifePath Index Funds F. The inception dates shown reflect the inception date of the master LifePath Funds F. The inception dates for most LifePath Funds O were 12/9/11. The 2055 Fund's O inception date was 12/12/11, the 2060 Fund's O inception date was 1/2/15 and the 2065 Fund's O inception date was 9/23/19. Returns prior to Funds' O inception dates are those of Funds F with deductions taken for Funds O investment management fees.
- 4 Benchmarks are calculated using blended returns of third-party indices that proportionately reflect the respective weightings of the Funds' asset classes. Weightings are adjusted quarterly to reflect the Funds' asset allocation shifts over time. Indices currently used to calculate the custom benchmarks are: Russell 1000 Index, Russell 2000 Index, MSCI ACWI Ex-U.S. IMI Index, Bloomberg Barclays U.S. Aggregate Bond Index, Bloomberg Barclays U.S. TIPS Index, FTSE EPRA/NAREIT Developed Index and the Bloomberg Commodity Index Total Return.
- 5 An investment in a money market fund is not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency. Although the Fund seeks to preserve the value of your investment it is possible to lose money by investing in the Fund.
- 6 The current yield more closely reflects the earnings of the Fund than the total net return information.
- 7 The BlackRock U.S. Debt Fund M invests in the master Fund F. The inception date shown reflects the inception of the master Fund F. The inception date of Fund M was 7/20/12. Returns prior to Fund M's inception date are those of Fund F with deductions taken for Fund M's investment management fees.
- 8 The BlackRock U.S. Treasury Inflation-Protected Securities Fund M invests in the master Fund F. The inception date shown reflects the inception of the master Fund F. The inception date of Fund M was 7/20/12. Returns prior to Fund M's inception date are those of Fund F with deductions taken for Fund M' investment management fees.
- 9 The BlackRock Equity Index Fund J invests in the master Fund F. The inception date shown reflects the inception of the master Fund F. The inception date of Fund J was 3/20/17. Returns prior to Fund J's inception date are those of Fund F with deductions taken for Fund J's investment management fees.
- 10 The BlackRock Russell 2500 Fund M invests in the master Fund F. The inception date shown reflects the inception of the master Fund F. The inception date of Fund M was 1/30/13. Returns prior to Fund M's inception date are those of Fund F with deductions taken for Fund M's investment management fees.
- 11 The BlackRock MSCI ACWI ex-U.S. IMI Index Fund M invests in the master Fund F. The inception date shown reflects the inception of the master Fund F. The inception date of Fund M was 12/31/12. Returns prior to Fund M's inception date are those of Fund F with deductions taken for Fund M's investment management fees.
- 12 The BlackRock MSCI ACWI IMI Index Fund M invests in the master Fund F. Inception dates for the master Fund F and Fund M are both 4/12/13.
- 13 Transfers out of the TIAA Real Estate Account (REA) are limited to one per quarter. Currently, these transfers do not require a minimum transaction amount; however, in the future TIAA reserves the right, in its sole discretion, to impose minimum transaction levels, which levels will generally be at least \$1,000 (except for systematic transfers, which must be at least \$100) or your entire accumulation, if less. Participants may not make a lump-sum transfer into the REA if their aggregated balances across all contracts is greater than \$150,000. Systematic transfers and recurring contributions are not subject to this limitation.
- 14 Effective January 2014, the Custom Composite Index is 70% NCREIF Open End Diversified Core Equity (ODCE) Net Index, 20% Bloomberg Barclays 3-Month Treasury Bill Index, and 10% Dow Jones U.S. Select REIT Index. Prior periods include other representative indices. TIAA's investment management team does not manage its real estate portfolio to a specific published index benchmark. The Custom Composite Index represents a reasonable proxy of how TIAA allocates assets among real property, short-term investments, and REITs over time. The Virginia Retirement System anticipates that Fund returns may vary greatly from those of the Custom Composite Index. Benchmark returns are not available for months that do not end on a calendar quarter due to the fact that NCREIF ODCE Index returns are only published each calendar quarter.
- 15 Upon separation from service or retirement participants can convert their TIAA Traditional accumulation dollars amount to a lifetime income option or withdraw funds through a fixed period annuity ranging from five to 30 years or a Transfer Payout Annuity, which enables participants to move funds out of the TIAA Traditional Annuity in 7 annual installments for the Retirement Choice (RC) contract. Each installment includes a portion of principal and interest, based on the rate in effect when transfer or withdrawal funds are made. However, there are two exceptions to the payout installment. First, if the TIAA Traditional account balance is less than \$5,000, participants can transfer the total amount at any time following termination of employment, but only once during the life of the contract. Second, TIAA Traditional can be withdrawn or transferred to another company up to the full balance within 120 days following termination of employment, subject to 2.5% surrender charge. After the 120-day period, participants can withdraw funds only through a fixed period annuity ranging from five to 30 years or the Transfer Payout Annuity.
- 16 The TIAA Traditional Annuity RC contract has minimum guaranteed rate during the accumulation phase of 1% to 3% . The current minimum rate for the RC contract is 1%. Further, the TIAA Traditional Annuity RC contract applies to premiums deposited during the applicable calendar year and is guaranteed for 10 years, at which point the minimum rate for these premiums will be reset.
- 17 TIAA's annual credited rate on new money for the RC contract for the month of October was 2.75%.
- 18 The TIAA Traditional Annuity is not an investment for purposes of federal securities laws; it is a guaranteed insurance contract. Therefore, unlike a variable annuity or mutual fund, the TIAA Traditional Annuity does not include an identifiable expense ratio. The 45 basis points (0.45%) approximates the expense provision in the formula for determining TIAA Traditional Annuity returns inclusive of administrative and investment expenses. This expense provision is not guaranteed, it is subject to change.
- 19 May not equal 100% due to rounding
- 20 The data reflects the percentage of participants who selected a particular investment option as of September 30, 2021. There were 5,193 (RC contract) participants as of September 30, 2021.

Performance returns shown reflect all fund management fees and other investment related expenses, but do not reflect the TIAA annual administrative fee of \$66 (deducted at \$16.50 per quarter) which would further reduce the returns shown. Performance returns do not reflect redemption fees and/or surrender charges, if applicable.

All calculations assume reinvestment of dividends and capital gains. All returns are calculated in U.S dollars. Fund and benchmark returns are provided by TIAA and BlackRock. Although data is gathered from sources to be reliable, the Virginia Retirement System cannot guarantee completeness or accuracy.

CEM 2020 DC Survey Highlights



CEM 2020 DC Survey Highlights



- CEM has benchmarked performance of DC plans since 1997
- 2020 survey comprised of 110 corporate plans and 25 public plans representing \$1.4 trillion in assets
- VRS participates in CEM's free DC cost and performance report survey
 - 457 Deferred Compensation Plan: supplemental (unbundled)
 - TIAA ORPHE*: primary (bundled)
- CEM DC survey reports are included in the Appendix
 - CEM figures may not foot due to rounding

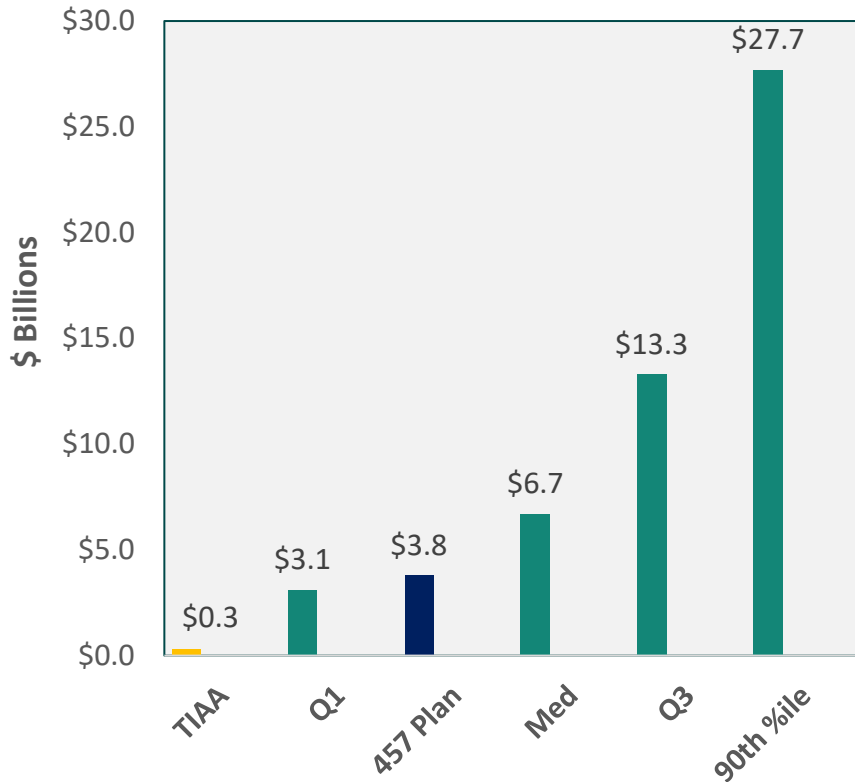
*Information based solely on TIAA's RC contract investment options

- Starting with the 2020 report CEM no longer includes a plan specific benchmark cost as part of their free survey
- To receive a plan specific benchmark cost plan sponsors must subscribe to CEM's Dashboard benchmarking service
- Staff will be reviewing this service to determine the cost vs benefit

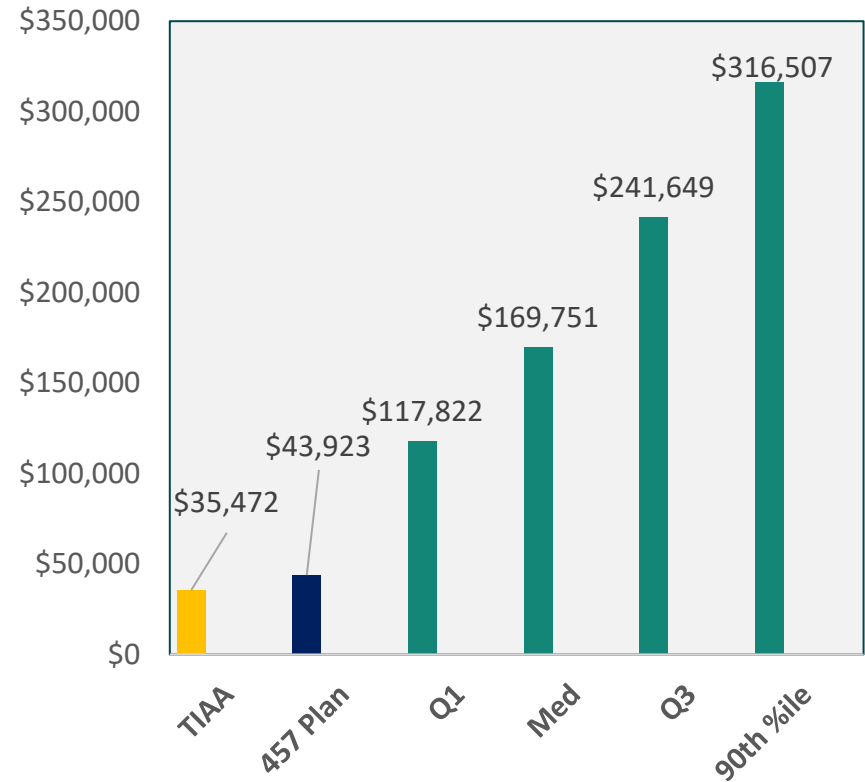
CEM 2020 DC Survey Highlights



Plan Size



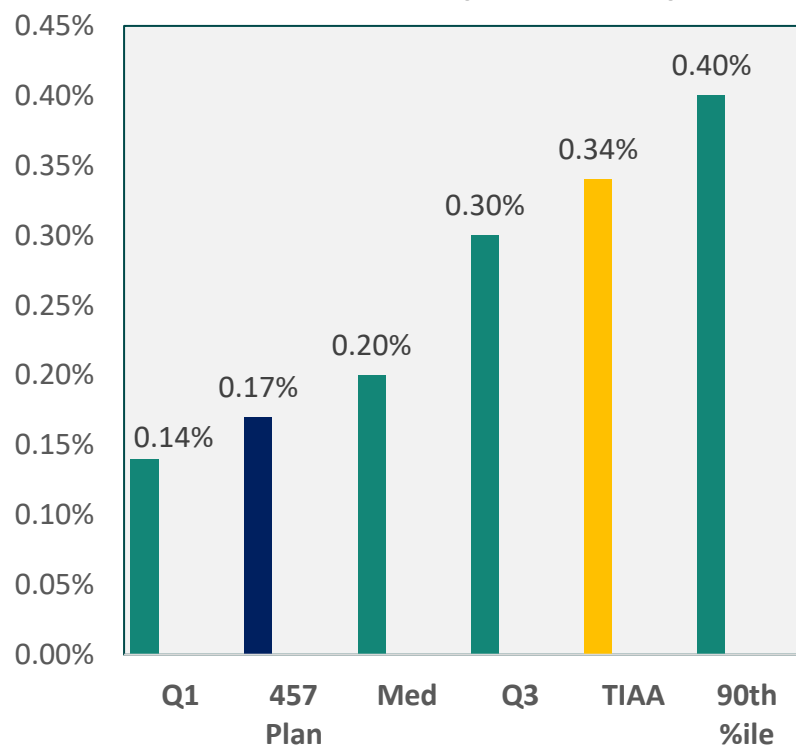
Average Account Balance



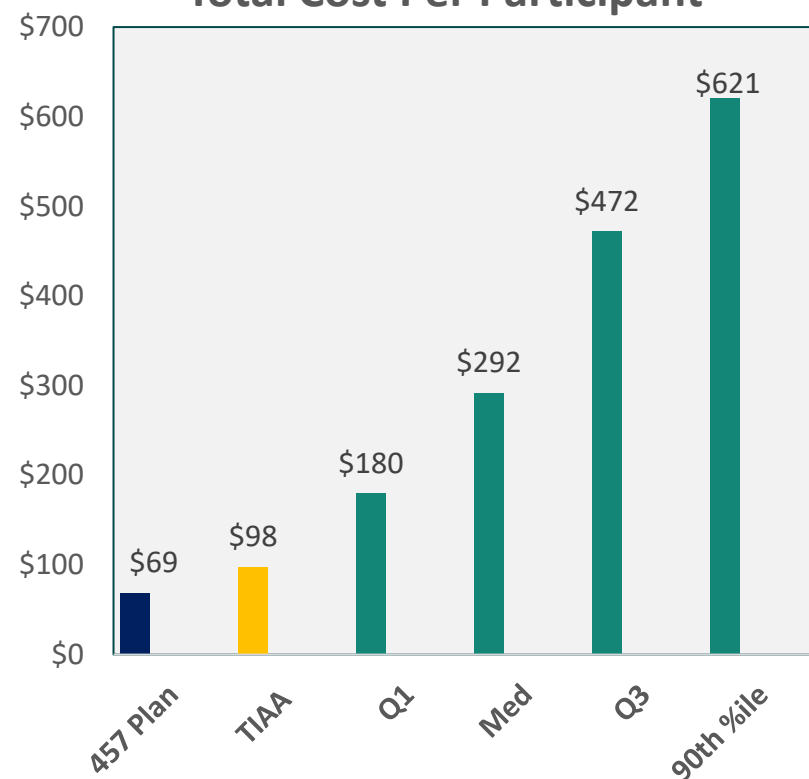
- Differences in plan size and participant account balances due to many factors including:
 - Whether a plan is a primary or a supplemental plan, contribution & matching rates, participant demographics, and plan design
- Comparing a plan's total plan costs to other plans provides limited insight because of differences in economies of scale and types of investments offered

CEM 2020 DC Survey Highlights

Total Plan Cost (% of assets)



Total Cost Per Participant



CEM 2020 DC Survey Highlights



Costs	457 Plan	TIAA ORPHE
Investment	8.0 bps or \$2.7 M	9.9 bps or \$239,000
Record-Keeping & Administration	7.1 bps or \$2.4 M	15.7 bps or \$378,000
Internal Oversight	2.3 bps or \$0.8 M	9.8 bps or \$235,000
Less Record-Keeping Rebates to Participants	n/a	1.7 bps or \$42,000
Total Record-Keeping; Administration; Oversight After Rebates	9.3 bps or \$3.2 M	23.7 bps or \$571,000
Total Plan Costs (Investments & Administration)	17.3 bps or \$5.9 M	33.7 bps or \$810,000
Cost Per Participant	\$69	\$98

Figures may not foot due to rounding

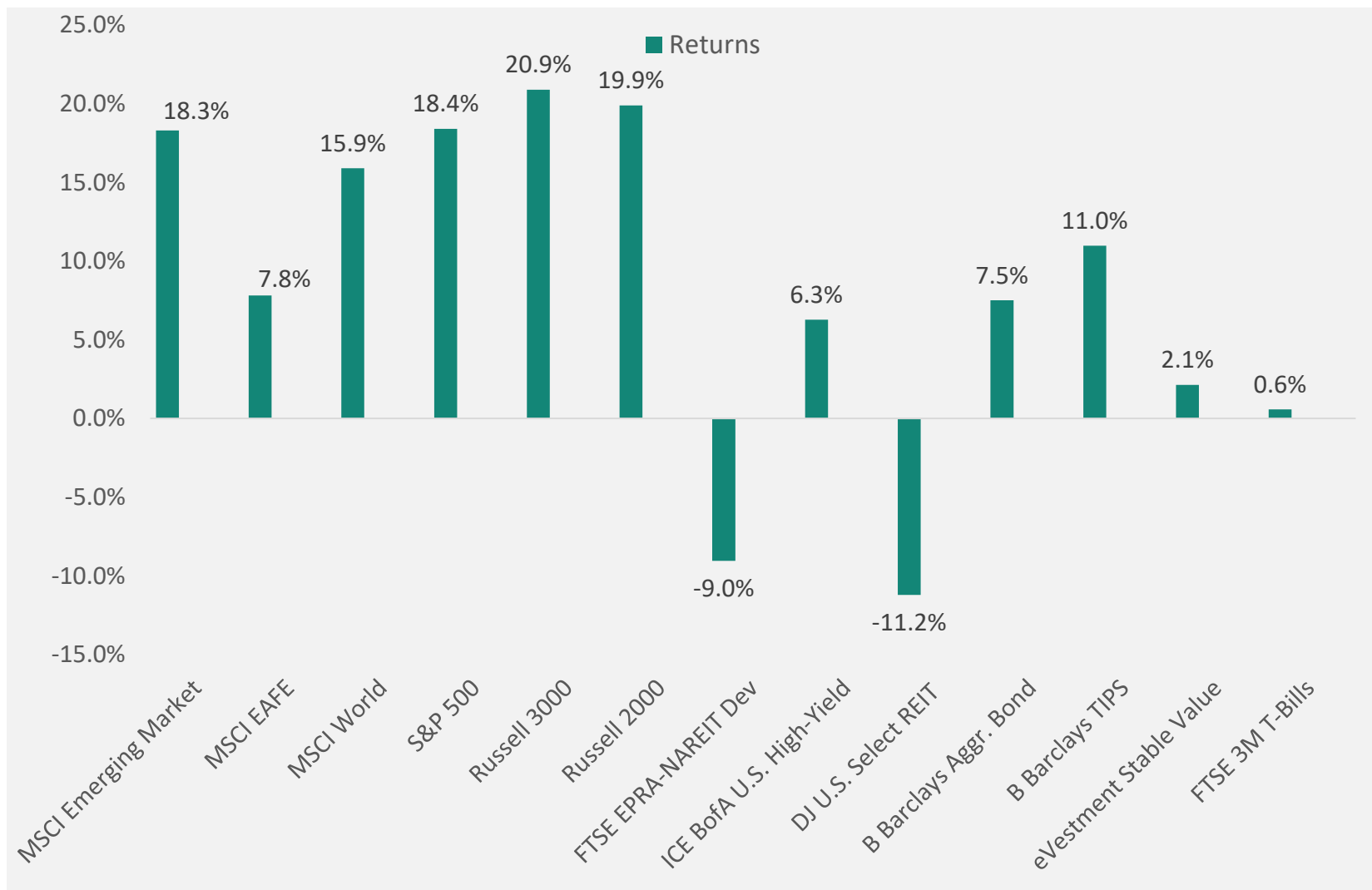
CEM 2020 DC Survey Highlights



- CEM universe median investment options offered: 14
 - VRS 457 Plan: 12
 - TIAA ORPHE: 11

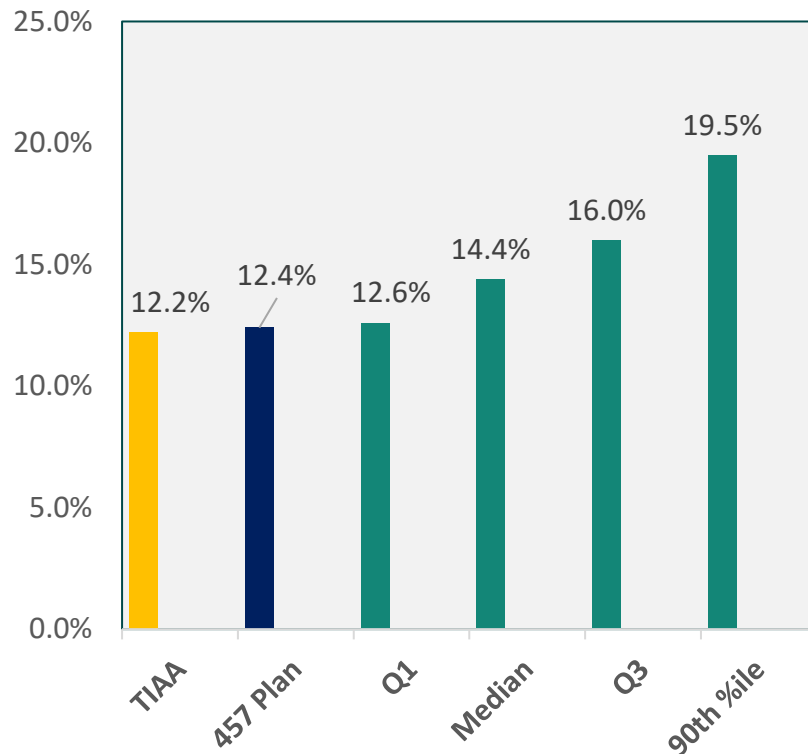
(Self-Directed Brokerage Accounts and target date series counted as one option)
- A plan's asset mix is a function of investments offered and participants' investment option choices
- A plan's asset mix is often the biggest reason for differences in total returns of plan participants

Asset Class Returns 1-Year Ending December 31, 2020



CEM 2020 DC Survey Highlights

Average Total Return of Plan Participants



Average total return measures the change in the average participant's account balance as a result of net investment returns earned by their investments weighted by their holdings

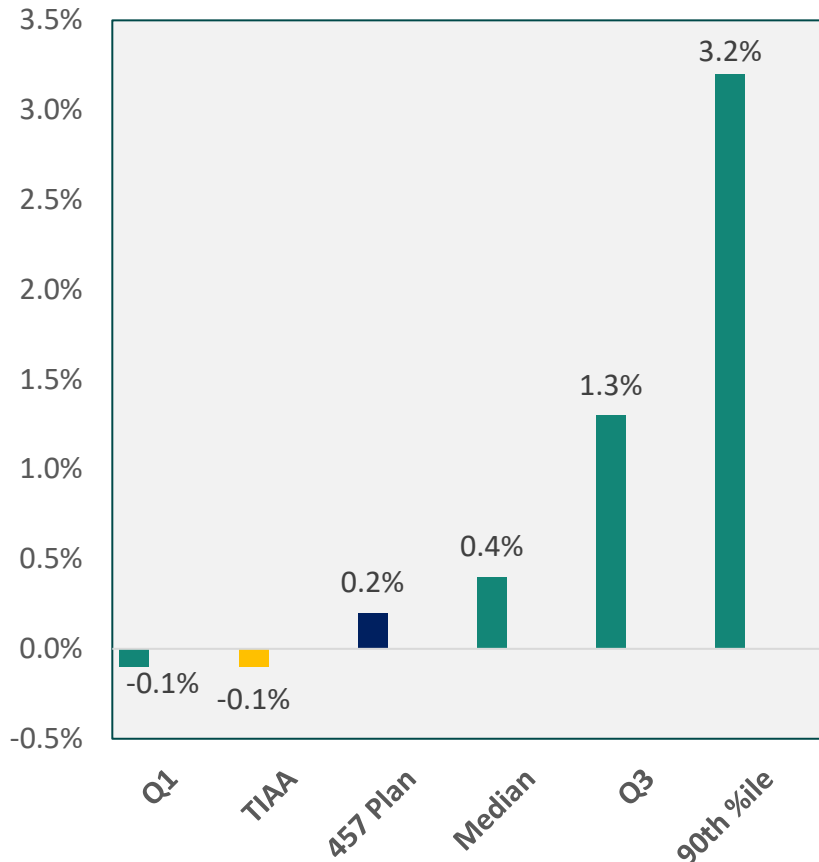
Primary causes of differences in plan participants' average net total return:

- Participants' selected asset mixes
- Value added performance (amount investment options outperformed their benchmark indices)

- CEM's research has shown consistently there is no relationship between what plans spend and what they received
 - The more you pay (cost) does not necessarily translate into the more you get (value added)
- Low value added = on average, a plan's investment options are underperforming their benchmark indices (net of costs)
 - Note that where indexed investment options are offered, net value added is not expected to be significant since the goal of an indexed option is to track the return of the underlying index
- High value added = on average, a plan's investment options are outperforming their benchmark indices (net of costs)

CEM 2020 DC Survey Highlights

Average Total Plan Value Added



Total plan value added = weighted total net investment return minus administration costs (after rebates) minus weighted total benchmark return

A positive figure indicates, on average, investments are outperforming benchmarks and a negative figure indicates underperformance

Net value added for funds that are indexed investment options (track benchmarks) typically are low value added (benchmark returns – fund expense ratios)

CEM DC Survey Highlights



457 Plan	2020	2019	2018
Plan Assets	\$3.8 billion	\$3.1 billion	\$2.6 billion
Investment Costs	8 bps	9 bps	9 bps
Administrative Costs	9.3 bps	11 bps	12 bps
Total Plan Costs	17.3 bps	20 bps	21 bps
CEM's 457 Plan Benchmark Cost	Not Available	35 bps	39 bps
457 Plan's Excess Cost	Not Available	- 15 bps	- 17 bps
Cost Per Participant	\$69	\$69	\$70
Average Total Return of Plan Participants	12.4%	20.3%	-4.5%
Average Total Plan Value Added	0.2%	0.0%	-0.1%
CEM Cost Effectiveness Ranking	Not Available	High value added, low cost	Low value added, low cost

CEM DC Survey Highlights



TIAA ORPHE	2020	2019	2018
Plan Assets	\$294 million	\$811 million	\$698 million
Investment Costs	9.9 bps	21 bps	22 bps
Administrative Costs (after any rebates)	23.7 bps	20 bps	20 bps
Total Plan Costs	33.7 bps	41 bps	42 bps
CEM's TIAA Benchmark Cost	Not Available	34 bps	40 bps
TIAA Excess Cost	Not Available	7 bps	3 bps
Cost Per Participant	\$98	\$391	\$417
Average Total Return of Plan Participants	12.2%	16.7%	-3.4%
Average Total Plan Value Added	-0.1%	-0.1%	-0.8%
CEM Cost Effectiveness Ranking	Not Available	Low value added, high cost	Low value added, high cost

VRS Legislative Proposal to Separate Defined Benefit and Defined Contribution Employer Rates

VRS' legislative proposal will separate the employer defined benefit (DB) rate and the defined contribution rate, which are currently blended.

The proposal is intended to:

- Reduce the administrative burden on both VRS and its employers from reconciliation efforts as the hybrid retirement plan becomes the dominant plan
- Potentially allow members the flexibility to change their voluntary contributions monthly instead of the current quarterly schedule
- Allow member contributions to be invested more quickly

Currently, the blended monthly employer contribution rate consists of the Board-certified DB rate and an estimate of the employer DC contributions.

The current structure can lead to DC reconciliation issues in large part because of the different payroll cycles used by our participating employers and the fact that DB business rules do not fit well with DC contributions. For example, corrections for DB contributions can be handled as a payroll correction. DC corrections require more complex adjustments, including the calculation of missed earnings and any overpayments must be returned to the employee.

The proposed legislation would be introduced in the 2022 General Assembly session, with a delayed implementation date of July 1, 2024 to allow time for communications and implementation for both VRS and our 800+ participating employers, as well as to coincide with the new biennial contribution rates.

The proposal may require some employers to modify payroll programming and will require VRS programming as well. Once complete, however, the changes will make the process easier for employers and for VRS and reduce the need for reconciliations.

We have had preliminary discussions with representative employers and other stakeholders such as JLARC, the Department of Planning and Budget, House Appropriations Committee/Senate Finance and Appropriations Committee staff, the Division of Legislative Services, and the Virginia Association of Counties. A meeting with the Virginia Municipal League will be scheduled soon.

SENATE BILL NO. _____ HOUSE BILL NO. _____

1 A BILL to amend and reenact § 51.1-145 of the Code of Virginia, relating to Virginia Retirement System;
2 employer contributions.

3 **Be it enacted by the General Assembly of Virginia:**

4 **1. That § 51.1-145 of the Code of Virginia is amended and reenacted as follows:**

5 **§ 51.1-145. Employer contributions.**

6 A. The total annual defined benefit employer contribution for each employer, expressed as a
7 percentage of the annual membership payroll, shall be determined in a manner so as to remain relatively
8 level from year to year. Each employer shall contribute for the defined benefit plans, including the defined
9 benefit component of the hybrid retirement program under § 51.1-169, an amount equal to the sum of the
10 normal contribution, any accrued liability contribution, and any supplementary contribution, as well as
11 amounts required for the defined contribution component of the hybrid retirement program under § 51.1-
12 169. The defined benefit contribution rates for each employer shall be determined biennially ~~after each~~
13 ~~valuation~~ and shall remain in effect until a new biennial valuation is made. All defined benefit contribution
14 rates shall be computed in accordance with recognized actuarial principles on the basis of methods and
15 assumptions approved by the Board and as described in the VRS funding policy.

16 B. The normal employer defined benefit contribution for any period shall be determined as a
17 percentage, equal to the normal contribution rate, of the total covered compensation of the members
18 employed during the period.

19 C. The normal defined benefit contribution rate for any employer shall be determined as the
20 percentage represented by the ratio of (i) the annual normal cost to provide the benefits of the retirement
21 system with respect to members employed by the employer in excess of the members' contributions to (ii)
22 the total annual compensation of the members.

23 D. The accrued defined benefit liability contribution for any employer for any period shall be
24 determined as a percentage, equal to the accrued liability contribution rate, of the total compensation of
25 the members during the period.

26 E. The accrued defined benefit liability contribution rate for any employer shall be a percentage of
27 the total annual compensation of the members, determined so that a continuation of annual contributions
28 by the employer at the same percentage of total annual compensation over a period of ~~40~~ years determined
29 by the Board consistent with recognized actuarial principles and the VRS funding policy will be sufficient
30 to amortize the unfunded accrued liability with respect to the employer.

31 F. The unfunded defined benefit accrued liability with respect to any employer as of any valuation
32 date shall be determined as the excess of the actuarial accrued liability over the sum of assets of the
33 retirement system as of the valuation date, as follows (i) the then present value of the benefits to be
34 provided under the retirement system in the future to members and former members over (ii) the sum of
35 the assets of the retirement system then currently in the members' contribution account and in the
36 employer's retirement allowance account, plus the then present value of the stipulated contributions to be
37 made in the future by the members, plus the then present value of the normal contributions expected to be
38 made in the future by the employer.

39 G. The supplementary defined benefit contribution for any employer for any period shall be
40 determined as a percentage, equal to the supplementary contribution rate, of the total compensation of the
41 members employed during the period.

42 H. Until July 1, 1997, the supplementary contribution rate for any employer shall be determined
43 as the percentage represented by the ratio of (i) the average annual amount of post-retirement supplements,
44 as provided for in this chapter, which is anticipated to become payable during the period to which the rate
45 will be applicable with respect to former members to (ii) the total annual compensation of the members.

46 I. The Board shall certify to each employer the applicable defined benefit contribution rate and
47 any changes in the rate. The Board shall also provide the applicable estimated defined contribution
48 amounts to each employer.

49 J. The defined benefit employer contribution for the year shall be increased to the extent necessary
50 to overcome any insufficiency if the contributions for any employer, when combined with the amount of
51 the retirement allowance account of the employer, are insufficient to provide the benefits payable during
52 the year.

53 K. The appropriation bill which is submitted to the General Assembly by the Governor prior to
54 each regular session that begins in an even-numbered year shall include the defined benefit employer
55 contributions ~~that which~~ will become due and payable to the retirement allowance account from the state
56 treasury during the following biennium, an estimate of all state employer defined contribution amounts
57 required by § 51.1-169, and amounts for contributions to applicable ancillary benefits as otherwise
58 required by this Title. The amount of the defined benefit contributions shall be based on the contribution
59 rates certified by the Board pursuant to subsection I of this section that are applicable to the
60 Commonwealth as an employer and the anticipated compensation during the biennium of the members of
61 the retirement system on behalf of whom the Commonwealth is the employer.

62 ~~K1.L.~~ The General Assembly shall set defined benefit contribution rates that are at least equal to
63 the following percentage of the contribution rates certified by the Board pursuant to subsection I:

64 1. For members who are state employees as defined in § 51.1-124.3 and who are participating in a
65 retirement plan established pursuant to Chapter 1 (§ 51.1-124.1 et seq.), (i) 67.02 percent for fiscal years
66 beginning July 1, 2012, and July 1, 2013, (ii) 78.02 percent for fiscal years beginning July 1, 2014, and
67 July 1, 2015, (iii) 89.01 percent for fiscal years beginning July 1, 2016, and July 1, 2017, and (iv) 100
68 percent for fiscal years beginning on or after July 1, 2018;

69 2. For members who are teachers as defined in § 51.1-124.3 and who are participating in a
70 retirement plan established pursuant to Chapter 1 (§ 51.1-124.1 et seq.), (i) 69.53 percent for fiscal years
71 beginning July 1, 2012, and July 1, 2013, (ii) 79.69 percent for fiscal years beginning July 1, 2014, and
72 July 1, 2015, (iii) 89.84 percent for fiscal years beginning July 1, 2016, and July 1, 2017, and (iv) 100
73 percent for fiscal years beginning on or after July 1, 2018;

74 3. For members participating in a retirement plan established pursuant to Chapter 2 (§ 51.1-200 et
75 seq.), (i) 75.84 percent for fiscal years beginning July 1, 2012, and July 1, 2013, (ii) 83.90 percent for
76 fiscal years beginning July 1, 2014, and July 1, 2015, (iii) 91.95 percent for fiscal years beginning July 1,
77 2016, and July 1, 2017, and (iv) 100 percent for fiscal years beginning on or after July 1, 2018;

78 4. For members participating in a retirement plan established pursuant to Chapter 2.1 (§ 51.1-211
79 et seq.), (i) 75.82 percent for fiscal years beginning July 1, 2012, and July 1, 2013, (ii) 83.88 percent for

80 fiscal years beginning July 1, 2014, and July 1, 2015, (iii) 91.94 percent for fiscal years beginning July 1,
81 2016, and July 1, 2017, and (iv) 100 percent for fiscal years beginning on or after July 1, 2018; and

82 5. For members participating in a retirement plan established pursuant to Chapter 3 (§ 51.1-300 et
83 seq.), (i) 83.98 percent for fiscal years beginning July 1, 2012, and July 1, 2013, (ii) 89.32 percent for
84 fiscal years beginning July 1, 2014, and July 1, 2015, (iii) 94.66 percent for fiscal years beginning July 1,
85 2016, and July 1, 2017, and (iv) 100 percent for fiscal years beginning on or after July 1, 2018.

86 L.M. In the case of all teachers whose compensation is paid exclusively out of funds derived from
87 local revenues and appropriations from the general fund of the state treasury, the Commonwealth shall
88 contribute to the extent specified in the ~~appropriations~~ appropriation act. In the case of any teacher whose
89 compensation is paid out of funds derived in whole or in part from any special fund or from a contributor
90 other than the Commonwealth or a political subdivision thereof, contributions shall be paid out of the
91 special fund or by the other contributor in proportion to that part of the compensation derived therefrom.
92 In the case of all state employees whose compensation is paid exclusively by the Commonwealth out of
93 the general fund of the state treasury, the Commonwealth shall be the sole contributor, and all
94 contributions shall be paid out of the general fund. In the case of a state employee whose compensation is
95 paid in whole or in part out of any special fund or by any contributor other than the Commonwealth,
96 contributions on behalf of the employee shall be paid out of the special fund or by the other contributor in
97 proportion to that part of the employee's compensation derived therefrom. The governing body of each
98 political subdivision is hereby authorized to make appropriations from the funds of the political
99 subdivision necessary to pay its proportionate share of contributions on behalf of every state employee
100 whose compensation is paid in part by the political subdivision. In the case of each person who has elected
101 to remain a member of a local retirement system, the Commonwealth shall reimburse the local employer
102 an amount equal to the product of the compensation of the person and the employer contribution rate as
103 used to determine the employer contribution for state employees under this section. Each employer shall
104 keep such records and periodically furnish such information as the Board may require and shall inform
105 new employees of their duties and obligations in connection with the retirement system.

106 ~~M.N.~~ The ~~defined benefit-employer~~ contribution rate established for each employer may include
107 the cost to administer any defined contribution plan administered by the Virginia Retirement System and
108 available to the employer. The portion of such contribution designated to cover administrative costs of the
109 defined contribution plans shall not be deposited into the trust fund established for the defined benefit
110 plans but shall be separately accounted for and used solely to defray the administrative costs associated
111 with the various defined ~~contributions~~ contribution plans. This provision shall supplement the authority
112 of the Board under §§ 51.1-124.22 and 51.1-602 to charge and collect administrative fees to employers
113 whose employees have available the various defined contribution plans administered by the Virginia
114 Retirement System.

115 ~~N. Notwithstanding the foregoing, the total employer contribution for each employer authorized~~
116 ~~to participate in the hybrid retirement program described in § 51.1-169 for any period, expressed as a~~
117 ~~percentage of the employer's payroll for such period, shall be established as the contribution rate payable~~
118 ~~by such employer with respect to its employees enrolled in the defined benefit plan established under this~~
119 ~~chapter. The employer's contribution shall be first applied to the defined contribution component of the~~
120 ~~hybrid retirement program described in § 51.1-169, and the remainder shall be deposited in the employer's~~
121 ~~retirement allowance account.~~O. Institutions of higher education shall also pay contributions to the

122 employer's retirement allowance account in amounts representing the difference between the contribution
123 rate payable with respect to employees enrolled in the defined benefit plan under this chapter and the
124 employer contributions paid to any optional retirement plan it offers on behalf of any of its nonfaculty
125 Covered Employees, as described in §§ 23.1-1020 through 23.1-1026. The employer contribution rate
126 established for each employer may include the annual rate of contribution payable by such employer with
127 respect to employees enrolled in the optional defined contribution retirement plans established under §§
128 51.1-126, 51.1-126.1, 51.1-126.3, and 51.1-126.4.

129 ~~O.P.~~ Employer contributions may be returned to the employer only as determined in accordance
130 with § 401(a) of the Internal Revenue Code, as amended or renumbered, and the regulations thereunder
131 applicable to governmental plans.

132 Q. Additionally, employers shall pay contributions as determined by VRS for applicable ancillary
133 benefits as otherwise required by this Title.

134 **2. That the provisions of the first enactment of this act shall become effective on July 1, 2024.**

135 **3. That notwithstanding the provisions of the second enactment of this act, beginning July 1, 2022,**
136 **the Virginia Retirement System is authorized to communicate the forthcoming changes, update data**
137 **systems, and train VRS employers to ensure a coordinated and seamless transition upon**
138 **implementation of the provisions of the first enactment of this act, and to develop procedures for**
139 **the separation of defined benefit and defined contribution amounts prior to the implementation of**
140 **the provisions of the first enactment of this act.**

141 #

CEM Defined Contribution Survey Results

2020 Investment Benchmarking Analysis for Virginia Retirement System

Thank you for participating in CEM's annual Defined Contribution survey. Your results are only provided to you. Confidentiality of your data is strictly maintained.



CEM presents your 2020 benchmarking results!

We are pleased to present the 24th edition of the annual CEM Benchmarking results for defined contribution plans. In this complimentary PDF report, you will find a basic set of comparisons of your plan's 2020 investment option returns and costs to the U.S. universe.

Changes to note:

- We removed the previous benchmark cost calculation from this report as the number by itself might be misleading when the underlying context is not explained. In addition, the methodology was improved to account for the asset mix and implementation style differences within target date options.
- You can receive access to an improved benchmark cost calculation for your plan via a trial of the CEM Dashboard, our new interactive online benchmarking service. The Dashboard includes your benchmark cost, calculated based on a custom selected group of similar sized peers, adjusted for factors that impact fees. CEM Dashboard is our highest standard of fee and performance benchmarking analysis provided through a more cost-effective, self-service channel. In addition, the Dashboard provides multi-year views and deeper insights into, for example, the cost and performance of your options, administrative and participant expenses, and the line up.

Feel free to contact us, if you have any questions, comments, or want to discuss your results. Our team is here to help you get the most out of benchmarking.

CEM Investment Benchmarking Team.

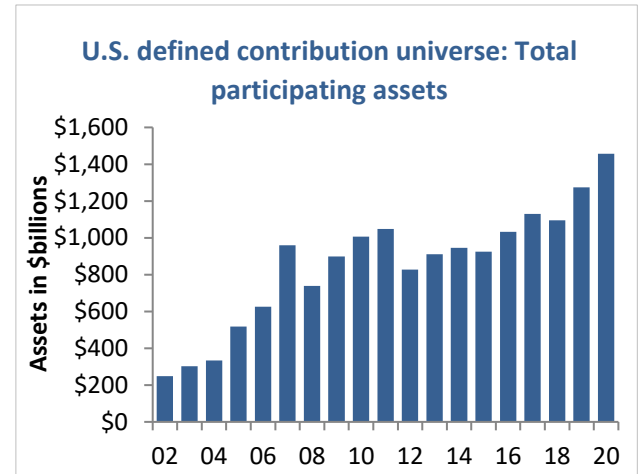
Copyright ©2021 by CEM Benchmarking Inc. (CEM). Although the information in this report has been based upon and obtained from sources we believe to be reliable, CEM does not guarantee its accuracy or completeness. The information contained herein is proprietary and confidential and may not be disclosed to third parties without the express written mutual consent of both CEM and Virginia Retirement System.

CEM U.S. defined contribution database

Database participation

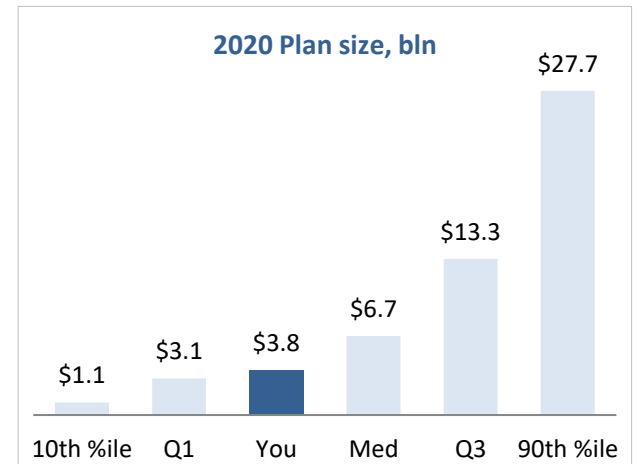
CEM has been benchmarking the costs and performance of U.S. defined contribution plans, in a uniform basis, since 1997. In this free report, our thank you for participating in our database, your costs and performance are compared to the 2020 CEM universe, which consists of:

- 135 defined contribution plans aggregating \$1,457 billion.
- 110 corporate plans and 25 public plans.



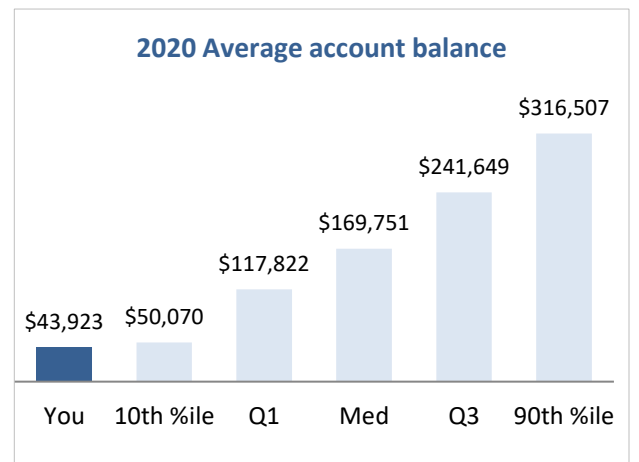
Plan size

Your plan had \$3.8 billion in total assets (measured as the sum of option holdings) at the end of 2020. This was below the U.S. universe median of \$6.7 billion.



Average account balance

The average account balance of your plan participants was \$43,923 in 2020. This compares to the U.S. universe median of \$169,751. Differences in average account balance reflect many factors including contribution rates, participant demographics and matching rates.



Your 2020 total plan costs

Calculating your costs

Your plan's total cost in 2020, excluding individual participant expenses, was \$6.0 million which equals 17.3 bps on total assets or \$69 per participant.

1. Costs in dollars were estimated as 'basis point cost provided' x 'option average holdings', where [average holdings=(beginning of year + end of year)/2]. If beginning of year holdings were not available (you did not participate last year), then we estimated it as [beginning of year holdings=end of year holdings / (1 + return on holdings)].

2. Total expense ratio (8.0 bps) = average of option expense ratios weighted by option assets avg. Total \$ expense ratio (2,743) = plan total avg. assets (3,441) x expense ratio (8.0 bps). Plan total average assets (3,441) = (total assets eoy 2020 (3,807) + total assets eoy 2019 (3,074)) / 2.

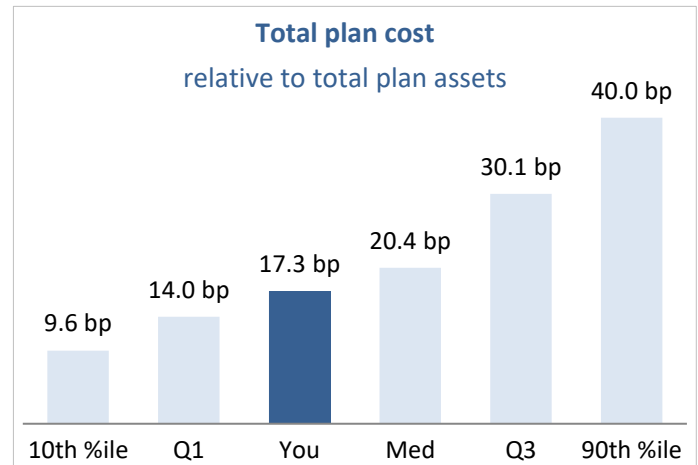
3. Defaults were applied if you were unable to provide cost for recordkeeping or internal oversight.

Investment options	Expense ratio in bp	Assets Avg	Inv. Costs \$000s ¹
BlackRock - Stock Fund	1.0 bp	1,039	
BlackRock - Small/Mid-Cap Stock Fund	2.0 bp	312	
BlackRock - International Stock Fund	6.0 bp	165	
BlackRock - Bond Fund	3.0 bp	146	
BlackRock - Inflation-Protected Bond Fund	3.0 bp	40	
JPMorgan - High-Yield Bond Fund	40.0 bp	40	
Galliard - Stable Value Fund	24.0 bp	476	
BlackRock - Money Market Fund	8.0 bp	71	
BlackRock - Retirement Portfolio	8.0 bp	302	
BlackRock - Target Date 2025 Portfolio	8.0 bp	181	
BlackRock - Target Date 2030 Portfolio	8.0 bp	144	
BlackRock - Target Date 2035 Portfolio	8.0 bp	118	
BlackRock - Target Date 2040 Portfolio	8.0 bp	86	
BlackRock - Target Date 2045 Portfolio	8.0 bp	61	
BlackRock - Target Date 2050 Portfolio	8.0 bp	43	
BlackRock - Target Date 2055 Portfolio	8.0 bp	25	
BlackRock - Target Date 2060 Portfolio	8.0 bp	6	
BlackRock - Target Date 2065 Portfolio	8.0 bp	0	
BlackRock - Global Real Estate Fund	9.0 bp	86	
VRS - VRSIP	59.0 bp	36	
Ameritrade - Self Directed Brokerage	n/a	n/a	
Total expense ratio, investment manager (A)²	8.0 bp	\$3,441	\$2,743
Administrative expenses³			
Recordkeeping and administration	7.1 bp		\$2,433
Custodial and trustee	0.0 bp		\$0
Internal oversight	2.3 bp		\$781
Consulting	0.0 bp		\$0
Other plan costs (legal, audit, etc)	0.0 bp		\$0
Administrative costs (B)	9.3 bp		\$3,214
Total plan costs (A + B)	17.3 bp		\$5,957
Individual participant expenses			
Participant advice	0.0 bp		\$0
Managed account fees	0.0 bp		\$0
Other participant expenses (for loans, etc.)	0.0 bp		\$12
Individual participant expenses	0.0 bp		\$12

Total plan cost comparisons

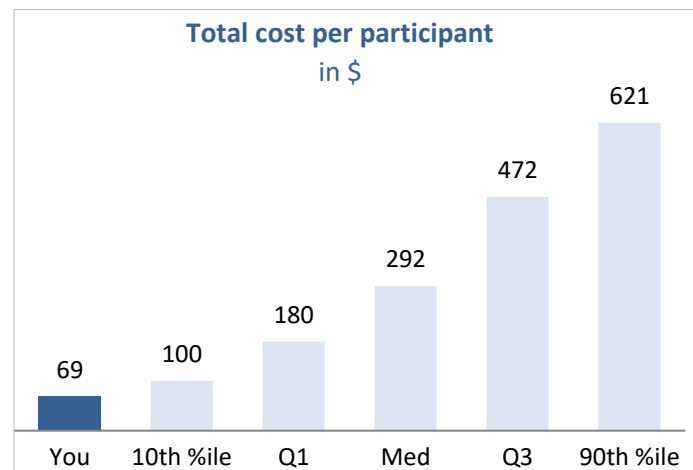
Total plan cost as a percentage of assets

Your total plan cost, excluding individual expenses, of 17.3 bps was below the U.S. universe median of 20.4 bps.



Total plan cost per participant

On a per participant basis, your total cost of \$69 was lower than the U.S. universe median of \$292.



As a fiduciary, it is very important that you assess whether your costs are reasonable. Comparing total plan cost provides limited insight because differences in total cost often reflect differences in the type of investment options offered. On the next few pages we compare costs and performance of each of the options your plan offers your participants against that of the total U.S. universe.

Option monitoring - Cost

Investment costs of your options are shown side by side with the median costs reported by the U.S. universe for similar options. (e.g. Your indexed Stock U.S. SMID Cap option (Small/Mid-Cap Stock Fund) is compared to indexed Stock U.S. SMID Cap options reported by others.)

Though the universe comparison is provided, it is inferior to peer-based analysis. Please refer to page 13 for more information.

Costs by investment option - 2020

Investment option		Cost Invest. Mgr. ¹		Option type	
Provider	Option name	Your	Univ med	Category	Indexed ²
BlackRock	Stock Fund	1.0 bp	1.5 bp	Stock U.S. Broad or Large Cap	✓
BlackRock	Small/Mid-Cap Stock Fund	2.0 bp	3.0 bp	Stock U.S. SMID Cap	✓
BlackRock	International Stock Fund	6.0 bp	6.0 bp	Stock Non U.S.	✓
BlackRock	Bond Fund	3.0 bp	3.0 bp	Bonds Broad	✓
BlackRock	Inflation-Protected Bond Fund	3.0 bp	3.0 bp	Bonds TIPS	✓
JPMorgan	High-Yield Bond Fund	40.0 bp	43.0 bp	Bonds High Yield	
Galliard	Stable Value Fund	24.0 bp	27.3 bp	Stable Value	
BlackRock	Money Market Fund	8.0 bp	9.0 bp	Cash, Money Market	
BlackRock	Retirement Portfolio	8.0 bp	6.0 bp	Target Date	✓
BlackRock	Target Date 2025 Portfolio	8.0 bp	6.5 bp	Target Date	✓
BlackRock	Target Date 2030 Portfolio	8.0 bp	6.5 bp	Target Date	✓
BlackRock	Target Date 2035 Portfolio	8.0 bp	7.0 bp	Target Date	✓
BlackRock	Target Date 2040 Portfolio	8.0 bp	7.0 bp	Target Date	✓
BlackRock	Target Date 2045 Portfolio	8.0 bp	7.0 bp	Target Date	✓
BlackRock	Target Date 2050 Portfolio	8.0 bp	7.0 bp	Target Date	✓
BlackRock	Target Date 2055 Portfolio	8.0 bp	7.0 bp	Target Date	✓
BlackRock	Target Date 2060 Portfolio	8.0 bp	7.0 bp	Target Date	✓
BlackRock	Target Date 2065 Portfolio	8.0 bp	7.0 bp	Target Date	✓
BlackRock	Global Real Estate Fund	9.0 bp	9.0 bp	REIT	✓
VRS	VRSIP	59.0 bp	52.0 bp	Other	

1. Cost is the investment manager expense ratio of each investment option.

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

Option monitoring - Performance

Similar to costs on the previous page, your performance is compared to the performance reported for similar options by the U.S. universe.

Returns and value added by investment option - 2020

Investment option		Net total return ¹		Net value added		Option type	
Provider	Option name	Your	Univ med	Your	Univ med	Category	Indexed ²
BlackRock	Stock Fund	18.5%	18.4%	0.1%	0.0%	Stock U.S. Broad or Large Cap	✓
BlackRock	Small/Mid-Cap Stock Fund	20.0%	32.2%	0.0%	-0.1%	Stock U.S. SMID Cap	✓
BlackRock	International Stock Fund	11.5%	11.2%	0.3%	0.2%	Stock Non U.S.	✓
BlackRock	Bond Fund	7.6%	7.6%	0.1%	0.0%	Bonds Broad	✓
BlackRock	Inflation-Protected Bond Fund	11.2%	11.0%	0.2%	0.0%	Bonds TIPS	✓
JPMorgan	High-Yield Bond Fund	4.8%	5.4%	-1.5%	-1.3%	Bonds High Yield	
Galliard	Stable Value Fund	2.2%	2.2%	1.5%	1.3%	Stable Value	
BlackRock	Money Market Fund	0.7%	0.5%	0.1%	-0.1%	Cash, Money Market	
BlackRock	Retirement Portfolio	12.0%	10.2%	0.2%	0.0%	Target Date	✓
BlackRock	Target Date 2025 Portfolio	12.2%	13.4%	0.2%	0.0%	Target Date	✓
BlackRock	Target Date 2030 Portfolio	12.9%	13.4%	0.2%	0.0%	Target Date	✓
BlackRock	Target Date 2035 Portfolio	13.6%	15.4%	0.2%	0.0%	Target Date	✓
BlackRock	Target Date 2040 Portfolio	14.1%	15.4%	0.2%	0.0%	Target Date	✓
BlackRock	Target Date 2045 Portfolio	14.8%	15.4%	0.2%	0.0%	Target Date	✓
BlackRock	Target Date 2050 Portfolio	15.2%	15.4%	0.1%	0.0%	Target Date	✓
BlackRock	Target Date 2055 Portfolio	15.3%	15.4%	0.1%	0.0%	Target Date	✓
BlackRock	Target Date 2060 Portfolio	15.3%	15.4%	0.1%	0.0%	Target Date	✓
BlackRock	Target Date 2065 Portfolio	15.1%	15.4%	0.0%	0.0%	Target Date	✓
BlackRock	Global Real Estate Fund	-8.4%	-7.4%	0.6%	0.0%	REIT	✓
VRS	VRSIP	10.3%	3.9%	0.1%	0.6%	Other	

1. Option net return = option provided return - recordkeeping & other expense ratio [returns provided are: net of investment fees].
2. An option is indexed when the percent of passive management is greater than or equal to 80%.

Investment options and average total return

Investment options

Your plan offered 12 investment options in 2020. This was below the universe median of 14.

Offering more investment options to participants is not necessarily better. When there are too many choices, the process can be overwhelming to participants.

What is important is that you offer a diverse line-up with varying risk-return profiles and costs.

Type and number of investment options - 2020

Option category	Your plan	Average	Median
Stock Employer Discretionary	0	0.5	0
Stock U.S.	2	5.0	4
Stock Non U.S. & Global	1	2.4	2
Bonds	3	2.6	2
Balanced	0	0.6	0
Target Date ¹	1	0.9	1
Stable Value & GIC	1	0.7	1
Cash, Money Market	1	0.6	1
Mutual Fund Window	0	0.1	0
Participant Brokerage Account	1	0.4	0
Real, Hedge, Other ex. Loans	2	0.7	0
Total (excl. Loans)	12	14.7	14

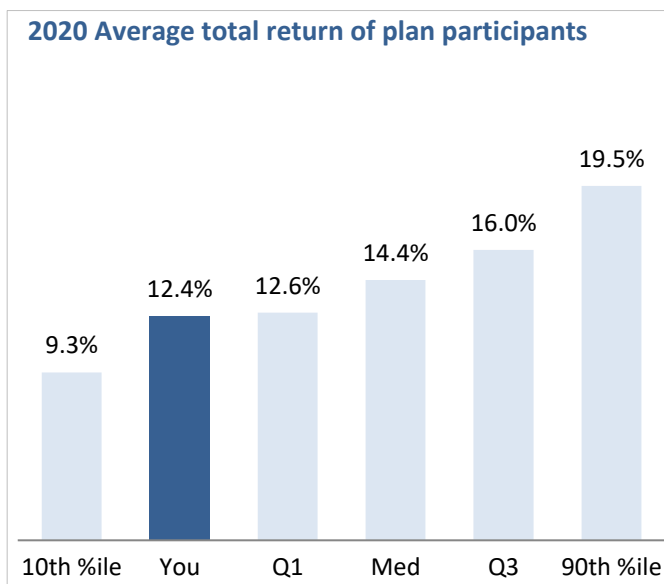
1. Target Date funds in one family are counted as one option.

Average total return of plan participants

Your plan participants' average net total return was 12.4% in 2020. This was below the U.S. universe median of 14.4%.

Average net total return measures the change in the average participant's account balance as a result of the net investment returns earned by their investment options weighted by their holdings.

There are two primary causes of differences in participants' average net total return: asset mix differences and value added performance. These are shown on the next page.



Asset mix and value added

Asset mix

As fiduciaries you should monitor asset mix because it is often the biggest reason for differences in the total returns of plan participants. Asset mix red-flags include high holdings of employer stock, cash, and stable value.

Asset mix is a function of the investment options offered and members' choices.

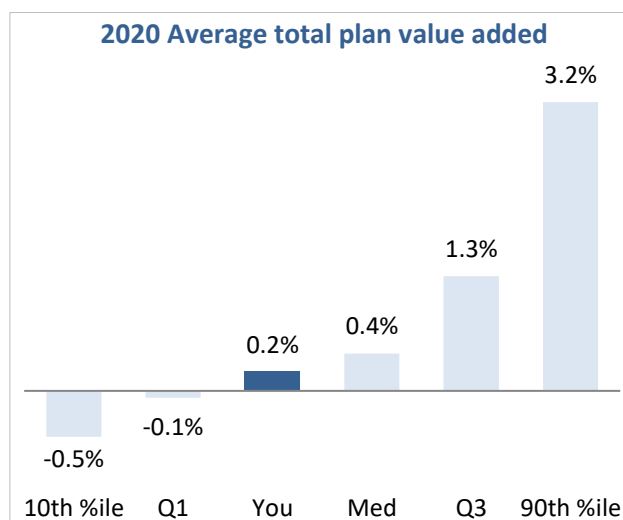
2020 Asset mix

Option category	Your		
	plan	Average	Median
Stock Employer	0%	7%	2%
Stock U.S.	39%	33%	34%
Stock Non U.S. & Global	5%	7%	6%
Bonds	7%	7%	7%
Target Date & Balanced	28%	31%	30%
Stable Value & GIC	14%	9%	6%
Cash, Money Market	2%	2%	1%
MF & Brokerage Windows	2%	3%	1%
Real, Hedge, Other	3%	1%	0%
Total	100%	100%	

Average total plan value added

The weighted average net value added earned across all of your plan's options was 0.2% in 2020. This was below the U.S. universe median of 0.4%.

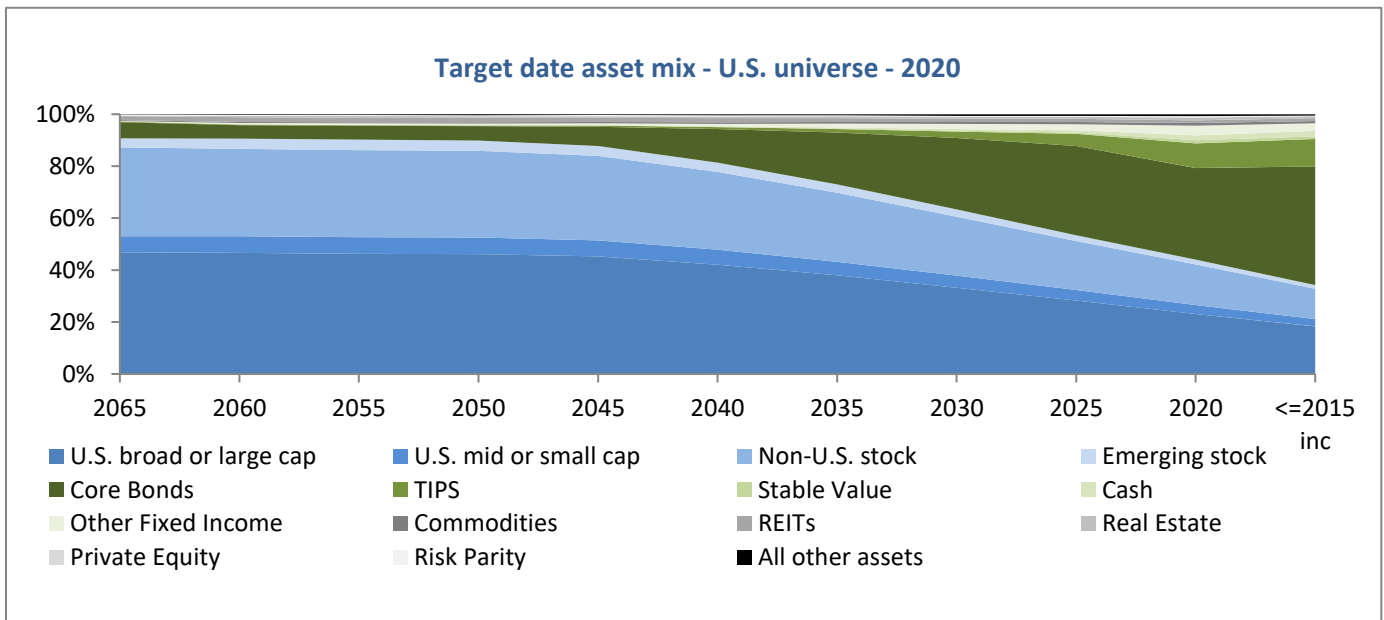
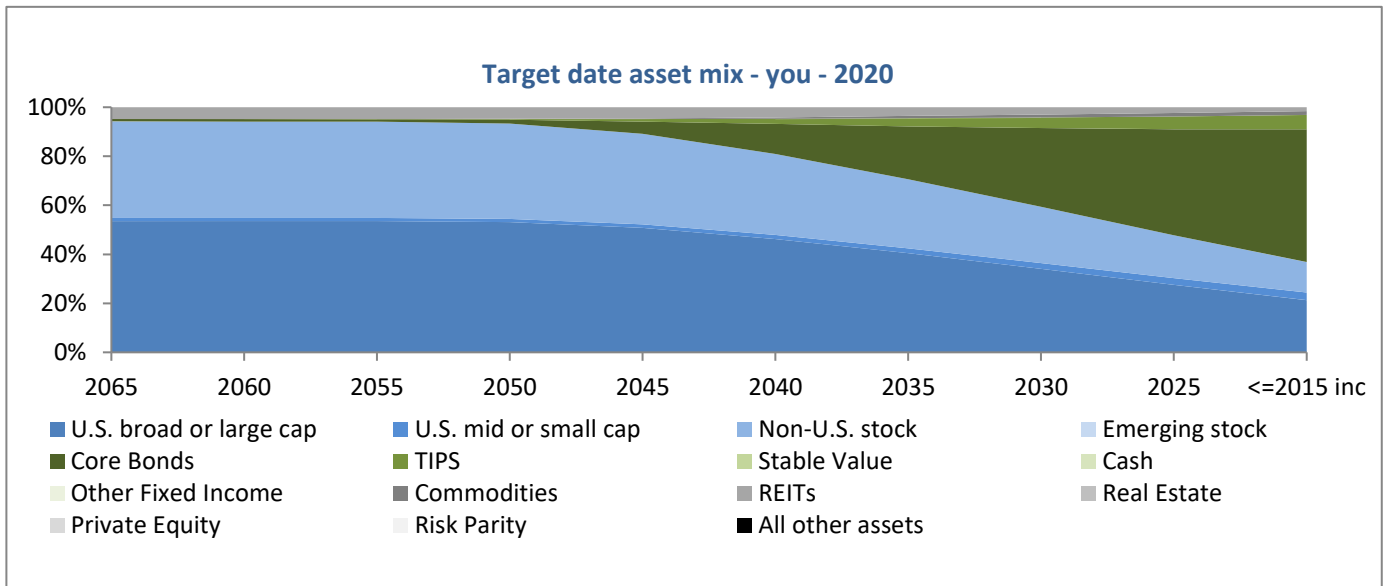
Positive value added indicates that, on average, your plan's investment options are outperforming their benchmark indices, whereas negative value added indicates that they are underperforming.



Asset mix of target date funds

Target date asset mix

The first graph is your target date asset allocation glide path. The one below is the U.S. average plan's glide path. On the next page, data is shown as percentages. Your plan offers a target date family and it is your default option.



Asset mix of target date funds

Target date asset mix - you - 2020

Asset class	2065	2060	2055	2050	2045	2040	2035	2030	2025	2020	<=2015 inc
U.S. broad or large cap	54%	54%	54%	53%	51%	46%	40%	34%	28%	--	21%
U.S. mid or small cap	1%	1%	1%	1%	1%	2%	2%	2%	3%	--	3%
Non-U.S. stock	39%	39%	39%	39%	37%	33%	28%	23%	17%	--	12%
Emerging stock	0%	0%	0%	0%	0%	0%	0%	0%	0%	--	0%
Core Bonds	1%	1%	1%	1%	5%	12%	22%	32%	43%	--	54%
TIPS	0%	0%	0%	0%	1%	2%	3%	4%	5%	--	6%
Stable Value	0%	0%	0%	0%	0%	0%	0%	0%	0%	--	0%
Cash	0%	0%	0%	0%	0%	0%	0%	0%	0%	--	0%
Other Fixed Income	0%	0%	0%	0%	0%	0%	0%	0%	0%	--	0%
Commodities	0%	0%	0%	0%	0%	1%	1%	1%	1%	--	2%
REITs	5%	5%	5%	5%	5%	4%	4%	3%	2%	--	2%
Real Estate	0%	0%	0%	0%	0%	0%	0%	0%	0%	--	0%
Private Equity	0%	0%	0%	0%	0%	0%	0%	0%	0%	--	0%
Risk Parity	0%	0%	0%	0%	0%	0%	0%	0%	0%	--	0%
All other assets	0%	0%	0%	0%	0%	0%	0%	0%	0%	--	0%

Target date asset mix - U.S. universe - 2020

Asset class	2065	2060	2055	2050	2045	2040	2035	2030	2025	2020	<=2015 inc
U.S. broad or large cap	47%	47%	46%	46%	45%	42%	38%	33%	28%	23%	18%
U.S. mid or small cap	6%	6%	6%	6%	6%	6%	5%	5%	4%	3%	3%
Non-U.S. stock	34%	34%	34%	33%	33%	30%	27%	23%	19%	16%	12%
Emerging stock	4%	4%	4%	4%	4%	4%	3%	3%	2%	2%	1%
Core Bonds	6%	5%	5%	6%	7%	13%	20%	28%	34%	35%	46%
TIPS	0%	0%	0%	0%	0%	1%	1%	3%	5%	9%	11%
Stable Value	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Cash	0%	0%	0%	0%	0%	0%	0%	1%	1%	2%	2%
Other Fixed Income	0%	1%	1%	1%	1%	1%	1%	2%	2%	4%	3%
Commodities	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
REITs	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%
Real Estate	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Private Equity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Risk Parity	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
All other assets	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%

Cost effectiveness

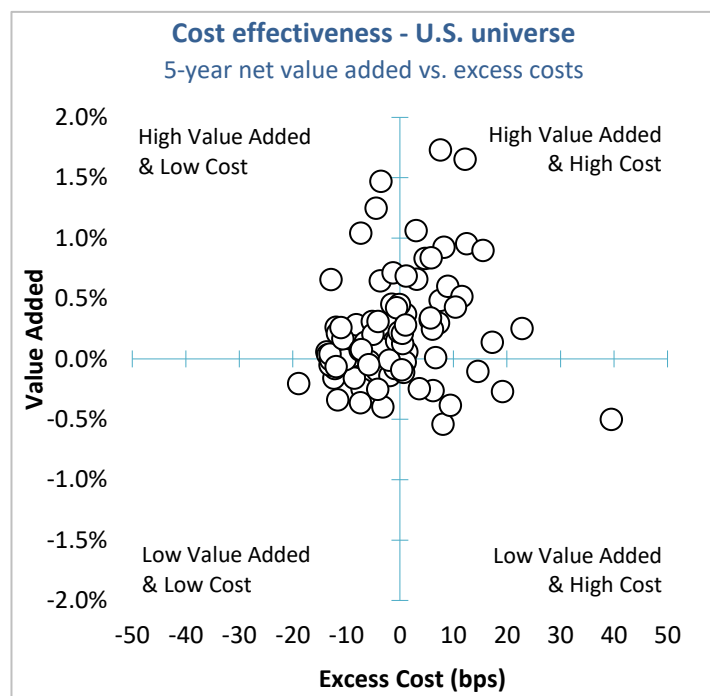
Cost effectiveness ranking

In an ideal world, the more you pay (i.e., the larger your excess cost) the more you get (i.e., the higher your value added). If this were true, you would see an upward sloping relationship in this graph. Clearly, this is not the case. CEM's research has shown consistently that there is no relationship between what plans spend and what they received.

It is however good to know where your plan places on the graph and, even more important, to understand the reasons why.

This report provides you with high-level insights of how your plan compared to the U.S. universe in 2020. CEM's new interactive online Dashboard provides much more insight, through a cost-effective channel. We invite you to review for yourself with a limited time free trial access. See next page for details.

Note that where indexed investment options are offered, net value added is not expected to be significant since the goal of an indexed option is to match the return of the underlying index.



Request a free trial of your CEM Dashboard to experience the benefits of upgrading to our premium benchmarking service

What is CEM Dashboard?

Our new interactive benchmarking service offered through our secure on-line portal. CEM's high standard of benchmarking analysis is provided through a cost-effective channel. It allows all fiduciaries or plan sponsors of DC plans the opportunity to perform their fee and performance review to the high standards required of them, thereby reducing litigation risks.

CEM Dashboard will provide you with:

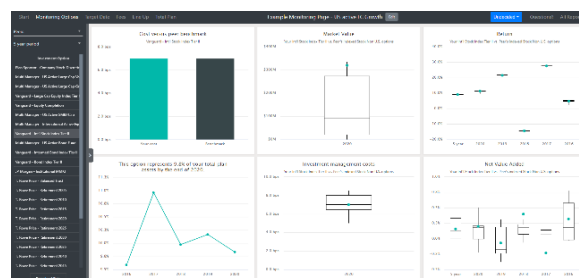
- A total plan benchmark cost using CEM's proprietary peer based analysis, which adjusts for all factors that impact fees. Peers are custom selected based on similarly sized plans, one of the factors that impacts fees. This analysis is superior to the total plan benchmark cost previously included in this PDF report.
- A benchmark cost for each investment option, as well as performance metrics, giving you the context and information you need to properly monitor your investment options. Universe based benchmarks (i.e. page 6 of this report) are inferior to peer-based, especially for outlier sized plans.
- Analysis of target date glide path and risk, and a benchmark cost estimate which adjusts for glide path and other fee drivers.
- Peer based analysis of recordkeeping, and other administrative and participant expenses (such as managed account fees).

You now have two upgrade options:

1. CEM Dashboard
2. BenchmarkDC, our comprehensive benchmarking report, which includes the Dashboard.

	Dashboard	Comprehensive
Access to CEM Dashboard	✓	✓
CEM's proprietary peer based benchmark cost analysis	✓	✓
Comparisons against your choice of universe & peers	✓	✓
Comprehensive results and insights in an 80+ page PDF report		✓
In-person meeting and presentation		✓
Virtual access to CEM for research, questions and help	limited	unlimited

To learn more click on the video below:



To request your 2-week trial contact:

Quentin Spehner
Quentin@cembenchmarking.com

Appendix: Your survey responses

Data quality

We recognize that the value of the information contained in these reports is only as good as the quality of the data we receive. Therefore, we work very hard at getting good data. Our procedures for checking and improving the data include:

- Improved Survey Clarity - 24 years of feedback from survey participants has led to improved definitions and survey clarity.
- Computer and Analyst Verification - We compare responses to norms for the survey universe and to each sponsor's prior year data when available. This typically results in questions that we send to each survey respondent and follow-up by email and/or phone.

In addition, the quality of our data continues to improve because of:

- Learning Curve - This is our 24th year of gathering this data and experience is teaching us and the participants how to do a better job.
- Growing Universe - As our universe of respondents continues to increase in size, so does our confidence in the results as unbiased errors tend to average themselves out. As a result of the above, data quality has improved dramatically over the twenty four year period we have been benchmarking. We feel there will always be room for improvement and we welcome any suggestions on how to further improve data quality.

Your survey responses

Your data is summarized on the following pages. As discussed with you (or the person who provided your plan's data) during the data confirmation process, your original survey responses may have changed for the following reasons:

- 1. Gross versus Net Returns** - We permit participants to report returns on either a net or gross basis. In order to ensure 'apples-to-apples' comparisons, we compare returns net of all costs, including administration costs.
- 2. Returns not available** - We request that you leave the return blank if a full year return was unavailable for an investment option. The default for an unavailable return is to exclude this investment option from the net value added calculations.
- 3. Costs not provided** - One of our key themes is that you must know your costs if you want to manage your plan effectively. We recognize, however, that some costs such as Fiduciary Oversight costs can be difficult to obtain. Therefore, if you were unable to provide us with your costs, or your best estimate of these costs, we imputed a figure using industry data.

Your survey responses

Virginia Retirement System

General	2020	2019	2018	2017	2016
Contact	Laura Pugliese	Laura Pugliese	Laura Pugliese	Laura Pugliese	Laura Pugliese
Data provided by:	Michael Scott	Michael Scott	Michael Scott	Michael Scott	Michael Scott
Corporate, public, other?	Public	Public	Public	Public	Public
Market value of plan assets (\$ millions)	\$3,807	\$3,074	\$2,558	\$2,651	\$2,287
Number of plan participants	86,683	80,954	79,906	78,542	77,417
% of eligible employees participating	28%	27%	32%	33%	34%
Are some DC participants covered by a DB plan?	Yes Some	Yes Some	Yes Some	Yes Some	Yes Some

Administrative costs, plan expenses (\$000s)	2020	2019	2018	2017	2016
Recordkeeping ¹					
paid from expense ratio of invest. options charged to individuals or participant accounts paid by plan sponsor	2,433	2,291	2,298	2,290	2,295
Custodial & trustee					
paid from expense ratio of invest. options charged to individuals or participant accounts paid by plan sponsor					
Oversight internal ²					
paid from expense ratio of invest. options charged to individuals or participant accounts paid by plan sponsor	781	835	878	628	758
Consulting					
paid from expense ratio of invest. options charged to individuals or participant accounts paid by plan sponsor					
Other					
paid from expense ratio of invest. options charged to individuals or participant accounts paid by plan sponsor					
less rebates to participants from reimburse. accounts					
Total Plan Expenses	3,214	3,126	3,176	2,918	3,053

Participant Expenses (\$000s)	2020	2019	2018	2017	2016
Participant advice					
paid from expense ratio of invest. options charged to individuals or participant accounts paid by plan sponsor					
Managed account fees					
paid from expense ratio of invest. options charged to individuals or participant accounts paid by plan sponsor					
Other participant expenses (for loans, QDROs, etc.)					
paid from expense ratio of invest. options charged to individuals or participant accounts paid by plan sponsor	12	7	3	3	4
Total Participant Expenses	12	7	3	3	4

1. If you were unable to provide a breakdown of your administrative & fiduciary costs, the total was included in recordkeeping because it usually represents the bulk of administrative & fiduciary costs.

2. If you were unable to provide costs for Fiduciary oversight internal, we applied a default value. If the number of internal FTEs is available, default equals \$100,000 x FTE. Otherwise, it is 0.0001 x Market value of plan assets.

Your survey responses

Virginia Retirement System

About your options	2020	2019	2018	2017	2016
Do you have a default investment option?	Yes	Yes	Yes	Yes	Yes
If yes, what is the default option?	Target / lifecycle	Target / lifecycle	Target / lifecycle	Target / lifecycle	Target / lifecycle
Option returns are:	Net mgmt fees	Net mgmt fees	Net mgmt fees	Net mgmt fees	Net mgmt fees
Cost drivers and allocation	2020	2019	2018	2017	2016
FTE fulfilling fiduciary/oversight functions	7.0	7.0	7.0	11.0	11.0
Does the plan offer a managed account service?	No	No	No	No	No
Number with managed accounts					
Market value in managed accounts					
Do you receive revenue sharing from your providers?	No	No	No	No	No
Is it used to reduce management fee?					
Is it used to reduce admin. or fiduciary costs?					
How are the recordkeeping or admin costs allocated to participants (asset based, flat fee, both, or other)?	flat fee	flat fee	flat fee	flat fee	flat fee
If other, describe					
Contributions	2020	2019	2018	2017	2016
Employer contributions (\$ millions)	0	0	0	0	0
Participant contributions (\$ millions)	167	150	144	137	133
% of participants making voluntary contributions?	100%	100%			
Stable Value Funds	2020	2019	2018	2017	2016
What percentage of stable value assets are wrapped?				100%	
What are your total wrap fees (in bps over wrapped amount)					
Loan features	2020	2019	2018	2017	2016
Does your plan allow loans?	No	No	No	No	No
Total number of outstanding loans					
Average loan balance, (\$)					
Does your plan allow for hardship withdrawals	Yes	Yes	Yes	Yes	Yes
Who pays the loan initiation fee?					
Is the fee a flat dollar amount or % of assets?					
Participant transaction rules and restrictions	2020	2019	2018	2017	2016
Limits on the number of transactions?	No	No	No	No	No
Limits on international funds?	No	No	No	No	No
Limits on any other funds (excl. international)?					
Excessive trading penalties?					
Describe other limits if any	90 day equity wash for	90 day equity wash for	90 day equity wash for	90 day equity wash for	90 day equity wash for
Assumed retirement age for your target date funds	65	65		65	65
Do you customize or use an off shelf target date fund?	Off shelf	Off shelf	Off shelf	Off shelf	Off shelf
Age at which target date retirement funds stop de-risking	65	65	65		

Your survey responses

Virginia Retirement System

Services Offered to Separated Employees	2020	2019	2018	2017	2016
Lump sum payouts	Yes	Yes	Yes	Yes	
Required Minimum Distribution (RMD) payouts	Yes	Yes	Yes	Yes	
Partial payouts	Yes	Yes	Yes	Yes	
Installment payouts (e.g., monthly, quarterly, etc.)	Yes	Yes	Yes	Yes	
Loan initiation	No	No	No	No	
Loan maintenance (for loans made prior to separation)	No	No	No	No	
Online advice service	No	No	No	No	
Managed account advice service	No	No	No	No	
One-on-one advice service with an advisor	No	No	No	No	
Annuity platform (whether in-plan or out-of-plan)	Yes	Yes	Yes	Yes	
Employee contributions (DC is primary, no DB)	2020	2019	2018	2017	2016
Can participants make:					
a. After-tax Roth 401(k) contributions?	Yes	Yes	Yes	Yes	Yes
b. After-tax non-Roth 401(k) contributions?	No	No	No	No	No
Is investment in employer stock required to some extent?	No				
Is there a mandatory fixed or minimum contribution rate for full-time employees?	No	No	No	No	
If yes, what is the mandatory contribution rate as a % of salary ?					
Does the plan have automatic enrolment?	Yes	Yes	Yes	Yes	Yes
If yes:					
a. Initial automatic contribution as a % of salary					
b. What (if any) is the automatic annual increase in the contribution rate?					
c. Maximum rate achieved via automatic increases?					
Applied to all/new employees only when introduced?	Yes	Yes	Yes	Yes	Yes
Employee contributions (DC is suppl. to DB)	2020	2019	2018	2017	2016
Can participants make:					
a. After-tax Roth 401(k) contributions?	Yes	Yes	Yes	Yes	Yes
b. After-tax non-Roth 401(k) contributions?	No	No	No	No	No
Is investment in employer stock required to some extent?	No				
Is there a mandatory fixed or minimum contribution rate for full-time employees?	No	No	No	No	
If yes, what is the mandatory contribution rate as a % of salary ?					
Does the plan have automatic enrolment?	Yes	Yes	Yes	Yes	Yes
If yes:					
a. Initial automatic contribution as a % of salary					
b. What (if any) is the automatic annual increase in the contribution rate?					
c. Maximum rate achieved via automatic increases?					
Applied to all employees or new only when introduced?	Yes	Yes	Yes	Yes	Yes

Your survey responses

Virginia Retirement System

Employer contributions (if DC is primary, no DB)	2020	2019	2018	2017	2016
Are employer contributions made in employer stock, cash or both?					
Is there a profit sharing component to employer contributions?	No	No			
Is there an automatic fixed employer contribution rate? If yes, what is the automatic fixed employer contribution rate?	No	No			
Is there an after-tax employer match?					
Is there a before-tax employer match?					
% of participants earning the maximum match					
Indicate the match terms below:					
Percentage match on the first:					
Percentage of salary contributed:					
Percentage on the next:					
Percentage of salary contributed:					
Or describe:					

Employer contributions (if DC is suppl. to DB)	2020	2019	2018	2017	2016
Are employer contributions made in employer stock, cash or both?					
Is there a profit sharing component to employer contributions?	No	No			
Is there an automatic fixed employer contribution rate? If yes, what is the automatic fixed employer contribution rate?	No	No			
Is there an after-tax employer match?					
Is there a before-tax employer match?					
% of participants earning the maximum match					
Indicate the match terms below:					
Percentage match on the first:					
Percentage of salary contributed:					
Percentage on the next:					
Percentage of salary contributed:					
Or describe:					

Your survey responses

Virginia Retirement System

Fiduciary	2020	2019	2018	2017	2016
Named fiduciary?	Board	Board	Board	Board	Board
If named fiduciary is a committee:					
Number of committee members?					
Number of meetings in the past year?					
Are the meeting minutes documented?					
Are the named fiduciaries:					
Provided formal training?	Yes	Yes	Yes	Yes	Yes
Required to sign an acknowledgement form?	Yes	Yes	Yes	Yes	Yes
Have third parties been appointed as:					
• Investment manager with full discretionary powers for selecting, monitoring, replacing investment options?	No	No	No	No	No
• Investment advisor to provide advice regarding the selection and retention of investment options?	No	No	No	No	No
• Plan administrator responsible for regulatory filings, disclosures to participants and hiring plan service providers if no other fiduciary has that responsibility?	Yes	Yes	No	No	No
Is there documentation that identifies the process for:					
• Selection and monitoring of third-party fiduciaries and other plan service providers?	Yes	Yes	Yes	Yes	Yes
• Investment policy	Yes	Yes	Yes	Yes	Yes
• Oversight of internal employees involved in operating the plan (i.e., internal fiduciaries, HR staff enrolling employees in the plan, posting deferrals, etc)	Yes	Yes	Yes	Yes	Yes
• Fulfilling administration responsibilities (regulatory filings, disclosures to participants)	Yes	Yes	Yes	Yes	Yes
Education and other	2020	2019	2018	2017	2016
Is individual investment counseling/advice offered to plan participants?	No	No	No	No	No
• Is it provided by advisor, computer, both?					
Does your plan offer financial education via:					
• Group meetings?	Yes	Yes	Yes	Yes	Yes
• One-on-one meetings?	Yes	Yes	Yes	Yes	Yes
Do plan participants receive projections of annual income in retirement:					
• In their participant statements?	Yes	Yes	Yes	Yes	Yes
• Online?	Yes	Yes	Yes	Yes	Yes
• Via separate communication?	No	No	No	No	No
Does your plan have marketing campaigns to:					
• Increase employee contribution/deferral rates?	Yes	Yes	Yes	Yes	Yes
• Increase participation by eligible non-participants?	Yes	Yes	Yes	Yes	Yes
• Educate on the savers tax credit for lower income participants?	Yes		Yes	Yes	Yes
• Improve diversification from Employer Stock?	No	No	No	No	
Does your plan offer:					
• Out-of-plan guaranteed lifetime income product?	Yes	Yes	Yes	Yes	Yes
• In-plan guaranteed lifetime income product?	No	No	No	No	No
Does your plan offer automatic rebalancing?	Yes	Yes	Yes	No	No

Your survey responses

Virginia Retirement System

Your plan's 2020 investment options

Provider & Option name	Type	% Inxd	\$ mils at 12/31/20	Annual Return	Description	Benchmark	Cost			
							Return	Invest	Admin	Total
BlackRock - Stock Fund	Stk U.S. Broad or LC	100%	1,150	18.5%	S&P 500		18.4%	1.0 bp	0.0 bp	1.0 bp
BlackRock - Small/Mid-Cap Stock Fund	Stk U.S. SMID Cap	100%	347	20.0%	Russell 2500		20.0%	2.0 bp	0.0 bp	2.0 bp
BlackRock - International Stock Fund	Stk Non U.S.	100%	181	11.5%	MSCI ACWI ex-U.S Index IMI Index Linked		11.1%	6.0 bp	0.0 bp	6.0 bp
BlackRock - Bond Fund	Bonds Broad	100%	166	7.6%	Barclays Aggregate Bond Index		7.5%	3.0 bp	0.0 bp	3.0 bp
BlackRock - Inflation-Protected Bond Fund	Bonds TIPS	100%	45	11.2%	Barclays U.S. Treasury TIPS Index		11.0%	3.0 bp	0.0 bp	3.0 bp
JPMorgan - High-Yield Bond Fund	Bonds High Yield	0%	39	4.8%	ICE BofA Merrill Lynch U.S. High-Yield B		6.3%	40.0 bp	0.0 bp	40.0 bp
Galliard - Stable Value Fund	Stable Value	0%	538	2.2%	[50% 2-Year CMT/50% 3-Year CMT] + 0.25%*		0.7%	24.0 bp	0.0 bp	24.0 bp
BlackRock - Money Market Fund	Cash, Money Mrkt	0%	84	0.7%	Barclays 3-Month Treasury Bill Index		0.6%	8.0 bp	0.0 bp	8.0 bp
BlackRock - Retirement Portfolio	Target Date Short	100%	313	12.0%	Custom		11.8%	8.0 bp	0.0 bp	8.0 bp
BlackRock - Target Date 2025 Portfolio	Target Date Long	100%	201	12.2%	Custom		12.0%	8.0 bp	0.0 bp	8.0 bp
BlackRock - Target Date 2030 Portfolio	Target Date Long	100%	162	12.9%	Custom		12.7%	8.0 bp	0.0 bp	8.0 bp
BlackRock - Target Date 2035 Portfolio	Target Date Very Long	100%	136	13.6%	Custom		13.4%	8.0 bp	0.0 bp	8.0 bp
BlackRock - Target Date 2040 Portfolio	Target Date Very Long	100%	97	14.1%	Custom		14.0%	8.0 bp	0.0 bp	8.0 bp
BlackRock - Target Date 2045 Portfolio	Target Date Very Long	100%	71	14.8%	Custom		14.6%	8.0 bp	0.0 bp	8.0 bp
BlackRock - Target Date 2050 Portfolio	Target Date Very Long	100%	48	15.2%	Custom		15.1%	8.0 bp	0.0 bp	8.0 bp
BlackRock - Target Date 2055 Portfolio	Target Date Very Long	100%	28	15.3%	Custom		15.2%	8.0 bp	0.0 bp	8.0 bp
BlackRock - Target Date 2060 Portfolio	Target Date Very Long	100%	7	15.3%	Custom		15.2%	8.0 bp	0.0 bp	8.0 bp
BlackRock - Target Date 2065 Portfolio	Target Date Very Long	100%	1	15.1%	Custom		15.2%	8.0 bp	0.0 bp	8.0 bp
BlackRock - Global Real Estate Fund	REIT	100%	78	-8.4%	Your REIT benchmark		-9.0%	9.0 bp	0.0 bp	9.0 bp
VRS - VRSIP	Other	1%	37	10.3%	CUSTOM		10.2%	59.0 bp	0.0 bp	59.0 bp
Ameritrade - Self Directed Brokerage	Participant Broker Account	0%	77					0.0 bp	0.0 bp	0.0 bp
Total			3,807					8.0 bp	0.0 bp	8.0 bp

CEM Defined Contribution Survey Results

2020 Investment Benchmarking Analysis for
VA ORPHE – TIAA

Thank you for participating in CEM's annual Defined Contribution survey. Your results are only provided to you. Confidentiality of your data is strictly maintained.



CEM presents your 2020 benchmarking results!

We are pleased to present the 24th edition of the annual CEM Benchmarking results for defined contribution plans. In this complimentary PDF report, you will find a basic set of comparisons of your plan's 2020 investment option returns and costs to the U.S. universe.

Changes to note:

- We removed the previous benchmark cost calculation from this report as the number by itself might be misleading when the underlying context is not explained. In addition, the methodology was improved to account for the asset mix and implementation style differences within target date options.
- You can receive access to an improved benchmark cost calculation for your plan via a trial of the CEM Dashboard, our new interactive online benchmarking service. The Dashboard includes your benchmark cost, calculated based on a custom selected group of similar sized peers, adjusted for factors that impact fees. CEM Dashboard is our highest standard of fee and performance benchmarking analysis provided through a more cost-effective, self-service channel. In addition, the Dashboard provides multi-year views and deeper insights into, for example, the cost and performance of your options, administrative and participant expenses, and the line up.

Feel free to contact us, if you have any questions, comments, or want to discuss your results. Our team is here to help you get the most out of benchmarking.

CEM Investment Benchmarking Team.

Copyright ©2021 by CEM Benchmarking Inc. (CEM). Although the information in this report has been based upon and obtained from sources we believe to be reliable, CEM does not guarantee its accuracy or completeness. The information contained herein is proprietary and confidential and may not be disclosed to third parties without the express written mutual consent of both CEM and VA ORPHE – TIAA.

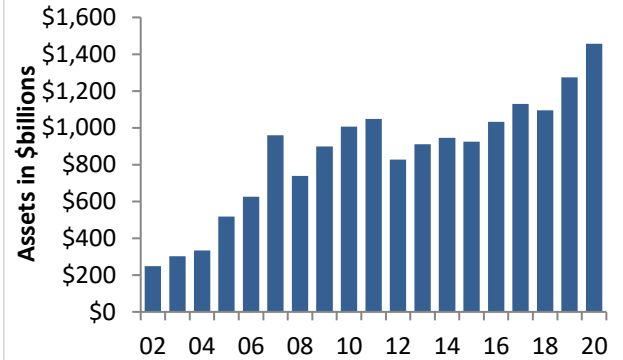
CEM U.S. defined contribution database

Database participation

CEM has been benchmarking the costs and performance of U.S. defined contribution plans, in a uniform basis, since 1997. In this free report, our thank you for participating in our database, your costs and performance are compared to the 2020 CEM universe, which consists of:

- 135 defined contribution plans aggregating \$1,457 billion.
- 110 corporate plans and 25 public plans.

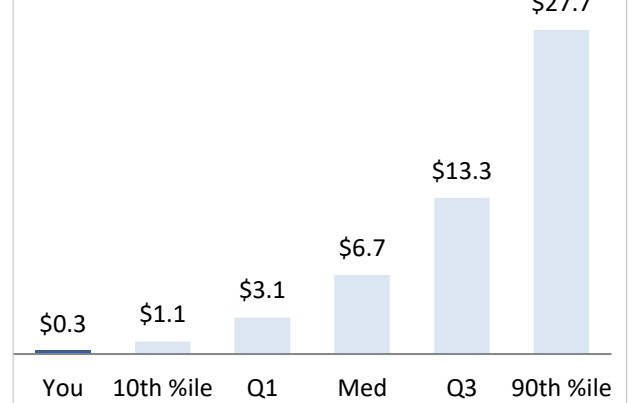
U.S. defined contribution universe: Total participating assets



Plan size

Your plan had \$0.3 billion in total assets (measured as the sum of option holdings) at the end of 2020. This was below the U.S. universe median of \$6.7 billion.

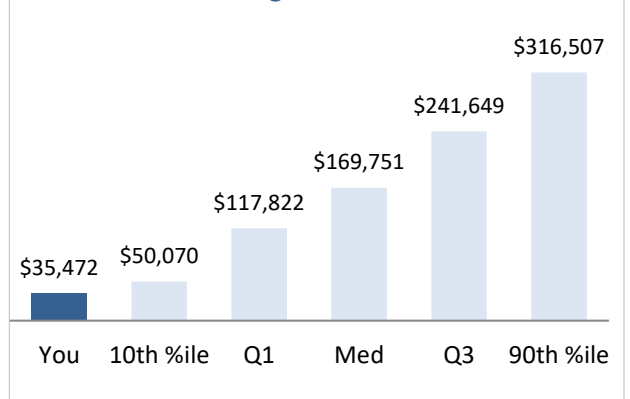
2020 Plan size, bln



Average account balance

The average account balance of your plan participants was \$35,472 in 2020. This compares to the U.S. universe median of \$169,751. Differences in average account balance reflect many factors including contribution rates, participant demographics and matching rates.

2020 Average account balance



Your 2020 total plan costs

Calculating your costs

Your plan's total cost in 2020, excluding individual participant expenses, was \$0.8 million which equals 33.7 bps on total assets or \$98 per participant.

1. Costs in dollars were estimated as 'basis point cost provided' x 'option average holdings', where [average holdings=(beginning of year + end of year)/2]. If beginning of year holdings were not available (you did not participate last year), then we estimated it as [beginning of year holdings=end of year holdings / (1 + return on holdings)].

2. Total expense ratio (9.9 bps) = average of option expense ratios weighted by option assets avg. Total \$ expense ratio (239) = plan total avg. assets (241) x expense ratio (9.9 bps). Plan total average assets (241) = (total assets eoy (294) + total assets boy (187)) / 2.

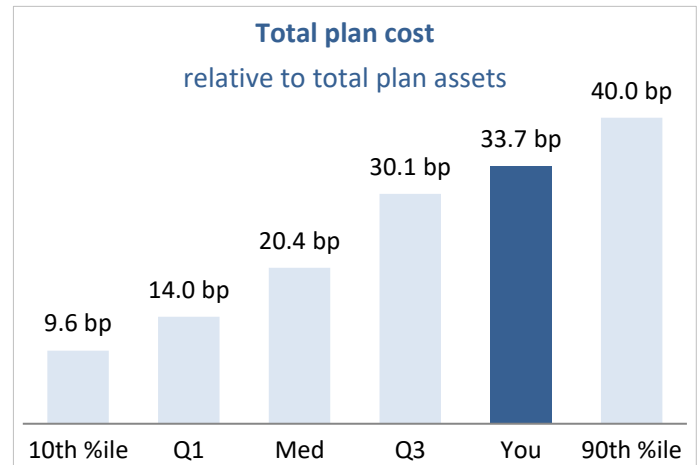
3. Defaults were applied if you were unable to provide cost for recordkeeping or internal oversight.

Investment options	Expense ratio in bp	Assets Avg	Inv. Costs \$000s ¹
BlackRock - BlackRock Equity Index Fund J	1.0 bp	21	
BlackRock - BlackRock Russell 2500 Index Fund M	4.0 bp	4	
BlackRock - BlackRock MSCI ACWI IMI Index Non-Lendable Fund M	5.0 bp	32	
BlackRock - BlackRock MSCI ACWI ex-U.S. IMI Index Fund M	11.0 bp	15	
BlackRock - BlackRock U.S. Debt Index Fund M	3.0 bp	7	
BlackRock - BlackRock U.S. TIPS Fund M	3.0 bp	4	
BlackRock - BlackRock Short-Term Investment Fund W	8.0 bp	5	
BlackRock - BlackRock LifePath Index Retirement O	8.0 bp	27	
BlackRock - BlackRock LifePath Index 2025 Fund O	8.0 bp	17	
BlackRock - BlackRock LifePath Index 2030 Fund O	8.0 bp	22	
BlackRock - BlackRock LifePath Index 2035	8.0 bp	16	
BlackRock - BlackRock LifePath Index 2040 Fund O	8.0 bp	18	
BlackRock - BlackRock LifePath Index 2045 Fund O	8.0 bp	16	
BlackRock - BlackRock LifePath Index 2050 Fund O	8.0 bp	8	
BlackRock - BlackRock LifePath Index 2055 Index Fund O	8.0 bp	4	
BlackRock - BlackRock LifePath Index 2060 Index Fund O	8.0 bp	1	
BlackRock - BlackRock LifePath Index 2065 Fund O	8.0 bp	0	
TIAA Real Estate Account - Real Estate Fund	56.0 bp	7	
TIAA Traditional Annuity RC - Traditional Annuity Fund	34.0 bp	16	
TIAA-CREF Self Directed Account - Participant Brokerage Account	n/a	n/a	
Total expense ratio, investment manager (A)²	9.9 bp	\$241	\$239
Administrative expenses³			
Recordkeeping and administration	15.7 bp		\$378
Custodial and trustee	0.0 bp		\$0
Internal oversight	9.8 bp		\$235
Consulting	0.0 bp		\$0
Other plan costs (legal, audit, etc)	0.0 bp		\$0
less rebates to participants	1.7 bp		\$42
Administrative costs after rebates (B)	23.7 bp		\$571
Total plan costs (A + B)	33.7 bp		\$810
Individual participant expenses			
Participant advice	0.0 bp		\$0
Managed account fees	0.0 bp		\$0
Other participant expenses (for loans, etc.)	0.0 bp		\$0
Individual participant expenses	0.0 bp		\$0

Total plan cost comparisons

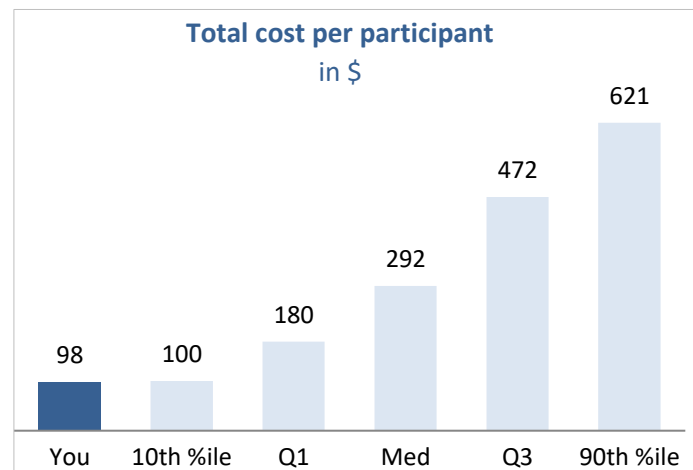
Total plan cost as a percentage of assets

Your total plan cost, excluding individual expenses, of 33.7 bps was above the U.S. universe median of 20.4 bps.



Total plan cost per participant

On a per participant basis, your total cost of \$98 was lower than the U.S. universe median of \$292.



As a fiduciary, it is very important that you assess whether your costs are reasonable. Comparing total plan cost provides limited insight because differences in total cost often reflect differences in the type of investment options offered. On the next few pages we compare costs and performance of each of the options your plan offers your participants against that of the total U.S. universe.

Option monitoring - Cost

Investment costs of your options are shown side by side with the median costs reported by the U.S. universe for similar options. (e.g. Your indexed Stock U.S. SMID Cap option (BlackRock Russell 2500 Index Fund M) is compared to indexed Stock U.S. SMID Cap options reported by others.)

Though the universe comparison is provided, it is inferior to peer-based analysis. Please refer to page 13 for more information.

Costs by investment option - 2020

Investment option		Cost Invest. Mgr. ¹		Option type	
Provider	Option name	Your	Univ med	Category	Indexed ²
BlackRock	BlackRock Equity Index Fund J	1.0 bp	1.5 bp	Stock U.S. Broad or Large Cap	✓
BlackRock	BlackRock Russell 2500 Index Fund M	4.0 bp	3.0 bp	Stock U.S. SMID Cap	✓
BlackRock	BlackRock MSCI ACWI IMI Index Non-Lendable Fund M	5.0 bp	5.0 bp	Stock Global	✓
BlackRock	BlackRock MSCI ACWI ex-U.S. IMI Index Fund M	11.0 bp	6.0 bp	Stock Non U.S.	✓
BlackRock	BlackRock U.S. Debt Index Fund M	3.0 bp	3.0 bp	Bonds Broad	✓
BlackRock	BlackRock U.S. TIPS Fund M	3.0 bp	3.0 bp	Bonds TIPS	✓
BlackRock	BlackRock Short-Term Investment Fund W	8.0 bp	9.0 bp	Cash, Money Market	
BlackRock	BlackRock LifePath Index Retirement O	8.0 bp	6.0 bp	Target Date	✓
BlackRock	BlackRock LifePath Index 2025 Fund O	8.0 bp	6.5 bp	Target Date	✓
BlackRock	BlackRock LifePath Index 2030 Fund O	8.0 bp	6.5 bp	Target Date	✓
BlackRock	BlackRock LifePath Index 2035	8.0 bp	7.0 bp	Target Date	✓
BlackRock	BlackRock LifePath Index 2040 Fund O	8.0 bp	7.0 bp	Target Date	✓
BlackRock	BlackRock LifePath Index 2045 Fund O	8.0 bp	7.0 bp	Target Date	✓
BlackRock	BlackRock LifePath Index 2050 Fund O	8.0 bp	7.0 bp	Target Date	✓
BlackRock	BlackRock LifePath Index 2055 Index Fund O	8.0 bp	7.0 bp	Target Date	✓
BlackRock	BlackRock LifePath Index 2060 Index Fund O	8.0 bp	7.0 bp	Target Date	✓
BlackRock	BlackRock LifePath Index 2065 Fund O	8.0 bp	7.0 bp	Target Date	✓
TIAA Real Estate Account	Real Estate Fund	56.0 bp	66.2 bp	Real Estate	
TIAA Traditional Annuity RC	Traditional Annuity Fund	34.0 bp	35.5 bp	Annuity	

1. Cost is the investment manager expense ratio of each investment option.

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

Option monitoring - Performance

Similar to costs on the previous page, your performance is compared to the performance reported for similar options by the U.S. universe.

Returns and value added by investment option - 2020

Investment option		Net total return ¹		Net value added		Option type	
Provider	Option name	Your	Univ med	Your	Univ med	Category	Indexed ²
BlackRock	BlackRock Equity Index Fund J	18.5%	18.4%	0.1%	0.0%	Stock U.S. Broad or Large Cap	✓
BlackRock	BlackRock Russell 2500 Index Fund M	20.0%	32.2%	0.0%	-0.1%	Stock U.S. SMID Cap	✓
BlackRock	BlackRock MSCI ACWI IMI Index Non-Lendable Fund M	16.5%	11.5%	0.3%	0.3%	Stock Global	✓
BlackRock	BlackRock MSCI ACWI ex-U.S. IMI Index Fund M	11.4%	11.2%	0.3%	0.2%	Stock Non U.S.	✓
BlackRock	BlackRock U.S. Debt Index Fund M	7.6%	7.6%	0.1%	0.0%	Bonds Broad	✓
BlackRock	BlackRock U.S. TIPS Fund M	11.2%	11.0%	0.2%	0.0%	Bonds TIPS	✓
BlackRock	BlackRock Short-Term Investment Fund W	0.7%	0.5%	0.1%	-0.1%	Cash, Money Market	
BlackRock	BlackRock LifePath Index Retirement O	12.0%	10.2%	0.2%	0.0%	Target Date	✓
BlackRock	BlackRock LifePath Index 2025 Fund O	12.2%	13.4%	0.2%	0.0%	Target Date	✓
BlackRock	BlackRock LifePath Index 2030 Fund O	12.9%	13.4%	0.2%	0.0%	Target Date	✓
BlackRock	BlackRock LifePath Index 2035	13.6%	15.4%	0.2%	0.0%	Target Date	✓
BlackRock	BlackRock LifePath Index 2040 Fund O	14.1%	15.4%	0.2%	0.0%	Target Date	✓
BlackRock	BlackRock LifePath Index 2045 Fund O	14.8%	15.4%	0.2%	0.0%	Target Date	✓
BlackRock	BlackRock LifePath Index 2050 Fund O	15.2%	15.4%	0.1%	0.0%	Target Date	✓
BlackRock	BlackRock LifePath Index 2055 Index Fund O	15.3%	15.4%	0.1%	0.0%	Target Date	✓
BlackRock	BlackRock LifePath Index 2060 Index Fund O	15.3%	15.4%	0.1%	0.0%	Target Date	✓
BlackRock	BlackRock LifePath Index 2065 Fund O	15.1%	15.4%	0.0%	0.0%	Target Date	✓
TIAA Real Estate Account	Real Estate Fund	-0.8%	-1.4%	-0.5%	-0.5%	Real Estate	
TIAA Traditional Annuity RC	Traditional Annuity Fund	4.0%	4.0%	0.0%	-0.3%	Annuity	

1. Option net return = option provided return [returns provided are: net of investment and admin fees].

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

Investment options and average total return

Investment options

Your plan offered 11 investment options in 2020. This was below the universe median of 14.

Offering more investment options to participants is not necessarily better. When there are too many choices, the process can be overwhelming to participants.

What is important is that you offer a diverse line-up with varying risk-return profiles and costs.

Type and number of investment options - 2020

Option category	Your plan	Average	Median
Stock Employer Discretionary	0	0.5	0
Stock U.S.	2	5.0	4
Stock Non U.S. & Global	2	2.4	2
Bonds	2	2.6	2
Balanced	0	0.6	0
Target Date ¹	1	0.9	1
Stable Value & GIC	0	0.7	1
Cash, Money Market	1	0.6	1
Mutual Fund Window	0	0.1	0
Participant Brokerage Account	1	0.4	0
Real, Hedge, Other ex. Loans	2	0.7	0
Total (excl. Loans)	11	14.7	14

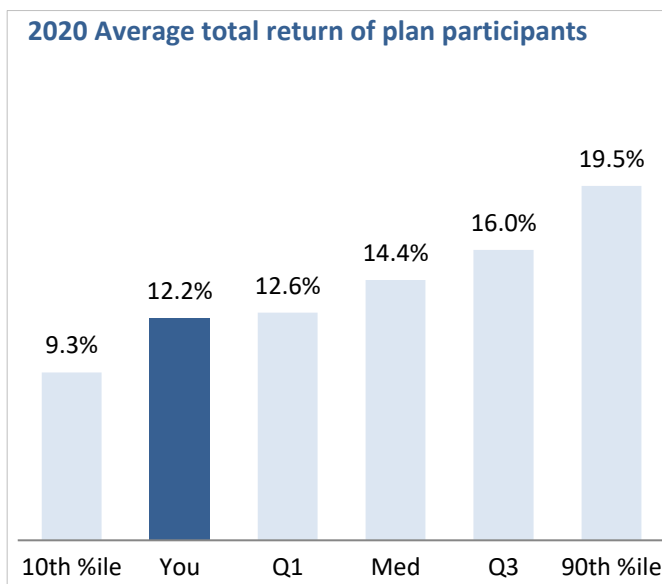
1. Target Date funds in one family are counted as one option.

Average total return of plan participants

Your plan participants' average net total return was 12.2% in 2020. This was below the U.S. universe median of 14.4%.

Average net total return measures the change in the average participant's account balance as a result of the net investment returns earned by their investment options weighted by their holdings.

There are two primary causes of differences in participants' average net total return: asset mix differences and value added performance. These are shown on the next page.



Asset mix and value added

Asset mix

As fiduciaries you should monitor asset mix because it is often the biggest reason for differences in the total returns of plan participants. Asset mix red-flags include high holdings of employer stock, cash, and stable value.

Asset mix is a function of the investment options offered and members' choices.

2020 Asset mix

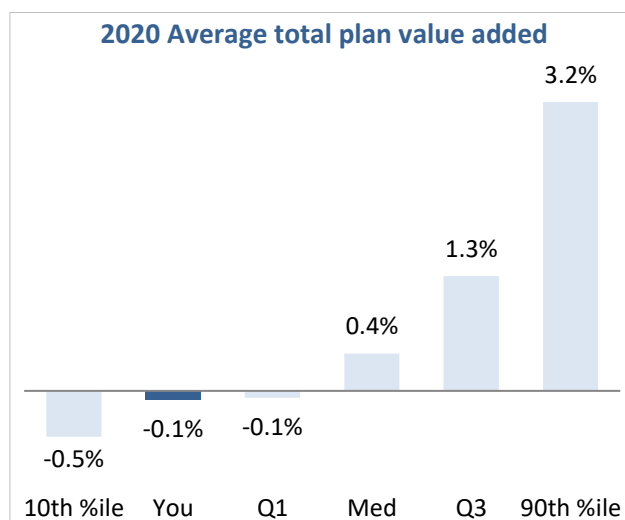
Option category	Your		
	plan	Average	Median
Stock Employer	0%	7%	2%
Stock U.S.	12%	33%	34%
Stock Non U.S. & Global	18%	7%	6%
Bonds	5%	7%	7%
Target Date & Balanced	52%	31%	30%
Stable Value & GIC	0%	9%	6%
Cash, Money Market	2%	2%	1%
MF & Brokerage Windows	1%	3%	1%
Real, Hedge, Other	9%	1%	0%
Total	100%	100%	

Average total plan value added

The weighted average net value added earned across all of your plan's options was -0.1% in 2020. This was below the U.S. universe median of 0.4%.

Positive value added indicates that, on average, your plan's investment options are outperforming their benchmark indices, whereas negative value added indicates that they are underperforming.

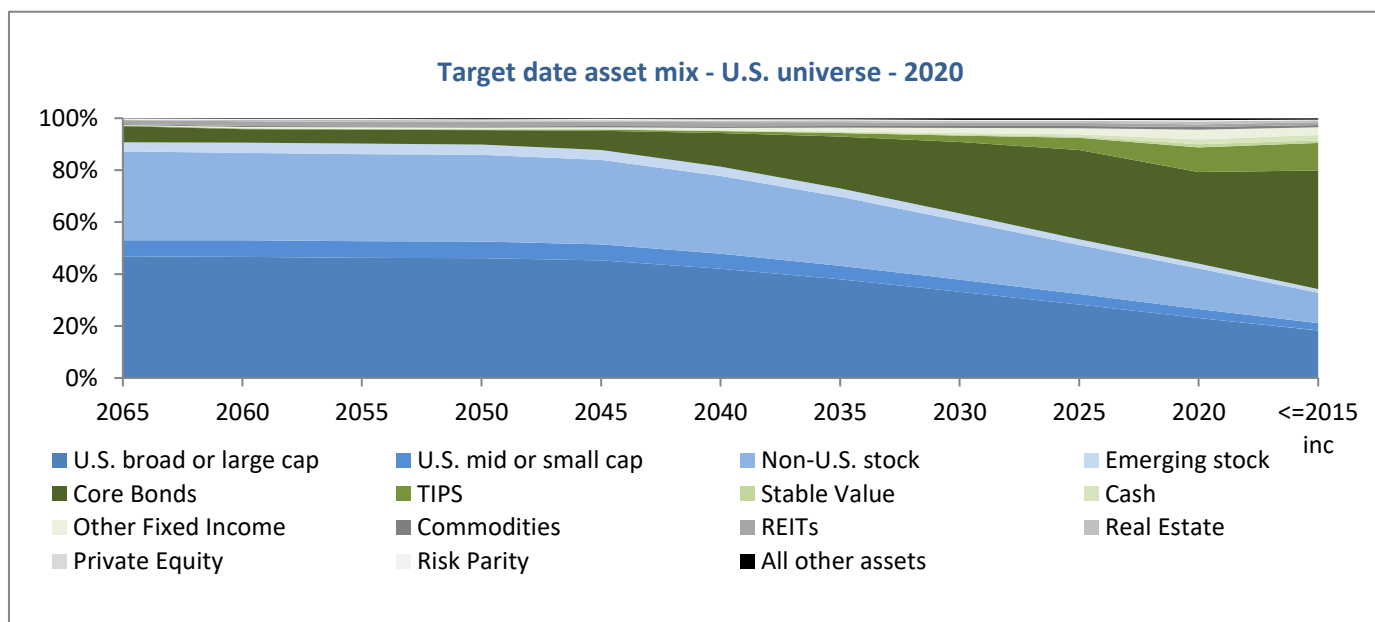
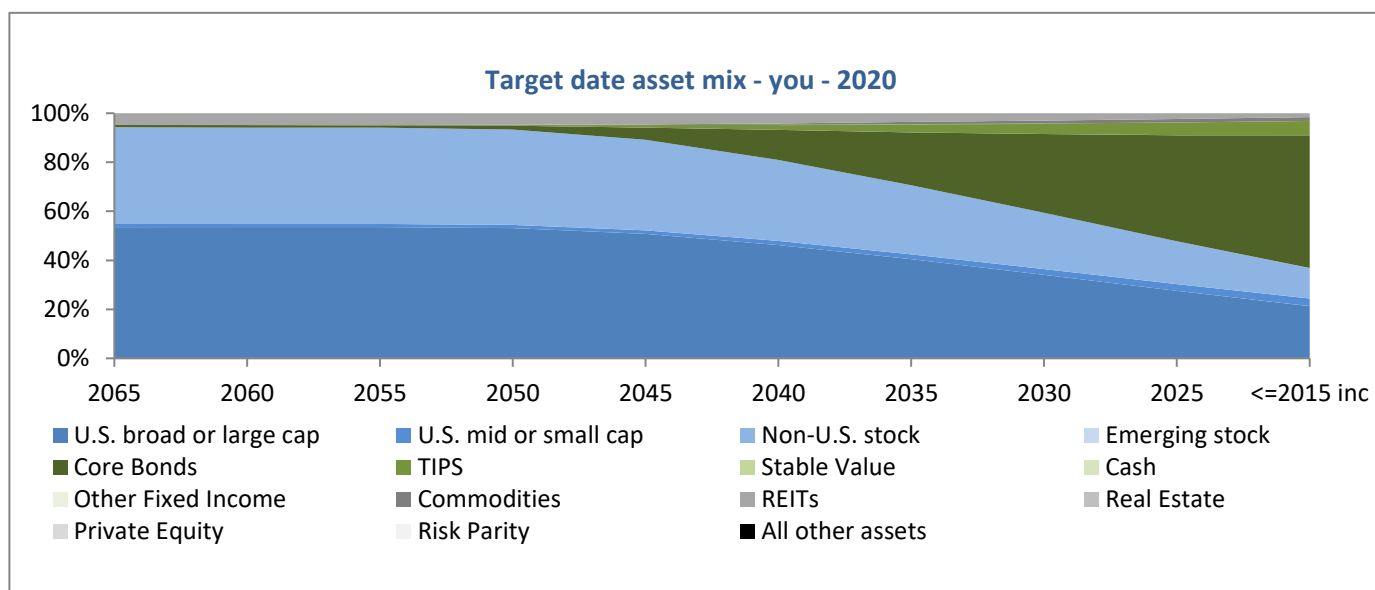
2020 Average total plan value added



Asset mix of target date funds

Target date asset mix

The first graph is your target date asset allocation glide path. The one below is the U.S. average plan's glide path. On the next page, data is shown as percentages. Your plan offers a target date family and it is your default option.



Asset mix of target date funds

Target date asset mix - you - 2020

Asset class	2065	2060	2055	2050	2045	2040	2035	2030	2025	2020	<=2015 inc
U.S. broad or large cap	54%	54%	54%	53%	51%	46%	40%	34%	28%	--	21%
U.S. mid or small cap	1%	1%	1%	1%	1%	2%	2%	2%	3%	--	3%
Non-U.S. stock	39%	39%	39%	39%	37%	33%	28%	23%	17%	--	12%
Emerging stock	0%	0%	0%	0%	0%	0%	0%	0%	0%	--	0%
Core Bonds	1%	1%	1%	1%	5%	12%	22%	32%	43%	--	54%
TIPS	0%	0%	0%	0%	1%	2%	3%	4%	5%	--	6%
Stable Value	0%	0%	0%	0%	0%	0%	0%	0%	0%	--	0%
Cash	0%	0%	0%	0%	0%	0%	0%	0%	0%	--	0%
Other Fixed Income	0%	0%	0%	0%	0%	0%	0%	0%	0%	--	0%
Commodities	0%	0%	0%	0%	0%	1%	1%	1%	1%	--	2%
REITs	5%	5%	5%	5%	5%	4%	4%	3%	2%	--	2%
Real Estate	0%	0%	0%	0%	0%	0%	0%	0%	0%	--	0%
Private Equity	0%	0%	0%	0%	0%	0%	0%	0%	0%	--	0%
Risk Parity	0%	0%	0%	0%	0%	0%	0%	0%	0%	--	0%
All other assets	0%	0%	0%	0%	0%	0%	0%	0%	0%	--	0%

Target date asset mix - U.S. universe - 2020

Asset class	2065	2060	2055	2050	2045	2040	2035	2030	2025	2020	<=2015 inc
U.S. broad or large cap	47%	47%	46%	46%	45%	42%	38%	33%	28%	23%	18%
U.S. mid or small cap	6%	6%	6%	6%	6%	6%	5%	5%	4%	3%	3%
Non-U.S. stock	34%	34%	34%	33%	33%	30%	27%	23%	19%	16%	12%
Emerging stock	4%	4%	4%	4%	4%	4%	3%	3%	2%	2%	1%
Core Bonds	6%	5%	5%	6%	7%	13%	20%	28%	34%	35%	46%
TIPS	0%	0%	0%	0%	0%	1%	1%	3%	5%	9%	11%
Stable Value	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Cash	0%	0%	0%	0%	0%	0%	0%	1%	1%	2%	2%
Other Fixed Income	0%	1%	1%	1%	1%	1%	1%	2%	2%	4%	3%
Commodities	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
REITs	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%
Real Estate	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Private Equity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Risk Parity	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
All other assets	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%

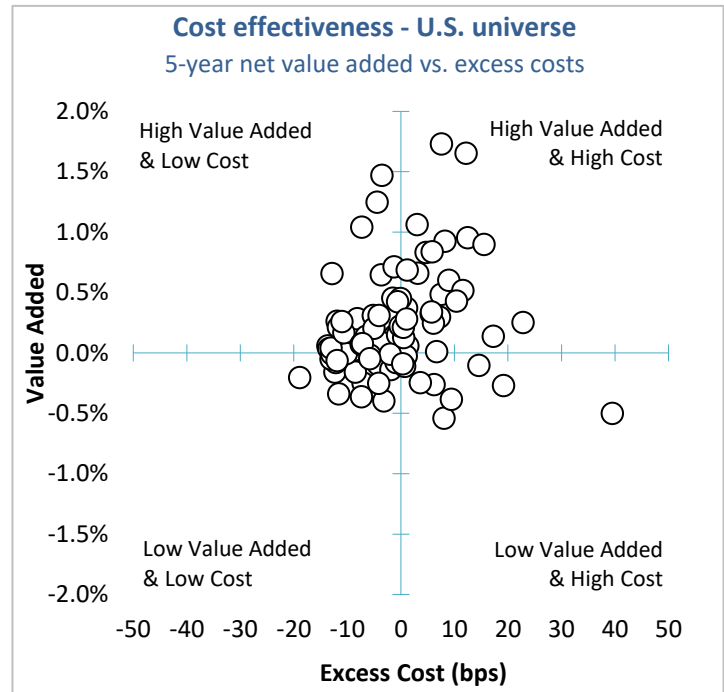
Cost effectiveness

Cost effectiveness ranking

In an ideal world, the more you pay (i.e., the larger your excess cost) the more you get (i.e., the higher your value added). If this were true, you would see an upward sloping relationship in this graph. Clearly, this is not the case. CEM's research has shown consistently that there is no relationship between what plans spend and what they received.

It is however good to know where your plan places on the graph and, even more important, to understand the reasons why.

This report provides you with high-level insights of how your plan compared to the U.S. universe in 2020. CEM's new interactive online Dashboard provides much more insight, through a cost-effective channel. We invite you to review for yourself with a limited time free trial access. See next page for details.



Request a free trial of your CEM Dashboard to experience the benefits of upgrading to our premium benchmarking service

What is CEM Dashboard?

Our new interactive benchmarking service offered through our secure on-line portal. CEM's high standard of benchmarking analysis is provided through a cost-effective channel. It allows all fiduciaries or plan sponsors of DC plans the opportunity to perform their fee and performance review to the high standards required of them, thereby reducing litigation risks.

CEM Dashboard will provide you with:

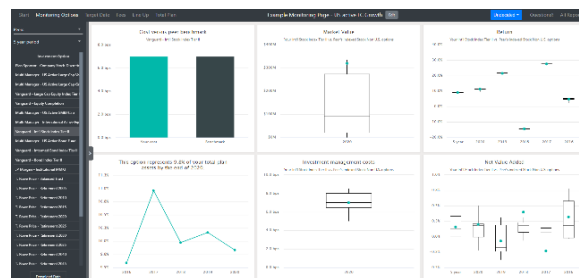
- A total plan benchmark cost using CEM's proprietary peer based analysis, which adjusts for all factors that impact fees. Peers are custom selected based on similarly sized plans, one of the factors that impacts fees. This analysis is superior to the total plan benchmark cost previously included in this PDF report.
- A benchmark cost for each investment option, as well as performance metrics, giving you the context and information you need to properly monitor your investment options. Universe based benchmarks (i.e. page 6 of this report) are inferior to peer-based, especially for outlier sized plans.
- Analysis of target date glide path and risk, and a benchmark cost estimate which adjusts for glide path and other fee drivers.
- Peer based analysis of recordkeeping, and other administrative and participant expenses (such as managed account fees).

You now have two upgrade options:

1. CEM Dashboard
2. BenchmarkDC, our comprehensive benchmarking report, which includes the Dashboard.

	Dashboard	Comprehensive
Access to CEM Dashboard	✓	✓
CEM's proprietary peer based benchmark cost analysis	✓	✓
Comparisons against your choice of universe & peers	✓	✓
Comprehensive results and insights in an 80+ page PDF report		✓
In-person meeting and presentation		✓
Virtual access to CEM for research, questions and help	limited	unlimited

To learn more click on the video below:



To request your 2-week trial contact:

Quentin Spehner
Quentin@cembenchmarking.com

Appendix: Your survey responses

Data quality

We recognize that the value of the information contained in these reports is only as good as the quality of the data we receive. Therefore, we work very hard at getting good data. Our procedures for checking and improving the data include:

- **Improved Survey Clarity** - 24 years of feedback from survey participants has led to improved definitions and survey clarity.
- **Computer and Analyst Verification** - We compare responses to norms for the survey universe and to each sponsor's prior year data when available. This typically results in questions that we send to each survey respondent and follow-up by email and/or phone.

In addition, the quality of our data continues to improve because of:

- **Learning Curve** - This is our 24th year of gathering this data and experience is teaching us and the participants how to do a better job.
- **Growing Universe** - As our universe of respondents continues to increase in size, so does our confidence in the results as unbiased errors tend to average themselves out. As a result of the above, data quality has improved dramatically over the twenty four year period we have been benchmarking. We feel there will always be room for improvement and we welcome any suggestions on how to further improve data quality.

Your survey responses

Your data is summarized on the following pages. As discussed with you (or the person who provided your plan's data) during the data confirmation process, your original survey responses may have changed for the following reasons:

- 1. Gross versus Net Returns** - We permit participants to report returns on either a net or gross basis. In order to ensure 'apples-to-apples' comparisons, we compare returns net of all costs, including administration costs.
- 2. Returns not available** - We request that you leave the return blank if a full year return was unavailable for an investment option. The default for an unavailable return is to exclude this investment option from the net value added calculations.
- 3. Costs not provided** - One of our key themes is that you must know your costs if you want to manage your plan effectively. We recognize, however, that some costs such as Fiduciary Oversight costs can be difficult to obtain. Therefore, if you were unable to provide us with your costs, or your best estimate of these costs, we imputed a figure using industry data.

Your survey responses

VA ORPHE – TIAA

General	2020	2019	2018	2017	2016
Contact	Laura Pugliese				
Data provided by:	Michael Scott				
Corporate, public, other?	Public				
Market value of plan assets (\$ millions)	\$294				
Number of plan participants	8,288				
% of eligible employees participating	75%				
Are some DC participants covered by a DB plan?	No				
	None				

Administrative costs, plan expenses (\$000s)	2020	2019	2018	2017	2016
Recordkeeping ¹					
paid from expense ratio of invest. options charged to individuals or participant accounts paid by plan sponsor	378				
Custodial & trustee					
paid from expense ratio of invest. options charged to individuals or participant accounts paid by plan sponsor					
Oversight internal ²					
paid from expense ratio of invest. options charged to individuals or participant accounts paid by plan sponsor	235				
Consulting					
paid from expense ratio of invest. options charged to individuals or participant accounts paid by plan sponsor					
Other					
paid from expense ratio of invest. options charged to individuals or participant accounts paid by plan sponsor					
less rebates to participants from reimburse. accounts	42				
Total Plan Expenses	571				

Participant Expenses (\$000s)	2020	2019	2018	2017	2016
Participant advice					
paid from expense ratio of invest. options charged to individuals or participant accounts paid by plan sponsor					
Managed account fees					
paid from expense ratio of invest. options charged to individuals or participant accounts paid by plan sponsor					
Other participant expenses (for loans, QDROs, etc.)					
paid from expense ratio of invest. options charged to individuals or participant accounts paid by plan sponsor					
Total Participant Expenses					

1. If you were unable to provide a breakdown of your administrative & fiduciary costs, the total was included in recordkeeping because it usually represents the bulk of administrative & fiduciary costs.

2. If you were unable to provide costs for Fiduciary oversight internal, we applied a default value. If the number of internal FTEs is available, default equals \$100,000 x FTE. Otherwise, it is 0.0001 x Market value of plan assets.

Your survey responses

VA ORPHE – TIAA

About your options	2020	2019	2018	2017	2016
Do you have a default investment option?	Yes				
If yes, what is the default option?	Target / lifecycle				
Option returns are:	Net mgmt & admin fees				
Cost drivers and allocation	2020	2019	2018	2017	2016
FTE fulfilling fiduciary/oversight functions	2.0				
Does the plan offer a managed account service?	No				
Number with managed accounts					
Market value in managed accounts					
Do you receive revenue sharing from your providers?	No				
Is it used to reduce management fee?					
Is it used to reduce admin. or fiduciary costs?					
How are the recordkeeping or admin costs allocated to participants (asset based, flat fee, both, or other)?	flat fee				
If other, describe					
Contributions	2020	2019	2018	2017	2016
Employer contributions (\$ millions)	27				
Participant contributions (\$ millions)	6				
% of participants making voluntary contributions?	0%				
Stable Value Funds	2020	2019	2018	2017	2016
What percentage of stable value assets are wrapped?					
What are your total wrap fees (in bps over wrapped amount)					
Loan features	2020	2019	2018	2017	2016
Does your plan allow loans?	No				
Total number of outstanding loans					
Average loan balance, (\$)					
Does your plan allow for hardship withdrawals	No				
Who pays the loan initiation fee?					
Is the fee a flat dollar amount or % of assets?					
Participant transaction rules and restrictions	2020	2019	2018	2017	2016
Limits on the number of transactions?	No				
Limits on international funds?	No				
Limits on any other funds (excl. international)?	Yes				
Excessive trading penalties?	No				
Describe other limits if any	1) Transfers out the TIAA				
Assumed retirement age for your target date funds	65				
Do you customize or use an off shelf target date fund?	Off shelf				
Age at which target date retirement funds stop de-risking	65				

Your survey responses

VA ORPHE – TIAA

Services Offered to Separated Employees	2020	2019	2018	2017	2016
Lump sum payouts	Yes				
Required Minimum Distribution (RMD) payouts	Yes				
Partial payouts	Yes				
Installment payouts (e.g., monthly, quarterly, etc.)	Yes				
Loan initiation	No				
Loan maintenance (for loans made prior to separation)	No				
Online advice service	No				
Managed account advice service	No				
One-on-one advice service with an advisor	No				
Annuity platform (whether in-plan or out-of-plan)	Yes				
Employee contributions (DC is primary, no DB)	2020	2019	2018	2017	2016
Can participants make:					
a. After-tax Roth 401(k) contributions?	No				
b. After-tax non-Roth 401(k) contributions?	No				
Is investment in employer stock required to some extent?	No				
Is there a mandatory fixed or minimum contribution rate for full-time employees?	Yes				
If yes, what is the mandatory contribution rate as a % of salary ?	5.0%				
Does the plan have automatic enrolment?	No				
If yes:					
a. Initial automatic contribution as a % of salary					
b. What (if any) is the automatic annual increase in the contribution rate?					
c. Maximum rate achieved via automatic increases?					
Applied to all/new employees only when introduced?	No				
Employee contributions (DC is suppl. to DB)	2020	2019	2018	2017	2016
Can participants make:					
a. After-tax Roth 401(k) contributions?					
b. After-tax non-Roth 401(k) contributions?					
Is investment in employer stock required to some extent?					
Is there a mandatory fixed or minimum contribution rate for full-time employees?					
If yes, what is the mandatory contribution rate as a % of salary ?					
Does the plan have automatic enrolment?					
If yes:					
a. Initial automatic contribution as a % of salary					
b. What (if any) is the automatic annual increase in the contribution rate?					
c. Maximum rate achieved via automatic increases?					
Applied to all employees or new only when introduced?					

Your survey responses

VA ORPHE – TIAA

Employer contributions (if DC is primary, no DB)	2020	2019	2018	2017	2016
Are employer contributions made in employer stock, cash or both?	Cash				
Is there a profit sharing component to employer contributions?	No				
Is there an automatic fixed employer contribution rate?	Yes				
If yes, what is the automatic fixed employer contribution rate?	8.5%				
Is there an after-tax employer match?	No				
Is there a before-tax employer match?	No				
% of participants earning the maximum match					
Indicate the match terms below:					
Percentage match on the first:					
Percentage of salary contributed:					
Percentage on the next:					
Percentage of salary contributed:					
Or describe:					

Employer contributions (if DC is suppl. to DB)	2020	2019	2018	2017	2016
Are employer contributions made in employer stock, cash or both?					
Is there a profit sharing component to employer contributions?					
Is there an automatic fixed employer contribution rate?					
If yes, what is the automatic fixed employer contribution rate?					
Is there an after-tax employer match?					
Is there a before-tax employer match?					
% of participants earning the maximum match					
Indicate the match terms below:					
Percentage match on the first:					
Percentage of salary contributed:					
Percentage on the next:					
Percentage of salary contributed:					
Or describe:					

Your survey responses

VA ORPHE – TIAA

Fiduciary	2020	2019	2018	2017	2016
Named fiduciary?	Board				
If named fiduciary is a committee:					
Number of committee members?					
Number of meetings in the past year?					
Are the meeting minutes documented?					
Are the named fiduciaries:					
Provided formal training?	Yes				
Required to sign an acknowledgement form?	Yes				
Have third parties been appointed as:					
• Investment manager with full discretionary powers for selecting, monitoring, replacing investment options?	No				
• Investment advisor to provide advice regarding the selection and retention of investment options?	No				
• Plan administrator responsible for regulatory filings, disclosures to participants and hiring plan service providers if no other fiduciary has that responsibility?	Yes				
Is there documentation that identifies the process for:					
• Selection and monitoring of third-party fiduciaries and other plan service providers?	Yes				
• Investment policy	Yes				
• Oversight of internal employees involved in operating the plan (i.e., internal fiduciaries, HR staff enrolling employees in the plan, posting deferrals, etc)	Yes				
• Fulfilling administration responsibilities (regulatory filings, disclosures to participants)	Yes				
Education and other	2020	2019	2018	2017	2016
Is individual investment counseling/advice offered to plan participants?	No				
• Is it provided by advisor, computer, both?					
Does your plan offer financial education via:					
• Group meetings?	Yes				
• One-on-one meetings?	Yes				
Do plan participants receive projections of annual income in retirement:					
• In their participant statements?	Yes				
• Online?	Yes				
• Via separate communication?	No				
Does your plan have marketing campaigns to:					
• Increase employee contribution/deferral rates?	No				
• Increase participation by eligible non-participants?	No				
• Educate on the savers tax credit for lower income participants?	No				
• Improve diversification from Employer Stock?	No				
Does your plan offer:					
• Out-of-plan guaranteed lifetime income product?	No				
• In-plan guaranteed lifetime income product?	Yes				
Does your plan offer automatic rebalancing?	Yes				

Your survey responses

VA ORPHE – TIAA

Your plan's 2020 investment options

Provider & Option name	Type	% Inxd	\$ mils at 12/31/20	Annual Return	Description	Benchmark	Cost			
							Return	Invest	Admin	Total
BlackRock - BlackRock Equity Index Fund J	Stk U.S. Broad or LC	100%	28	18.5%	S&P 500 Index		18.4%	1.0 bp	0.0 bp	1.0 bp
BlackRock - BlackRock Russell 2500 Index Fund M	Stk U.S. SMID Cap	100%	8	20.0%	Russell 2500		20.0%	4.0 bp	0.0 bp	4.0 bp
BlackRock - BlackRock MSCI ACWI IMI Index Non-Lendable Fund M	Stk Global	100%	38	16.5%	MSCI ACWI IMI Index		16.3%	5.0 bp	0.0 bp	5.0 bp
BlackRock - BlackRock MSCI ACWI ex-U.S. IMI Index Fund M	Stk Non U.S.	100%	17	11.4%	MSCI ACWI ex-U.S. IMI Index		11.1%	11.0 bp	0.0 bp	11.0 bp
BlackRock - BlackRock U.S. Debt Index Fund M	Bonds Broad	100%	9	7.6%	Bloomberg Barclays U.S. Aggregate Bond I		7.5%	3.0 bp	0.0 bp	3.0 bp
BlackRock - BlackRock U.S. TIPS Fund M	Bonds TIPS	100%	5	11.2%	Bloomberg Barclays U.S. TIPS Index		11.0%	3.0 bp	0.0 bp	3.0 bp
BlackRock - BlackRock Short-Term Investment Fund W	Cash, Money Mrkt	0%	6	0.7%	Your Cash, Money Market benchmark		0.6%	8.0 bp	0.0 bp	8.0 bp
BlackRock - BlackRock LifePath Index Retirement O	Target Date Short	100%	29	12.0%	Custom Benchmark		11.8%	8.0 bp	0.0 bp	8.0 bp
BlackRock - BlackRock LifePath Index 2025 Fund O	Target Date Long	100%	20	12.2%	Custom Benchmark		12.0%	8.0 bp	0.0 bp	8.0 bp
BlackRock - BlackRock LifePath Index 2030 Fund O	Target Date Long	100%	27	12.9%	Custom Benchmark		12.7%	8.0 bp	0.0 bp	8.0 bp
BlackRock - BlackRock LifePath Index 2035	Target Date Very Long	100%	21	13.6%	Custom Benchmark		13.4%	8.0 bp	0.0 bp	8.0 bp
BlackRock - BlackRock LifePath Index 2040 Fund O	Target Date Very Long	100%	23	14.1%	Custom Benchmark		14.0%	8.0 bp	0.0 bp	8.0 bp
BlackRock - BlackRock LifePath Index 2045 Fund O	Target Date Very Long	100%	19	14.8%	Custom Benchmark		14.6%	8.0 bp	0.0 bp	8.0 bp
BlackRock - BlackRock LifePath Index 2050 Fund O	Target Date Very Long	100%	10	15.2%	Custom Benchmark		15.1%	8.0 bp	0.0 bp	8.0 bp
BlackRock - BlackRock LifePath Index 2055 Index Fund O	Target Date Very Long	100%	5	15.3%	Custom Benchmark		15.2%	8.0 bp	0.0 bp	8.0 bp
BlackRock - BlackRock LifePath Index 2060 Index Fund O	Target Date Very Long	100%	1	15.3%	Custom Benchmark		15.2%	8.0 bp	0.0 bp	8.0 bp
BlackRock - BlackRock LifePath Index 2065 Fund O	Target Date Very Long	100%	0	15.1%	Custom Benchmark		15.2%	8.0 bp	0.0 bp	8.0 bp
TIAA Real Estate Account - Real Estate Fund	Real Estate	0%	7	-0.8%	Custom Composite Index		-0.4%	56.0 bp	22.0 bp	78.0 bp
TIAA Traditional Annuity RC - Traditional Annuity Fund	Annuity	0%	19	4.0%	Neutralized		4.0%	34.0 bp	15.0 bp	49.0 bp
TIAA-CREF Self Directed Account - Participant Brokerage Account	Participant Broker Account	0%	4					0.0 bp	0.0 bp	0.0 bp
Total			294					9.9 bp	1.6 bp	11.6 bp