#### **BOARD OF TRUSTEES**

# Cobb County Government Employees' Pension Plan Trust Other Post Employment Benefits (OPEB) Trust Meeting of June 5, 2019 2nd Fl. BOC Meeting Room 7:30 A.M.

#### Agenda

- I. Invitation for Public Comment
- II. Approval of Minutes *Hagler*
- III. Invoice Payments Approval Volckmann
- IV. Actuary Reports
- V. Trust Report Suntrust
- VI. Advisor Report UBS Earle Dodd, Allen Wright, Vab Price, and Austin Dodd
- VII. New Business
- VIII. Adjourn

Next Trustee Meeting – Wednesday, August 7, 2019 - 8:00 a.m. to 9:00 a.m.



The experience and dedication you deserve

Cobb County Government
Health Benefit Plan
Report of Actuary on the Other Post-Employment
Benefit Valuation

Prepared as of January 1, 2019



Cobb County...Expect the Best!





The experience and dedication you deserve

May 28, 2019

Mr. Tony Hagler Human Resources Director Cobb County Human Resources Department 100 Cherokee Street Marietta, GA 30090-9679

Dear Mr. Hagler:

We are pleased to submit the results of the annual actuarial valuation of the Cobb County Government Health Benefit Plan prepared as of January 1, 2019. The purpose of this report is to provide a summary of the funded status of the Plan as of January 1, 2019 and recommend rates of employer contribution. While not verifying the data at source, the actuary performed tests for consistency and reasonability. Separate reports will be prepared to provide accounting information under Governmental Accounting Standards Board Statements No. 74 and 75 when applicable.

The amortization period was closed at 30 years as of January 1, 2013. For the current valuation, the amortization period used is therefore 24 years. Additionally, in 2017, an Experience Study was completed for the period ending December 31, 2016. As a result of this investigation, the mortality rates, retirement rates, withdrawal rates, and salary merit scale were modified effective January 1, 2018.

The medical and drug benefits of the current Plan as of January 1, 2019 are included in the actuarially calculated contribution rates which are developed using the unit credit actuarial cost method with projected benefits. The annual actuarially determined employer contribution (ADC) of the County for the year beginning October 1, 2019 is 7.95% of payroll, which is expected to liquidate the unfunded accrued liability over a 24-year period.

As of January 1, 2019, the Plan has assets in trust solely to provide benefits to retirees and their beneficiaries. It is our understanding that trust contributions will be greater than or equal to the ADC each year. Since the asset allocation for the OPEB trust is similar to the asset allocation for the pension trust, the discount rate remains 7.50% to match the discount rate used in the pension valuation. Gains and losses are reflected in the unfunded accrued liability that is assumed amortized by regular annual contributions as a level percentage of payroll within a closed 30-year period (24 years for the current valuation), on the assumption that payroll will increase by 2.50% annually. Based on our understanding that it is the policy of Cobb County to make annual contributions at least equal to the ADC, the assumptions recommended by the actuary are, individually and in the aggregate, reasonably related to the experience under the Plan and to reasonable expectations of anticipated experience under the Plan.



Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

The impact of the Affordable Care Act (ACA) was addressed in this valuation. Review of the information currently available did not identify any specific provisions of the ACA that are anticipated to significantly impact results. While the impact of certain provisions such as the future implementation of the excise tax on high-value health insurance plans (if applicable), mandated benefits and participation changes due to the individual mandate should be recognized in the determination of liabilities, overall future plan costs and the resulting liabilities are driven by amounts employers and retirees can afford (i.e., trend). The trend assumption forecasts the anticipated increase to initial per capita costs, taking into account health care cost inflation, increases in benefit utilization, plan changes, government-mandated benefits, and technological advances. Given the uncertainty regarding the ACA's implementation (e.g., the impact of excise tax on high-value health insurance plans, changes in participation resulting from the implementation of state-based health insurance exchanges), continued monitoring of the ACA's impact on the Plan's liability will be required. Plan design changes mandated by the ACA and incorporated in the plan designs are included in the current baseline claims costs.

This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries and has experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the medical plans and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the Plan.

The current assets and future anticipated contributions are in our opinion sufficient to meet all the benefit obligations of the plan for current active and retired members

Sincerely yours,

Alisa Bennett, FSA, EA, FCA, MAAA Principal and Consulting Actuary



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# COBB COUNTY GOVERNMENT HEALTH BENEFIT PLAN REPORT OF ACTUARY ON THE OTHER POST-EMPLOYMENT BENEFIT VALUATION PREPARED AS OF JANUARY 1, 2019

#### **SECTION I - SUMMARY OF PRINCIPAL RESULTS**

1. For convenience of reference, the principal results of the valuation are summarized below:

Valuation Date Discount Rate	1/1/2019 7.50%	1/1/2018 7.50%
Number Active* Number Retired Total	4,342 1,743 6,085	4,349 1,632 5,981
Annual Salaries** Assets:     Market Value Unfunded Actuarial Accrued Liability Amortization Period (Years)	\$ 249,164,033 \$ 113,097,682 \$ 190,589,688 24	\$ 248,606,290 \$ 117,114,714 \$ 182,333,456 25
Fiscal Year	2020	2019
Actuarially Determined Contribution (ADC) in dollars: Normal Accrued Liability*** Total	\$ 6,805,244 13,013,985 \$ 19,819,229	\$ 7,286,442 <u>12,184,948</u> \$ 19,471,390
ADC as a Percent of Active Payroll Normal Accrued Liability Total Discount Rate	2.73% 5.22% 7.95% 7.50%	2.93% 4.90% 7.83% 7.50%

<sup>\*</sup> Before participation assumption is applied. The 2018 number includes 4,233 active in the pension plan and 116 actives who could potentially receive post-employment health benefits but who are not in the pension plan. The 2019 number includes 4,228 active in the pension plan and 114 actives who could potentially receive post-employment health benefits but who are not in the pension plan.

\*\*\* Calculated using an annual increasing payroll assumption of 2.50%.

<sup>\*\*</sup> Before participation assumption is applied. The 2018 number includes \$241,522,135 for the 4,233 active in the pension plan and \$7,084,155 for the 116 actives who could potentially receive postemployment health benefits but who are not in the pension plan. The 2019 number includes \$242,278,837 for the 4,228 active in the pension plan and \$6,885,196 for the 114 actives who could potentially receive post-employment health benefits but who are not in the pension plan.



The table below shows the active headcounts and liabilities broken down by grandfathered status and service needed to receive health benefits, which is based on date of hire.

#### **ACTIVE HEADCOUNTS AND LIABILITIES**

	Grand	Grandfathered		Non-Grandfathered		Total	
Service needed for benefit	Number	Liability	Number	Liability	Number	Liability	
10	30	\$1,962,496	746	\$74,509,574	776	\$76,472,070	
15	2	81,258	798	39,363,417	800	39,444,675	
20	0	0	487	10,344,595	487	10,344,595	
30	0	0	2,279	3,824,985	2,279	3,824,985	
TOTAL	32	\$2,043,754	4,310	\$128,042,571	4,342	\$130,086,325	

- 2. The valuation indicates that the Actuarially Determined Contribution (ADC) is 7.95% of active payroll payable for the fiscal year 2020. Any employer claims or premiums paid for retiree health care in the current year are considered contributions toward the ADC. Comments on the valuation results as of January 1, 2019 are given in Section IV and further discussion of the contribution levels is set out in Sections V and VI.
- 3. Since the asset allocation for the OPEB trust is similar to the asset allocation for the pension trust, the discount rate remains 7.50% to match the discount rate used in the pension valuation.
  Schedule D of this report outlines the full set of actuarial assumptions and methods employed in the current valuation.



#### **SECTION II - MEMBERSHIP DATA**

 $\label{thm:partial} \mbox{ Data regarding the membership of the Plan for use as a basis of the valuation were furnished by Cobb County.}$ 

The following table summarizes the members' age and service.

	Active Employees*							
				Service				
Age	< 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	> 29	Total
< 25	190	3						193
25 to	446	78	4					528
30 to	330	159	76	5				570
35 to	171	90	175	62	3			501
40 to	135	72	128	135	72	2		544
45 to	114	50	114	159	184	55	5	681
50 to	85	69	84	96	113	102	20	569
55 to	83	40	82	94	61	31	24	415
60 to	46	38	51	51	24	16	11	237
> 64	11	18	28	19	12	8	8	104
Total	1,611	617	742	621	469	214	68	4,342

<sup>\*</sup>Before participation assumption is applied. Includes 4,228 active in the pension plan and 114 actives who could potentially receive post-employment health benefits but who are not in the pension plan.

#### **SECTION III - ASSETS**

Schedule C shows information regarding assets for valuation purposes. As of January 1, 2019, the plan has \$113,097,682 in assets held in trust solely to provide benefits to retirees and their beneficiaries in accordance with the terms of the plan.



#### **SECTION IV - COMMENTS ON THE VALUATION**

- Schedule A of this report outlines the results of the actuarial valuation. The results are shown based
  on a discount rate of 7.50%. The valuation was prepared in accordance with the actuarial
  assumptions and the actuarial cost method, which are described in Schedule D.
- 2. In 2017, an Experience Study was completed for the period ending December 31, 2016. As a result of the investigations, the following demographic assumptions were adopted by the Pension Board and changed effective January 1, 2018:
  - 1. Pre-Retirement Mortality Table was updated to RP-2000 Employee projected to 2025 using scale BB with No Set back / Set forward
  - 2. Post-retirement Mortality Table was updated to RP-2000 Combined projected to 2025 using scale BB; Set forward 2 years for both Male & Female lives
  - 3. Retirement rates were updated for Public Safety and General Employees
  - 4. Withdrawal rates were modified for both Public Safety and General Employees
  - 5. Salary merit scale was updated for all members
- Effective January 1, 2014 the investment return assumption was decreased from 7.9% to 7.8%. The
  investment return assumption was decreased by 0.1% per year until reaching 7.5% effective with the
  January 1, 2017 valuation.
- 4. Based on the 7.50% discount rate, the valuation shows that the Plan has an actuarial accrued liability of \$130,086,325 for benefits expected to be paid on account of the present active membership, based on service to the valuation date. The liability on account of benefits payable to retirees and covered spouses amounts to \$173,601,045. The total actuarial accrued liability of the Plan amounts to \$303,687,370. Against these liabilities, the Plan has present assets for valuation purposes of \$113,097,682. Therefore, the unfunded actuarial accrued liability is equal to \$190,589,688.
- 5. The normal contribution is equal to the actuarial present value of benefits accruing during the current year. The normal contribution is determined to be 2.73% of total active payroll.
- 6. The amortization period was closed at 30 years as of January 1, 2013. The amortization period as of January 1, 2019 is 24 years.



#### SECTION V - CONTRIBUTIONS PAYABLE UNDER THE PLAN

### ACTUARIALLY DETERMINED CONTRIBUTION For 2019 Fiscal Year

Actuarially Determined Contribution (ADC) As a Percentage of Total Active Payroll:				
Normal	2.73%			
Accrued Liability	5.22%			
Total	7.95%			

- 1. The valuation indicates that a normal contribution of 2.73% of total active payroll is required to meet the cost of benefits currently accruing.
- 2. The unfunded actuarial accrued liability amounts to \$190,589,688 as of the valuation date. An accrued liability contribution of 5.22% of total active payroll is sufficient to amortize the unfunded actuarial accrued liability over a 24-year period, based on a 7.50% investment rate of return and the assumption that the payroll will increase by 2.50% annually.
- 3. The total Actuarially Determined Contribution is, therefore, 7.95% of total active payroll.



#### **SECTION VI - COMMENTS ON LEVEL OF FUNDING**

- 1. The monthly contribution for retirees to opt into the medical plan is based on plan, tier election, date of hire, and date of retirement.
- 2. The valuation indicates that a recommended employer contribution rate of 7.95% of payroll is required to fund the plan. This corresponds to a contribution required to meet the cost of benefits currently accruing and provide for the amortization of the unfunded actuarial accrued liability over a period of 24 years.

#### **SECTION VII - ADDITIONAL DISCLOSURES**

1. Below is a chart showing the Schedule of Funding Progress.

#### SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation <u>Date</u>	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Projected Unit Credit (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll <u>( c )</u>	UAAL as a Percentage of Covered Payroll  ((b-a)/c)
1/1/2012	46,486,981	247,611,907	201,124,926	18.8%	208,621,922	96.4%
1/1/2013*	58,975,301	186,733,213	127,757,912	31.6%	211,553,134	60.4%
1/1/2014^	84,726,947	200,118,641	115,391,694	42.3%	212,799,730	54.2%
1/1/2015^^	91,440,896	224,352,661	132,911,765	40.8%	218,979,561	60.7%
1/1/2016^^^	91,619,032	245,265,481	153,646,449	37.4%	227,955,687	67.4%
1/1/2017^^^^	98,362,896	271,992,978	173,630,082	36.2%	232,958,602	74.5%
1/1/2018**	117,114,714	299,448,170	182,333,456	39.1%	248,606,290	73.3%
1/1/2019	113,097,682	303,687,370	190,589,688	37.2%	249,164,033	76.5%

<sup>\*</sup> Includes plan changes effective January 1, 2013 and change in discount rate to 7.90%.

<sup>^</sup> In 2014, the discount rate was changed from 7.9% to 7.8%, as well as demographic assumptions for pre-retirement mortality, withdrawal and retirement.

<sup>^</sup> In 2015, the discount rate was changed from 7.8% to 7.7%.

<sup>^</sup> In 2016, the discount rate was changed from 7.7% to 7.6%

<sup>^^^</sup> In 2017, the discount rate was changed from 7.6% to 7.5%

<sup>\*\*</sup> In 2018, decrements were changed due to an experience study.



The information presented was determined as part of the actuarial valuation at January 1, 2019.
 Additional information as of the latest actuarial valuation follows.

Valuation date	1/1/2019
Actuarial cost method	Projected unit credit
Amortization method	Level percent of pay, closed
Remaining amortization period	24 years
Asset valuation method	Market Value of Assets
Actuarial assumptions	
Investment Rate of Return*	7.50%
Medical cost trend rate*	
Pre-Medicare	7.00%
Medicare Eligible	5.00%
Ultimate trend rate*	
Pre-Medicare	4.50%
Medicare Eligible	4.50%
Year of Ultimate trend rate	
Pre-Medicare	2026
Medicare Eligible	2021
*Includes inflation at	2.50%

<sup>\*</sup> Since the asset allocation for the OPEB trust is similar to the asset allocation for the pension trust, the annual investment rate of return is assumed to be 7.50%, which is the assumption used for the pension valuation. This rate reflects the County's establishment of an OPEB trust and intent to fully pre-fund OPEB benefits.



### RESULTS OF THE VALUATION PREPARED AS OF JANUARY 1, 2019

		<u>Di</u>	7.50% scount Rate
1.	PAYROLL	\$	249,164,033
2.	ACTUARIAL ACCRUED LIABILITY		
	(a) Present active members:	\$	130,086,325
	(b) Present retired members and surviving spouses:		173,601,045
	(c) Total actuarial accrued liability	\$	303,687,370
3.	PRESENT ASSETS FOR VALUATION PURPOSES	\$	113,097,682
4.	UNFUNDED ACTUARIAL ACCRUED LIABILITY [(2)(C) minus (3)]	\$	190,589,688
5.	AMORTIZATION PERIOD		24
6.	NORMAL CONTRIBUTION	\$	6,805,244
7.	ACCRUED LIABILITY CONTRIBUTION		13,013,985
8.	TOTAL CONTRIBUTION (6) + (7)	\$	19,819,229
9.	NORMAL CONTRIBUTION AS A PERCENT OF PAYROLL (6) ÷ (1)		2.73%
10.	ACCRUED LIABILITY CONTRIBUTION AS A PERCENT OF PAYROLL (7) ÷ (1)		5.22%
11.	TOTAL CONTRIBUTION AS A PERCENT OF PAYROLL (9) + (10)		7.95%



The chart below shows the projected benefit payments for current retirees and for future payments to current active employees after retirement. The chart does not take into account future entrants to the plan.

#### **Projected Benefit Payments**

		Owen Kethered	Non-	
	Current Retirees	Grandfathered Actives	Grandfathered Actives	Total
2019	15,529,699	63,752	425,823	16,019,274
2020	15,877,209	120,373	1,382,074	17,379,656
2021	16,123,047	150,029	2,443,318	18,716,394
2022	16,326,173	157,720	3,620,457	20,104,350
2023	16,254,020	183,114	5,009,717	21,446,851
2024	16,111,809	206,037	6,564,158	22,882,004
2025	16,025,709	198,649	8,277,937	24,502,295
2026	15,739,562	204,050	10,144,992	26,088,604
2027	15,296,244	208,621	12,026,511	27,531,376
2028	14,794,990	212,486	14,118,132	29,125,608
2029	14,354,229	215,660	16,223,805	30,793,694
2030	13,571,894	218,788	18,078,380	31,869,062
2031	12,961,779	220,201	20,046,319	33,228,299
2032	12,298,128	220,740	21,612,644	34,131,512
2033	11,864,767	220,285	23,020,179	35,105,231
2034	11,620,447	218,741	24,154,283	35,993,471
2035	11,454,103	216,029	24,729,723	36,399,855
2036	11,133,299	212,094	25,137,708	36,483,101
2037	10,898,289	206,875	25,431,865	36,537,029
2038	10,596,296	200,292	25,409,830	36,206,418
2039	10,265,297	192,301	25,228,234	35,685,832
2040	9,919,436	182,900	25,527,172	35,629,508
2041	9,564,333	172,212	25,606,196	35,342,741
2042	9,178,318	160,417	25,822,840	35,161,575
2043	8,743,850	147,700	26,353,362	35,244,912
2044	8,303,771	134,335	26,840,602	35,278,708
2045	7,843,412	120,622	27,288,904	35,252,938
2046	7,367,034	106,870	27,978,807	35,452,711
2047	6,878,946	93,420	28,952,137	35,924,503
2048	6,383,699	80,572	29,914,436	36,378,707



#### SCHEDULE B

#### DEVELOPMENT OF THE ACTUARIAL (GAIN)/LOSS

1. UNFUNDED ACC	CRUED LIABILITY (UAL) 1/1/2018	\$ 182,333,456
2. NORMAL COST	1/1/2018	\$ 7,286,442
	PLOYER CONTRIBUTIONS (Beginning of Year) I in 1/1/2018 valuation)	\$ 19,471,390
4. INTEREST ACC [(1) + (2) - (3)] x		\$ 12,761,138
5. EXPECTED UAL [(1) + (2) - (3) + (		\$ 182,909,646
6. GAIN DUE TO C	CLAIMS AND PREMIUM EXPERIENCE	\$ (6,765,429)
7. LOSS DUE TO A	ASSET EXPERIENCE	\$ 18,795,895
8. EXPECTED UAL (5) + (6) + (7)	_ 1/1/2019 AFTER CHANGES	\$ 194,940,112
9. ACTUAL UAL A	S OF 1/1/2019	\$ 190,589,688
10. EXPERIENCE (6 (9) – (8)	GAIN)/LOSS	\$ (4,350,424)
11. (GAIN) AS A % (	OF LY AL	(1.45%)



#### **SCHEDULE C**

#### **PLAN ASSETS**

Plan assets are resources, usually in the form of stocks, bonds, and other classes of investments, that have been segregated and restricted in a trust, or equivalent arrangement, in which (a) employer contributions to the plan are irrevocable, (b) assets are dedicated to providing benefits to retirees and their beneficiaries, and (c) assets are legally protected from creditors of the employers or plan administrator, for the payment of benefits in accordance with the terms of the plan.

As of January 1, 2019, the plan has \$113,097,682 in assets held in trust solely to provide benefits to retirees and their beneficiaries in accordance with the terms of the plan. It is our understanding that trust contributions will be greater than or equal to the ADC each year. Since the asset allocation for the OPEB trust is similar to the asset allocation for the pension trust, the annual discount rate remains 7.50% to match the discount rate used in the pension valuation.



#### **SCHEDULE D**

#### **OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS**

VALUATION DATE: January 1, 2019

**DISCOUNT RATE:** 7.50% per annum, compounded annually.

**HEALTH CARE COST TREND RATES:** Following is a chart detailing trend assumptions.

Year	Pre-Medicare Medical Trend	Medicare-Eligible Medical Trend
2019	7.00%	5.00%
2020	6.50%	4.75%
2021	6.00%	4.50%
2022	5.50%	4.50%
2023	5.25%	4.50%
2024	5.00%	4.50%
2025	4.75%	4.50%
2026 and beyond	4.50%	4.50%

**AGING ADJUSTMENT:** Per capita pre-Medicare eligible costs are adjusted to reflect expected cost changes related to age. Following is a chart detailing the assumed increase to the net incurred claims.

	Participant Age	Annual Increase
	< 50	0.0%
ı	50 – 54	3.3
١	55 – 59	3.6
	60 – 64	4.2
l		



#### **FUTURE PARTICIPATION AND COVERAGE ELECTIONS**

Current inactives are assumed to maintain current plan and coverage tier elections. Current active employees are assumed to make the following plan, coverage tier and participation elections:

Future Retiree Plan Election

Pre-Med	licare	Medicare Eligible			
65%	HMO	100%	Extend Health		
15%	PPO				
5%	OAP				
15%	Kaiser				

Future Retiree Participation: (If currently electing coverage, 0% if currently waiving coverage)

Grandfathered Future Retirees 95%

Non - Grandfathered Future Retirees	Based on service at retirement	
	10 – 14 years service at retirement	60%
	15 – 19 years service at retirement	70%
	20 – 24 years service at retirement	80%
	25 - 20 years service at retirement	90%

30+ years service at retirement 95%

Future Retiree Spouse Coverage 70% for Males 25% for Females

Wives are assumed to be 3 years younger than their husbands.

**MONTHLY MEDICAL/RX CLAIMS (HMO, PPO, OAP, MA):** Following is a chart detailing expected claims for pre Medicare for the year following the valuation date. Claims are age-adjusted to age 65.

	Medical/Rx	Medical/Rx	Medical/Rx	Medical/Rx
	HMO	PPO	OAP	Kaiser
Pre-65	\$ 1,362.22	\$ 1,399.02	\$ 1,115.18	\$ 904.40

In 2019 the monthly stipend was \$348.40 for retirees and \$265.20 for spouses. We have assumed the stipend will increase with Medicare-eligible medical trend.



**MONTHLY MEDICAL/RX CONTRIBUTIONS:** Following is a chart detailing expected premium or stipend amounts upon which the service based contributions will be based for the year following the valuation date. Amounts shown are for Single coverage as of January 1, 2019.

Medical/Rx Medical/Rx		Medical/Rx	Medical/Rx	Medicare	
Kaiser HMO		PPO	OAP	Eligible	
\$560.50	\$688.96	\$855.28	\$704.60		

Effective January 1, 2012, a spousal surcharge of \$100 per month will be charged to all employees who elect spousal coverage if the spouse has coverage available. It is assumed that 5% of pre-Medicare eligible retirees who cover spouses pay the spousal surcharge. The spousal surcharge is not assumed to increase.

**ACTUARIAL METHOD:** Costs were determined using the Projected Unit Credit Actuarial Cost Method. The annual service cost is the present value of the portion of the projected benefit attributable to participation service during the upcoming year, and the Actuarial Accrued Liability (AAL) is equal to the present value of the portion of the projected benefit attributable to service before the valuation date. Service from hire date through full retirement eligibility date was used in allocating costs.

**MORTALITY:** Pre-retirement mortality:

RP-2000 Employee projected to 2025 using scale BB, sex distinct

No Set back / Set forward

Post-retirement mortality:

RP-2000 Combined projected to 2025 using scale BB, sex distinct

Set forward 2 years for both Male & Female lives





Representative values of the assumed annual rates of withdrawal are shown in the following tables.

#### General Employees - Male

	Years of Service											
Age	< 1	1	2	3	4	5	6	7	8	9	10	11+
20	30.00%	25.00%	20.00%	13.00%	12.00%	12.00%	10.00%	10.00%	6.00%	6.00%	6.00%	4.00%
25	27.00	25.00	20.00	13.00	12.00	12.00	10.00	10.00	6.00	6.00	6.00	4.00
30	26.00	25.00	20.00	13.00	12.00	12.00	10.00	10.00	6.00	6.00	6.00	4.00
35	25.00	20.00	15.00	13.00	12.00	10.50	10.00	10.00	6.00	6.00	6.00	3.00
40	24.00	17.50	13.00	13.00	12.00	9.00	9.00	9.00	5.00	5.00	5.00	2.00
45	20.00	15.00	10.00	9.00	7.00	6.00	8.00	8.00	4.00	4.00	4.00	2.00
50	15.00	12.50	8.00	8.00	5.00	3.00	5.00	5.00	3.00	3.00	3.00	2.00
55	7.50	8.00	6.00	7.00	5.00	2.00	3.00	3.00	2.00	2.00	2.00	1.50
60	2.50	4.00	3.00	6.00	5.00	1.50	1.50	1.50	1.00	1.00	1.00	1.00
65	0.00	0.00	0.00	5.00	5.00	1.00	1.00	1.00	0.50	0.50	0.50	0.25

#### General Employees - Female

		Years of Service										
Age	< 1	1	2	3	4	5	6	7	8	9	10	11+
20	30.00%	22.50%	17.00%	17.00%	14.00%	12.00%	9.00%	9.00%	9.00%	7.00%	6.00%	4.50%
25	30.00	22.50	17.00	17.00	14.00	12.00	9.00	9.00	9.00	7.00	6.00	4.50
30	30.00	22.50	17.00	17.00	13.00	12.00	9.00	8.00	8.50	7.00	6.00	4.50
35	30.00	22.50	13.00	15.00	9.00	12.00	7.50	7.00	7.50	7.00	6.00	3.75
40	25.00	22.50	9.00	9.00	7.00	10.50	6.50	6.00	6.00	6.00	5.00	2.75
45	20.00	16.00	9.00	7.00	7.00	7.00	5.50	4.50	4.50	4.50	4.00	2.00
50	15.00	12.00	9.00	6.00	6.00	6.00	4.50	3.00	3.50	3.50	3.00	1.50
55	15.00	8.00	9.00	5.00	5.00	5.00	3.50	2.00	2.00	2.00	2.00	1.00
60	15.00	8.00	9.00	4.00	4.00	4.00	2.50	1.00	1.50	1.50	1.00	0.75
65	15.00	8.00	9.00	4.00	4.00	4.00	1.50	0.50	0.50	0.50	0.50	0.50



#### **Public Safety**

	_	Years of Service										
Age	< 1	1	2	3	4	5	6	7	8	9	10	11+
20	15.00%	8.00%	10.00%	8.00%	7.50%	5.00%	6.50%	6.00%	2.50%	3.50%	2.50%	2.50%
25	15.00	8.00	10.00	8.00	7.50	5.00	6.50	6.00	2.50	3.50	2.50	2.50
30	15.00	8.00	10.00	8.00	7.50	5.00	6.50	5.00	2.50	3.50	2.50	2.50
35	15.00	8.00	10.00	8.00	7.50	5.00	6.50	4.00	2.50	3.50	2.50	2.35
40	15.00	8.00	10.00	8.00	7.50	5.00	6.50	3.00	2.50	3.50	2.50	1.25
45	15.00	8.00	10.00	8.00	7.50	5.00	6.50	2.00	2.50	3.50	2.50	0.85
50	15.00	8.00	10.00	8.00	7.50	5.00	6.50	1.00	2.50	3.50	2.50	0.25

### **Superior Court and State Court Judges**

Age	Rate
20	4.0%
25	4.0
30	4.0
35	4.0
40	6.0
45	4.0
50	3.0
55	2.5
60	2.5
65	2.5



Representative values of the assumed annual rates of retirement are shown in the following tables.

Traditional & Hybrid Plan General Employees hired prior to January 1, 2007

Age	10	15	20	25	30
50	0.0%	0.0%	0.0%	0.0%	60.0%
55	5.0	5.0	5.0	35.0	20.0
60	5.0	5.0	35.0	5.0	5.0
65	35.0	35.0	35.0	35.0	35.0
66	31.0	31.0	31.0	31.0	31.0
67	27.5	27.5	27.5	27.5	27.5
68	27.5	27.5	27.5	27.5	27.5
69	27.5	27.5	27.5	27.5	27.5
70	100.0	100.0	100.0	100.0	100.0

Traditional & Hybrid Plan General Employees hired on or after January 1, 2007

	Years of Service										
Age	10	15	20	25	30						
55	5.0%	5.0%	5.0%	35.0%	35.0%						
60	5.0	5.0	35.0	5.0	5.0						
65	35.0	35.0	35.0	35.0	35.0						
66	31.0	31.0	31.0	31.0	31.0						
67	27.5	27.5	27.5	27.5	27.5						
68	27.5	27.5	27.5	27.5	27.5						
69	27.5	27.5	27.5	27.5	27.5						
70	100.0	100.0	100.0	100.0	100.0						



Traditional & Hybrid Plan Public Safety Employees hired prior to January 1, 2007

	Years of Service								
Age	10	15	20	25	30				
50	0.0%	0.0%	0.0%	0.0%	70.0%				
55	7.5	7.5	7.5	50.0	25.0				
60	3.5	3.5	45.0	25.0	25.0				
65	50.0	50.0	50.0	50.0	50.0				
66	50.0	50.0	50.0	50.0	50.0				
67	100.0	100.0	100.0	100.0	100.0				

#### Traditional & Hybrid Plan Public Safety hired on or after January 1, 2007

	Years of Service									
Age	10	15		20	25	30				
55	7.5%	7.5%		7.5%	50.0%	50.0%				
60	3.5	3.5		45.0	25.0	25.0				
65	50.0	50.0		50.0	50.0	50.0				
66	50.0	50.0		50.0	50.0	50.0				
67	100.0	100.0		100.0	100.0	100.0				

#### **Superior Court and State Court Judges**

Age	Rate			
60	15%			
61	10			
62	12			
63-64	10			
65-69	15			
70-74	25			
75	100			



#### **SCHEDULE E**

### SUMMARY OF MAIN PLAN PROVISIONS AS INTERPRETED FOR VALUATION PURPOSES

**ELIGIBILITY:** Eligible employees will include employees retiring from Cobb County and electing medical coverage at retiree rates.

#### **RETIREMENT:**

#### **Normal Retirement**

For employees hired before January 1, 2009, the first day of the calendar month coinciding with or next following the participant's 65<sup>th</sup> birthday, or if later, the day the participant completes 7 years of service. However, for any participant who has met all of the requirements to be eligible to retire under the Normal Retirement or Rule of 80 provisions as of December 31, 2008, the Normal Retirement Date shall remain the later of age 65 and the completion of 5 years of service.

For employees hired on or after January 1, 2009, the later of age 65 or 10 years of service.

For employees hired on or after January 1, 2010, the later of Social Security Normal Retirement Age or 10 years of service.

#### **Rule of 80 Retirement**

For employees hired before January 1, 2007, age and service must total 80.

Employees hired on or after January 1, 2007 will only qualify for the Rule of 80 if they reach a minimum of age 55 or 35 years of service in addition to satisfying the other requirements.

#### **Early Retirement**

For employees hired before January 1, 2009: 55 with 7 years of service

For employees hired on or after January 1, 2009: 55 with 10 years of service

#### Disability

10 years of service

#### **ELIGIBILITY FOR HEALTH BENEFITS:**

Effective January 1, 2007 (for Employees hired prior to January 1, 2006):

- All full-time employees with seven (7) or more years of service as of the effective date will be eligible
  to continue medical coverage with ten (10) years of service at termination of employment
  immediately before commencement of retirement benefits.
- All full-time employees with less than seven (7) years of service as of the effective date will be eligible
  to continue medical coverage with fifteen (15) years of service at termination of employment
  immediately before commencement of retirement benefits.



 Effective January 1, 2010 – Employees within this definition of eligibility who elect to retire prior to age 65 and prior to 15 years of service may participate in the health benefit until the end of the month of their 65<sup>th</sup> birthday. Cobb County will contribute 2.5 percent of health premium cost for each full year of service up to a maximum of 30 years of service (75%).

Effective January 1, 2006 (Employees hired on or after January 1, 2006):

 All full-time new hires will be eligible to continue medical coverage with twenty (20) years of service at termination of employment to immediately commence retirement.

#### Effective January 1, 2009:

 All full-time new hires or rehires will be eligible to continue medical coverage with thirty (30) years of service at termination of employment to immediately commence retirement.

#### Effective January 1, 2010:

- Cobb County will continue 2.5 percent of health premium cost for each year of service up to a maximum of 30 years of service (75%). Those employees meeting eligibility requirements for retiree health coverage prior to January 1, 2010 will not be subject to this provision.
- All disabled Employees of Cobb County Government if:
  - They were disabled on or after November 1, 1998;
  - They are eligible and receive monthly compensation benefits from the Cobb County Government Board of Commissioners group Long Term Disability Plan; and
  - They have been continuously covered for medical care benefits for at least ten years as an Employee (or as his Spouse's dependent) under the Health Benefit Plan or under any other policy or plan sponsored or arranged by the sponsor, just before the date of his disability.

RETIREE CONTRIBUTIONS: Effective January 1, 2013, Cobb County Medicare Eligible retirees will no longer be covered under the Cobb County Group Plan and instead will be extended coverage through individual health insurance policies administered by Extend Health. Premiums will be reimbursed by Cobb County through a stipend into a non-taxable HRA (health reimbursement account). In 2013 the monthly stipend was \$335 for retirees and \$255 for spouses. This amount remained level for 2014 and increased 4% for 2015 to \$348.40 for retirees and \$265.20 for spouses. The amount has remained level through 2019. We have assumed the stipend amount will increase with Medicare-eligible medical trend. Pre-Medicare eligible retiree premiums are determined based on a cost-sharing arrangement and, therefore, increase with medical trend as claims costs increase.

Effective January 1, 2010, Cobb County will contribute 2.5% of the health premium cost or stipend for each year of service up to a maximum of 30 years of service. Therefore, Cobb County will pay a portion of the retiree health premium or stipend, up to a maximum of 75%, with the retiree paying the remaining premium amount. Current retirees or those eligible to retire by January 1, 2010 with at least 10 years of service are not impacted by the change.

Effective January 1, 2012, a spousal surcharge of \$100 per month will be charged to all employees who elect spousal coverage if the spouse has coverage available. The spousal surcharge is not assumed to increase.



The experience and dedication you deserve

# Cobb County Government Employees Pension Plan & Retiree Health Benefit Plan (OPEB)

**January 1, 2019 Valuation Results** 

June 5, 2019 Board Meeting

Alisa Bennett, FSA, EA, FCA, MAAA Principal and Consulting Actuary Joseph Walls Senior Consultant



## **Benefit Financing**



Basic Retirement Funding Equation

$$C + I = B + E$$

C = Contributions

I = Investment Income

B = Benefits Paid

E = Expenses (administration)

## **Comments on Pension Plan Valuation**



#### Asset returns

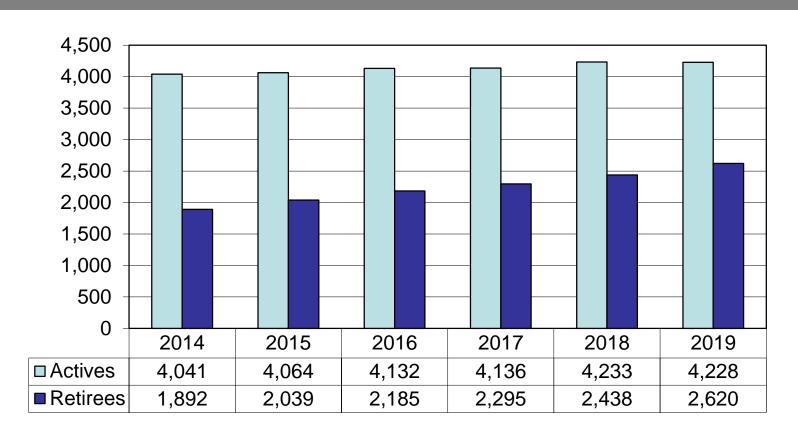
- Market asset return -5.80% vs. 7.50% expected return (13.30% less than expected).
- Actuarial asset return 4.99% vs. 7.50% expected (2.51% less than expected).
- Traditional Participants and Hybrid Participants
  - First time the number of active Hybrid Participants exceeds the number of active Traditional Participants
  - Hybrid Participants account for approximately 1.1% of total Actuarial Accrued Liability (AAL)
- ➤ Employee contribution rate for participants in traditional plan increased from 7.50% to 7.75% in March 2019



# Pension Plan Membership Data

## **Active and Retired Membership**

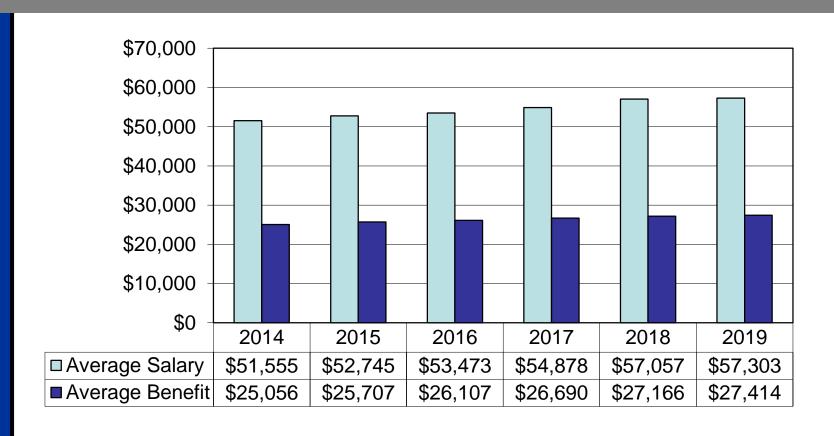




- 0.9% annual increase for active members since 2014; 0.1% decrease for 2019.
- 6.7% annual increase for retired members since 2014; 7.5% increase for 2019.
- 0.5 retirees per active 5 years ago; 0.6 retirees per active now.

# **Average Salary and Benefits**

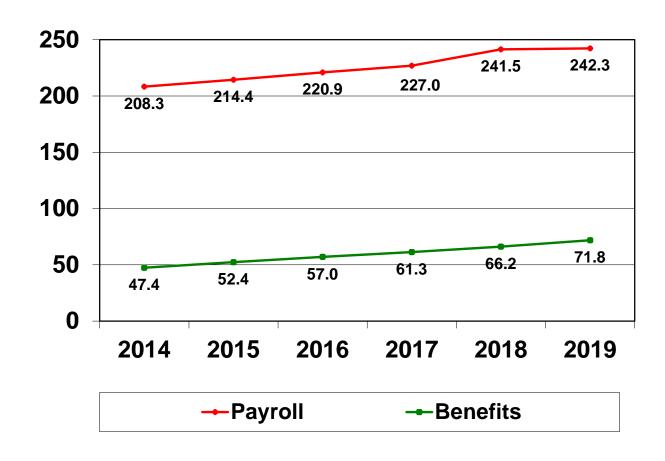




- 2.1% annual increase for average salary since 2014; 0.4% increase for 2019.
- 1.8% annual increase for average benefits since 2014; 0.9% increase for 2019.

# Payroll & Benefits (\$ Millions)





# **Average Age & Service**



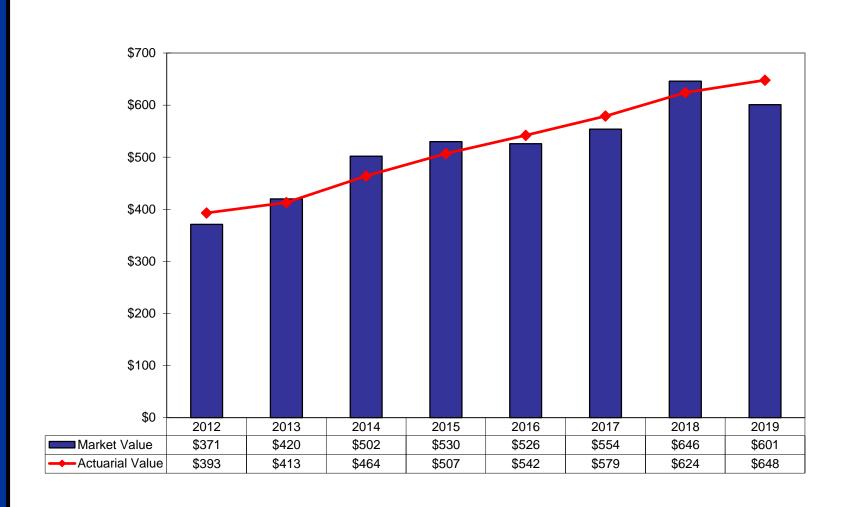
	January 1, 2018	January 1, 2019		
Active Average Age	42.9	42.9		
Active Average Service	10.9	10.7		
		22.4		
Average Age Retirees	67.9	68.1		
Average Age Beneficiaries	69.4	69.6		



# Pension Plan Market and Actuarial Value of Assets

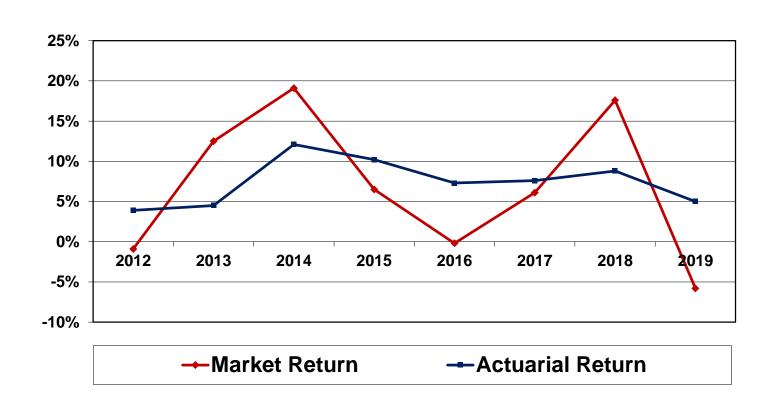
# Pension Assets (excluding CIGNA) (\$ Millions)





# **Asset Returns (excluding CIGNA)**





	2012	2013	2014	2015	2016	2017	2018	2019
Market Return	(0.9)%	12.5%	19.1%	6.5%	(0.2)%	6.1%	17.6%	(5.8)%
Actuarial Return	3.9%	4.5%	12.1%	10.2%	7.3%	7.6%	8.8%	5.0%



## Pension Plan Funding Results

## **Results of Pension Plan Valuation**



	January 1, 2018 Valuation (Fiscal Year 2018/2019 Contributions)	January 1, 2019 Valuation (Fiscal Year 2019/2020 Contributions)
(1) Covered Compensation for Active Participants	\$241,522,135	\$242,278,837
(2) Actuarial Accrued Liability (AAL)	\$1,196,925,887	\$1,250,149,337
(3) Actuarial Value of Assets	\$624,082,110	\$647,892,847
(4) Unfunded Actuarial Accrued Liability (UAAL) [(2) - (3)]	\$572,843,777	\$602,256,490
(5) Amortization of UAAL as % of Covered Payroll	17.04%	18.25%
(6) Normal Cost as % of Covered Payroll	11.32%	11.06%
(7) Expected Employee Contribution Rate (Blended)	<u>5.78%</u>	<u>5.76%</u>
(8) Net Normal Cost Rate [(6) - (7)]	5.54%	5.30%
(9) Total County Actuarially Determined Contribution (ADEC) [(5) + (8)]	22.58%	23.55%
(10) Funded Ratio (including CIGNA)	52.2%	51.9%
(11) UAAL Amo8tization Period	25 years	24 years

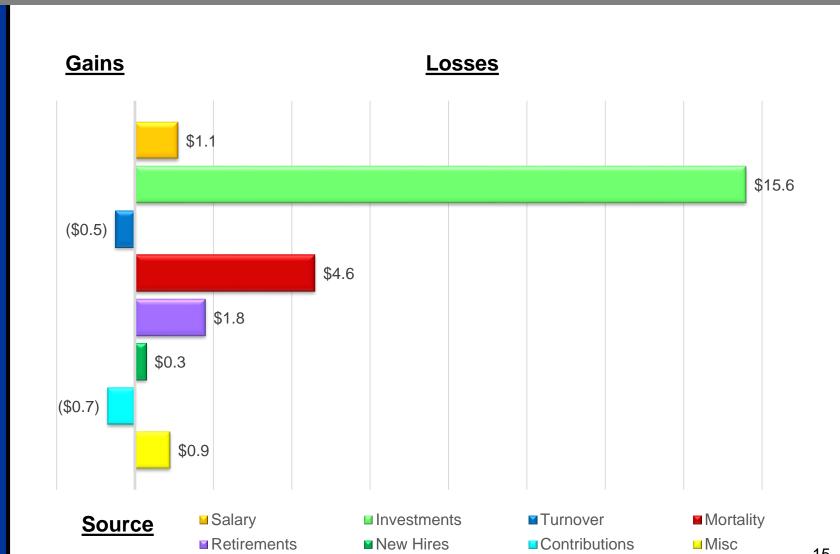
## Historical Accrued Liability and Funded Ratio (including CIGNA)





## **Changes In Actuarial Unfunded Accrued Liability (UAAL)** (\$ Millions)







## **ASOP 51**



- > New ASOP on Assessment and Disclosure of Risk
  - Applies to funding valuations (not GASB), projections and pricing of proposed plan changes
  - Effective for work products with <u>measurement date on or</u> <u>after November 1, 2018</u>
  - "Risk" is defined as the potential of <u>actual</u> future measurements deviating from <u>expected</u> results due to actual experience that is different than the actuarial assumptions

## **ASOP 51**



- Actuary is to identify risks that may affect the Plan's future financial condition
- > Examples in ASOP 51 that are relevant for most public plans
  - Investment risk
    - potential that return will be different than expected
  - Longevity risk
    - potential that mortality experience will be different than expected
  - Covered payroll risk
    - potential that covered payroll will not increase as assumed (especially important if UAL is amortized as level percent of payroll)
  - Active Population risk
    - potential for number of active members to decline or plan closed to new entrants
  - Contribution rate risk
    - potential for contribution rates to be too high for the plan sponsor/employer to pay



## > Investment Risk

- Largest risk to funding a pension plan
- Asset Volatility Ratio (AVR), defined as the market value assets divided by covered payroll

Valuation	Market Value of Assets*	Covered Payroll	Asset Volatility Ratio
2012	\$371,212,368	\$203,902,310	1.82
2013	\$420,026,583	\$207,329,285	2.03
2014	\$502,039,182	\$208,332,028	2.41
2015	\$530,109,603	\$214,354,687	2.47
2016	\$526,392,135	\$220,949,172	2.38
2017	\$554,303,423	\$226,975,245	2.44
2018	\$645,795,635	\$241,522,135	2.67
2019	\$601,439,567	\$242,278,837	2.48

<sup>\*</sup> Not including CIGNA annuity contract amounts



## > Investment Risk

- Useful to consider how the AVR translates into changes in the Required Contribution Rate
- Example, if the market return is 10% below assumed rate, the ADEC will increase by the following amounts dependent on the Plan's AVR

AVR	Unsmoothed Amortization	Smoothed Amortization
1.0 2.0 3.0 4.0	0.73% 1.47% 2.20% 2.94%	0.15% 0.29% 0.44% 0.59%
7.0	2.7470	0.37/0



- Sensitivity Measures
  - To enhance the understanding of the importance of an assumption, a sensitivity test can be performed with a different set of assumptions

As of January 1, 2019	Current Discount Rate (7.50%)	-1% Discount Rate (6.50%)	+1% Discount Rate (8.50%)
Plan's Normal Rate	5.30%	7.20%	3.79%
Accrued Liability	\$1,250.1	\$1,398.6	\$1,126.6
Unfunded Liability	\$602.3	\$750.7	\$478.7
Funded Ratio	51.9%	46.4%	57.6%



# Health Benefit Plan Funding Results

## **Comments on OPEB Valuation**



- ➤ OPEB valuation includes 114 active employees eligible for health but not pension whose compensation totals \$6.9 million.
- UAL amortization period 24 years, closed.
- ➤ UAL amortized as a level percentage of pay. Total payroll assumed to increase by 2.5% per year.
- Projected Unit Credit cost method used for funding. GASB 74/75 will require Entry Age Normal (EAN) funding method, similar to GASB 67/68.

## **Comments on OPEB Valuation**



- Market value of assets used for valuation purposes. As assets accumulate, may consider changing to an asset smoothing method to reduce volatility.
- ➤ \$18.8 million investment loss was all recognized in this valuation. Using a 5-year smoothing method, only \$3.8 million investment loss would be recognized in this valuation, but a \$3.8 million investment loss would continue to be recognized each year over the next 4 years.
- > \$6.8 million gain due to favorable claims experience.
- ➤ Actuarially determined contribution as a percentage of payroll increases from 7.83% last year to 7.95%. With asset smoothing, rate estimated to be 7.54% instead of 7.95%.

## OPEB Valuation Headcounts and Liabilities



#### Active Headcounts and Liabilities

	Grandfa	Grandfathered Non-Grandfathered		Non-Grandfathered		Total
Service needed for benefit	Number	Liability	Number	Liability	Number	Liability
10	30	\$1,962,496	746	\$74,509,574	776	\$76,472,070
15	2	81,258	798	39,363,417	800	39,444,675
20	0	0	487	10,344,595	487	10,344,595
30	0	0	2,279	3,824,985	2,279	3,824,985
TOTAL	32	\$2,043,754	4,310	\$128,042,571	4,342	\$130,086,325

1,743 retirees with liability totaling \$173,601,045.

## **Results of Health Benefit Plan Valuation**



	January 1, 2019 Valuation (Fiscal Year 2019/2020 Contributions)	January 1, 2018 Valuation (Fiscal Year 2018/2019 Contributions)
(1) Covered Compensation for Active Participants	\$249,164,033	\$248,606,290
(2) Actuarial Accrued Liability (AAL)	\$303,687,370	\$299,448,170
(3) Actuarial Value of Assets	<u>\$113,097,682</u>	<u>\$117,114,714</u>
(4) Unfunded Actuarial Accrued Liability (UAAL) [(2) - (3)]	\$190,589,688	\$182,333,456
(5) Amortization of UAAL as % of Covered Payroll	5.22%	4.90%
(6) Normal Cost as % of Covered Payroll	2.73%	2.93%
(7) Expected Employee Contribution Rate	0.00%	<u>0.00%</u>
(8) Net Normal Cost Rate [(6) - (7)]	2.73%	2.93%
(9) Total County Actuarially Determined Contribution (ARC) [(5) + (8)]	7.95%	7.83%
(10) Funded Ratio	37.2%	39.1%
(11) UAAL Amortization Period	24 years	25 years

## DEVELOPMENT OF THE ACTUARIAL (GAIN)/LOSS



1. UNFUNDED ACCRUED LIABILITY (UAL) 1/1/2018	\$ 182,333,456
2. NORMAL COST 1/1/2018	\$ 7,286,442
3. EXPECTED EMPLOYER CONTRIBUTIONS (Beginning of Year) (ADC calculated in 1/1/2018 valuation)	\$ 19,471,390
4. INTEREST ACCRUAL [(1) + (2) - (3)] x .075	\$ 12,761,138
5. EXPECTED UAL 1/1/2019 [(1) + (2) - (3) + (4)]	\$ 182,909,646
6. GAIN DUE TO CLAIMS AND PREMIUM EXPERIENCE	\$ (6,765,429)
7. LOSS DUE TO ASSET EXPERIENCE	\$ 18,795,895
8. EXPECTED UAL 1/1/2019 AFTER CHANGES (5) + (6) + (7)	\$ 194,940,112
9. ACTUAL UAL AS OF 1/1/2019	\$ 190,589,688
10. EXPERIENCE (GAIN)/LOSS (9) – (8)	\$ (4,350,424)
11. GAIN AS A % OF LY AL	(1.45%)

## **Additional Items for Discussion**



➤ 30 year Projections



The experience and dedication you deserve



Cobb County...Expect the Best!

Report of the Actuary on the Annual

Valuation of Cobb County Government Employees' Pension Plan

Prepared as of January 1, 2019





The experience and dedication you deserve

May 24, 2019

Board of Trustees Cobb County Government Employees' Pension Plan 100 Cherokee Street, Suite 200 Marietta, GA 30090-9679

Dear Members of the Board:

We are pleased to submit herewith the results of the annual actuarial valuation of the Cobb County Government Employees' Pension Plan prepared as of January 1, 2019. The purpose of this report is to provide a summary of the funded status of the Plan as of January 1, 2019 and recommend rates of employer contribution for the fiscal year beginning October 1, 2019. While not verifying the data at source, the actuary performed tests for consistency and reasonability. Separate reports will be prepared to provide accounting information under Governmental Accounting Standards Board Statements No. 67 and 68.

The promised benefits of the Plan are included in the actuarially determined employer contribution rates which are developed using the projected unit credit cost method. Gains and losses are reflected in the unfunded actuarial accrued liability that is being amortized by regular annual contributions as a level percentage of payroll over a 24-year period. The assumptions recommended by the actuary are in the aggregate reasonably related to the experience under the Plan and to reasonable expectations of anticipated experience under the Plan.

The valuation has been prepared in accordance with the parameters set forth in the Plan's funding policy. The annual actuarially determined contribution (ADC) of the County for the year beginning October 1, 2019 is 23.55% of payroll, which is expected to liquidate the unfunded actuarial accrued liability over a 24-year period. The amortization of the unfunded actuarial accrued liability uses a level percentage of payroll method, assuming payroll will grow 2.50% annually.

Assuming that the annual required employer contributions to the Plan are made by the County from year to year in the future at the rates recommended on the basis of the successive actuarial valuations, the continued sufficiency of the retirement fund to provide the benefits called for under the Plan may be safely anticipated.



**Board of Trustees** May 24, 2019 Page 2

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

The actuarial computations presented in this report are for purposes of determining the recommended funding amounts for the Plan. Use of these computations for purposes other than meeting these requirements may not be appropriate.

This is to certify that the independent consulting actuaries listed below are Members of the American Academy of Actuaries and have experience in performing valuations for public retirement systems. The valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board and the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the Plan and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the Plan.

We trust that the report will meet the approval of the Board and will furnish the desired information concerning the financial condition of the Plan.

Respectfully submitted,

week walk

Edward J. Howbel

Joseph Walls

Ben Mobley, ASA, FCA, MAAA Senior Consultant Senior Actuary

Edward J. Koebel, EA, FCA, MAAA Principal & Consulting Actuary



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#### **Summary of Results**

For convenience of reference, the principal results of the current valuation and the preceding valuation are summarized below.

Valuation Date	Ja	nuary 1, 2019	Ja	nuary 1, 2018
Active Participants:				
a. Traditional Plan Number Valuation compensation	\$	2,100 143,775,525	\$	2,299 151,982,475
b. Hybrid Plan Number Valuation compensation	\$	2,110 96,104,629	\$	1,916 87,175,763
c. Judges Plan Number Valuation compensation <sup>1</sup>	\$	18 2,398,683	\$	18 2,363,897
d. Total Active Participants Number Valuation compensation	\$	4,228 242,278,837	\$	4,233 241,522,135
Retired Participants and Beneficiaries: <sup>2</sup> a. Number b. Total Annual Benefits	\$	2,620 71,824,197	\$	2,438 66,229,538
Number of Terminated Vested Participants Assets: <sup>3</sup>		962		957
a. Market Value b. Actuarial Value	\$ \$	601,439,567 647,892,847	\$ \$	645,795,635 624,082,110
Actuarial Accrued Liability	\$	1,250,149,337	\$	1,196,925,887
Unfunded actuarial accrued liability	\$	602,256,490	\$	572,843,777
Amortization Period		24 years		25 years
Contribution Rates for Year Beginning	(	October 1, 2019		October 1, 2018
Total Actuarially Determined Contribution (ADC) Ra a. Employer Contribution Rate b. Employee Contribution Rate c. Total Contribution Rate	tes	23.55% <u>5.76%</u> 29.31%		22.58% 5.78% 28.36%
County ADC  a. Net Normal Cost Rate  b. Unfunded Accrued Liability Rate  c. Total County ADC		5.30% <u>18.25%</u> 23.55%		5.54% <u>17.04%</u> 22.58%

Valuation compensation includes total salary for State Court Judges, including amounts subject to the State Judge Salary Limit.

<sup>&</sup>lt;sup>2</sup> Retirees and beneficiaries covered under an annuity contract with CIGNA are not included above.

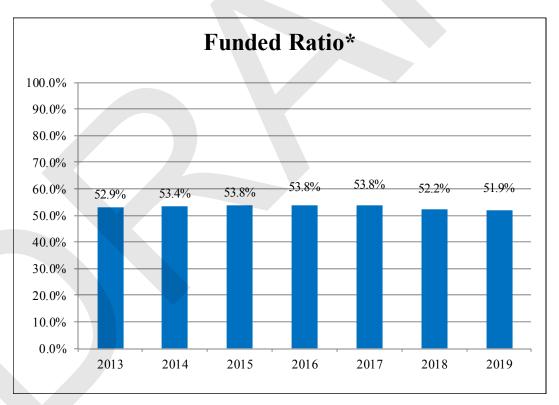
The assets do not include the CIGNA annuity contract amounts of \$1,400,000 as of December 31, 2018 and \$1,600,000 as of December 31, 2017.



A. The promised benefits of the Cobb County Government Employees' Pension Plan are included in the actuarially calculated contribution rates which are developed using the projected unit credit cost method. Annual gains and losses from investment and demographic experience are reflected in the unfunded actuarial accrued liability that is being amortized by regular annual contributions as a level percentage of payroll over a 24-year period. The assumptions recommended by the actuary are in the aggregate reasonably related to the experience under the Plan and to reasonable expectations of anticipated experience under the Plan.

The valuation has been prepared in accordance with Georgia funding standards as set forth in Code Section 47-20-10 of the Georgia Public Retirement System Standards and the funding policy adopted by the County. The actuarially determined contribution (ADC) of the County for the year beginning October 1, 2019 is 23.55% of payroll, which is expected to liquidate the unfunded actuarial accrued liability over a 24-year period.

The following table represents the County's historical funded ratio for the past seven years. The funded ratio represents the percentage of the plan actuarial accrued liability that is covered by the actuarial value of plan assets as of the valuation date.



<sup>\*</sup> The funded ratios above reflect the CIGNA annuity contract balances.



**B**. The major benefit and contribution provisions of the County as reflected in the valuation are summarized in Section IX. Section X provides a summary of recent plan provision changes during the last few plan years.

The valuation includes the employee contribution rate change from 7.50% to 7.75% effective March 2019 for participants in the Traditional Plan. The Traditional Plan employee contribution rate is increasing each year over a 13-year period from 5.00% in 2009 to 8.75% in 2023.

The employee contribution rate change increased the member composite contribution rate by 0.12% of pay and decreased the County's contribution by 0.12% of pay.

C. Section VII of this report outlines the full set of actuarial assumptions and methods used in the valuation. Section VIII provides a summary of recent changes during the last few plan years.

There have been no changes in actuarial assumptions and methods since the previous valuation.

- **D**. The projected unit credit cost method was used to prepare the valuation. Section VII contains a brief description of the actuarial cost method.
- E. Comments on the valuation results as of January 1, 2019 are given in Section I and further discussion of the contributions is set out in Section II.



#### **Contributions Payable**

- A. The Cobb County Government Employees' Pension Plan states that each participant shall contribute an amount equal to the Compensation multiplied by a specified percentage. Effective March 2019 the employee contribution rate will be set at 7.75% of compensation for employees participating in the Traditional Plan. For employees in the Hybrid Plan, the employee contribution rate is 3.00% of compensation. Therefore, the blended employee contribution rate in aggregate is 5.76% of compensation.
- B. The County contribution consists of two components. The first component is the normal cost. Under the projected unit credit cost method, the normal cost represents the cost of benefits for active participants that accrue over a one year period. Thus, for this year's valuation, this number represents the value of benefits accruing during the 2019 plan year. The normal cost is 11.06% of covered payroll. Of the 11.06%, the employees are expected to pay 5.76% which leaves 5.30% as the employer normal cost rate.
- C. The second component of the County contribution is the amortization of the unfunded actuarial accrued liability. According to the current Official Code of Georgia 47-20-10 the minimum funding standards are deemed to have been met if level percentage of payroll amortization method is used and the employer contribution is equal to or greater than the annual required contribution as determined in accordance with the provisions of GASB No. 25 and No. 27 as in effect on June 15, 2013. On this basis, the amortization cost for the year beginning October 1, 2019 is 18.25% of covered payroll based on a closed 24-year amortization period.
- **D**. Therefore, the total actuarially determined contribution to the Plan for the year beginning October 1, 2019 is 29.31% of covered payroll. The employee portion of this required contribution is 5.76% of covered payroll, while the County's portion of this required contribution is 23.55% of covered payroll.
- **E**. The following table summarizes the employer contribution which was determined as of January 1, 2019.

#### County Actuarially Determined Contribution (ADC) For Year Beginning October 1, 2019

	Percentage of Active
Contribution	Participants' Compensation
a. Net Normal Cost Rate	5.30%
b. Unfunded Actuarial Accrued Liability Rate	<u>18.25%</u>
c. Total County Contribution Rate	23.55%



F. The employer contribution rate has increased from 22.58% in last year's valuation to 23.55% in the current valuation. The principal reason for the contribution rate increase was an investment rate of return less than the assumed rate of return. The actuarial value rate of return in 2018 was approximately 4.99% compared to an expected investment return rate of 7.50%, which resulted in a \$15.6 million actuarial loss. See page 10 of this report for a complete breakdown of actuarial gains and losses for the year.

#### **Assets**

As of January 1, 2019 the total Market Value of Assets amounted to \$601,439,567. The Actuarial Value of Assets used for the current valuation was \$647,892,847. Section IV shows the development of the Actuarial Value of Assets as of January 1, 2019. The method for determining the Actuarial Value of Assets recognizes investment gains and losses over a five year period. The Plan assets exclude the value of the CIGNA annuity contract of \$1,400,000 as of January 1, 2019. Asset information was provided by the Plan's Custodian.

#### **Comments on the Valuation**

A. Section II of this report contains the valuation balance sheet which shows the present assets and liabilities of the Plan as of January 1, 2019. The valuation was prepared in accordance with the actuarial assumptions and the actuarial cost method set forth in Section VII. The valuation balance sheet shows that the Plan has a total actuarial accrued liability of \$1,250,149,337. The liability on account of present retired participants and beneficiaries of deceased participants is \$714,478,481. Terminated participants account for \$42,224,040 of the liability and \$493,446,816 of the actuarial accrued liability is associated with the active participants. Against these liabilities, the Plan has actuarial value of assets of \$647,892,847 as of January 1, 2019.

There remains \$602,256,490 as the amount of unfunded actuarial accrued liability. The amount necessary to fully amortize the unfunded actuarial accrued liability over a 24-year period is 18.25% of payroll. The development of the unfunded actuarial accrued liability is shown in Section II.

The normal cost contribution rate is equal to the actuarial present value of benefits accruing during the current year divided by the annual active participant's payroll. For the 2019 plan year, the total normal cost contribution rate is determined to be 11.06% of payroll and is determined under the projected unit credit method.

**B.** The valuation does not include actuarial liabilities or assets with respect to retiree and beneficiary benefits payable from a CIGNA annuity contract. The valuation does include cost-of-living increases payable from the Plan with respect to these retirees and beneficiaries.



#### **Normal Cost**

The Normal Cost component of the contribution represents active participant benefits accruing during the 2019 plan year. The following tables show the Normal Cost attributable to plan benefits under the current plan.

		<b>January 1, 2019</b>	<b>January 1, 2018</b>
1.	Normal Cost (End of Year)		
	a. Retirement Benefits	\$ 24,905,323	\$ 25,416,356
	b. Termination Benefits	1,457,832	1,467,548
	c. Death Benefits	448,392	<u>463,916</u>
	d. Total	\$ 26,811,547	\$ 27,347,820
2.	Valuation Payroll	\$242,278,837	\$ 241,522,135
3.	Normal Cost as a Percent of Payroll (1) ÷ (2)	11.06%	11.32%

	Normal Cost by Employee/Employer and Plan Type					
		Total	Employee	Employer		
1.	Normal Cost Dollar Amount (End of Y	(ear)				
	a. Traditional Plan	\$23,584,595	\$11,082,697	\$12,501,898		
	b. Hybrid Plan	3,203,243	2,883,139	320,104		
	c. Judges Plan	23,709	<u>0</u>	<u>23,709</u>		
	d. Total	\$26,811,547	\$13,965,836	\$12,845,711		
2.	Valuation Payroll					
	a. Traditional Plan	\$143,775,525	\$143,775,525	\$143,775,525		
	b. Hybrid Plan	96,104,629	96,104,629	96,104,629		
	c. Judges Plan	2,398,683	2,398,683	<u>2,398,683</u>		
	d. Total	\$242,278,837	\$242,278,837	\$242,278,837		
3.	Normal Cost as a Percent of Payroll					
	a. Traditional Plan [1(a) / 2(a)]	16.40%	7.71%	8.69%		
	b. Hybrid Plan [1(b) / 2(b)]	3.33%	3.00%	0.33%		
	c. Judges Plan [1(c) / 2(c)]	0.99%	0.00%	<u>0.99%</u>		
	d. Total [1(d) / 2(d)]	11.06%	5.76%	5.30%		



#### **Actuarial Accrued Liability**

The Actuarial Accrued Liability represents the obligations of the plan as of the valuation date for active and inactive participant benefits. The following table shows the components of the liability.

		January 1, 2019	<b>January 1, 2018</b>
1.	Actuarial Accrued Liability		
	a. Inactive Participants		
	i. Retired Participants and Beneficiaries	\$ 714,478,481	\$ 660,279,214
	ii. Terminated Vested Participants Deferred	42,224,040	41,149,949
	iii. Total Inactive	756,702,521	701,429,163
	b. Active Participants		
	i. Traditional & Judges Plan	\$ 479,949,720	\$ 484,824,793
	ii. Hybrid Plan	13,497,096	10,671,931
	iii. Total Active	493,446,816	495,496,724
2.	Total Actuarial Accrued Liability	\$ 1,250,149,337	\$ 1,196,925,887



#### **Development of the Unfunded Actuarial Accrued Liability**

The Unfunded Actuarial Accrued Liability represents the Actuarial Accrued Liability less the Actuarial Value of Assets. The Unfunded Actuarial Accrued Liability as of January 1, 2019 is \$602,256,490. In other words, the plan liabilities exceed the plan assets by this amount as of the valuation date. The following table shows the components of the Unfunded Actuarial Accrued Liability of the plan.

		<b>January 1, 2019</b>	<b>January 1, 2018</b>
1.	Actuarial Accrued Liability		
	a. Present Active Participants	\$ 493,446,816	\$ 495,496,724
	b. Present retired participants, beneficiaries and terminated participants entitled to deferred		
	vested benefits	756,702,521	701,429,163
	c. Total	\$1,250,149,337	\$1,196,925,887
2.	Actuarial Value of Assets	\$ 647,892,847	\$ 624,082,110
3.	Unfunded Actuarial Accrued Liability (1c.) - (2)	\$602,256,490	\$572,843,777



#### Development of the Unfunded Actuarial Accrued Liability (Continued)

(1)	Unfunded Accrued Liability (UAL) as of January 1, 2018	\$ 572,843,777
(2)	Interest at 7.50%	42,963,283
(3)	Expected unfunded accrued liability contribution at end of year	36,681,039
(4)	Expected UAL at January 1, 2019 (1) + (2) - (3)	579,126,021
(5)	Actual UAL at January 1, 2019	602,256,490
(6)	Total Gain / (Loss) (4) - (5)	(23,130,469)
(7)	Actuarial Asset Gain / (Loss)	(15,605,590)
(8)	Contribution Surplus / (Shortfall)	713,444
(9)	Plan Changes	0
(10)	Assumption and Method Changes	0
(11)	Liability Gain / (Loss) * (6) - (7) - (8) - (9) - (10)	\$ (8,238,323)

<sup>\* 0.7%</sup> of total actuarial accrued liability



#### Analysis of Total Gain / (Loss) January 1, 2018 to January 1, 2019 (\$ Millions)

(1)	Actuarial assets (return of 4.99%)	\$ (15.6)
(2)	Contribution surplus (shortfall) due to timing	0.7
(3) a.	Salary less (more) than expected	(1.1)
b.	Retirements and benefits different than expected	(1.8)
c.	New Plan participants	(0.3)
d.	Mortality	(4.6)
e.	Termination	0.5
f.	Data changes	0.1
g.	Rehires	(0.6)
h.	Miscellaneous	(0.4)
i.	Liability Gain/(Loss)	(8.2)
(4)	Plan changes	0.0
(5)	Assumption and method changes	0.0
(6)	Total Gain/(Loss) [item $(1) + (2) + (3)i + (4) + (5)$ ]	\$ (23.1)



#### **Development of the Annual Contribution**

The following exhibits show the development of the annual contribution. This contribution was developed using level percent of pay amortization of the unfunded actuarial accrued with a closed amortization period.

		<b>January 1, 2019</b>	<b>January 1, 2018</b>
1.	Actuarial Accrued Liability		
	a. Active Participants	\$ 493,446,816	\$ 495,496,724
	b. Retirees & Beneficiaries	714,478,481	660,279,214
	c. Deferred Vested	42,224,040	<u>41,149,949</u>
	d. Total	\$ 1,250,149,337	\$ 1,196,925,887
2.	Covered Compensation for Active Participants	\$ 242,278,837	\$ 241,522,135
3.	Actuarial Value of Assets	\$ 647,892,847	\$ 624,082,110
4.	Unfunded Actuarial Accrued Liability	\$ 602,256,490	\$ 572,843,777
5.	Amortization of Item (4) as a Percent of Covered Payroll	18.25%	17.04%
6.	Normal Cost as a Percent of Covered Payroll	11.06%	11.32%
7.	Total Contribution Rates		
	a. Employer Contribution Rate	23.55%	22.58%
	b. Estimated Employee Contribution Rate	<u>5.76%</u>	<u>5.78%</u>
	c. Total Contribution Rate to the Plan	29.31%	28.36%
8.	County ADC		
	a. Net Normal Cost Rate	5.30%	5.54%
	b. Unfunded Actuarial Accrued Liability Rate	<u>18.25%</u>	<u>17.04%</u>
	c. Total County ADC	23.55%	22.58%



#### **Valuation Balance Sheet**

The actuarial value of assets and actuarial accrued liabilities of the Plan as of January 1, 2019.

1.	Actuarial Accrued Liabilities		
	Active Participants		
	a. Retirement	\$ 475,086,632	
	b. Termination	12,025,715	
	c. Death	6,334,469	
	d. Total		\$ 493,446,816
	Inactive Participants		
	a. Retiree	\$ 689,098,819	
	b. Deferred Vested	42,224,040	
	c. Survivor	25,379,662	
	d. Total		\$ 756,702,521
	Total Actuarial Accrued Liabilities		\$ 1,250,149,337
2.	Assets		
	Actuarial Value of Assets		\$ 647,892,847
3.	Unfunded Actuarial Accrued Liability		
	(item 1 - item 2)		\$ 602,256,490



#### **Section III - Additional Disclosures**

Governmental Accounting Standards Board (GASB) sets forth certain items of required supplementary information and notes to be disclosed in the financial statements of the employer. The following exhibits are necessary for public sector defined benefit plans financial statements:

#### A. Plan Description:

The Cobb County Government Employees' Pension Plan is a single-employer defined benefit plan and the contributing entity is Cobb County. The employees covered are general employees and public safety employees. The Plan provides retirement benefits to participants according to provisions of the plan document normally in the form of a life annuity. The Plan may be amended at any time, at the sole discretion of the County.

The distribution of the number of employees by type of membership is as follows:

	Number of Participants as of January 1, 2019	
1.	Retired participants and beneficiaries currently receiving benefits*	2,620
2.	Terminated participants entitled to benefits but not yet receiving benefits	962
3.	Active Participants	<u>4,228</u>
4.	Total	7,810

<sup>\*</sup> Retirees and beneficiaries as of January 1, 2019 covered under an annuity contract with CIGNA are not included in the above counts.

#### B. Actuarial Methods and Assumptions are as follows:

Valuation date January 1, 2019 Projected Unit Credit Actuarial cost method Amortization method Level Percent of Pay – Closed Remaining amortization period 24 years Asset valuation method Five-year smoothed market value Actuarial assumptions: Investment rate of return (includes inflation) 7.50% Projected salary increases (includes inflation) 3.00-4.00% depending on age Inflation 2.50%



## **Section III – Additional Disclosures**

## a. Required Supplemental Information for the purpose of Financial Statements as of January 1, 2019

#### **Schedule of Funding Progress**

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
January 1, 2019	\$ 649,292,847	\$ 1,251,549,337	\$ 602,256,490	51.9%	\$ 242,278,837	248.6%
January 1, 2018	625,682,110	1,198,525,887	572,843,777	52.2%	241,522,135	237.2%
January 1, 2017	580,962,327	1,080,758,421	499,796,094	53.8%	226,975,245	220.2%
January 1, 2016	543,806,316	1,011,120,170	467,313,854	53.8%	220,949,172	211.5%
January 1, 2015	509,457,081	947,634,599	438,177,518	53.8%	214,354,687	204.4%
January 1, 2014	466,937,665	873,883,393	406,945,728	53.4%	208,332,028	195.3%
January 1, 2013	415,560,738	785,084,489	369,523,751	52.9%	207,329,285	178.2%

The actuarial value of assets and the actuarial accrued liability above include the following CIGNA annuity contract balances:

Actuarial Valuation Date	CIGNA Annuity Contract Balances		
January 1, 2019	\$ 1,400,000		
January 1, 2018	1,600,000		
January 1, 2017	1,814,527		
January 1, 2016	2,069,526		
January 1, 2015	2,346,370		
January 1, 2014	2,644,766		
January 1, 2013	2,964,130		



## **Section IV – Assets**

#### **Reconciliation of Market Value of Assets\***

1.	Market Value of Assets as of January 1, 2018	\$ 645,795,635
2.	Expenditures	
	a. Benefit Payments	\$ (69,267,999)
	b. Administrative Expenses	 (256,950)
	c. Total	\$ (69,524,949)
3.	Income	
	a. Employer Contributions	\$ 48,947,963
	b. Employee Contributions	13,434,109
	c. Other Receipts	 20,148
	d. Total	\$ 62,402,220
4.	Investment Income	
	a. Investment gains/losses	\$ (35,567,664)
	b. Investment expense	(1,665,675)
	c. Total	\$ (37,233,339)
5.	Asset Adjustment	0
6.	Market Value of Assets as of January 1, 2019	\$ 601,439,567
7.	Estimated Rate of Return on Market Value of Assets $[(2 \times 4.c.)/(1.+64.c.)]$	(5.80)%

<sup>\*</sup> The amounts above do not include the CIGNA annuity contract amounts of \$1,400,000 as of December 31, 2018 and \$1,600,000 as of December 31, 2017.





Development of Actuarial Value of Assets

The actuarial value of assets recognizes assumed investment income (line 5c) fully each year. Differences between actual and assumed investment income (line 5d) are phased in over a closed 5 year period. During periods when investment performance exceeds the assumed rate, the actuarial value will tend to be less than market value. During periods when investment performance is less than assumed, the actuarial value will tend to be greater than the market value.

	Valuation Date January 1:	2018	2019	2020	2021	2022	2023
1.	Actuarial Value Beginning of Year	\$ 579,147,800	\$ 624,082,110				
2.	Market Value End of Year	\$ 645,795,635	\$ 601,439,567				
3.	Market Value Beginning of Year	\$ 554,303,423	\$ 645,795,635				
4.	Cash Flow						
	<ul><li>a. Contributions</li><li>b. Other Revenue</li><li>c. Benefit Payments</li><li>d. Administrative Expenses</li><li>e. Investment Expenses</li></ul>	\$ 58,785,472 45,767 (64,200,296) (299,512) (1,532,265)	\$ 62,382,072 20,148 (69,267,999) (256,950) (1,665,675)				
	f. Net	\$ (7,200,834)	\$ (8,788,404)				
5.	Investment Income a. Market Total b. Assumed Rate c. Amount for Immediate Recognition d. Amount for Phased-In Recognition	\$ 98,693,046 7.50% 42,892,450 \$ 55,800,596	\$ (35,567,664) 7.50% 49,833,245 \$ (85,400,909)				
6.	Phased-In Recognition of Investment Income a. Current Year: 0.20 *5.d.	\$ 11,160,119	\$ (17,080,182)	\$ 0	\$ 0	\$ 0	\$ 0
	<ul> <li>b. First Prior Year</li> <li>c. Second Prior Year</li> <li>d. Third Prior Year</li> <li>e. Fourth Prior Year</li> <li>f. Total Recognized Investment Gain</li> </ul>	(1,613,648) (8,385,613) (1,314,780) 9,396,616 \$ 9,242,694	11,160,119 (1,613,648) (8,385,613) (1,314,780) \$ (17,234,104)	(17,080,182) 11,160,119 (1,613,648) (8,385,613) \$ (15,919,324)	0 (17,080,182) 11,160,119 (1,613,648) \$ (7,533,711)	0 0 (17,080,182) 11,160,119 \$ (5,920,063)	0 0 0 (17,080,182) \$(17,080,182)
7.	Preliminary Actuarial Value End of Year	\$ 624,082,110	\$ 647,892,847				
8.	Actuarial Value Corridor  a. 80% of Market Value End of Year b. 120% of Market Value End of Year	\$ 516,636,508 \$ 774,954,762	\$ 481,151,654 \$ 721,727,480				
9.	Final Actuarial Value End of Year [7. not less than 8.a. or greater than 8.b.]	\$ 624,082,110	\$ 647,892,847				
10. 11.	Difference Between Market & Actuarial Values Rate of Return on Actuarial Value	\$ 21,713,525 8.78%	\$ (46,453,280) 4.99%	\$ (30,533,956)	\$ (23,000,245)	\$(17,080,182)	\$ -



### **Overview**

Actuarial Standards of Practice (ASOP) No. 51, issued by the Actuarial Standards Board, provides guidance on assessing and disclosing risks related to pension plan funding. This guidance is binding on all credentialed actuaries practicing in the United States. This standard was issued as final in September 2017 with application to measurement dates on or after November 1, 2018.

The term "risk" frequently has a negative connotation, but from an actuarial perspective, it may be thought of as simply the fact that what actually happens in the real world will not always match what was expected, based on actuarial assumptions. Of course, when actual experience is better than expected, the favorable risk is easily absorbed. The risk of unfavorable experience will likely be unpleasant, and so there is an understandable focus on aspects of risk that are negative.

Risk usually can be reduced or eliminated at some cost. Consumers, for example, buy auto and home insurance to reduce the risk of accidents or catastrophes. Another way to express this concept, however, is that there is generally some reward for assuming risk. Thus, retirement plans invest not just in US Treasury bonds which have almost no risk, but also in equities which are considerably riskier – because they have an expected reward of a higher return that justifies the risk.

Under ASOP 51, the actuary is called on to identify the significant risks to the pension plan and provide information to help those sponsoring and administering the plan understand the implications of these risks. In this section, we identify some of the key risks for the Plan and provide information to help interested parties better understand these risks.



### **Investment Risk**

The investment return on assets is the most obvious risk – and usually the largest risk – to funding a pension plan. To illustrate the magnitude of this risk, please review the following chart showing the Asset Volatility Ratio (AVR), defined as the market value of assets divided by covered payroll.

Valuation	Market Value of Assets*	Covered Payroll	Asset Volatility Ratio
2012	\$371,212,368	\$203,902,310	1.82
2013	\$420,026,583	\$207,329,285	2.03
2014	\$502,039,182	\$208,332,028	2.41
2015	\$530,109,603	\$214,354,687	2.47
2016	\$526,392,135	\$220,949,172	2.38
2017	\$554,303,423	\$226,975,245	2.44
2018	\$645,795,635	\$241,522,135	2.67
2019	\$601,439,567	\$242,278,837	2.48
			7

<sup>\*</sup> The amounts above do not include the CIGNA annuity contract amounts

The asset volatility ratio is especially useful to compare across plans or through time. It is also frequently useful to consider how the AVR translates into changes in the Required Contribution Rate (actuarially determined contribution rate). For example, the following table demonstrates that with an AVR of 3.00, if the market value return is 10% below assumed, or -2.50% for Cobb County, there will be an increase in the Required Contribution Rate of 0.44% payroll in the first year. Without asset smoothing or without returns above the expected return in the next four years, the impact on the required contribution rate would be 2.20%. A higher AVR would produce more volatility in the required contribution rate.

	Unsmoothed	Smoothed
AVR	Amortization	Amortization
1.0	0.73%	0.15%
2.0	1.47%	0.29%
3.0	2.20%	0.44%
4.0	2.94%	0.59%



### **Sensitivity Measures**

Valuations are generally performed with a single set of assumptions that reflects the best estimate of future conditions, in the opinion of the actuary and typically the governing board. Note that under actuarial standards of practice, the set of economic assumptions used for funding must be consistent. To enhance the understanding of the importance of an assumption, a sensitivity test can be performed where the valuation results are recalculated using a different assumption or set of assumptions.

The following tables contains the key measures for Cobb County under the valuation assumption for investment return of 7.50%, along with the results if the assumption were 6.50% or 8.50%. In this analysis, only the investment return assumption is changed. Consequently, there may be inconsistencies between the investment return and other economic assumptions such as inflation or payroll increases. In addition, simply because the valuation results under alternative assumptions are shown here, it should not be implied that Cavanaugh Macdonald Consulting believes that either assumption (6.50% or 8.50%) would comply with actuarial standards of practice.

### (\$ in Millions)

As of January 1, 2019	Current Discount Rate (7.50%)	-1% Discount Rate (6.50%)	+1% Discount Rate (8.50%)
Plan's Normal Rate	5.30%	7.20%	3.79%
Accrued Liability	\$1,250.1	\$1,398.6	\$1,126.6
Unfunded Liability	\$602.3	\$750.7	\$478.7
Funded Ratio	51.9%	46.4%	57.6%



### **Mortality Risk**

The mortality assumption is a significant assumption for valuation results, second only to the investment assumption in most situations. The Cobb County mortality assumption utilizes a mortality table with separate rates for males and females.

The future, however, is not known, and actual mortality improvements may occur at a faster rate than expected, or at a slower rate than expected (or even decline). Although changes in mortality will affect the benefits paid, this assumption is carefully studied through annual improvements to smoothly reflect unfolding experience.

### **Contribution Risk**

The Cobb County Government Employees' Pension Plan is funded by member and employer contributions to the trust fund, together with the earnings on these accumulated contributions. The annual valuation determines the employer's required contribution rate, or Actuarial Determined Contribution (ADC) rate, based on the County's funding policy. The ADC rate is the sum of the rates for the normal cost for the plan and the amortization of the UAAL. Since the County is obligated to make 100% of the ADC by statute, there is no contribution risk for the Pension Plan.



### **Section VI - Data**

- **A**. Data regarding the participants in the Plan for use as a basis of the valuation were furnished by the County and plan administrator. The valuation included active participants with annualized compensation totaling \$242,278,837.
- **B.** The following table shows the number of retired participants and beneficiaries as of January 1, 2019 together with the amount of their annual retirement benefits payable under the Plan as of that date.

### The Number and Average Annual Benefits of Retired Participants and Beneficiaries as of January 1, 2019

		Aver	age Annual
Group	Number*	В	enefits*
Service Retirements	2,417	\$	28,566
Beneficiaries of Deceased Members	<u>203</u>		<u>13,699</u>
Total	2,620	\$	27,414

- \* Retirees and beneficiaries as of January 1, 2019 covered under an annuity contract with CIGNA are not included in the above.
- C. Table 1 on the next page shows the distribution by age and years of service of the number of active participants included in the valuation, while Table 2 shows the number and annual benefits of retired participants and beneficiaries included in the valuation, distributed by age. Table 3 shows the reconciliation of valuation data from last year's valuation carried forward to this year's valuation. Table 4 provides a breakdown of vested and non-vested active participants as of the valuation date.



# Section VI – Data

Table 1: Distribution of Active Participants by Age and Service Groups as of January 1, 2019

Attained Age		Completed Years of Service										
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 or More	Total	Valuation Compensation	
Under 25	95	95	3							193	\$ 7,206,567	
25 to 29	109	334	77	4						524	22,180,812	
30 to 34	88	235	157	77	4					561	26,734,390	
35 to 39	41	121	93	172	59	3				489	27,429,614	
40 to 44	33	96	72	131	134	67	1			534	33,123,742	
45 to 49	28	81	51	115	163	180	48	4		670	45,865,099	
50 to 54	21	57	71	84	100	116	94	14	1	558	37,193,027	
55 to 59	19	60	36	85	90	51	30	14	6	391	24,160,382	
60 to 64	8	33	37	47	48	21	17	3	2	216	12,410,493	
65 to 69		9	14	16	16	10	5	4	2	76	5,013,226	
70 & up		1	3	7	2		2		1	16	961,485	
Total	442	1,122	614	738	616	448	197	39	12	4,228	\$ 242,278,837	



# **Section VI – Data**

Table 2: Number of Retired Participants and Beneficiaries and their Benefits as of January 1, 2019

Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefit
50 & Under	24	\$ 756,516	\$ 31,522
51 – 55	251	10,926,505	43,532
56 – 60	355	13,941,532	39,272
61 – 65	532	15,816,722	29,731
66 – 70	520	13,190,021	25,365
71 – 75	448	10,145,333	22,646
76 – 80	274	4,283,502	15,633
Over 80	216	2,764,066	12,797
Total	2,620	\$ 71,824,197	\$ 27,414

<sup>\*</sup> Retirees and beneficiaries as of January 1, 2019 covered under an annuity contract with CIGNA are not included in the above.



# Section VI - Data

Table 3: Reconciliation of Plan Participants as of January 1, 2019

	Active Participants	Inactive Participants with Deferred Benefits	Inactive Participants Receiving Benefits	Total
January 1, 2018	4,233	957	2,438	7,628
Retirements	(150)	(38)	188	
Deaths	(4)	(3)	(25)	(32)
Terminations (Refunded)	(246)	(1)		(247)
Non-Vested Terminations (Not Refunded)	(2)	2		
Vested Terminations (Not Refunded)	(51)	51		
Rehires	7	(6)	(1)	
Benefits Expired				
New Entrants	442			442
New Beneficiaries			20	20
Data Adjustments	(1)			(1)
Net Change	(5)	5	182	182
January 1, 2019	4,228	962	2,620	7,810



# Section VI – Data

Table 4: Number of Vested and Non-Vested Plan Participants as of January 1, 2019

Number of Vested & No	n-Vested Par	ticipants as of Jan	uary 1, <b>201</b> 9
	Vested	Non-Vested	Totals
Traditional Plan	2,004	97	2,101
Hybrid Plan	33	2,076	2,109
Judges	13	5	18
Totals	2,050	2,178	4,228



#### A. Investment Return:

7.50% per year, compounded annually, net of expenses paid by trust.

### **B.** Salary Increases:

• Representative values of the assumed annual rates of salary increases for Public Safety and General Employees are shown in the following table.

	Annual
Age	Increase*
20	4.00%
25	4.00
30	4.00
35	3.50
40	3.25
45	3.25
50 & Over	3.00

<sup>\*</sup> Includes allowance for inflation of 2.5% per year

• Salary increases for Superior Court and State Court Judges are assumed to be 4.5% annually

### C. Mortality:

Pre-retirement mortality:

RP-2000 Employee projected to 2025 using scale BB, sex distinct No Set back / Set forward

Post-retirement mortality:

RP-2000 Combined projected to 2025 using scale BB, sex distinct Set forward 2 years for both Male & Female lives



### **D.** Separation from Active Service:

Representative values of the assumed annual rates of withdrawal are shown in the following tables.

### **General Employees – Male**

						Yea	ars of Servi	ce				
Age	<1	1	2	3	4	5	6	7	8	9	10	11+
20	30.00%	25.00%	20.00%	13.00%	12.00%	12.00%	10.00%	10.00%	6.00%	6.00%	6.00%	4.00%
25	27.00	25.00	20.00	13.00	12.00	12.00	10.00	10.00	6.00	6.00	6.00	4.00
30	26.00	25.00	20.00	13.00	12.00	12.00	10.00	10.00	6.00	6.00	6.00	4.00
35	25.00	20.00	15.00	13.00	12.00	10.50	10.00	10.00	6.00	6.00	6.00	3.00
40	24.00	17.50	13.00	13.00	12.00	9.00	9.00	9.00	5.00	5.00	5.00	2.00
45	20.00	15.00	10.00	9.00	7.00	6.00	8.00	8.00	4.00	4.00	4.00	2.00
50	15.00	12.50	8.00	8.00	5.00	3.00	5.00	5.00	3.00	3.00	3.00	2.00
55	7.50	8.00	6.00	7.00	5.00	2.00	3.00	3.00	2.00	2.00	2.00	1.50
60	2.50	4.00	3.00	6.00	5.00	1.50	1.50	1.50	1.00	1.00	1.00	1.00
65	0.00	0.00	0.00	5.00	5.00	1.00	1.00	1.00	0.50	0.50	0.50	0.25

### **General Employees – Female**

						Yea	rs of Servic	e				
Age	<1	1	2	3	4	5	6	7	8	9	10	11+
20	30.00%	22.50%	17.00%	17.00%	14.00%	12.00%	9.00%	9.00%	9.00%	7.00%	6.00%	4.50%
25	30.00	22.50	17.00	17.00	14.00	12.00	9.00	9.00	9.00	7.00	6.00	4.50
30	30.00	22.50	17.00	17.00	13.00	12.00	9.00	8.00	8.50	7.00	6.00	4.50
35	30.00	22.50	13.00	15.00	9.00	12.00	7.50	7.00	7.50	7.00	6.00	3.75
40	25.00	22.50	9.00	9.00	7.00	10.50	6.50	6.00	6.00	6.00	5.00	2.75
45	20.00	16.00	9.00	7.00	7.00	7.00	5.50	4.50	4.50	4.50	4.00	2.00
50	15.00	12.00	9.00	6.00	6.00	6.00	4.50	3.00	3.50	3.50	3.00	1.50
55	15.00	8.00	9.00	5.00	5.00	5.00	3.50	2.00	2.00	2.00	2.00	1.00
60	15.00	8.00	9.00	4.00	4.00	4.00	2.50	1.00	1.50	1.50	1.00	0.75
65	15.00	8.00	9.00	4.00	4.00	4.00	1.50	0.50	0.50	0.50	0.50	0.50



### **Public Safety**

		Years of Service										
Age	< 1	1	2	3	4	5	6	7	8	9	10	11+
20	15.00%	8.00%	10.00%	8.00%	7.50%	5.00%	6.50%	6.00%	2.50%	3.50%	2.50%	2.50%
25	15.00	8.00	10.00	8.00	7.50	5.00	6.50	6.00	2.50	3.50	2.50	2.50
30	15.00	8.00	10.00	8.00	7.50	5.00	6.50	5.00	2.50	3.50	2.50	2.50
35	15.00	8.00	10.00	8.00	7.50	5.00	6.50	4.00	2.50	3.50	2.50	2.35
40	15.00	8.00	10.00	8.00	7.50	5.00	6.50	3.00	2.50	3.50	2.50	1.25
45	15.00	8.00	10.00	8.00	7.50	5.00	6.50	2.00	2.50	3.50	2.50	0.85
50	15.00	8.00	10.00	8.00	7.50	5.00	6.50	1.00	2.50	3.50	2.50	0.25

### **Superior Court and State Court Judges**

Ago	Rate
Age	Rate
20	4.0%
25	4.0
30	4.0
35	4.0
40	6.0
45	4.0
50	3.0
55	2.5
60	2.5
65	2.5



Representative values of the assumed annual rates of retirement are shown in the following tables.

### Traditional & Hybrid Plan General Employees hired prior to January 1, 2007

	Years of Service							
Age	10	15	20	25	30			
50	0.0%	0.0%	0.0%	0.0%	60.0%			
55	5.0	5.0	5.0	35.0	20.0			
60	5.0	5.0	35.0	5.0	5.0			
65	35.0	35.0	35.0	35.0	35.0			
66	31.0	31.0	31.0	31.0	31.0			
67	27.5	27.5	27.5	27.5	27.5			
68	27.5	27.5	27.5	27.5	27.5			
69	27.5	27.5	27.5	27.5	27.5			
70	100.0	100.0	100.0	100.0	100.0			

### Traditional & Hybrid Plan General Employees hired on or after January 1, 2007

	Years of Service							
Age	10	15	20	25	30			
55	5.0%	5.0%	5.0%	35.0%	35.0%			
60	5.0	5.0	35.0	5.0	5.0			
65	35.0	35.0	35.0	35.0	35.0			
66	31.0	31.0	31.0	31.0	31.0			
67	27.5	27.5	27.5	27.5	27.5			
68	27.5	27.5	27.5	27.5	27.5			
69	27.5	27.5	27.5	27.5	27.5			
70	100.0	100.0	100.0	100.0	100.0			



### Traditional & Hybrid Plan Public Safety Employees hired prior to January 1, 2007

	Years of Service							
Age	10	15	20	25	30			
50	0.0%	0.0%	0.0%	0.0%	70.0%			
55	7.5	7.5	7.5	50.0	25.0			
60	3.5	3.5	45.0	25.0	25.0			
65	50.0	50.0	50.0	50.0	50.0			
66	50.0	50.0	50.0	50.0	50.0			
67	100.0	100.0	100.0	100.0	100.0			

### Traditional & Hybrid Plan Public Safety hired on or after January 1, 2007

	Years of Service							
Age	10	15	20	25	30			
55	7.5%	7.5%	7.5%	50.0%	50.0%			
60	3.5	3.5	45.0	25.0	25.0			
65	50.0	50.0	50.0	50.0	50.0			
66	50.0	50.0	50.0	50.0	50.0			
67	100.0	100.0	100.0	100.0	100.0			



### **Superior Court and State Court Judges**

Age	Rate
60	15%
61	10
62	12
63-64	10
65-69	15
70-74	25
75	100

#### **E.** Actuarial Value of Assets:

The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected market value of assets, based on the assumed valuation rate. The amount recognized each year is 20% of the difference between market value and expected market value. The actuarial value of assets cannot be less than 80% or greater than 120% of market value.

#### F. Actuarial Cost Method:

Projected Unit Credit. This cost method measures past service liabilities as the actuarial present value of benefits accrued for service up to the valuation date, but based on salaries projected to the date of assumed retirement for the plan.

Effective January 1, 2013, the unfunded actuarial accrued liabilities are amortized over a closed 30-year period assuming annual total payroll growth of 2.5%.

#### G. Percent Married:

For the purposes of valuing the spouse pre-retirement survivor annuity, 90% of the plan participants are assumed married with males three years older than females.



### **Section VIII - Actuarial Assumption & Method Changes**

The following assumptions have been changed during the last few plan years:

- 1. Effective January 1, 2007:
  - a. Inflation rate was changed from 4% to 3%.
  - b. Salary merit scale was changed to 0-2% depending on age of participant
- 2. Effective January 1, 2008:
  - a. The actuarial value of assets method was changed to recognize the difference between actual and expected market value of assets over a five year period.
  - b. The mortality table was updated to RP 2000.
  - c. Rates of retirement were increased.
  - d. The unfunded actuarial accrued liability was consolidated and will be amortized over an open 30-year period.
- 3. Effective January 1, 2011:
  - a. Inflation rate was changed from 3% to 2.5% per year.
  - b. Annual rates of salary increases were decreased by 1%, with a minimum salary increase of 2.5% per year.
  - c. Payroll growth assumption used to amortize the unfunded actuarial accrued liability was changed from 3% to 2.5% per year.
- 4. Effective January 1, 2013:
  - a. The investment return assumption was decreased from 8% to 7.9% per year. The investment return assumption will be decreased by 0.1% per year until reaching 7.5% effective with the January 1, 2017 valuation.
  - b. The method to amortize the unfunded actuarial accrued liability was changed from an open 30 year period to a closed 30 year period effective January 1, 2013.
- 5. Effective January 1, 2014:
  - a. As a result of the Experience Study for the 5 year period ending December 31, 2012, the following assumptions were changed:
    - 1) Pre-retirement Mortality Table was updated to RP-2000 Employee projected to 2013 with set forward 4 years for Male Lives and set back 2 years for Female Lives
    - 2) Retirement rates were updated for Public Safety and General Employees
    - 3) Withdrawal rates were modified for both Public Safety and General Employees



### **Section VIII - Actuarial Assumption & Method Changes**

- 6. Effective January 1, 2018:
  - a. As a result of the Experience Study for the 5 year period ending December 31, 2016, the following assumptions were changed:
    - 1) Pre-Retirement Mortality Table was updated to RP-2000 Employee projected to 2025 using scale BB with No Set back / Set forward
    - 2) Post-retirement Mortality Table was updated to RP-2000 Combined projected to 2025 using scale BB; Set forward 2 years for both Male & Female lives
    - 3) Retirement rates were updated for Public Safety and General Employees
    - 4) Withdrawal rates were modified for both Public Safety and General Employees
    - 5) Salary merit scale was updated for all members



#### A. Effective Date

January 1, 1971

### B. Participation

Any Employee who is employed in the Eligible Class shall be a participant in this plan. An individual is in the Eligible Class at any time if he or she is an Employee and:

- a) does not participate in any retirement plan sponsored by the State of Georgia under which contributions are made in his/her behalf; or
- b) is an elected Commissioner of Cobb County; or
- c) is employed by the Cobb County District Attorney's Office.

#### C. Accrued Benefit

The pension payable at normal retirement based on the Participant's Final Average Compensation and Credited Service at the date of determination.

#### D. Credited Service

The period of a Participant's service that is used to determine his/her eligibility for benefits under the Plan and the amount of benefits payable, excluding service in excess of 35 years. Service prior to December 16, 1984 is excluded for employees employed by Marietta-Cobb Community Service Center prior to that date. Service prior to February 1, 1997 is excluded for former employees of the City of Marietta 911 Services who had already vested with the City's retirement plan prior to that date. Service prior to January 1, 2005 is excluded for former employees of the City of Kennesaw Water and Sewer Department who had already vested with the City's retirement plan prior to that date. A Participant will be granted Credited Service for unused Sick Leave after reaching the retirement eligibility (Normal, Early, Late, or Rule of 80) at the time of retirement in accordance with the following schedule, provided they have made contributions for at least one year.

### **Unused Hours of Sick Leave**

56 Hour	Credited Service
Less than 242 hours	0
243-484	1/12
485-727	2/12
728-969	3/12
970-1,212	4/12
1,213-1,455	5/12
1,456 or more hours	6/12
	Less than 242 hours 243-484 485-727 728-969 970-1,212 1,213-1,455



### E. Compensation

The Participant's W-2 earnings including salary reduction amounts.

### F. Final Average Compensation (FAC)

For participants hired before January 1, 2009, the average of the 5 highest consecutive years of compensation out of the last 10 years, provided that the final average compensation used shall not be less than the 3 year final average compensation calculated as of December 31, 2008. However, any participant who has met all of the requirements to be eligible to retire under the Normal Retirement or Rule of 80 provisions as of December 31, 2008 shall always be calculated using the 3 highest consecutive years of compensation.

For employees hired on or after January 1, 2009, the final average compensation will consist of the average of the 5 highest consecutive years of compensation out of the last 10 years.

For employees hired on or after January 1, 2010 and any employee hired prior to this date who elected to enter the Hybrid Plan, no overtime will be used in the final average compensation calculation.

#### G. Normal Retirement Pension

#### **Eligibility**

For employees hired before January 1, 2009, the first day of the calendar month coinciding with or next following the participant's 65<sup>th</sup> birthday, or if later, the day the participant completes 7 years of service. However, for any participant who has met all of the requirements to be eligible to retire under the Normal Retirement or Rule of 80 provisions as of December 31, 2008, the Normal Retirement Date shall remain the later of age 65 and the completion of 5 years of service.

For employees hired on or after January 1, 2009, the later of age 65 or 10 years of service.

For employees hired on or after January 1, 2010, the later of Social Security Normal Retirement Age or 10 years of service.



#### Benefit Amount

For employees hired before January 1, 2010, 2.5% of a participant's FAC multiplied by years of Credited Service.

For employees hired before January 1, 2010 who elected to enter the Hybrid Plan, 2.5% of FAC multiplied by years of Credited Service up to December 31, 2009 plus 1.0% of FAC multiplied by years of Credit Service accrued after December 31, 2009.

For employees hired on or after January 1, 2010, 1.0% of FAC multiplied by years of Credited Service.

Credited service cannot exceed 35 years for all Participants. A Participant's benefit shall not be less than \$76 multiplied by the Participant's total years of Credited Service.

#### H. Rule of 80 Retirement

### Eligibility

For employees hired before January 1, 2007, age and service must total 80.

Employees hired on or after January 1, 2007 will only qualify for the Rule of 80 if they reach a minimum of age 55 or 35 years of service in addition to satisfying the other requirements.

#### Benefit Amount

Normal Retirement Pension

### I. Early Retirement Pension

### Eligibility

For employees hired before January 1, 2009, age 55 and 7 years of service.

For employees hired on or after January 1, 2009, age 55 and 10 years of service.

#### Benefit Amount

Normal Retirement Pension accrued to Early Retirement Date, reduced for the number of years the Early Retirement Date precedes the Normal Retirement Date.



#### J. Late Retirement Pension

Eligibility

Date participant actually retires from employment with the County after his/her Normal Retirement Date.

Benefit Amount

Computed as the sum of:

- a) The Participant's Accrued Benefit as of the Participant's Retirement Date based only upon the Credited Service and Final Average Compensation as of their Normal Retirement Date.
- b) The sum of the greater, determined for each Plan Year (or portion thereof) ending after the Participant's Normal Retirement Date:
  - i. The excess, if any, of (a) the Accrued Benefit as of the end of such Plan Year over (b) the Accrued Benefit as of the immediately preceding Plan Year, but with such excess being reduced (but not below zero) by (c) the actuarial value of any benefit payments made or due to be made from the Plan during such Plan Year, or
  - ii. The excess, if any, of (a) the Accrued Benefit as of the end of the immediately preceding Plan Year adjusted by the applicable late retirement Adjustment Factor over (b) the Accrued Benefit as of the immediately preceding Plan Year.



### K. Pre-Retirement Spouse Death Benefit

### **Active Employees**

### Eligibility

Seven years of service (or 10 depending on date of hire) and has been married one full year prior to death. If the Participant was killed in the line of duty, there is no minimum service requirement.

#### Benefit Amount

45% of the Participant's Accrued Benefit determined as if death had occurred at their Normal Retirement Date, assuming Credited Service continued until Normal Retirement Date and Compensation remained the same. The benefit commences immediately and is reduced if the spouse is more than 10 years younger than the Participant.

### L. Terminated Vested Participants

### Eligibility

Terminated Participant who is entitled to a Deferred Vested Benefit and has been married one full year prior to death.

#### Benefit Amount

If the Participant has less than 15 years of service, the benefit is 30% of the Accrued Benefit payable when the Participant could have first retired.

If the Participant has 15 or more years of service, the benefit is 45% of the Accrued Benefit payable when the Participant could have first retired.



#### M. Vested Termination

### Eligibility

For employees hired before January 1, 2009, 7 years of service.

For employees hired on or after January 1, 2009, 10 years of service.

#### Benefit Amount

Accrued Benefit as of the date of termination payable at the Normal Retirement Date.

#### N. Non-Vested Termination

A participant terminating from the plan who is not 100% vested in the Accrued Benefit is entitled to a refund of their employee contributions with interest. The annual interest crediting rate for Employee Contributions changed from 5% to 2.5% for periods on or after January 1, 2013. Interest is compounded annually from the end of the Plan Year to which such Employee Contributions are attributable through the month preceding distribution.

### O. Cost-of-Living Adjustments

As approved by the Board.

### P. Normal Form of Benefit

Single Life Annuity



### Q. Optional Forms of Benefit

In lieu of the Normal Form of benefit, a participant may elect to receive one of the following optional forms of payment:

- Contingent Pensioner Option Participant receives a reduced pension during their lifetime so that after their death, 100%, 66-2/3%, or 50% of the Participant's benefit will be paid for the life of the surviving Contingent Pensioner designated by the Participant.
- Years Certain and Life Option Participant receives a reduced Pension during their lifetime so that if their death occurs within the years certain period (5, 10, or 15 years), the pension will continue to the Beneficiary for the balance of the period.
- Social Security Option Participant receives an increased pension before Social Security commences and a reduced pension thereafter, so that the total benefit under this Plan and the Social Security Act will be paid in a generally level amount throughout retirement.

### **R.** Employee Contributions

Effective March 2019, the employee contribution rate will increase from 7.50% to 7.75% of compensation for employees participating in the Traditional Plan. For employees in the Hybrid Plan, the employee contribution rate is 3.00% of pay.



### S. Superior Court and State Court Judge Supplemental Retirement Benefit

These benefit provisions described below apply only to Superior and State Court Judges eligible for membership in the Plan:

- Credited Service includes the service recognized by the Georgia Judicial Retirement System, not to exceed 24 years.
- Final Salary equals the annual amount of the salary supplement paid by Cobb County in excess of the state salary cap for Judges.
- Normal Retirement Date is the later of age 60 or the completion of 10 years of service.
- Vesting requires 10 years of completed service.
- Supplemental Retirement Benefit is calculated as 4.167% of Final Salary for Credited Service up to 16 years, plus 1% for each additional year of Credited Service, up to a maximum of 24 years.
- The Supplemental Retirement Benefit is paid as a single life annuity.
- Late retirement increases are applied if the Judge continues employment after his/her Normal Retirement Date.
- No benefit is payable upon the death of the Judge, whether such death occurs before or after commencement of the Supplemental Retirement Benefit.
- The Judge is not required or permitted to make contributions to the Plan.



The following plan amendments have been adopted within the past few plan years:

1. Effective January 1, 2007:

Employees hired on or after this date will only qualify for the Rule of 80 retirement provision if they reached a minimum of age 55 or 35 years of service.

- 2. Effective January 1, 2009:
  - a. Employees hired before January 1, 2009:
    - i. For benefit calculation purposes the final average compensation will consist of the average of the 5 highest consecutive years of compensation out of the last 10 years, provided that the final average compensation used shall not be less than the 3 year final average compensation calculated as of December 31, 2008. However, any participant who has met all of the requirements to be eligible to retire under the Normal Retirement or Rule of 80 provisions as of December 31, 2008 shall always be calculated using the 3 highest consecutive years of compensation.
    - ii. The Normal Retirement Date is redefined as the first day of the calendar month coinciding with or next following the participant's 65<sup>th</sup> birthday, or if later, the day the participant completes 7 years of service. However, for any participant who has met all of the requirements to be eligible to retire under the Normal Retirement or Rule of 80 provisions as of December 31, 2008, the Normal Retirement Date shall remain the later of age 65 and the completion of 5 years of service.
  - b. Employees hired on or after January 1, 2009:
    - i. The final average compensation will consist of the average of the 5 highest consecutive years of compensation out of the last 10 years.
    - ii. 10 years shall be required to be vested in the pension plan.
    - iii. The Normal Retirement Date is defined as the first day of the calendar month coinciding with or next following the participant's 65<sup>th</sup> birthday, or if later, the day the participant completes 10 years of service.
- 3. Effective January 1, 2010
  - a. Employees hired before January 1, 2010:
    - i. The employee contribution rate changed from 5.00% to 5.50% effective February 2010. The employee contribution rate will also increase over a 13 year period from 5.00% in 2009 to 8.75% in 2023.
    - ii. Current non-vested employees as of December 31, 2009 were given the option to converting to the new Hybrid Defined Benefit/Defined Contribution Plan (see 3(b) below).



b. Employees hired on or after January 1, 2010 and any employees not vested as of January 1, 2010 who chose to enter the new Hybrid Plan:

### **Defined Benefit Component**

- i. The employee contribution rate will be 5.00% of earnings and should not increase over time. No employee contributions will be based on overtime earnings.
- ii. The final average compensation will consist of the average of the 5 highest consecutive years of compensation out of the last 10 years. No overtime will be used in the final average compensation calculation.
- iii. 10 years shall be required to be vested in the pension plan. (7 years is required for employees hired before January 1, 2009 and elect to enter the Hybrid Plan.)
- iv. Employees hired before January 1, 2007 are eligible for Rule of 80 unreduced early retirement. If hired on or after January 1, 2007, employees are eligible for Rule of 80 unreduced early retirement with a minimum of 35 years of service or attainment of age 55.
- v. The Normal Retirement Date is defined as the first day of the calendar month coinciding with or next following the participant's 65<sup>th</sup> birthday for non-vested members transferring to the Hybrid Plan and Social Security Normal Retirement Age for employees hired on or after January 1, 2010, or if later, the day the participant completes 10 (or 7) years of service.
- vi. Employees are eligible for reduced early retirement on the first day of the calendar month coinciding with or next following the participant's 55<sup>th</sup> birthday, or if later, the day the participant completes 10 (or 7) years of service.
- vii. The benefit multiplier will be 1% times final average compensation times years of service.
- viii. A current non-vested employee who chooses the new Hybrid Plan will receive a benefit that is equal to the greater of:
  - 1. Current benefit (2.5% multiplier) for years up to the change to the new plan plus new plan benefit (1.0% multiplier) for remaining years or,
  - 2. New Plan benefit (1.0% multiplier) for entire period of service.
- ix. Military service prior to employment will no longer count as service time. Only service and benefits required to be granted under applicable federal law will be provided.



# <u>Defined Contribution Component (Presented for information purposes only. Does not impact actuarial valuation of Pension Plan.)</u>

- i. In addition to the 5.00% employee contribution rate for the Defined Benefit Plan, employees may contribute a portion of their salary each year into the Defined Contribution Plan up to the maximum amount permitted by the IRS. The employee's contribution will be incorporated into the County's current 457 Deferred Compensation Plan and the County's contribution will go to a new 401(a) Plan per IRS rules.
- ii. The County will make a 50% matching contribution up to maximum of 2%. Employees will be required to contribute at least 4% of earnings to receive the maximum 2% matching contribution.
- iii. Vesting will be a graduated schedule of 20% vesting per year of service with 100% vested after 5 years of service.
- iv. Current non-vested employees who elect to move to the new Hybrid Plan will be vested in the Defined Contribution component based on the graduated vesting schedule above based on their years of service as of January 1, 2010. However, employer contributions to the Defined Contribution component will not be retroactive.

### 4. Reflected January 1, 2011 valuation:

Members eligible to retire by the end of 2011 were offered an opportunity to retire in 2010 and receive a lump sum benefit of 2% of pay times years of service in addition to their accrued Pension Plan benefit. The lump sum benefit was not payable from the Pension Plan.

#### 5. Effective January 1, 2013:

The annual interest crediting rate for Employee Contributions changed from 5% to 2.5% for periods on or after January 1, 2013. Interest is compounded annually from the end of the Plan Year to which such Employee Contributions are attributable through the month preceding distribution.

### 6. Effective January 1, 2014:

The employee contribution rate for Hybrid Plan Participants decreased from 5.00% to 3.00%.



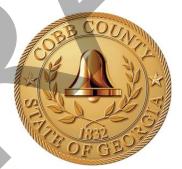
- 7. Effective January 1, 2017:
  - a. The benefits provided under Appendix A for Superior Court Judges were extended to certain State Court Judges. The benefits for these Judges are outlined in Appendix B.
    - i. Credited Service includes the service recognized by the Georgia Judicial Retirement System, not to exceed 24 years.
    - ii. Final Salary equals the annual amount of the salary supplement paid by Cobb County in excess of the state salary cap for Judges.
    - iii. Normal Retirement Date is the later of age 60 or the completion of 10 years of service.
    - iv. Vesting requires 10 years of completed service.
    - v. Supplemental Retirement Benefit is calculated as 4.167% of Final Salary for Credited Service up to 16 years, plus 1% for each additional year of Credited Service, up to a maximum of 24 years.
    - vi. The Supplemental Retirement Benefit is paid as a single life annuity.
    - vii. Late retirement increases are applied if the Judge continues employment after his/her Normal Retirement Date.
    - viii. No benefit is payable upon the death of the Judge, whether such death occurs before or after commencement of the Supplemental Retirement Benefit.
    - ix. The Judge is not required or permitted to make contributions to the Plan.



The experience and dedication you deserve

Cobb County Government
Health Benefit Plan
Report of Actuary on the Other Post-Employment
Benefit Valuation

Prepared as of January 1, 2019



Cobb County...Expect the Best!





The experience and dedication you deserve

May 28, 2019

Mr. Tony Hagler Human Resources Director Cobb County Human Resources Department 100 Cherokee Street Marietta, GA 30090-9679

Dear Mr. Hagler:

We are pleased to submit the results of the annual actuarial valuation of the Cobb County Government Health Benefit Plan prepared as of January 1, 2019. The purpose of this report is to provide a summary of the funded status of the Plan as of January 1, 2019 and recommend rates of employer contribution. While not verifying the data at source, the actuary performed tests for consistency and reasonability. Separate reports will be prepared to provide accounting information under Governmental Accounting Standards Board Statements No. 74 and 75 when applicable.

The amortization period was closed at 30 years as of January 1, 2013. For the current valuation, the amortization period used is therefore 24 years. Additionally, in 2017, an Experience Study was completed for the period ending December 31, 2016. As a result of this investigation, the mortality rates, retirement rates, withdrawal rates, and salary merit scale were modified effective January 1, 2018.

The medical and drug benefits of the current Plan as of January 1, 2019 are included in the actuarially calculated contribution rates which are developed using the unit credit actuarial cost method with projected benefits. The annual actuarially determined employer contribution (ADC) of the County for the year beginning October 1, 2019 is 7.95% of payroll, which is expected to liquidate the unfunded accrued liability over a 24-year period.

As of January 1, 2019, the Plan has assets in trust solely to provide benefits to retirees and their beneficiaries. It is our understanding that trust contributions will be greater than or equal to the ADC each year. Since the asset allocation for the OPEB trust is similar to the asset allocation for the pension trust, the discount rate remains 7.50% to match the discount rate used in the pension valuation. Gains and losses are reflected in the unfunded accrued liability that is assumed amortized by regular annual contributions as a level percentage of payroll within a closed 30-year period (24 years for the current valuation), on the assumption that payroll will increase by 2.50% annually. Based on our understanding that it is the policy of Cobb County to make annual contributions at least equal to the ADC, the assumptions recommended by the actuary are, individually and in the aggregate, reasonably related to the experience under the Plan and to reasonable expectations of anticipated experience under the Plan.



Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

The impact of the Affordable Care Act (ACA) was addressed in this valuation. Review of the information currently available did not identify any specific provisions of the ACA that are anticipated to significantly impact results. While the impact of certain provisions such as the future implementation of the excise tax on high-value health insurance plans (if applicable), mandated benefits and participation changes due to the individual mandate should be recognized in the determination of liabilities, overall future plan costs and the resulting liabilities are driven by amounts employers and retirees can afford (i.e., trend). The trend assumption forecasts the anticipated increase to initial per capita costs, taking into account health care cost inflation, increases in benefit utilization, plan changes, government-mandated benefits, and technological advances. Given the uncertainty regarding the ACA's implementation (e.g., the impact of excise tax on high-value health insurance plans, changes in participation resulting from the implementation of state-based health insurance exchanges), continued monitoring of the ACA's impact on the Plan's liability will be required. Plan design changes mandated by the ACA and incorporated in the plan designs are included in the current baseline claims costs.

This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries and has experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the medical plans and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the Plan.

The current assets and future anticipated contributions are in our opinion sufficient to meet all the benefit obligations of the plan for current active and retired members

Sincerely yours,

Alisa Bennett, FSA, EA, FCA, MAAA Principal and Consulting Actuary



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# COBB COUNTY GOVERNMENT HEALTH BENEFIT PLAN REPORT OF ACTUARY ON THE OTHER POST-EMPLOYMENT BENEFIT VALUATION PREPARED AS OF JANUARY 1, 2019

#### **SECTION I - SUMMARY OF PRINCIPAL RESULTS**

1. For convenience of reference, the principal results of the valuation are summarized below:

1/1/2019	1/1/2018
7.50%	7.50%
4,342	4,349
1,743	1,632
6,085	5,981
\$ 249,164,033	\$ 248,606,290
\$ 113,097,682	\$ 117,114,714
\$ 190,589,688	\$ 182,333,456
24	25
2020	2019
\$ 6,805,244	\$ 7,286,442
13,013,985	12,184,948
\$ 19,819,229	\$ 19,471,390
2.73%	2.93%
5.22%	4.90%
7.95%	7.83%
7.50%	7.50%
	7.50%  4,342 1,743 6,085  \$ 249,164,033  \$ 113,097,682 \$ 190,589,688 24  2020  \$ 6,805,244 13,013,985 \$ 19,819,229  2.73% 5.22% 7.95%

<sup>\*</sup> Before participation assumption is applied. The 2018 number includes 4,233 active in the pension plan and 116 actives who could potentially receive post-employment health benefits but who are not in the pension plan. The 2019 number includes 4,228 active in the pension plan and 114 actives who could potentially receive post-employment health benefits but who are not in the pension plan.

\*\*\* Calculated using an annual increasing payroll assumption of 2.50%.

<sup>\*\*</sup> Before participation assumption is applied. The 2018 number includes \$241,522,135 for the 4,233 active in the pension plan and \$7,084,155 for the 116 actives who could potentially receive postemployment health benefits but who are not in the pension plan. The 2019 number includes \$242,278,837 for the 4,228 active in the pension plan and \$6,885,196 for the 114 actives who could potentially receive post-employment health benefits but who are not in the pension plan.



The table below shows the active headcounts and liabilities broken down by grandfathered status and service needed to receive health benefits, which is based on date of hire.

#### **ACTIVE HEADCOUNTS AND LIABILITIES**

	Grand	Grandfathered		andfathered	Total	
Service needed for benefit	Number	Liability	Number	Liability	Number	Liability
4.0	00	<b>#4 000 400</b>	7.10	071 500 571	770	070 470 070
10	30	\$1,962,496	746	\$74,509,574	776	\$76,472,070
15	2	81,258	798	39,363,417	800	39,444,675
20	0	0	487	10,344,595	487	10,344,595
30	0	0	2,279	3,894,985	2,279	3,824,985
TOTAL	32	\$2,018,466	4,310	\$128,042,571	4,342	\$130,086,325

- 2. The valuation indicates that the Actuarially Determined Contribution (ADC) is 7.95% of active payroll payable for the fiscal year 2020. Any employer claims or premiums paid for retiree health care in the current year are considered contributions toward the ADC. Comments on the valuation results as of January 1, 2019 are given in Section IV and further discussion of the contribution levels is set out in Sections V and VI.
- 3. Since the asset allocation for the OPEB trust is similar to the asset allocation for the pension trust, the discount rate remains 7.50% to match the discount rate used in the pension valuation.
  Schedule D of this report outlines the full set of actuarial assumptions and methods employed in the current valuation.



### **SECTION II - MEMBERSHIP DATA**

Data regarding the membership of the Plan for use as a basis of the valuation were furnished by Cobb County.

The following table summarizes the members' age and service.

	Active Employees*							
	Service							
Age	< 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	> 29	Total
< 25	190	3						193
25 to	446	78	4					528
30 to	330	159	76	5				570
35 to	171	90	175	62	3			501
40 to	135	72	128	135	72	2		544
45 to	114	50	114	159	184	55	5	681
50 to	85	69	84	96	113	102	20	569
55 to	83	40	82	94	61	31	24	415
60 to	46	38	51	51	24	16	11	237
> 64	11	18	28	19	12	8	8	104
Total	1,611	617	742	621	469	214	68	4,342

<sup>\*</sup>Before participation assumption is applied. Includes 4,228 active in the pension plan and 114 actives who could potentially receive post-employment health benefits but who are not in the pension plan.

### **SECTION III - ASSETS**

Schedule C shows information regarding assets for valuation purposes. As of January 1, 2019, the plan has \$113,097,682 in assets held in trust solely to provide benefits to retirees and their beneficiaries in accordance with the terms of the plan.



### **SECTION IV - COMMENTS ON THE VALUATION**

- Schedule A of this report outlines the results of the actuarial valuation. The results are shown based
  on a discount rate of 7.50%. The valuation was prepared in accordance with the actuarial
  assumptions and the actuarial cost method, which are described in Schedule D.
- 2. In 2017, an Experience Study was completed for the period ending December 31, 2016. As a result of the investigations, the following demographic assumptions were adopted by the Pension Board and changed effective January 1, 2018:
  - 1. Pre-Retirement Mortality Table was updated to RP-2000 Employee projected to 2025 using scale BB with No Set back / Set forward
  - 2. Post-retirement Mortality Table was updated to RP-2000 Combined projected to 2025 using scale BB; Set forward 2 years for both Male & Female lives
  - 3. Retirement rates were updated for Public Safety and General Employees
  - 4. Withdrawal rates were modified for both Public Safety and General Employees
  - 5. Salary merit scale was updated for all members
- Effective January 1, 2014 the investment return assumption was decreased from 7.9% to 7.8%. The
  investment return assumption was decreased by 0.1% per year until reaching 7.5% effective with the
  January 1, 2017 valuation.
- 4. Based on the 7.50% discount rate, the valuation shows that the Plan has an actuarial accrued liability of \$130,086,325 for benefits expected to be paid on account of the present active membership, based on service to the valuation date. The liability on account of benefits payable to retirees and covered spouses amounts to \$173,601,045. The total actuarial accrued liability of the Plan amounts to \$303,687,370. Against these liabilities, the Plan has present assets for valuation purposes of \$113,097,682. Therefore, the unfunded actuarial accrued liability is equal to \$190,589,688.
- 5. The normal contribution is equal to the actuarial present value of benefits accruing during the current year. The normal contribution is determined to be 2.73% of total active payroll.
- 6. The amortization period was closed at 30 years as of January 1, 2013. The amortization period as of January 1, 2019 is 24 years.



### SECTION V - CONTRIBUTIONS PAYABLE UNDER THE PLAN

## ACTUARIALLY DETERMINED CONTRIBUTION For 2019 Fiscal Year

Actuarially Determined Contribution (ADC) As a Percentage of Total Active Payroll:						
Normal	2.73%					
Accrued Liability	5.22%					
Total	7.95%					

- 1. The valuation indicates that a normal contribution of 2.73% of total active payroll is required to meet the cost of benefits currently accruing.
- 2. The unfunded actuarial accrued liability amounts to \$190,589,688 as of the valuation date. An accrued liability contribution of 5.22% of total active payroll is sufficient to amortize the unfunded actuarial accrued liability over a 24-year period, based on a 7.50% investment rate of return and the assumption that the payroll will increase by 2.50% annually.
- 3. The total Actuarially Determined Contribution is, therefore, 7.95% of total active payroll.



### **SECTION VI - COMMENTS ON LEVEL OF FUNDING**

- 1. The monthly contribution for retirees to opt into the medical plan is based on plan, tier election, date of hire, and date of retirement.
- 2. The valuation indicates that a recommended employer contribution rate of 7.95% of payroll is required to fund the plan. This corresponds to a contribution required to meet the cost of benefits currently accruing and provide for the amortization of the unfunded actuarial accrued liability over a period of 24 years.

### **SECTION VII – ADDITIONAL DISCLOSURES**

1. Below is a chart showing the Schedule of Funding Progress.

### SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation <u>Date</u>	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Projected Unit Credit (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll <u>( c )</u>	UAAL as a Percentage of Covered Payroll  ((b-a)/c)
1/1/2012	46,486,981	247,611,907	201,124,926	18.8%	208,621,922	96.4%
1/1/2013*	58,975,301	186,733,213	127,757,912	31.6%	211,553,134	60.4%
1/1/2014^	84,726,947	200,118,641	115,391,694	42.3%	212,799,730	54.2%
1/1/2015^^	91,440,896	224,352,661	132,911,765	40.8%	218,979,561	60.7%
1/1/2016^^^	91,619,032	245,265,481	153,646,449	37.4%	227,955,687	67.4%
1/1/2017^^^	98,362,896	271,992,978	173,630,082	36.2%	232,958,602	74.5%
1/1/2018**	117,114,714	299,448,170	182,333,456	39.1%	248,606,290	73.3%
1/1/2019	113,097,682	303,687,370	190,589,688	37.2%	249,164,033	76.5%

<sup>\*</sup> Includes plan changes effective January 1, 2013 and change in discount rate to 7.90%.

<sup>^</sup> In 2014, the discount rate was changed from 7.9% to 7.8%, as well as demographic assumptions for pre-retirement mortality, withdrawal and retirement.

<sup>^</sup> In 2015, the discount rate was changed from 7.8% to 7.7%.

<sup>^^</sup> In 2016, the discount rate was changed from 7.7% to 7.6%

<sup>\</sup>text{\text{In 2017, the discount rate was changed from 7.6\text{\text{to 7.5\text{\text{\text{8}}}}

<sup>\*\*</sup> In 2018, decrements were changed due to an experience study.



The information presented was determined as part of the actuarial valuation at January 1, 2019.
 Additional information as of the latest actuarial valuation follows.

Valuation date	1/1/2019
Actuarial cost method	Projected unit credit
Amortization method	Level percent of pay, closed
Remaining amortization period	24 years
Asset valuation method	Market Value of Assets
Actuarial assumptions	
Investment Rate of Return*	7.50%
Medical cost trend rate*	
Pre-Medicare	7.00%
	5.00%
Medicare Eligible Ultimate trend rate*	3.00%
	4.500/
Pre-Medicare	4.50%
Medicare Eligible	4.50%
Year of Ultimate trend rate	
Pre-Medicare	2026
Medicare Eligible	2021
*Includes inflation at	2.50%

<sup>\*</sup> Since the asset allocation for the OPEB trust is similar to the asset allocation for the pension trust, the annual investment rate of return is assumed to be 7.50%, which is the assumption used for the pension valuation. This rate reflects the County's establishment of an OPEB trust and intent to fully pre-fund OPEB benefits.



## RESULTS OF THE VALUATION PREPARED AS OF JANUARY 1, 2019

		<u>Di</u>	7.50% scount Rate
1.	PAYROLL	\$	249,164,033
2.	ACTUARIAL ACCRUED LIABILITY		
	(a) Present active members:	\$	130,086,325
	(b) Present retired members and surviving spouses:		173,601,045
	(c) Total actuarial accrued liability	\$	303,687,370
3.	PRESENT ASSETS FOR VALUATION PURPOSES	\$	113,097,682
4.	UNFUNDED ACTUARIAL ACCRUED LIABILITY [(2)(C) minus (3)]	\$	190,589,688
5.	AMORTIZATION PERIOD		24
6.	NORMAL CONTRIBUTION	\$	6,805,244
7.	ACCRUED LIABILITY CONTRIBUTION		13,013,985
8.	TOTAL CONTRIBUTION		
	(6) + (7)	\$	19,819,229
9.	NORMAL CONTRIBUTION AS A PERCENT OF PAYROLL (6) ÷ (1)		2.73%
10.	ACCRUED LIABILITY CONTRIBUTION AS A PERCENT OF PAYROLL (7) ÷ (1)		5.22%
11.	TOTAL CONTRIBUTION AS A PERCENT OF PAYROLL (9) + (10)		7.95%



The chart below shows the projected benefit payments for current retirees and for future payments to current active employees after retirement. The chart does not take into account future entrants to the plan.

### **Projected Benefit Payments**

		Owen Kethere I	Non-	
	Current Retirees	Grandfathered Actives	Grandfathered Actives	Total
2019	15,529,699	63,752	425,823	16,019,274
2020	15,877,209	120,373	1,382,074	17,379,656
2021	16,123,047	150,029	2,443,318	18,716,394
2022	16,326,173	157,720	3,620,457	20,104,350
2023	16,254,020	183,114	5,009,717	21,446,851
2024	16,111,809	206,037	6,564,158	22,882,004
2025	16,025,709	198,649	8,277,937	24,502,295
2026	15,739,562	204,050	10,144,992	26,088,604
2027	15,296,244	208,621	12,026,511	27,531,376
2028	14,794,990	212,486	14,118,132	29,125,608
2029	14,354,229	215,660	16,223,805	30,793,694
2030	13,571,894	218,788	18,078,380	31,869,062
2031	12,961,779	220,201	20,046,319	33,228,299
2032	12,298,128	220,740	21,612,644	34,131,512
2033	11,864,767	220,285	23,020,179	35,105,231
2034	11,620,447	218,741	24,154,283	35,993,471
2035	11,454,103	216,029	24,729,723	36,399,855
2036	11,133,299	212,094	25,137,708	36,483,101
2037	10,898,289	206,875	25,431,865	36,537,029
2038	10,596,296	200,292	25,409,830	36,206,418
2039	10,265,297	192,301	25,228,234	35,685,832
2040	9,919,436	182,900	25,527,172	35,629,508
2041	9,564,333	172,212	25,606,196	35,342,741
2042	9,178,318	160,417	25,822,840	35,161,575
2043	8,743,850	147,700	26,353,362	35,244,912
2044	8,303,771	134,335	26,840,602	35,278,708
2045	7,843,412	120,622	27,288,904	35,252,938
2046	7,367,034	106,870	27,978,807	35,452,711
2047	6,878,946	93,420	28,952,137	35,924,503
2048	6,383,699	80,572	29,914,436	36,378,707



### **SCHEDULE B**

## DEVELOPMENT OF THE ACTUARIAL (GAIN)/LOSS

r		
1.	UNFUNDED ACCRUED LIABILITY (UAL) 1/1/2018	\$ 182,333,456
2.	NORMAL COST 1/1/2018	\$ 7,286,442
3.	EXPECTED EMPLOYER CONTRIBUTIONS (Beginning of Year) (ADC calculated in 1/1/2018 valuation)	\$ 19,471,390
4.	INTEREST ACCRUAL [(1) + (2) - (3)] x .075	\$ 12,761,138
5.	EXPECTED UAL 1/1/2019 [(1) + (2) - (3) + (4)]	\$ 182,909,646
6.	GAIN DUE TO CLAIMS AND PREMIUM EXPERIENCE	\$ (6,765,429)
7.	LOSS DUE TO ASSET EXPERIENCE	\$ 18,795,896
8.	EXPECTED UAL 1/1/2019 AFTER CHANGES (5) + (6) + (7)	\$ 194,940,112
9.	ACTUAL UAL AS OF 1/1/2019	\$ 190,589,688
10.	EXPERIENCE (GAIN)/LOSS (9) – (8)	\$ (4,350,424)
11.	(GAIN) AS A % OF LY AL	(1.45%)



### **SCHEDULE C**

### **PLAN ASSETS**

Plan assets are resources, usually in the form of stocks, bonds, and other classes of investments, that have been segregated and restricted in a trust, or equivalent arrangement, in which (a) employer contributions to the plan are irrevocable, (b) assets are dedicated to providing benefits to retirees and their beneficiaries, and (c) assets are legally protected from creditors of the employers or plan administrator, for the payment of benefits in accordance with the terms of the plan.

As of January 1, 2019, the plan has \$113,097,682 in assets held in trust solely to provide benefits to retirees and their beneficiaries in accordance with the terms of the plan. It is our understanding that trust contributions will be greater than or equal to the ADC each year. Since the asset allocation for the OPEB trust is similar to the asset allocation for the pension trust, the annual discount rate remains 7.50% to match the discount rate used in the pension valuation.

### **SCHEDULE D**

### **OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS**

VALUATION DATE: January 1, 2019

**DISCOUNT RATE:** 7.50% per annum, compounded annually.

**HEALTH CARE COST TREND RATES:** Following is a chart detailing trend assumptions.

Year	Pre-Medicare Medical Trend	Medicare-Eligible Medical Trend
2019	7.00%	5.00%
2020	6.50%	4.75%
2021	6.00%	4.50%
2022	5.50%	4.50%
2023	5.25%	4.50%
2024	5.00%	4.50%
2025	4.75%	4.50%
2026 and beyond	4.50%	4.50%

**AGING ADJUSTMENT:** Per capita pre-Medicare eligible costs are adjusted to reflect expected cost changes related to age. Following is a chart detailing the assumed increase to the net incurred claims.

Participant Age	Annual Increase
< 50	0.0%
50 – 54	3.3
55 – 59	3.6
60 – 64	4.2



### **FUTURE PARTICIPATION AND COVERAGE ELECTIONS**

Current inactives are assumed to maintain current plan and coverage tier elections. Current active employees are assumed to make the following plan, coverage tier and participation elections:

Future Retiree Plan Election

Pre-Med	licare	Medicare Eligible		
65%	HMO	100%	Extend Health	
15%	PPO			
5%	OAP			
15%	Kaiser			

Future Retiree Participation: (If currently electing coverage, 0% if currently waiving coverage)

Grandfathered Future Retirees 95%

Non - Grandfathered Future Retirees	Based on service at retirement	
	10 – 14 years service at retirement	60%
	15 – 19 years service at retirement	70%
	20 – 24 years service at retirement	80%
	25 – 29 years service at retirement	90%
	30+ years service at retirement	95%

Future Retiree Spouse Coverage 70% for Males 25% for Females

Wives are assumed to be 3 years younger than their husbands.

**MONTHLY MEDICAL/RX CLAIMS (HMO, PPO, OAP, MA):** Following is a chart detailing expected claims for pre Medicare for the year following the valuation date. Claims are age-adjusted to age 65.

	Medical/Rx	Medical/Rx	Medical/Rx	Medical/Rx
	HMO	PPO	OAP	Kaiser
Pre-65	\$ 1,362.22	\$ 1,399.02	\$ 1,115.18	\$ 904.40

In 2019 the monthly stipend was \$348.40 for retirees and \$265.20 for spouses. We have assumed the stipend will increase with Medicare-eligible medical trend.



**MONTHLY MEDICAL/RX CONTRIBUTIONS:** Following is a chart detailing expected premium or stipend amounts upon which the service based contributions will be based for the year following the valuation date. Amounts shown are for Single coverage as of January 1, 2019.

Medical/Rx	Medical/Rx	Medical/Rx	Medical/Rx	Medicare
Kaiser	HMO	PPO	OAP	Eligible
\$560.50	\$688.96	\$855.28	\$704.60	

Effective January 1, 2012, a spousal surcharge of \$100 per month will be charged to all employees who elect spousal coverage if the spouse has coverage available. It is assumed that 5% of pre-Medicare eligible retirees who cover spouses pay the spousal surcharge. The spousal surcharge is not assumed to increase.

**ACTUARIAL METHOD:** Costs were determined using the Projected Unit Credit Actuarial Cost Method. The annual service cost is the present value of the portion of the projected benefit attributable to participation service during the upcoming year, and the Actuarial Accrued Liability (AAL) is equal to the present value of the portion of the projected benefit attributable to service before the valuation date. Service from hire date through full retirement eligibility date was used in allocating costs.

**MORTALITY:** Pre-retirement mortality:

RP-2000 Employee projected to 2025 using scale BB, sex distinct

No Set back / Set forward

Post-retirement mortality:

RP-2000 Combined projected to 2025 using scale BB, sex distinct

Set forward 2 years for both Male & Female lives





Representative values of the assumed annual rates of withdrawal are shown in the following tables.

### General Employees - Male

						Yea	rs of Servi	ce				
Age	< 1	1	2	3	4	5	6	7	8	9	10	11+
20	30.00%	25.00%	20.00%	13.00%	12.00%	12.00%	10.00%	10.00%	6.00%	6.00%	6.00%	4.00%
25	27.00	25.00	20.00	13.00	12.00	12.00	10.00	10.00	6.00	6.00	6.00	4.00
30	26.00	25.00	20.00	13.00	12.00	12.00	10.00	10.00	6.00	6.00	6.00	4.00
35	25.00	20.00	15.00	13.00	12.00	10.50	10.00	10.00	6.00	6.00	6.00	3.00
40	24.00	17.50	13.00	13.00	12.00	9.00	9.00	9.00	5.00	5.00	5.00	2.00
45	20.00	15.00	10.00	9.00	7.00	6.00	8.00	8.00	4.00	4.00	4.00	2.00
50	15.00	12.50	8.00	8.00	5.00	3.00	5.00	5.00	3.00	3.00	3.00	2.00
55	7.50	8.00	6.00	7.00	5.00	2.00	3.00	3.00	2.00	2.00	2.00	1.50
60	2.50	4.00	3.00	6.00	5.00	1.50	1.50	1.50	1.00	1.00	1.00	1.00
65	0.00	0.00	0.00	5.00	5.00	1.00	1.00	1.00	0.50	0.50	0.50	0.25

## General Employees – Female

						Yea	rs of Servi	се				
Age	< 1	1	2	3	4	5	6	7	8	9	10	11+
							<b>)</b>					
20	30.00%	22.50%	17.00%	17.00%	14.00%	12.00%	9.00%	9.00%	9.00%	7.00%	6.00%	4.50%
25	30.00	22.50	17.00	17.00	14.00	12.00	9.00	9.00	9.00	7.00	6.00	4.50
30	30.00	22.50	17.00	17.00	13.00	12.00	9.00	8.00	8.50	7.00	6.00	4.50
35	30.00	22.50	13.00	15.00	9.00	12.00	7.50	7.00	7.50	7.00	6.00	3.75
40	25.00	22.50	9.00	9.00	7.00	10.50	6.50	6.00	6.00	6.00	5.00	2.75
45	20.00	16.00	9.00	7.00	7.00	7.00	5.50	4.50	4.50	4.50	4.00	2.00
50	15.00	12.00	9.00	6.00	6.00	6.00	4.50	3.00	3.50	3.50	3.00	1.50
55	15.00	8.00	9.00	5.00	5.00	5.00	3.50	2.00	2.00	2.00	2.00	1.00
60	15.00	8.00	9.00	4.00	4.00	4.00	2.50	1.00	1.50	1.50	1.00	0.75
65	15.00	8.00	9.00	4.00	4.00	4.00	1.50	0.50	0.50	0.50	0.50	0.50



### **Public Safety**

	_					Years of S	Service			·		
Age	< 1	1	2	3	4	5	6	7	8	9	10	11+
20	15.00%	8.00%	10.00%	8.00%	7.50%	5.00%	6.50%	6.00%	2.50%	3.50%	2.50%	2.50%
25	15.00	8.00	10.00	8.00	7.50	5.00	6.50	6.00	2.50	3.50	2.50	2.50
30	15.00	8.00	10.00	8.00	7.50	5.00	6.50	5.00	2.50	3.50	2.50	2.50
35	15.00	8.00	10.00	8.00	7.50	5.00	6.50	4.00	2.50	3.50	2.50	2.35
40	15.00	8.00	10.00	8.00	7.50	5.00	6.50	3.00	2.50	3.50	2.50	1.25
45	15.00	8.00	10.00	8.00	7.50	5.00	6.50	2.00	2.50	3.50	2.50	0.85
50	15.00	8.00	10.00	8.00	7.50	5.00	6.50	1.00	2.50	3.50	2.50	0.25

## **Superior Court and State Court Judges**

-	
Age	Rate
20	4.0%
25	4.0
30	4.0
35	4.0
40	6.0
45	4.0
50	3.0
55	2.5
60	2.5
65	2.5



Representative values of the assumed annual rates of retirement are shown in the following tables.

Traditional & Hybrid Plan General Employees hired prior to January 1, 2007

		Years of	Service		
Age	10	15	20	25	30
50	0.0%	0.0%	0.0%	0.0%	60.0%
55	5.0	5.0	5.0	35.0	20.0
60	5.0	5.0	35.0	5.0	5.0
65	35.0	35.0	35.0	35.0	35.0
66	31.0	31.0	31.0	31.0	31.0
67	27.5	27.5	27.5	27.5	27.5
68	27.5	27.5	27.5	27.5	27.5
69	27.5	27.5	27.5	27.5	27.5
70	100.0	100.0	100.0	100.0	100.0

Traditional & Hybrid Plan General Employees hired on or after January 1, 2007

		Years of	Service		
Age	10	15	20	25	30
55	5.0%	5.0%	5.0%	35.0%	35.0%
60	5.0	5.0	35.0	5.0	5.0
65	35.0	35.0	35.0	35.0	35.0
66	31.0	31.0	31.0	31.0	31.0
67	27.5	27.5	27.5	27.5	27.5
68	27.5	27.5	27.5	27.5	27.5
69	27.5	27.5	27.5	27.5	27.5
70	100.0	100.0	100.0	100.0	100.0



Traditional & Hybrid Plan Public Safety Employees hired prior to January 1, 2007

	Years of Service				
Age	10	15	20	25	30
50	0.0%	0.0%	0.0%	0.0%	70.0%
55	7.5	7.5	7.5	50.0	25.0
60	3.5	3.5	45.0	25.0	25.0
65	50.0	50.0	50.0	50.0	50.0
66	50.0	50.0	50.0	50.0	50.0
67	100.0	100.0	100.0	100.0	100.0

## Traditional & Hybrid Plan Public Safety hired on or after January 1, 2007

	Years of Service				
Age	10	15	20	25	30
55	7.5%	7.5%	7.5%	50.0%	50.0%
60	3.5	3.5	45.0	25.0	25.0
65	50.0	50.0	50.0	50.0	50.0
66	50.0	50.0	50.0	50.0	50.0
67	100.0	100.0	100.0	100.0	100.0

### **Superior Court and State Court Judges**

Age	Rate
60	15%
61	10
62	12
63-64	10
65-69	15
70-74	25
75	100



### **SCHEDULE E**

## SUMMARY OF MAIN PLAN PROVISIONS AS INTERPRETED FOR VALUATION PURPOSES

**ELIGIBILITY:** Eligible employees will include employees retiring from Cobb County and electing medical coverage at retiree rates.

### **RETIREMENT:**

### **Normal Retirement**

For employees hired before January 1, 2009, the first day of the calendar month coinciding with or next following the participant's 65<sup>th</sup> birthday, or if later, the day the participant completes 7 years of service. However, for any participant who has met all of the requirements to be eligible to retire under the Normal Retirement or Rule of 80 provisions as of December 31, 2008, the Normal Retirement Date shall remain the later of age 65 and the completion of 5 years of service.

For employees hired on or after January 1, 2009, the later of age 65 or 10 years of service.

For employees hired on or after January 1, 2010, the later of Social Security Normal Retirement Age or 10 years of service.

### **Rule of 80 Retirement**

For employees hired before January 1, 2007, age and service must total 80.

Employees hired on or after January 1, 2007 will only qualify for the Rule of 80 if they reach a minimum of age 55 or 35 years of service in addition to satisfying the other requirements.

### **Early Retirement**

For employees hired before January 1, 2009: 55 with 7 years of service

For employees hired on or after January 1, 2009: 55 with 10 years of service

### Disability

10 years of service

### **ELIGIBILITY FOR HEALTH BENEFITS:**

Effective January 1, 2007 (for Employees hired prior to January 1, 2006):

- All full-time employees with seven (7) or more years of service as of the effective date will be eligible
  to continue medical coverage with ten (10) years of service at termination of employment
  immediately before commencement of retirement benefits.
- All full-time employees with less than seven (7) years of service as of the effective date will be eligible to continue medical coverage with fifteen (15) years of service at termination of employment immediately before commencement of retirement benefits.



 Effective January 1, 2010 – Employees within this definition of eligibility who elect to retire prior to age 65 and prior to 15 years of service may participate in the health benefit until the end of the month of their 65<sup>th</sup> birthday. Cobb County will contribute 2.5 percent of health premium cost for each full year of service up to a maximum of 30 years of service (75%).

Effective January 1, 2006 (Employees hired on or after January 1, 2006):

• All full-time new hires will be eligible to continue medical coverage with twenty (20) years of service at termination of employment to immediately commence retirement.

### Effective January 1, 2009:

 All full-time new hires or rehires will be eligible to continue medical coverage with thirty (30) years of service at termination of employment to immediately commence retirement.

### Effective January 1, 2010:

- Cobb County will continue 2.5 percent of health premium cost for each year of service up to a maximum of 30 years of service (75%). Those employees meeting eligibility requirements for retiree health coverage prior to January 1, 2010 will not be subject to this provision.
- All disabled Employees of Cobb County Government if:
  - They were disabled on or after November 1, 1998;
  - They are eligible and receive monthly compensation benefits from the Cobb County Government Board of Commissioners group Long Term Disability Plan; and
  - They have been continuously covered for medical care benefits for at least ten years as an Employee (or as his Spouse's dependent) under the Health Benefit Plan or under any other policy or plan sponsored or arranged by the sponsor, just before the date of his disability.

RETIREE CONTRIBUTIONS: Effective January 1, 2013, Cobb County Medicare Eligible retirees will no longer be covered under the Cobb County Group Plan and instead will be extended coverage through individual health insurance policies administered by Extend Health. Premiums will be reimbursed by Cobb County through a stipend into a non-taxable HRA (health reimbursement account). In 2013 the monthly stipend was \$335 for retirees and \$255 for spouses. This amount remained level for 2014 and increased 4% for 2015 to \$348.40 for retirees and \$265.20 for spouses. The amount has remained level through 2019. We have assumed the stipend amount will increase with Medicare-eligible medical trend. Pre-Medicare eligible retiree premiums are determined based on a cost-sharing arrangement and, therefore, increase with medical trend as claims costs increase.

Effective January 1, 2010, Cobb County will contribute 2.5% of the health premium cost or stipend for each year of service up to a maximum of 30 years of service. Therefore, Cobb County will pay a portion of the retiree health premium or stipend, up to a maximum of 75%, with the retiree paying the remaining premium amount. Current retirees or those eligible to retire by January 1, 2010 with at least 10 years of service are not impacted by the change.

Effective January 1, 2012, a spousal surcharge of \$100 per month will be charged to all employees who elect spousal coverage if the spouse has coverage available. The spousal surcharge is not assumed to increase.

### **BOARD OF TRUSTEES**

# Cobb County Government Employees' Pension Plan Trust Other Post-Employment Benefits (OPEB) Trust Meeting of April 10, 2019 2nd Fl. BOC Meeting Room 8:00 A.M.

Present: Roger Tutterow, Chair

Sheriff Neil Warren, Vice-Chair

Virgil Moon, Trustee

Tony Hagler, Trustee/Secretary

Bill Volckmann, Trustee

A scheduled meeting of the Board of Trustees of the Cobb County Employees Retirement Plan was called to order by <u>Roger Tutterow</u> at <u>8:05</u> a.m. in the 2<sup>rd</sup> Floor Board of Commissioners Board Room, 100 Cherokee Street, Marietta, Georgia. The following items of business were discussed:

### I. Invitation for Public Comment

No comments

### II. Approval of Minutes

A motion was made by <u>Neil Warren</u> and seconded by <u>Virgil Moon</u> to approve the minutes of the February 5, 2019 meeting.

Vote: 5 - 0, in favor

### III. Ratify approval of Invoice Payments

A motion was made by <u>Neil Warren</u> and seconded by <u>Virgil Moon</u> to approve <u>One</u> invoice totaling \$45,615.37 for the Cobb County Employees Retirement Plan.

Vote: 5-0, in favor

### IV. Trust Report

a. SunTrust – Lisa Allen

### V. Advisor Report – UBS Consulting – Earle Dodd, Allen Wright, Van Price & Austin Dodd

- a. Pension & OPEB performance review through April.
- b. Tweedy Browne presentation & International Equity presentation
- c. UBS white paper on our capital market assumptions

A recommendation was made by UBS to replace Dodge & Cox and replace them with Tweedy Browne in the Global Allocation Market. A motion was made by <u>Roger Tutterow</u> to approve the recommendation and seconded by Virgil Moon.

Vote: 5–0, in favor

	• •	_		
VI.	New	Kn	sin	PSS

- a. HB 196 Passed
- **b.** Powder Springs Water Amendment

### VII. Adjourned at 9:31 a.m.

A motion was made by Roger Tutterow and seconded by Neil Warren to adjourn.

Vote: 5–0, in favor

The next tentatively scheduled meeting will be on <u>Wednesday June 5, 2019</u> at 8:00 a.m. in the 2<sup>rd</sup> Floor Board of Commissioners Board Room, 100 Cherokee Street, Bldg. A., Marietta, Georgia.

CERTIFIED CORRECT:	
Anthony B. Hagler	Roger Tutterow
Secretary	Chair

# COBB COUNTY GOVERNMENT EMPLOYEES' PENSION PLAN

Trust Report: March 1, 2019- April 30, 2019

June 5, 2019



Lisa Allen Institutional Advisory Services Vice President & Client Mgr. Atlanta, GA 404.827.6724 <u>Lisa.Allen@suntrust.com</u>



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- Board of Trustees
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### IV. Disclosures

Important Disclosures



I. MARKET VALUE UPDATE
- MARCH 2019





## PORTFOLIO ALLOCATION BY INVESTMENT MANAGER - MARCH 2019

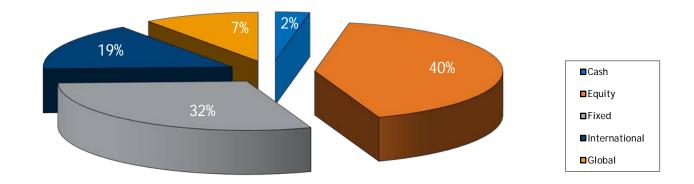
INVESTMENT MANAGER	ASSET CLASS	ASSET STYLE	9/30/2018 MARKET VALUE	%	3/31/2019 MARKET VALUE	%
Westfield Capital Mgt	Equity	Large Cap Growth	49,409,658	7.2%	48,200,033	7.3%
Vanguard S&P 500 *	Equity	Large Cap Blend	72,568,707	10.5%	73,950,595	11.1%
TCW Asset Mgt	Equity	Large Cap Growth	40,214,394	5.8%	40,352,517	6.1%
Eagle Capital	Equity	Large Cap Value	73,423,400	10.7%	71,396,132	10.7%
Equity Investment Co	Equity	Large Cap Value	0	0.0%	0	0.0%
Vanguard Mid Cap	Equity	Mid Cap Value	44,632,637	6.5%	43,495,497	6.5%
Eagle Asset Mgt	Equity	Small Cap Growth	21,014,264	3.0%	19,517,322	2.9%
Vaughan Nelson	Equity	Small Cap Value	22,898,942	3.3%	21,608,870	3.3%
Total Equity			324,162,002	47.0%	318,520,966	47.9%
Disalmoni, Clabal	Clabal	Mould Allocation	10 021 520	2 (0)	10 417 021	2.00/
Blackrock Global	Global	World Allocation	18,031,538	2.6%	18,417,031	2.8% 3.3%
First Eagle Global	Global	World Allocation	21,122,879	3.1%	22,027,433	
Natixis Loomis Sayles Global	Global	World Allocation	19,201,311	2.8%	21,348,863	3.2%
Total Global			58,355,728	8.5%	61,793,327	9.3%
Vanguard Total Int'l Stock	International	Non-US Equity	37,889,779	5.5%	37,504,436	5.6%
Dodge & Cox Int'l	International	Non-US Equity	37,960,174	5.5%	34,590,532	5.2%
Vanguard Int'l Growth	International	Non-US Equity	37,685,297	5.5%	36,056,263	5.4%
Total International		. ,	113,535,250	16.5%	108,151,230	16.3%
Vanguard Int Bond	Fixed	Intermediate Bond	45,243,060	6.6%	0	6.9%
MacQuarie Diversified	Fixed	Intermediate Bond	44,023,855	6.4%	45,974,967	0.0%
Blackrock Strategic	Fixed	Multi Sector Bond	23,827,185	3.5%	45,715,117	6.9%
CIGNA	Fixed	Stable Value	1,400,000	0.2%	1,200,000	0.2%
Richmond	Fixed	Short-Term Bond	72,919,597	10.6%	76,343,254	11.5%
Total Fixed	TACU	SHOLE TOTHI DONG	187,413,697	27.2%	169,233,338	25.5%
Total I IACu			107,713,077	21.270	107,233,330	23.370
Committee Directed	Cash		5,528,480	0.8% _	6,752,887	1.0%
TOTAL TRUST			\$688,995,157	100%	\$664,451,747	100%

<sup>\*</sup> Market Value includes \$23,237.50 cash in Mutual Fund account 1138666



## HISTORICAL COST OF ASSETS - MARCH 2019

\$514,804,883.43





# SUMMARY REPORT - MARCH 2019

	MONTH 3/01/19 - 3/31/19	CALENDAR YTD 1/01/18 -3/31/19	FISCAL YTD 10/01/18 - 1/31/19
Beginning Market Value			
Plus Accrued Income	656,948,901	602,839,567	672,158,540
Administrative Receipts/Disbursements			
Employer Contributions	4,097,585	12,288,454	26,567,130
Employee Contributions	1,559,060	3,591,137	6,707,671
Inter-Account Transfers	0	0	0
Benefit Payments	-6,043,096	-18,062,191	-35,819,110
Other Cash Receipts/Disbursements	2,246	4,666	6,048
Administrative Expenses	-45,756	-535,687	-1,107,991
Sub-Total	-429,961	-2,713,620	-3,646,252
Investment Results			
Non-Cash Receipts/Disbursements	-26,381	-198,027	-403,506
Income Earned	1,236,653	2,307,338	6,773,172
Gain/Loss on Assets Disposed/Sold	2,234,216	934,913	10,721,797
Change In Unrealized Gain/Loss	4,488,317	61,281,576	-21,152,004
Sub-Total	7,932,806	64,325,801	-4,060,541
Ending Market Value			
Plus Accrued Income	664,451,746	664,451,747	664,451,746
Market Value Growth			
Percent Change	1.14%	10.22%	-1.15%
Market Value as of 3/31/18 Annual Percent Change		646,545,257 2.77%	
Market Value as of 4/9/19 Percent Change Since 3/31/19		671,390,916 1.04%	



## ADMINISTRATIVE EXPENSES - MARCH 2019

	MONTH	CALENDAR YTD	FISCAL YTD	
	3/01/19 -3/31/19	1/01/19 - 3/31/19	10/01/18 - 3/31/19	
Investment Management Fees:				
Westfield Capital Mgt	0	-59,665	-129,415	
TCW Asset Management	0	-181,525	-181,525	
Eagle Asset Mgt	0	-31,350	-70,750	
Equity Investment Company	0	0	0	
VMar1918han Nelson	0	-46,935	-103,543	
Eagle Capital	0	-121,364	-261,674	
Richmond	0	-36,467	-72,538	
LGIP Fee	140	493	530	
Sub-Total Inv. Mgt. Fees as a % of Assets	-140 0.00%	-477,799 0.07%	-819,977 0.12%	
IIIV. Myt. I ees as a % of Assets	0.00%	0.0776	0.12/0	
Trust Fees:				
SunTrust	-43,861	-43,861	-136,395	
Asset Consulting Fees:				
UBS Financial Services	0	0	-118,104	
Cavanaugh MacDonald Consulting	-1,238	-13,510	-19,369	
Legal & Other Services:				
Troutman Sanders	-367	-367	-13,995	
Cobb County (GAPPT)	150	150	150	
TOTAL ADMINISTRATIVE EXPENSES	-45,755	-535,686	-1,107,991	
Total Admin. Exp. As a % of Assets	0.01%	0.08%	0.17%	
Total Autiliti. Exp. As a % of Assets	0.01%	0.06%	0.17/0	
Reimbursement of Expenses:				
Class Actions Proceeds	<u> </u>	2,617	2,950	
Sub-Total	197	2,617	2,950	
NET ADMINISTRATIVE EXPENSES*	-45,558	-533,069	-1,105,041	
Net Admin. Exp. As a % of Assets	0.01%	0.08%	0.17%	
•				

<sup>\*</sup> reflects disbursements made from the Trust only and excludes implicit mutual fund expenses





## CLASS ACTION PROCEEDS - MARCH 2019

	<b>CLAIMS PAID</b>		OUTSTANDING CLAIMS				
<u>2019</u>	Class Period	Amount Date Paid	Company	Add Date	Company	Add Date	
DFC Global	01/28/11-02/03/14	2,420 2/22/2019	Key Energy Services	Mar-08	Biolase	Sep-15	
Amedisys	08/02/05-09/30/11	197 3/26/2019	HCA Holdings		Delcath Systems	Nov-15	
			Martek Bioscience Genesis Microchip		Intralinks Holdings	Nov-15	
			Inc	Apr-08	MF Global	Dec-15	
			Regeneron Pharm				
			Inc		Tower Group	Dec-15	
			CV Therapeutics		Invacare Corp	Dec-15	
			Helen of Troy		CVS	May-16	
			Viisage Technology		Bioscrip	Jul-16	
			Buca		JP Morgan Chase	Jul-16	
			Bisys	Oct-08	Barrick Gold	Oct-16	
			Coca Cola		Elan Corp	Aug-17	
			Netopia	Jan-09	PTC Inc.	Aug-17	
			Level 3	Jun-09	Harman International	Sep-17	
			Carrier Access Corp		DFC Global	Sep-17	
			Alliance Gaming American Italian		Home Loan Servicing	Nov-17	
			Pasta		Aegerion Pharm	Nov-17	
			KVH Industries		CTI Biopharma	Feb-18	
			McKesson/HBOC		Imperva	Feb-18	
			Red Robin Gourmet		Ariad Pharmaceuticals	Apr-18	
CLAIMS P	AID SUMMARY		Charlotte Russe		Commvault Systems	May-18	
2002 - 2005	40,569		LHC Group		Lehman Brothers	May-12	
2006 - 2010	371,842		MCSI		Fitbit Inc.	Aug-18	
2011 - 2015	118,589		Xerox		Facebook	Aug-18	
2016	1,394		Wyeth	Mar-13	Gopro Inc.	Aug-18	
2017	34,902		Northwest Pipe	Mar-13	Allergan Inc.	Aug-18	
2018	7,989		Pharmacia Corp	Mar-13	Big Lots	Nov-18	
2019	2,617		Citigroup	Feb-14	Vista Outdoors	Nov-18	
Total	577,902		Diebold Weatherford	Jun-14	Quality Systems Inc	Dec-18	
			International	Sep-14	Intuitive Surgical JP Morgan-KCC	Dec-18 Feb-19	



## MARKET TO MARKET SUMMARY - MONTH ENDING MARCH 31, 2019

Market Value	Westfield Capital Mgt	TCW Asset Mgt	Eagle Capital	Equity Investment	Eagle Asset Mgt	Vaughan Nelson	MacQuarie Diversified	CIGNA	Richmond	Mutual Funds	Committee Directed	Combined Account
Plus Accrued Income As Of 3/01/2019 Administrative Receipts/Disbursements	47,441,393	38,875,243	70,780,669	0	19,899,931	22,036,699	45,184,455	1,200,000	74,813,713	330,542,842	6,173,957	656,948,901
Employer Contributions Employee Contributions	0	0	0	-		0	_	0	0	0	4,097,585 1,559,060	4,097,585 1,559,060
Inter-Account Transfers Benefit Payments	0	0	0	0	0	0	0	0	0	-1,000,000 0	1,000,000 -6,043,096	0 -6,043,096
Other Cash Receipts/Disbursements Administrative Expenses	0	0	0	-		0	0	0	200 0	0	1,849 -45,756	2,246 -45,756
Sub-Total	0	0	0	0	197	0	0	0	200	-1,000,000	569,642	-429,961
Investment Results												
Non-Cash Receipts/Disbursements	0	0	-30,706	0	0	0	0	0	4,325	0	0	-26,381
Income Earned	38,732	16,962	42,381		-,	48,525	4	0	243,266	829,363	9,288	1,236,653
Gain/Loss On Assets Disposed/Sold	108,469	285,639	1,219,340		,	-267,927		0	30,220	735,661	0	2,234,216
Change In Unrealized Gain/Loss	611,439	1,174,673	-615,552	0	-513,755	-208,427	790,508	0	1,251,531	1,997,900	0	4,488,317
Sub-Total Market Value	758,641	1,477,274	615,464	0	-382,807	-427,830	790,512	0	1,529,341	3,562,923	9,288	0 7,932,806
Plus Accrued Income As Of 3/31/2019	48,200,033	40,352,517	71,396,132	0	19,517,321	21,608,870	45,974,967	1,200,000	76,343,254	333,105,766	6,752,887	664,451,746
Cash Balance at SunTrust on 3/31/2019	551,712	1,458,073	4,866,528	0	400,233	1,249,673	1,988	0	834,048	23,238	6,648,624	16,034,117
Cash Balance at LGIP on 3/31/2019	0	0	0	•			_	0	0	0	101,938	101,938
Total Cash As Of 3/31/2019	551,712	1,458,073	4,866,528	0	400,233	1,249,673	1,988	0	834,048	23,238	6,750,562	16,136,055
Most Recent Cash Balance as of 4/9/2019	784,744	1,502,187	4,297,848	0	436,839	1,276,475	1,992	0	48,767	23,283	125,058	8,497,194
Federated Treasury Obligations [Monthly]	0.20%											
Georgia Fund 1* [Monthly]	2.44%											

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## MARKET TO MARKET SUMMARY - FISCAL YTD AS OF MARCH 31, 2019

	Westfield Capital Mgt	TCW Asset Mgt	Eagle Capital	Equity Investment	Eagle Asset Mgt	Vaughan Nelson	MacQuarie Diversified	CIGNA	Richmond	Mutual Funds	Committee Directed	Combined Account
Market Value												
Plus Accrued Income As Of 10/01/18	49,409,658	40,214,394	73,423,400	0	21,014,264	22,898,942	44,023,855	1,400,000	72,919,597	341,325,950	5,528,480	672,158,539
Administrative Receipts/Disbursements												
Employer Contributions	0	0	0	0	0	0	0	0	0	0	26,567,130	26,567,130
Employee Contributions	0	0	0	0	0	0	0	0	0	0	6,707,671	6,707,671
Inter-Account Transfers	0	0	0	0	0	0	0	0	0	-4,000,000	4,000,000	0
Benefit Payments	0	0	0	0	0	0	0	0	0	0	-35,819,110	-35,819,110
Other Cash Receipts/Disbursements	169	0	0	0	2,780	0	0	0	200	0	2,899	6,048
Administrative Expenses	-129,415	-181,525	-261,674	0	-70,750	-103,543	0	0	-72,538	0	-288,544	-1,107,991
Sub-Total	-129,246	-181,525	-261,674	0	-67,971	-103,543	0	0	-72,338	-4,000,000	1,170,046	-3,646,252
Investment Results												
Non-Cash Receipts/Disbursements	-205,479	0	-2,352	0	0	0	0	-200,000	4,325	0	0	-403,506
Income Collected	286,931	98,562	397,906	0	56,475	179,929	22	0	1,422,332	4,276,653	54,361	6,773,172
Gain/Loss On Assets Sold	599,830	1,049,709	5,846,635	0	295,205	-360,520	0	0	-273,460	3,564,398	0	10,721,797
Change In Unrealized Gain/Loss	-1,761,660	-828,623	-8,007,783	0	-1,780,653	-1,005,937	1,951,090	0	2,342,798	-12,061,235	0	-21,152,004
	0	0	0				0	0	0	0	0	
Sub-Total	-1,080,378	319,648	-1,765,594	0	-1,428,973	-1,186,529	1,951,112	-200,000	3,495,996	-4,220,184	54,361	-4,060,541
Market Value												
Plus Accrued Income As Of 3/31/2019	48,200,034	40,352,517	71,396,132	0	19,517,321	21,608,870	45,974,967	1,200,000	76,343,255	333,105,766	6,752,887	664,451,746

II. MARKET VALUE UPDATE
- APRIL 2019



## PORTFOLIO ALLOCATION BY INVESTMENT MANAGER - APRIL 2019

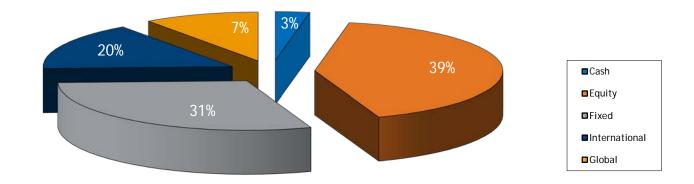
	MONTH	CALENDAR YTD	FISCAL YTD
	4/01/19 - 4/30/19	1/01/18 -4/30/19	10/01/18 - 4/30/19
Beginning Market Value Plus Accrued Income	664,451,746	602,839,567	672,158,540
Flus Accided income	004,451,740	002,037,307	072,136,340
Administrative Receipts/Disbursements			
Employer Contributions	6,189,472	18,477,926	32,756,602
Employee Contributions	1,046,010	4,637,147	7,753,681
Inter-Account Transfers	0	0	0
Benefit Payments	-6,130,094	-24,192,285	-41,949,203
Other Cash Receipts/Disbursements	-158	4,508	5,890
Administrative Expenses	-96,262	-631,948	-1,204,252
Sub-Total	1,008,968	-1,704,652	-2,637,284
Investment Results			
Non-Cash Receipts/Disbursements	0	-198,027	-403,506
Income Earned	529,210	2,836,548	7,302,382
Gain/Loss on Assets Disposed/Sold	4,630,310	5,565,223	15,352,107
Change In Unrealized Gain/Loss	16,865,608	78,147,185	-4,286,395
Sub-Total	22,025,129	86,350,929	17,964,588
Ending Market Value			
Plus Accrued Income	687,485,843	687,485,843	687,485,843
Market Value Growth			
Percent Change	3.47%	14.04%	2.28%
Market Value as of 4/30/18		645,456,345	
Annual Percent Change		6.51%	
Market Value as of 5/9/19		670,319,697	
Percent Change Since 4/30/19		-2.50%	





## HISTORICAL COST OF ASSETS - APRIL 2019

\$527,189,245.60



## SUMMARY REPORT - APRIL 2019

	MONTH 4/01/19 - 4/30/19	CALENDAR YTD 1/01/18 -4/30/19	FISCAL YTD 10/01/18 - 4/30/19
Beginning Market Value			
Plus Accrued Income	664,451,746	602,839,567	672,158,540
Administrative Receipts/Disbursements			
Employer Contributions	6,189,472	18,477,926	32,756,602
Employee Contributions	1,046,010	4,637,147	7,753,681
Inter-Account Transfers	0	0	0
Benefit Payments	-6,130,094	-24,192,285	-41,949,203
Other Cash Receipts/Disbursements	-158	4,508	5,890
Administrative Expenses	-96,262	-631,948	-1,204,252
Sub-Total	1,008,968	-1,704,652	-2,637,284
Investment Results			
Non-Cash Receipts/Disbursements	0	-198,027	-403,506
Income Earned	529,210	2,836,548	7,302,382
Gain/Loss on Assets Disposed/Sold	4,630,310	5,565,223	15,352,107
Change In Unrealized Gain/Loss	16,865,608	78,147,185	-4,286,395
Sub-Total	22,025,129	86,350,929	17,964,588
Ending Market Value			
Plus Accrued Income	687,485,843	687,485,843	687,485,843
Market Value Growth			
Percent Change	3.47%	14.04%	2.28%
Market Value as of 4/30/18 Annual Percent Change		645,456,345 6.51%	
Market Value as of 5/9/19 Percent Change Since 4/30/19		670,319,697 -2.50%	

## ADMINISTRATIVE EXPENSES - APRIL 2019

	MONTH 4/01/19 -4/30/19	CALENDAR YTD 1/01/19 - 4/30/19	FISCAL YTD 10/01/18 - 4/30/19
Investment Management Fees: Westfield Capital Mgt	0	-59,665	-129,415
TCW Asset Management	0	-181,525	-181,525
Eagle Asset Mgt Equity Investment Company	0 0	-31,350 0	-70,750 0
Vaughn Nelson	-53,870	-100,804	-157,413
Eagle Capital	0	-121,364	-261,674
Richmond	-37,362	-73,829	-109,900
LGIP Fee	<u>-119</u>	-612	-649
Sub-Total	-91,351	-569,150	-911,328
Inv. Mgt. Fees as a % of Assets	0.01%	0.08%	0.13%
T			
Trust Fees: SunTrust	0	42.041	12/ 205
Suittust	0	-43,861	-136,395
Asset Consulting Fees:			
UBS Financial Services	0	0	-118,104
Cavanaugh MacDonald Consulting	-4,605	-18,115	-23,974
Legal & Other Services:			
Troutman Sanders	-306	-673	-14,301
Cobb County (GAPPT)	0	150	
TOTAL ADMINISTRATIVE EXPENSES	-96,262	-631,948	-1,204,252
Total Admin. Exp. As a % of Assets	0.01%	0.09%	0.18%
•			
Reimbursement of Expenses:			
Class Actions Proceeds	0	2,617	2,950
Sub-Total	0	2,617	2,950
NET ADMINISTRATIVE EXPENSES*	-96,262	-629,331	-1,201,303
Net Admin. Exp. As a % of Assets	0.01%	0.09%	0.17%

 $<sup>^{\</sup>star}$  reflects disbursements made from the Trust only and excludes implicit mutual fund expenses





# CLASS ACTION PROCEEDS - APRIL 2019

### CLAIMS PAID \_ OUTSTANDING CLAIMS

<u>2019</u>	Class Period	<u>Amount</u>	Date Paid	Company	Add Date	Company	Add Date
DFC Global	01/28/11-02/03/14	2,420	2/22/2019	Key Energy Services	Mar-08	Biolase	Sep-15
Amedisys	08/02/05-09/30/11	197	3/26/2019	HCA Holdings		Delcath Systems	Nov-15
				Martek Bioscience		Intralinks Holdings	Nov-15
				Genesis Microchip Inc	Apr-08	MF Global	Dec-15
				Regeneron Pharm Inc		Tower Group	Dec-15
				CV Therapeutics		Invacare Corp	Dec-15
				Helen of Troy		CVS	May-16
				Viisage Technology		Bioscrip	Jul-16
				Buca		JP Morgan Chase	Jul-16
				Bisys	Oct-08	Barrick Gold	Oct-16
				Coca Cola		Elan Corp	Aug-17
				Netopia	Jan-09	PTC Inc.	Aug-17
				Level 3	Jun-09	Harman International	Sep-17
				Carrier Access Corp		DFC Global	Sep-17
				Alliance Gaming		Home Loan Servicing	Nov-17
				American Italian Pasta		Aegerion Pharm	Nov-17
				KVH Industries		CTI Biopharma	Feb-18
				McKesson/HBOC		Imperva	Feb-18
				Red Robin Gourmet		Ariad Pharmaceuticals	Apr-18
CLAIMS PAI	D SUMMARY			Charlotte Russe		Commvault Systems	May-18
2002 - 2005	40,569			LHC Group		Lehman Brothers Hdls	May-12
2006 - 2010	371,842			MCSI		Fitbit Inc.	Aug-18
2011 - 2015	118,589			Xerox		Facebook	Aug-18
2016	1,394			Wyeth	Mar-13	Gopro Inc.	Aug-18
2017	34,902			Northwest Pipe	Mar-13	Allergan Inc.	Aug-18
2018	7,989			Pharmacia Corp	Mar-13	Big Lots	Nov-18
2019	2,617			Citigroup	Feb-14	Vista Outdoors	Nov-18
Total	577,902			Diebold	Jun-14	Quality Systems Inc	Dec-18
				Weatherford International	Sep-14	Intuitive Surgical	Dec-18
				Lehman Brothers E&Y		JP Morgan-KCC	Feb-19



## MARKET TO MARKET SUMMARY - MONTH ENDING APRIL 30, 2019

	Westfield	TCW	Eagle	Equity	Eagle	Vaughan	MacQuarie			Mutual	Committee	Combined
	Capital Mgt	Asset Mgt	Capital	Investment	Asset Mgt	Nelson	Diversified	CIGNA	Richmond	Funds	Directed	Account
Market Value												
Plus Accrued Income As Of 4/01/2019	48,200,033	40,352,517	71,396,132	0	19,517,321	21,608,870	45,974,967	1,200,000	76,343,254	333,105,766	6,752,887	664,451,746
Administrative Receipts/Disbursements Employer Contributions	0	0	0	0	0	0	0	0	0	0	6,189,472	6,189,472
Employee Contributions	0	0	0		0	0	0	0	0	0	1,046,010	1,046,010
Inter-Account Transfers	0	0	0	0	0	0	0	0	0	0	0	0
Benefit Payments	0	0	0	0	0	0	0	0	0	0	-6,130,094	-6,130,094
Other Cash Receipts/Disbursements	0	0	-158	0	0	0	0	0	0	0	0	-158
Administrative Expenses	0	0	0	0	0	-53,870	0	0	-37,362	0	-5,030	-96,262
Sub-Total	0	0	-158	0	0	-53,870	0	0	-37,362	0	1,100,358	1,008,968
Investment Results												
Non-Cash Receipts/Disbursements	0	0	0	0	0	0	0	0	0	0	0	0
Income Earned	26,237	16,330	78,977	0	6,289	10,832	4	0	240,516	142,510	7,514	529,210
Gain/Loss On Assets Disposed/Sold Change In Unrealized Gain/Loss	248,698 2,236,757	38,717 2,060,726	952,575 3,671,758	0	303,692 386,489	42,689 835,059	0 222,330	0	-228,432 -11,616	3,272,372 7,464,105	0	4,630,310 16,865,608
Change in Onleanzed Gain/Loss	2,230,737	2,000,720	3,071,730	<u> </u>	300,407	033,037	222,330	0	-11,010	7,404,103	<u> </u>	0
Sub-Total	2,511,692	2,115,773	4,703,310	0	696,470	888,580	222,334	0	468	10,878,988	7,514	22,025,129
Market Value												
Plus Accrued Income As Of 4/30/2019	50,711,725	42,468,290	76,099,284	0	20,213,791	22,443,580	46,197,301	1,200,000	76,306,360	343,984,753	7,860,759	687,485,843
Cash Balance at SunTrust on 4/30/2019	1,110,313	1,598,487	4,827,658	0	825,574	1,530,270	1,992	0	493,532	11	7,859,158	18,246,996
Cash Balance at LGIP on 4/30/2019	0	0	0	0	0	0	0	0	0	0	0	0
Total Cash As Of 4/30/2019	1,110,313	1,598,487	4,827,658	0	825,574	1,530,270	1,992	0	493,532	11	7,859,158	18,246,996
Most Recent Cash Balance as of 5/9/2019	1,002,338	1,608,339	4,358,028	0	730,442	1,468,054	1,996	0	150,418	263	151,600	9,471,477
Federated Treasury Obligations [Monthly] Georgia Fund 1* [Monthly]	<b>0.19%</b> 2.45%											

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## MARKET TO MARKET SUMMARY - FISCAL YTD AS OF APRIL 2019

	Westfield Capital Mgt	TCW Asset Mgt	Eagle Capital	Equity Investment	Eagle Asset Mgt	Vaughan Nelson	MacQuarie Diversified	CIGNA	Richmond	Mutual Funds	Committee Directed	Combined Account
Market Value Plus Accrued Income As Of 10/01/18	49,409,658	40,214,394	73,423,400	0	21,014,264	22,898,942	44,023,855	1,400,000	72,919,597	341,325,950	5,528,480	672,158,539
Administrative Receipts/Disbursements												
Employer Contributions	0	0	0	0	0	0	0	0	0	0	32,756,602	32,756,602
Employee Contributions	0	0	0	0	0	0	0	0	0	0	7,753,681	7,753,681
Inter-Account Transfers	0	0	0	0	0	0	0	0	0	-4,000,000	4,000,000	0
Benefit Payments	0	0	0	0	0	0	0	0	0	0	-41,949,203	-41,949,203
Other Cash Receipts/Disbursements	169	0	-158	0	2,780	0	0	0	200	0	2,899	5,890
Administrative Expenses	-129,415	-181,525	-261,674	0	-70,750	-157,413	0	0	-109,900	0	-293,574	-1,204,252
Sub-Total	-129,246	-181,525	-261,832	0	-67,971	-157,413	0	0	-109,700	-4,000,000	2,270,403	-2,637,284
Investment Results												
Non-Cash Receipts/Disbursements	-205,479	0	-2,352	0	0	0	0	-200,000	4,325	0	0	-403,506
Income Collected	313,168	114,892	476,883		62,764	190,761		0	1,662,848	4,419,163	61,875	7,302,382
Gain/Loss On Assets Sold	848,528	1,088,426	6,799,210	0	598,897	-317,832	0	0	-501,892	6,836,770	0	15,352,107
Change In Unrealized Gain/Loss	475,097	1,232,103	-4,336,025	0	-1,394,164	-170,878	2,173,420	0	2,331,182	-4,597,130	0	-4,286,395
	0	0	0				0	0	0	0	0	
Sub-Total	1,431,314	2,435,421	2,937,716	0	-732,503	-297,949	2,173,446	-200,000	3,496,463	6,658,804	61,875	17,964,588
Market Value Plus Accrued Income As Of 4/30/2019	50,711,726	42,468,290	76,099,284	0	20,213,791	22,443,580	46,197,301	1,200,000	76,306,360	343,984,754	7,860,759	687,485,843





## BENEFIT PAYMENTS - JANUARY 1, 2019 to APRIL 30, 2019

	CALENDAR YTD	FISCAL YTD	FISCAL YTD
	01/01/19 - 04/30/19	10/01/18 - 04/30/19	MONTHLY AVERAGE
Monthly Checks	121	498	166
Monthly Direct Deposit	<u>2,552</u>	<u>12,643</u>	<u>4,214</u>
<b>Total Monthly Payments</b>	2,673	13,141	2,604
Lump Sum Payments	<u>32</u>	<u>158</u>	<u>53</u>
Total Benefit Payments	2,705	13,299	2,657

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# IV. PLAN CONTACTS





## **CONTACTS - BOARD OF TRUSTEES**

### Bill Volckmann

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### Sheriff Neil Warren

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## **Tony Hagler**

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## Curtis "Buddy" Tesar Associate Comptroller 100 Cherokee Street, Suite 400

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### Tressie Bloodworth

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- September lose value

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<b>W</b> UBS								b Count												
Style Analysis As of March 31, 2019 Manager/Accounts	Account #:	% Assets	Large Ca	-	Large Cap <u>Blend</u>	Large Ca <u>Value</u>	р	Mid Cap <u>Blend</u>		all Cap <u>rowth</u>	Small C		<u>Global</u>	Int	ternational_	Fixed Income	Cash	<u>L</u>		Total ortfolio
TCW	XXXXX93	6.1%	\$ 7,592,9	52															\$	7,592,952
Westfield Capital Management	XXXXX91	6.7%	\$ 8,333,2	202															\$	8,333,202
Vanguard S&P 500 (VINIX)	XXXXX57	11.1%		\$	13,839,843														\$	13,839,843
Eagle Capital	XXXXX00	10.4%				\$ 12,955,0	)40												\$	12,955,040
Vanguard Mid Cap (VIMAX)	XXXXX57	6.0%					\$	7,465,917											\$	7,465,917
Eagle Asset Management (HSRUX)	XXXXX57	2.6%							\$	3,207,502									\$	3,207,502
Vaughan Nelson	XXXXX94	3.1%									\$ 3,851	,314							\$	3,851,314
BlackRock Global Allocation (MALOX)	XXXXX57	2.9%										\$	3,566,895						\$	3,566,895
First Eagle Global (SGHX)	XXXXX57	3.3%										\$	4,181,827						\$	4,181,827
Loomis Sayles Global Equity & Income(LSWWX)	XXXXX57	3.6%										\$	4,470,052						\$	4,470,052
Vanguard Total Int'l Stock (VTSNX)	XXXXX57	6.6%												\$	8,210,307				\$	8,210,307
Vanguard International Growth (VWILX)	XXXXX57	6.0%												\$	7,529,207				\$	7,529,207
Dodge & Cox Int'l (DODFX)	XXXXX57	5.2%												\$	6,548,615				\$	6,548,615
Richmond	XXXXX92	12.3%														\$ 15,420,879			\$	15,420,879
BlackRock Strategic Income Opps (BSHX)	XXXXX57	6.7%														\$ 8,420,747			\$	8,420,747
Delaware Diversified Income (DPFFX)	XXXXX57	7.6%														\$ 9,533,668			\$	9,533,668
Total	<u> </u>	100%	\$ 15,926,1	54 \$	13,839,843	\$ 12,955,0	940 \$	7,465,917	\$	3,207,502	\$ 3,851	,314 \$	12,218,774	\$	22,288,129	\$ 33,375,294	\$	-	\$ 1	125,127,969
Current Allocation Target Allocation Difference in %			12.73% 11.00% 1.73%		11.06% 11.00% 0.06%	10.35% 11.00% -0.65%		5.97% 6.00% -0.03%	<u>3</u>	.56% . <u>00%</u> ).44%	3.08% 3.00% 0.08%	<u>.</u>	9.77% 10.00% -0.23%		17.81% <u>20.00%</u> -2.19%	26.67% 25.00% 1.67%	0.00%	/o		100% <u>100%</u>

Allen Wright, Earle Dodd, Vandyke Price Senior Institutional Consultant

Senior Vice President - Wealth Management

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Dollar values above are rounded to the nearest dollar.

Page 1 of 2

# Cobb County OPEB Asset Class Summary Market Value As of: March 31, 2019

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Sources: Custodial Statement; IPS; Client Request or Advisor Recommendation

Review code: IS1602740

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<b>UBS</b>				Cobb (		vernment E		Pension Pla	<u>n</u>					
Style Analysis		0./				Mile	6 11.6	6 11.6			E: 1			T . 1
As of March 31, 2019 Manager/Accounts	Account #:	%	Large Cap Growth	Large Cap Blend	Large Cap Value	Mid Cap Blend	Small Cap Growth	Small Cap Value	Global	International	Fixed Income	Cash		Total Portfolio
TCW				<u>Biciiu</u>	<u>v aiuc</u>	Dicity	Growth	<u>v aiuc</u>	Global	<u>International</u>	<u>meome</u>	Casii	-	
icw	XXXXX76	6.1%	\$ 40,344,619										\$	40,344,619
Westfield Capital Management	XXXXX32	7.3%	\$ 48,186,072										\$	48,186,072
Vanguard S&P 500 (VINIX)	XXXXX66	11.3%		\$ 73,927,312									\$	73,927,312
Eagle Capital	XXXXX85	10.9%			\$ 71,385,937								\$	71,385,937
Vanguard Mid Cap (VMCIX)	XXXXX66	6.6%				\$ 43,495,497							\$	43,495,497
Eagle Asset Management	XXXXX85	3.0%					\$ 19,511,555						\$	19,511,555
Vaughan Nelson	XXXXX49	3.3%						\$ 21,577,054					\$	21,577,054
BlackRock Global Allocation (MALOX)	XXXXX66	2.8%						:	18,417,031				\$	18,417,031
First Eagle Global (SGIIX)	XXXXX66	3.4%						:	22,027,433				\$	22,027,433
Loomis Sayles Global Equity & Income(LSWWX)	XXXXX66	3.3%						:	\$ 21,348,863				\$	21,348,863
Vanguard Total Int'l Stock (VTSNX)	XXXXX66	5.7%								\$ 37,504,436			\$	37,504,436
Vanguard International Growth (VWILX)	XXXXX66	5.5%								\$ 36,056,263			\$	36,056,263
Dodge & Cox Int'l (DODFX)	XXXXX66	5.3%								\$ 34,590,532			\$	34,590,532
Richmond	XXXXX37	11.6%									\$ 76,331,456		\$	76,331,456
BlackRock Strategic Income Opps (BSHX)	XXXXX66	7.0%									\$ 45,715,117		\$	45,715,117
Delaware Diversified Income (CIT)	XXXXX84	7.0%									\$ 45,999,666		\$	45,999,666
Total	[	100%	\$ 88,530,691	\$ 73,927,312	\$ 71,385,937	\$ 43,495,497	\$ 19,511,555	\$ 21,577,054	61,793,327	\$ 108,151,231	\$ 168,046,239	s -	· \$	656,418,842
Current Allocation			13.49%	11.26%	10.88%	6.63%	2.97%	3.29%	9.41%	16.48%	25.60%	0.00%		100%
Target Allocation			<u>11.00%</u>	<u>11.00%</u>	<u>11.00%</u>	<u>6.00%</u>	<u>3.00%</u>	<u>3.00%</u>	<u>10.00%</u>	<u>20.00%</u>	<u>25.00%</u>			<u>100%</u>
Difference in %			2.49%	0.26%	-0.12%	0.63%	-0.03%	0.29%	-0.59%	-3.52%	0.60%			

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Senior Vice President - Wealth Management

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Dollar values above are rounded to the nearest dollar.

Page 1 of 2

# Cobb County Government Employees' Pension Plan Asset Class Summary March Value As of March 74 2040

Market Value As of: March 31, 2019

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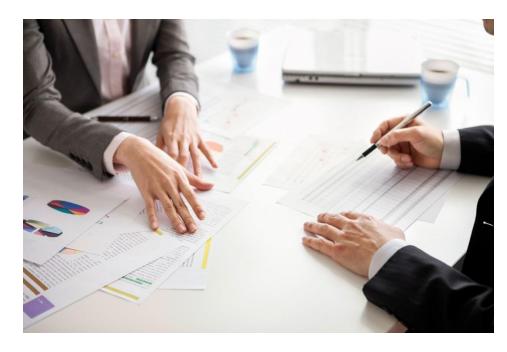
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# Quarterly Market Review



1st Quarter 2019

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# Markets' strong first quarter has mostly eclipsed 2018 losses

Quilt chart of select asset classes' calendar year performance

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Highest return	66.5%	13.2%	7.2%	11.5%	55.8%	25.6%	34.0%	32.1%	39.4%	12.4%	78.5%	26.9%	10.7%	18.2%	38.8%	13.2%	3.3%	21.3%	37.3%	1.3%	14.6%
	27.0%	11.7%	5.3%	9.6%	47.3%	20.3%	13.5%	26.3%	11.2%	-2.5%	58.2%	18.9%	9.0%	17.3%	33.1%	9.1%	0.9%	17.1%	25.0%	0.9%	14.0%
	21.3%	0.2%	5.1%	-1.4%	38.6%	18.3%	8.0%	18.4%	8.7%	-21.8%	31.8%	16.1%	5.0%	16.4%	22.8%	6.4%	0.9%	12.1%	21.7%	-2.1%	10.0%
	20.9%	-3.0%	2.5%	-4.2%	29.9%	11.4%	6.3%	15.5%	7.3%	-26.2%	28.4%	15.1%	1.8%	16.3%	11.8%	4.9%	0.1%	11.2%	14.6%	-4.2%	9.9%
	13.5%	-5.9%	-2.6%	-6.2%	29.0%	11.1%	4.6%	13.0%	5.8%	-33.8%	27.2%	9.2%	1.5%	15.8%	7.4%	4.9%	-0.8%	5.2%	14.4%	-4.8%	7.6%
,	2.4%	-7.8%	-3.6%	-15.9%	21.9%	10.8%	3.5%	11.8%	3.4%	-37.6%	24.8%	7.8%	-4.2%	11.7%	-2.6%	2.5%	-4.4%	1.0%	7.5%	-11.0%	7.3%
	-2.1%	-14.2%	-12.4%	-20.5%	5.3%	4.5%	2.7%	4.8%	1.9%	-43.4%	12.9%	5.5%	-12.1%	6.8%	-2.6%	-2.2%	-4.5%	1.0%	5.4%	-13.8%	2.9%
Lowest return	-2.2%	-30.8%	-21.4%	-21.7%	2.4%	3.5%	2.7%	3.5%	-1.6%	-53.3%	-2.2%	2.4%	-18.4%	2.0%	-2.6%	-4.9%	-14.9%	0.2%	2.3%	-14.6%	2.1%

US Large Equiti		US High Yield Credit	US Gov Fixed Income	US Municipals	Moderate Diversified Portfolio	EM Equities	Int'l Dev Equities
--------------------	--	-------------------------	------------------------	---------------	--------------------------------------	-------------	-----------------------

Source: Bloomberg, UBS, as of 31 March 2019

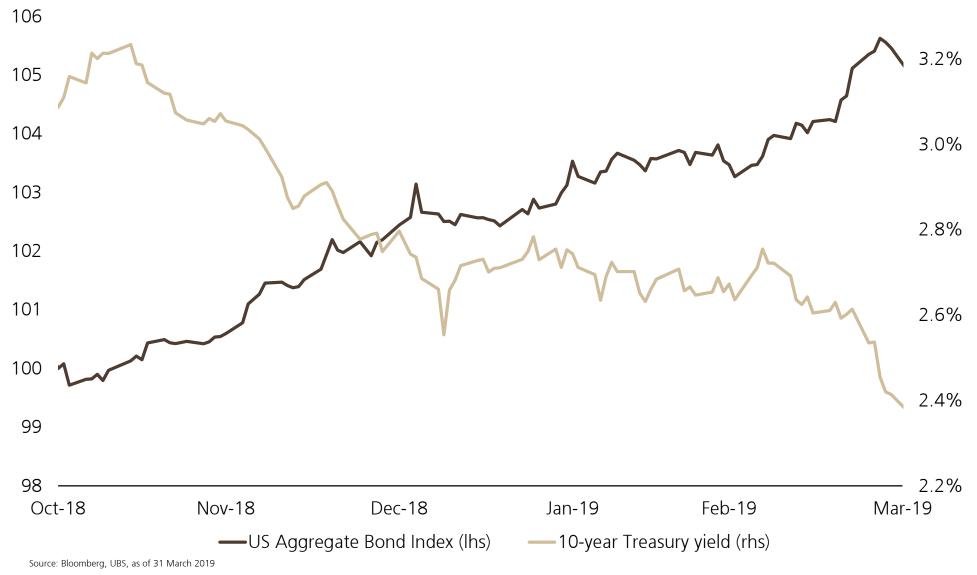
Note: The Moderate Diversified Portfolio performance calculations are a hypothetical analysis based on historical asset class returns. This backward-looking illustration assumes an investment in asset class indexes represented by the current Strategic Asset Allocation (SAA) for a moderate risk profile investor in a taxable portfolio without non-traditional assets. Performance calculations assume annual rebalancing, don't take into account any prior SAA for this investor profile, and include time periods before the SAA was created. See the latest UBS House View: Investment Strategy Guide (ISG) for the detailed SAA of the taxable portfolio without non-traditional assets. These calculations will not match the performance measurement published in the ISG, which reflects a monthly rebalancing. For periods prior to 2009, this illustration assumes that the Bloomberg Barclays EM Local Currency Government Total Return Index allocation (inception date of 4 July 2008) was invested fully in the Bloomberg Barclays EM USD Aggregate Total Return Index.



1

# Bonds rallied on slower growth and fewer rate hikes

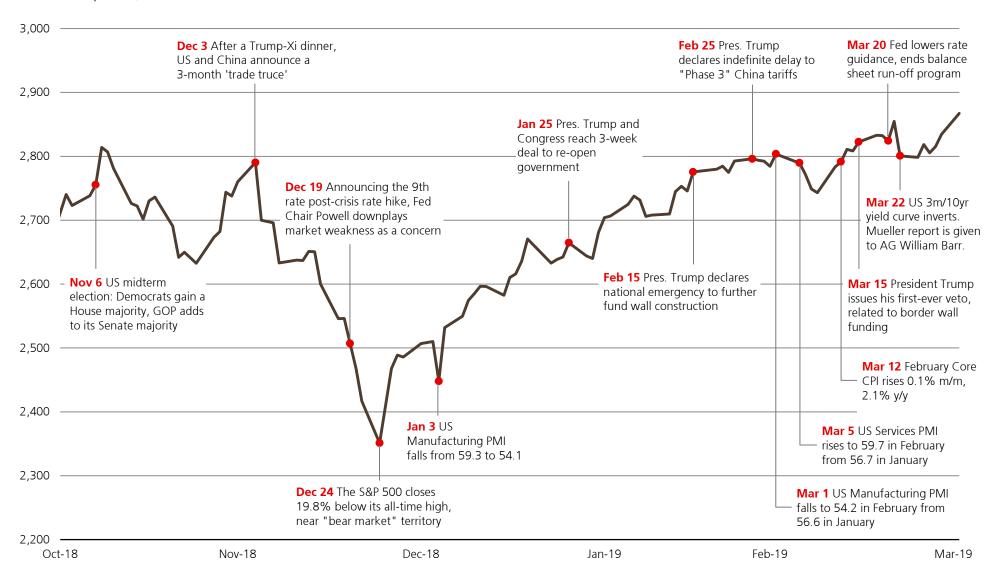
10-year Treasury yield and performance of the Bloomberg Barclays US Agg. Bond Index (100= 31 Oct. 2018)





# Stocks climbed the 'wall of worry'

## S&P 500 price, with callouts for select news items





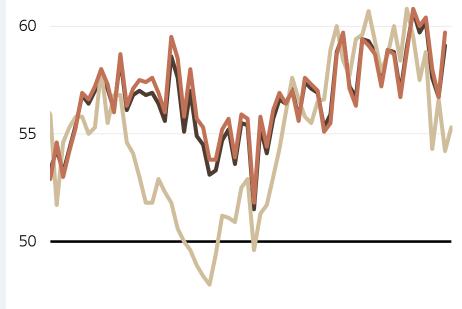
# 1Q19 economic review

### Macroeconomic indicators and reactions

- Economic growth hit a soft patch in the first quarter, but the overall economy remains solid and we expect a reacceleration as the year goes on. Business investment should continue to increase, encouraged by strong profits and a tighter labor market. Political uncertainty, especially around trade, has been a key constraint to growth. The fiscal stimulus from tax cuts and government spending is fading, but the executive branch continues to pay a quiet "deregulation dividend" as they roll back regulatory hurdles. Going forward, the most apparent risks to growth are related to trade (whether it be between the US and China, or between the US and other partners) or to policy (gridlock in Washington, Brexit uncertainty).
- **Inflation** has decelerated significantly from last summer and no longer appears to be an imminent concern. Expectations remain anchored below the Fed's 2% target as they have been unable to convince market participants that the 2% level will be hit. With inflation contained, and growth poised to reaccelerate, we could be reentering an ideal "Goldilocks" environment for risk assets, allowing the expansion to continue for several more years.
- The **US labor market** has remained surprisingly robust. US nonfarm payrolls grew 311,000 in February as additional workers entered the labor force, bringing the unemployment rate down to 3.8%. Average hourly earnings have risen to 3.4% year-over-year, suggesting that the labor market could be reaching a bottleneck.

# US PMIs are showing some signs of reacceleration and remain firmly in expansion (50+) territory

ISM Purchasing Managers' Indices







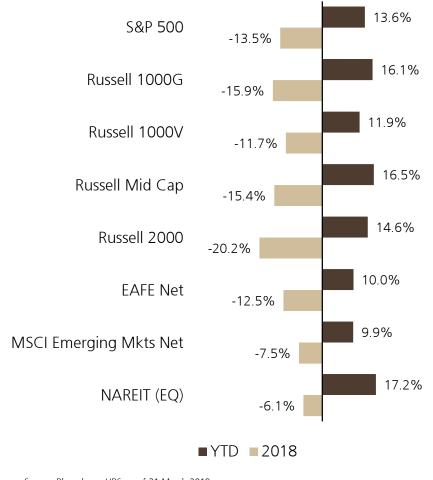
# 1Q 2019 equity review

Global equities had one of the strongest quarters on record, with many regional markets back near 2018's highs

- The first quarter saw a major rebound in global stocks, which ended up 17% from their 25 December low. Chinese equities led the rally, with the CSI 300 stock index returning 30% in the first quarter.
- No major equity market experienced negative returns in the first quarter and all 11 sectors of the S&P 500 had positive performance.
- This market strength was helped dramatically by dovish pivots from global central banks and further pledges by Chinese policymakers to continue to support financial markets.

## A reversal of fortunes for equities

Total return for select asset classes





# Domestic Equity Style & Market Capitalization

## Annualized return, select time periods, in %

		Q1-2019				1-Year	
LARGE	11.9	14.0	16.1	LARGE	5.7	9.3	12.7
MID CAP	14.4	16.5	19.6	MID CAP	2.9	6.5	11.5
SMALL	11.9	14.6	17.1	SMALL	0.2	2.0	3.9
	VALUE	BLEND	GROWTH	•	VALUE	BLEND	GROWTH
		3-Year				5-Year	
LARGE	10.5	3-Year 13.5	16.5	LARGE	7.7	5-Year 10.6	13.5
LARGE MID CAP	10.5 9.5		16.5 15.1	LARGE MID CAP	7.7 7.2		13.5 10.9
		13.5				10.6	

Source: Morningstar, as of 31 March 2019

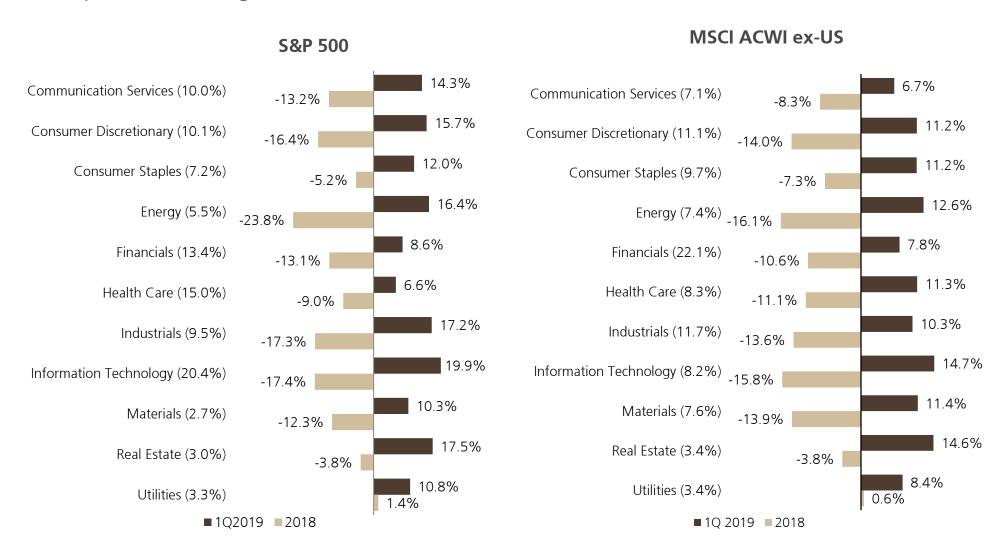
### Representative Indices Used in Style Grid:

Large Cap Value: Russell 1000 Value Index Large Cap Blend: Russell 1000 Index Large Cap Growth: Russell 1000 Growth Index Mid Cap Value: Russell MidCap Value Index Mid Cap Blend: Russell MidCap Index Mid Cap Growth: Russell MidCap Growth Index Small Cap Value: Russell 2000 Value Index Small Cap Blend: Russell 2000 Index Small Cap Growth: Russell 2000 Growth Index



# Sector Performance S&P 500 and MSCI ACWI ex-US

## Sector performance (weight)



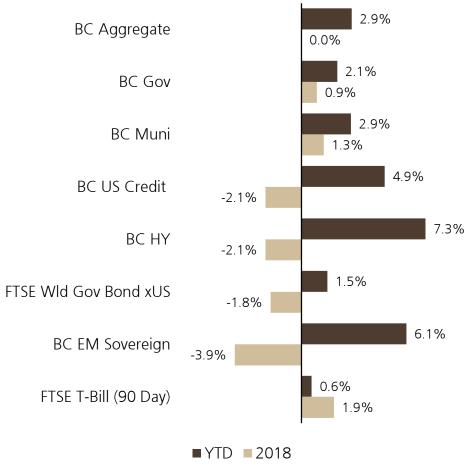


# 1Q 2019 fixed income review

## Fixed income assets rallied in Q1 as "risk-on" sentiment drove yields considerably lower

- Interest rates continued their plunge in the first quarter, with the 10-year Treasury yield trading as low as 2.37%, 86bps lower than the November high of 3.23%. The result was a strong rally for longer-dated fixed income—long-duration Treasuries rallied 4.5% during the quarter.
- Meanwhile, weaker-than-expected economic data resulted in more dovish commentary from global central banks, prompting short-term interest rates to fall. As a result, the 3-month Treasury bill yields slightly more than a 10-year Treasury note for a few trading days. This phenomenon, known as an inversion of the yield curve, has historically been associated with the end of an economic cycle. However, historical data tell us that inversions are a much less reliable market indicator than they first appear. On average, equities have rallied more than 40% between an inversion and the eventual bull market peak, which occurred an average of 21 months later. And some inversions turned out to be false positives, occurring many years before the end of the economic expansion and bull market.

# A strong start to 2019 has reversed the pain felt in 2018 Total return for select asset classes







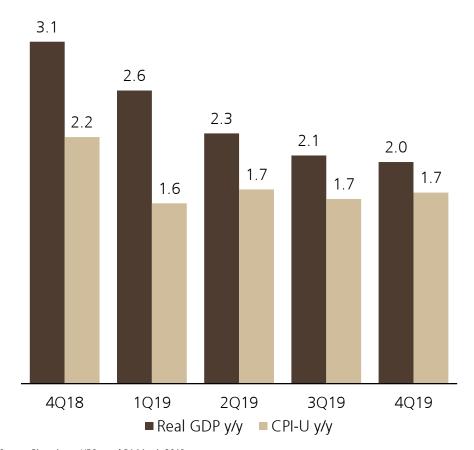
# 2Q19 economic & market outlook

## With rate hikes on hold for the foreseeable future, economic and earnings growth should bounce back from 1Q

- **Central bank policy** As Federal Reserve Chair Jay Powell has noted, the federal funds rate is now within the range of what central banks consider "neutral." With inflation increasingly unlikely to hit their 2% target this year, Fed members have removed their expectations for further rate hikes in 2019, and expect just one rate hike in 2020. The European Central Bank ended its bond-buying program, but we expect ECB rates to remain negative through yearend. Global central bank policy remains accommodative. The Bank of Japan continues to add to its balance sheet.
- **Earnings** 2018 earnings per share grew 23%, accompanied by 8% revenue growth and a sizable pickup in investment spending that boosts our intermediate-term outlook. Accounting for a 1–2% drag from trade tariffs, we estimate a 4% EPS growth for the S&P 500 in 2019.
- Markets The S&P 500 ended 2018 at a mere 14.7x next-year earnings, versus 20x when we have this mix of stable growth and contained inflation. 2019 will see meaningfully slower earnings growth than 2018, especially in the first half of the year. While earnings growth should dramatically slow, it shouldn't turn negative, so there shouldn't be fears of an imminent "earnings recession." Against this backdrop, we recommend an overweight to US equities across size and style and an overweight to EM hard-currency bonds. We also recommend an overweight long-duration US Treasuries as a hedge against weaker growth or equity volatility.

# We expect solid (but decelerating) growth, along with contained inflation

UBS forecasts for year-over-year growth and inflation, in %





# What trends and catalysts are we watching?

Our House View Briefcase reports address guestions on the top of investors' minds

Risk

## Is the US headed for an earnings recession?

2018's exceptional earnings growth was never likely to last, but slower profit growth is not the same as falling earnings.

Risk

### Does the China equity rally have legs?

We are looking for more clarity on trade and fiscal support measures for equities to continue their run higher.

Risk

### What next for Brexit?

With Brexit likely to drag on longer, investor uncertainty will stay high and economic growth will likely be muted.

### Strategy How can you avoid costly investment mistakes?

It's best to lay the foundations of your financial plan proactively, before the cycle turns.

## **Strategy** Will equities run out of steam?

With stocks priced for a "Goldilocks" environment, we recommend managing tail risks and taking some profit. Risk

## Could we see a US-China trade breakthrough?

Conflicts between the US and trade partners won't be easy to resolve, but market damage can be contained.

Risk

### Is the Fed tightening cycle over?

The Fed maintained its "patient" stance and with recent economic data, we don't expect them to move rates.

Risk

### Could a Eurozone recession derail markets?

We expect Eurozone growth to be tepid this year, but not fall into a recession.

### **Strategy** Does sustainable investing do what it says?

Evidence suggests that investors don't need to sacrifice returns to achieve sustainability goals.

Risk

### Should the yield curve worry investors?

Part of the US yield curve has inverted but this doesn't mean a recession is imminent.



# Long-term market view

	Calen	ndary	/ear a	and l	ong-1	term	retur	n sta	tistic	s for	selec	t asse	et cla	sses								1999- 2018	1999- 2018
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	return (ann.)	std. dev.
Highest return	66.5%	13.2%	8.4%	11.5%	55.8%	25.6%	34.0%	32.1%	39.4%	12.4%	78.5%	26.9%	9.0%	18.2%	38.8%	13.2%	0.9%	21.3%	37.3%	0.9%	18.0%	8.3%	19.6%
	27.0%	11.6%	7.2%	10.3%	47.3%	20.2%	13.5%	26.3%	11.2%	5.2%	58.2%	25.5%	7.8%	17.3%	34.8%	13.2%	0.9%	17.1%	25.0%	0.0%	15.6%	8.3%	33.7%
	21.3%	8.2%	5.3%	-1.4%	40.1%	20.2%	12.7%	18.4%	8.7%	-21.8%	40.5%	18.9%	5.0%	17.3%	33.1%	6.4%	0.5%	13.8%	21.7%	-2.1%	15.3%	7.4%	19.6%
	20.9%	0.2%	2.5%	-4.2%	38.6%	18.3%	8.0%	15.5%	7.3%	-26.2%	31.8%	16.1%	1.8%	16.4%	22.8%	6.0%	0.1%	12.1%	18.5%	-4.2%	11.3%	6.4%	16.5%
	18.2%	-3.0%	-2.6%	-6.2%	29.9%	11.4%	6.3%	15.3%	7.0%	-33.8%	28.4%	15.1%	1.5%	16.3%	11.8%	4.9%	-0.8%	11.2%	14.6%	-4.8%	11.2%	5.8%	18.0%
	13.5%	-5.9%	-3.6%	-15.9%	29.0%	11.1%	4.6%	13.0%	5.8%	-37.6%	27.2%	9.2%	-1.5%	15.8%	7.4%	4.9%	-2.4%	5.2%	14.4%	-9.1%	7.6%	5.3%	10.3%
	2.4%	-7.8%	-5.6%	-16.2%	21.9%	10.8%	2.7%	11.8%	5.6%	-41.5%	24.8%	7.8%	-4.2%	11.7%	-2.0%	2.5%	-4.4%	2.6%	7.5%	-11.0%	7.5%	4.3%	3.5%
	-0.8%	-14.2%	-12.4%	-20.5%	4.1%	4.3%	2.7%	4.3%	1.9%	-43.4%	5.9%	6.5%	-12.1%	4.2%	-2.6%	-2.2%	-4.5%	1.0%	3.5%	-13.8%	2.6%	3.9%	4.8%
Lowest return	-2.2%	-30.8%	-21.4%	-21.7%	2.4%	3.5%	2.4%	3.5%	-1.6%	-53.3%	-2.2%	5.5%	-18.4%	2.0%	-2.6%	-4.9%	-14.9%	1.0%	2.3%	-14.6%	1.8%	3.5%	21.4%
					IS Large p Equiti		Mid-cap quities	US S cap Ed		Int'l D Equiti		M Equit		clays US g Bond	Fix	Gov ked ome	US H Yield C	_	Modera Diversifi Portfoli	ed			

Source: Bloomberg, UBS, as of 31 March 2019.



Note: The Moderate Diversified Portfolio performance calculations are a hypothetical analysis based on historical asset class returns. This backward-looking illustration assumes an investment in asset class indexes represented by the current Strategic Asset Allocation (SAA) for a moderate risk profile investor in a taxable portfolio without non-traditional assets. Performance calculations assume annual rebalancing, don't take into account any prior SAA for this investor profile, and include time periods before the SAA was created. See the latest UBS House View: Investment Strategy Guide (ISG) for the detailed SAA of the taxable portfolio without non-traditional assets. These calculations will not match the performance measurement published in the ISG, which reflects a monthly rebalancing. For periods prior to 2009, this illustration assumes that the Bloomberg Barclays EM Local Currency Government Total Return Index allocation (inception date of 4 July 2008) was invested fully in the Bloomberg Barclays EM USD Aggregate Total Return Index.

# Index Flash Report – US Equities

			Through 3	31 March				Annualiz	ed Trailing F	Returns	
Index	March	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
S&P 500	1.9	-0.8	3.4	7.7	-13.5	13.6	9.5	13.5	10.9	12.8	15.9
DJIA	0.2	-2.0	1.3	9.6	-11.3	11.8	10.1	16.4	12.2	12.9	16.0
NASDAQ Comp	2.7	2.6	6.6	7.4	-17.3	16.8	10.6	18.0	14.3	15.4	18.9
Wilshire 5000	1.5	-0.8	3.8	7.3	-14.3	14.1	8.9	13.6	10.5	12.7	16.0
Russell 3000	1.5	-0.6	3.9	7.1	-14.3	14.0	8.8	13.5	10.4	12.6	16.0
Russell 3000G	2.5	1.5	5.9	8.9	-16.3	16.2	12.1	16.4	13.1	14.1	17.4
Russell 3000V	0.4	-2.8	1.7	5.4	-12.2	11.9	5.3	10.5	7.6	11.0	14.5
Russell 1000	1.7	-0.7	3.6	7.4	-13.8	14.0	9.3	13.5	10.6	12.8	16.0
Russell 1000G	2.8	1.4	5.8	9.2	-15.9	16.1	12.7	16.5	13.5	14.3	17.5
Russell 1000V	0.6	-2.8	1.2	5.7	-11.7	11.9	5.7	10.5	7.7	11.1	14.5
Russell 2000	-2.1	-0.1	7.8	3.6	-20.2	14.6	2.0	12.9	7.1	10.7	15.4
Russell 2000G	-1.4	2.3	7.2	5.5	-21.7	17.1	3.9	14.9	8.4	11.8	16.5
Russell 2000V	-2.9	-2.6	8.3	1.6	-18.7	11.9	0.2	10.9	5.6	9.6	14.1
Russell Mid Cap	0.9	-0.5	2.8	5.0	-15.4	16.5	6.5	11.8	8.8	12.0	16.9
Russell Mid Cap Growth	1.3	2.2	3.2	7.6	-16.0	19.6	11.5	15.1	10.9	13.0	17.6
Russell Mid Cap Value	0.5	-2.5	2.4	3.3	-15.0	14.4	2.9	9.5	7.2	11.3	16.4

Source: Morningstar, UBS, as of 31 March 2019



# Index Flash Report – International Equities

			Through	31 March				Annualize	ed Trailing	Returns	
Index	March	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
EAFE	0.7	-1.4	-1.0	1.4	-12.5	10.1	-3.2	7.8	2.8	6.1	9.5
EAFE Net	0.6	-1.5	-1.2	1.4	-12.5	10.0	-3.7	7.3	2.3	5.6	9.0
EAFE Growth	1.8	-1.0	0.1	1.5	-13.3	12.0	-1.3	7.6	3.9	6.5	9.7
EAFE Value	-0.5	-2.0	-2.6	1.2	-11.7	7.9	-6.1	6.9	0.7	4.7	8.1
EAFE Ex-Japan	0.6	-2.3	-0.7	0.6	-12.0	11.1	-2.3	7.0	1.4	5.4	9.3
MSCI World	1.4	-1.2	1.9	5.1	-13.3	12.6	4.6	11.3	7.4	9.8	13.0
MSCI World Net	1.3	-1.3	1.7	5.0	-13.4	12.5	4.0	10.7	6.8	9.2	12.4
MSCI World xUS Net	0.5	-2.0	-0.7	1.3	-12.8	10.4	-3.1	7.3	2.2	5.3	8.8
MSCI Emerging Mkts	0.9	1.5	-7.9	-0.9	-7.4	10.0	-7.1	11.1	4.1	3.1	9.3
MSCI Emerging Mkts Net	8.0	1.4	-8.0	-1.1	-7.5	9.9	-7.4	10.7	3.7	2.7	8.9
MSCI ACWI	1.3	-0.8	0.7	4.4	-12.7	12.3	3.2	11.3	7.0	9.0	12.6
MSCI ACWI Net	1.3	-1.0	0.5	4.3	-12.8	12.2	2.6	10.7	6.5	8.4	12.0
MSCI ACWI xUS	0.7	-1.1	-2.4	0.8	-11.4	10.4	-3.7	8.6	3.0	5.2	9.3
MSCI ACWI xUS Net	0.6	-1.2	-2.6	0.7	-11.5	10.3	-4.2	8.1	2.6	4.7	8.8
MSCI United Kingdom	1.1	-3.9	2.9	-1.7	-11.8	11.9	-0.1	6.3	0.7	4.1	9.3
MSCI Japan	0.6	0.8	-2.8	3.7	-14.2	6.7	-7.8	8.1	5.6	6.3	8.0
MSCI Germany	-1.4	-3.6	-4.0	-0.6	-15.5	6.9	-13.7	3.8	(0.7)	4.6	8.6
MSCI France	0.4	0.3	-0.5	2.8	-15.0	10.7	-3.7	9.2	2.7	7.0	8.4
MSCI China	2.4	1.8	-3.5	-7.5	-10.7	17.7	-6.2	16.0	9.4	8.0	9.9
MSCI India	9.2	-7.0	-0.6	-2.2	2.5	7.2	6.8	11.7	7.9	6.9	11.6
MSCI Korea	-3.1	-0.5	-9.2	0.7	-13.1	4.9	-16.7	8.1	2.4	2.7	10.3
MSCI Brazil	-3.8	12.4	-26.4	6.1	13.4	8.1	-4.2	20.0	1.7	(2.7)	4.7
MSCI Mexico	0.3	0.9	-3.6	6.9	-18.8	5.5	-11.7	(4.7)	(5.2)	(2.9)	6.8
MSCI Russia	0.9	9.4	-6.0	6.2	-9.0	12.5	2.2	16.3	3.6	(0.2)	8.0
EURO STOXX 50	0.4	-1.5	-2.3	-0.2	-12.9	10.2	-6.3	6.1	(0.3)	4.8	6.4

Source: Morningstar, UBS, as of 31 March 2019



# Index Flash Report – Fixed Income

	Through 31 March						Annualized Trailing Returns				
Index	March	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
BC Aggregate	1.9	-1.5	-0.2	0.0	1.6	2.9	4.5	2.0	2.7	2.5	3.8
BC Int Aggregate	1.4	-1.1	0.1	0.1	1.8	2.3	4.3	1.7	2.3	2.1	3.3
FTSE Broad Inv Grd	2.0	-1.5	-0.2	0.0	1.6	2.9	4.5	2.0	2.7	2.5	3.6
BoA-ML C/G 1-3 yr	0.7	-0.2	0.3	0.4	1.2	1.2	3.1	1.3	1.2	1.2	1.6
BC Int G/C	1.4	-1.0	0.0	0.2	1.7	2.3	4.2	1.6	2.1	2.0	3.1
BC GC	2.1	-1.6	-0.3	0.1	1.5	3.3	4.5	2.1	2.8	2.6	3.9
BC US TIPS	1.8	-0.8	0.8	-0.8	-0.4	3.2	2.7	1.7	1.9	1.2	3.4
BC US Treasury	1.9	-1.2	0.1	-0.6	2.6	2.1	4.2	1.0	2.2	1.8	2.4
BC Gov	1.9	-1.1	0.1	-0.6	2.5	2.1	4.2	1.1	2.1	1.8	2.4
BC US Credit	2.4	-2.1	-0.9	0.9	0.0	4.9	4.9	3.5	3.6	3.7	6.2
BC Global Aggregate xUS	0.7	3.6	-4.8	-1.7	0.9	1.5	-4.1	1.0	-0.3	0.2	2.5
BC Global Aggregate	1.3	1.4	-2.8	-0.9	1.2	2.2	-0.4	1.5	1.0	1.2	3.0
BC Muni	1.6	-1.1	0.9	-0.2	1.7	2.9	5.4	2.7	3.7	3.5	4.7
BC Agency	1.4	-0.5	0.0	-0.0	1.9	1.8	3.7	1.5	2.0	1.7	2.3
BC Mortgages	1.5	-1.2	0.2	-0.1	2.1	2.2	4.4	1.8	2.6	2.2	3.1
BC ABS	0.7	-0.4	0.4	0.5	1.2	1.5	3.7	1.8	1.9	1.8	3.9
BoA-ML High Yield	1.0	-0.9	1.0	2.4	-4.7	7.4	5.9	8.7	4.7	6.3	11.2
BoA-ML Treasury 1-5 yr	0.9	-0.4	0.1	0.1	1.7	1.2	3.1	1.0	1.3	1.1	1.5
FTSE T-Bill (90 Day)	0.2	0.3	0.4	0.5	0.6	0.6	2.1	1.2	0.7	0.5	0.4
FTSE Wld Gov Bond	1.3	2.5	-3.4	-1.6	1.8	1.7	-1.6	1.0	0.6	0.5	2.2
FTSE Wld Gov Bond xUS	0.9	4.4	-5.1	-2.2	1.3	1.5	-4.5	0.9	-0.1	0.0	2.0

Source: Morningstar, UBS, as of 31 March 2019



# Additional Resources

Visit **ubs.com/cio** for the latest insights from the UBS Chief Investment Office









## Statement of Risk

- 1. Equity markets are difficult to forecast because of fluctuations in the economy, investor psychology, geopolitical conditions, and other important variables.
- 2. Bond market returns are difficult to forecast because of fluctuations in the economy, investor psychology, geopolitical conditions and other important variables. Corporate bonds are subject to a number of risks, including credit risk, interest rate risk, liquidity risk, and event risk. Though historical default rates are low on investment grade corporate bonds, perceived adverse changes in the credit quality of an issuer may negatively affect the market value of securities. As interest rates rise, the value of a fixed coupon security will likely decline. Bonds are subject to market value fluctuations, given changes in the level of risk-free interest rates. Not all bonds can be sold quickly or easily on the open market. Prospective investors should consult their tax advisors concerning the federal, state, local, and non-U.S. tax consequences of owning any securities referenced in this report.
- 3. Prospective investors should consult their tax advisors concerning the federal, state, local, and non-U.S. tax consequences of owning preferred stocks. Preferred stocks are subject to market value fluctuations, given changes in the level of interest rates. For example, if interest rates rise, the value of these securities could decline. If preferred stocks are sold prior to maturity, price and yield may vary. Adverse changes in the credit quality of the issuer may negatively affect the market value of the securities. Most preferred securities may be redeemed at par after five years. If this occurs, holders of the securities may be faced with a reinvestment decision at lower future rates. Preferred stocks are also subject to other risks, including illiquidity and certain special redemption provisions.
- 4. Although historical default rates are very low, all municipal bonds carry credit risk, with the degree of risk largely following the particular bond's sector. Additionally, all municipal bonds feature valuation, return, and liquidity risk. Valuation tends to follow internal and external factors, including the level of interest rates, bond ratings, supply factors, and media reporting. These can be difficult or impossible to project accurately. Also, most municipal bonds are callable and/or subject to earlier than expected redemption, which can reduce an investor's total return. Because of the large number of municipal issuers and credit structures, not all bonds can be easily or quickly sold on the open market.



## **Appendix**

#### **Emerging Market Investments**

Investors should be aware that Emerging Market assets are subject to, amongst others, potential risks linked to currency volatility, abrupt changes in the cost of capital and the economic growth outlook, as well as regulatory and socio-political risk, interest rate risk and higher credit risk. Assets can sometimes be very illiquid and liquidity conditions can abruptly worsen. WMR generally recommends only those securities it believes have been registered under Federal U.S. registration rules (Section 12 of the Securities Exchange Act of 1934) and individual State registration rules (commonly known as "Blue Sky" laws). Prospective investors should be aware that to the extent permitted under US law, WMR may from time to time recommend bonds that are not registered under US or State securities laws. These bonds may be issued in jurisdictions where the level of required disclosures to be made by issuers is not as frequent or complete as that required by US laws.

For more background on emerging markets generally, see the WMR Education Notes "Investing in Emerging Markets (Part 1): Equities", 27 August 2007, "Emerging Market Bonds: Understanding Emerging Market Bonds," 12 August 2009 and "Emerging Markets Bonds: Understanding Sovereign Risk," 17 December 2009.

Investors interested in holding bonds for a longer period are advised to select the bonds of those sovereigns with the highest credit ratings (in the investment grade band). Such an approach should decrease the risk that an investor could end up holding bonds on which the sovereign has defaulted. Sub-investment grade bonds are recommended only for clients with a higher risk tolerance and who seek to hold higher yielding bonds for shorter periods only.

#### **Non-Traditional Assets**

Non-traditional asset classes are alternative investments that include hedge funds, private equity, real estate, and managed futures (collectively, alternative investments). Interests of alternative investment funds are sold only to qualified investors, and only by means of offering documents that include information about the risks, performance and expenses of alternative investment funds, and which clients are urged to read carefully before subscribing and retain. An investment in an alternative investment fund is speculative and involves significant risks. Specifically, these investments (1) are not mutual funds and are not subject to the same regulatory requirements as mutual funds; (2) may have performance that is volatile, and investors may lose all or a substantial amount of their investment; (3) may engage in leverage and other speculative investment practices that may increase the risk of investment loss; (4) are long-term, illiquid investments, there is generally no secondary market for the interests of a fund, and none is expected to develop; (5) interests of alternative investment funds typically will be illiquid and subject to restrictions on transfer; (6) may not be required to provide periodic pricing or valuation information to investors; (7) generally involve complex tax strategies and there may be delays in distributing tax information to investors; (8) are subject to high fees, including management fees and other fees and expenses, all of which will reduce profits. Interests in alternative investment funds are not deposits or obligations of, or guaranteed or endorsed by, any bank or other insured depository institution, and are not federally insured by the Federal Deposit Insurance Corporation, the Federal Reserve Board, or any other governmental agency. Prospective investors should understand these risks and have the financial ability and willingness to accept them for an extended period of time before making an investment in an alternative investment fund and should consider an alternative

In addition to the risks that apply to alternative investments generally, the following are additional risks related to an investment in these strategies:

- •Hedge Fund Risk: There are risks specifically associated with investing in hedge funds, which may include risks associated with investing in short sales, options, small-cap stocks, "junk bonds," derivatives, distressed securities, non-U.S. securities and illiquid investments.
- •Managed Futures: There are risks specifically associated with investing in managed futures programs. For example, not all managers focus on all strategies at all times, and managed futures strategies may have material directional elements.
- •Real Estate: There are risks specifically associated with investing in real estate products and real estate investment trusts. They involve risks associated with debt, adverse changes in general economic or local market conditions, changes in governmental, tax, real estate and zoning laws or regulations, risks associated with capital calls and, for some real estate products, the risks associated with the ability to qualify for favorable treatment under the federal tax laws.
- •Private Equity: There are risks specifically associated with investing in private equity. Capital calls can be made on short no-tice, and the failure to meet capital calls can result in significant adverse consequences including, but not limited to, a total loss of investment.
- •Foreign Exchange/Currency Risk: Investors in securities of issuers located outside of the United States should be aware that even for securities denominated in U.S. dollars, changes in the exchange rate between the U.S. dollar and the issuer's "home" currency can have unexpected effects on the market value and liquidity of those securities. Those securities may also be affected by other risks (such as political, economic or regulatory changes) that may not be readily known to a U.S. investor.



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### Performance Summary - Gross of Fees Cobb County Employees Retirement System As of March 31, 2019

	Inception	03/31/2019	Latest	%tile		%tile	1	%tile	3	%tile	5	%tile	7	%tile	
Account	Date	Market Value	QTR	Ranking	YTD	Ranking	Year	Ranking	Year	Ranking	Year	Ranking	Year	Ranking	Inception
Composite	06/30/1994	\$656,418,842	10.80%	1	10.80%	1	4.45%	36	9.53%	5	6.74%	17	8.41%	16	8.18%
Policy Index			9.33%	25	9.33%	25	4.05%	60	8.44%	40	5.93%	52	7.50%	51	7.66%
Dynamic Index			9.48%	16	9.48%	16	4.14%	56	8.52%	37	6.02%	50	7.60%	47	
Fixed Income															
Richmond Capital Management	07/31/2007	\$76,331,456	3.21%	51	3.21%	51	4.74%	5	2.42%	44	3.21%	7	3.06%	23	4.67%
Barclays Govt/Credit			3.26%	47	3.26%	47	4.48%	16	2.12%	59	2.78%	30	2.59%	50	4.18%
Blackrock Strategic Income Opps Fund	05/31/2011	\$45,715,117	2.49%	87	2.49%	87	1.65%	99	3.70%	1	2.47%	56	3.32%	12	3.06%
Barclays Aggregate			2.94%	69	2.94%	69	4.48%	16	2.03%	65	2.74%	33	2.48%	59	2.85%
Delaware Diversified Income Fund	05/31/2011	\$45,999,666	4.37%	1	4.37%	1	3.48%	79	2.81%	24	2.67%	39	2.86%	35	3.02%
Barclays Aggregate			2.94%	69	2.94%	69	4.48%	16	2.03%	65	2.74%	33	2.48%	59	2.85%
Large Cap Value															
Eagle Capital Large Value	12/31/2002	\$71,385,937	12.93%	20	12.93%	20	7.69%	18	15.61%	1	11.39%	1	14.31%	1	13.11%
Russell 1000 Value			11.93%	41	11.93%	41	5.67%	28	10.45%	57	7.72%	54	11.14%	53	8.97%
Large Cap Core															
Vanguard 500 Index	05/31/1999	\$73,927,312	13.64%	24	13.64%	24	9.34%	15	13.43%	11	10.85%	2	12.80%	3	6.11%
S&P 500 Index			13.65%	24	13.65%	24	9.50%	12	13.51%	8	10.91%	1	12.85%	2	6.02%
Large Cap Growth															
TCW Large Cap Growth	04/30/2013	\$40,344,619	19.40%	3	19.40%	3	17.41%	3	17.49%	25	13.10%	40			14.37%
Russell 1000 Growth			16.10%	48	16.10%	48	12.75%	40	16.53%	44	13.50%	29			14.88%
Westfield Capital Large Growth	07/31/2007	\$48,186,072	16.73%	36	16.73%	36	11.34%	56	16.92%	33	12.48%	53	14.30%	37	9.25%
Russell 1000 Growth			16.10%	48	16.10%	48	12.75%	40	16.53%	44	13.50%	29	14.34%	35	10.23%
Mid Cap Core															
Vanguard Midcap Index Fund	05/31/2004	\$43,495,497	16.78%	4	16.78%	4	6.04%	12	11.61%	16	8.87%	1	11.81%	1	10.11%
Russell Midcap			16.54%	8	16.54%	8	6.47%	9	11.82%	14	8.81%	2	11.99%	1	9.84%
Small Cap Value															
Vaughan Nelson	04/30/2009	\$21,577,054	15.48%	8	15.48%	8	1.63%	26	9.19%	65	7.28%	23	11.33%	26	14.41%
Russell 2000 Value			11.93%	73	11.93%	73	0.17%	40	10.86%	31	5.59%	68	9.61%	79	12.56%
Small Cap Growth															
Eagle Small Cap Growth	10/31/2010	\$19,511,555	16.91%	56	16.91%	56	12.75%	31	18.53%	43	11.52%	26	13.02%	56	14.16%
Russell 2000 Growth		•	17.14%	51	17.14%	51	3.85%	83	14.87%	75	8.41%	78	11.79%	82	12.49%

### Performance Summary - Gross of Fees Cobb County Employees Retirement System As of March 31, 2019

	Inception	03/31/2019	Latest	%tile		%tile	1	%tile	3	%tile	5	%tile	7	%tile	
Account	Date	Market Value	QTR	Ranking	YTD	Ranking	Year	Ranking	Year	Ranking	Year	Ranking	Year	Ranking	Inception
International Equity															
Vanguard Total International Stock Fund	11/30/2006	\$37,504,436	10.25%	48	10.25%	48	-5.19%	42	8.08%	8	2.79%	18	5.00%	48	2.68%
International Index			10.31%	44	10.31%	44	-4.22%	24	8.09%	8	2.57%	25	5.45%	26	2.16%
Dodge & Cox International Stock Fund	07/31/2007	\$34,590,532	9.78%	73	9.78%	73	-8.00%	80	7.88%	11	0.80%	84	5.43%	28	1.96%
International Index			10.31%	44	10.31%	44	-4.22%	24	8.09%	8	2.57%	25	5.45%	26	1.25%
Vanguard International Growth	02/06/2019	\$36,056,263													1.63%
MSCI AC Wld X US Net															0.60%
Global Allocation															
Natixis Loomis Sayles Global Equity	11/30/2015	\$21,348,863	11.80%	1	11.80%	1	4.60%	4	10.62%	1					8.88%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99	1.95%	99					0.77%
First Eagle Global Fund	03/31/2010	\$22,027,433	9.96%	15	9.96%	15	2.03%	22	7.17%	14	4.89%	3	6.65%	6	7.50%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99	1.95%	99	-0.30%	98	0.93%	98	0.41%
Blackrock Global Allocation Fund	03/31/2010	\$18,417,031	7.53%	67	7.53%	67	0.04%	52	5.80%	61	3.49%	47	4.90%	52	5.22%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99	1.95%	99	-0.30%	98	0.93%	98	0.41%
Composite Global Allocation	03/31/2010	\$61,793,327	9.84%	17	9.84%	17	2.29%	19	7.88%	2	4.82%	5	6.24%	18	6.73%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99	1.95%	99	-0.30%	98	0.93%	98	0.41%



### **Investment Performance**

### Period Ending March 31, 2019

Prepared for: Cobb County Employees Retirement System May 14, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Total Portfolio - Pension

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

## Cobb County Employees Retirement System March 31, 2019

### **Accounts Included in this Report**

UBS account statements represent the only official record of holdings, balances, transactions and security values of assets in your UBS Financial Services Inc. account and are not replaced, amended or superseded by any information presented in this report. As an accommodation to you, values of accounts that you hold at other financial institutions may be included as part of your UBS IC Consulting Services Agreement based on information, including pricing information, provided to us. This report does not include assets held in your UBS account(s) that are not a part of the Institutional Consulting program unless you have requested that those accounts be included in this report. UBS does not independently verify or guarantee the accuracy or validity of any information provided by sources other than UBS Financial Services Inc. Please see the 'Important Information' section at the end of this report for detailed pricing information.

Account Name	Account Number	Custodian Name
Vaughan Nelson	79xxx49	SunTrust Bank
Vanguard International Growth	11xxx66	SunTrust Bank
Blackrock Global Allocation Fund	79xxx61	SunTrust Bank
First Eagle Global Fund	79xxx62	SunTrust Bank
Natixis Loomis Sayles Global Equity	79xxx63	SunTrust Bank
Dodge & Cox International Stock Fund	79xxx35	SunTrust Bank
Vanguard Total International Stock Fund	79xxx53	SunTrust Bank
Eagle Small Cap Growth	79xxx85	SunTrust Bank
Richmond Capital Management	79xxx37	SunTrust Bank
Vanguard Midcap Index Fund	11xxx24	SunTrust Bank
Westfield Capital Large Growth	79xxx32	SunTrust Bank
TCW Large Cap Growth	79xxx76	SunTrust Bank
Vanguard 500 Index	11xxx18	SunTrust Bank
Eagle Capital Large Value	11xxx14	SunTrust Bank
Delaware Diversified Income Fund	79xxx84	SunTrust Bank
Blackrock Strategic Income Opps Fund	79xxx86	SunTrust Bank

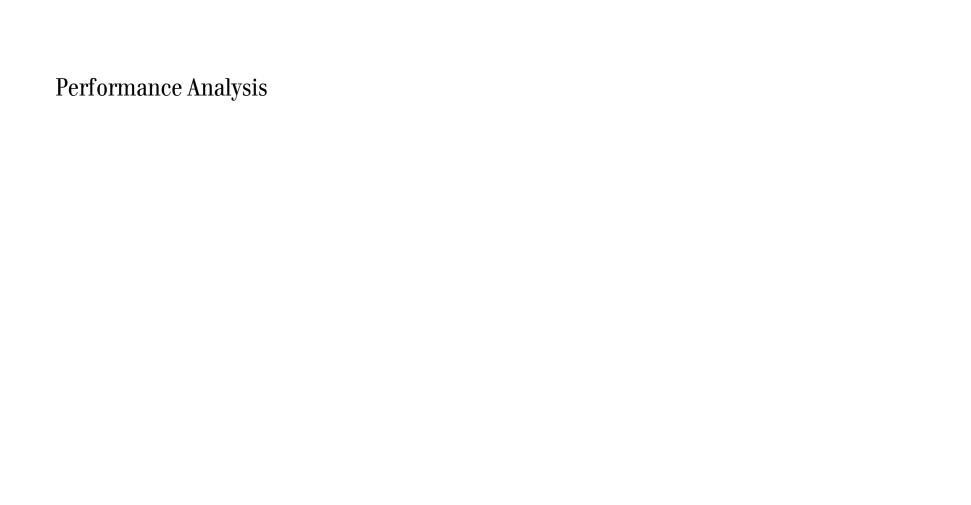
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### Performance Analysis

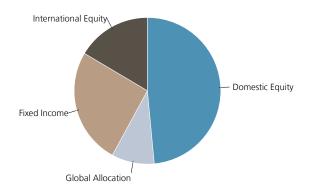
The primary index comparison for your portfolio and each of its asset classes is listed below.

### **CONSOLIDATED PORTFOLIO BENCHMARK**

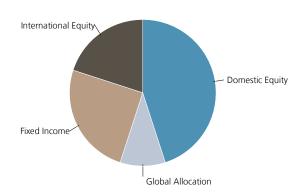
07/01/2013 - Present	
45%	Russell 3000
25%	Bloomberg Barclays Aggregate Bond
20%	MSCI AC World X US Net
10%	HFRX Global Hedge Fund Index
10/01/2010 - 06/30/20	13
45%	Russell 3000
30%	Bloomberg Barclays Aggregate Bond
15%	MSCI Net EAFE
10%	HFRX Global Hedge Fund Index
04/01/2010 - 09/30/20	10
42%	Russell 3000
35%	Bloomberg Barclays Aggregate Bond
13%	MSCI Net EAFE
10%	HFRX Global Hedge Fund Index
10/01/2009 - 03/31/20	10
50%	Russell 3000
35%	Bloomberg Barclays Aggregate Bond
15%	MSCI Net EAFE
06/30/1994 - 09/30/20	09
45%	Bloomberg Barclays Aggregate Bond
45%	Russell 3000
10%	MSCI Net EAFE

### Actual vs Target Asset Allocation As of March 31, 2019

Actual Asset Allocation



Target Asset Allocation



	Market Value Actual	Percent Actual	Market Value Target	Percent Target	Market Value Difference	Percent Difference
Fixed Income	168,046,239.1	25.6%	164,104,710.6	25.0%	3,941,528.5	0.6%
Domestic Equity	318,428,046.5	48.5%	295,388,479.0	45.0%	23,039,567.5	3.5%
International Equity	108,151,229.9	16.5%	131,283,768.5	20.0%	(23,132,538.5)	(3.5%)
Global Allocation	61,793,326.8	9.4%	65,641,884.2	10.0%	(3,848,557.5)	(0.6%)
Total Fund	\$656,418,842.3	100.0%	\$656,418,842.3	100.0%	\$0.0	0.0%

### Performance Summary - Gross of Fees Cobb County Employees Retirement System As of March 31, 2019

	Inception	03/31/2019	Latest	%tile		%tile	1	%tile	3	%tile	5	%tile	7	%tile	
Account	Date	Market Value	QTR	Ranking	YTD	Ranking	Year	Ranking	Year	Ranking	Year	Ranking	Year	Ranking	Inception
Composite	06/30/1994	\$656,418,842	10.80%	1	10.80%	1	4.45%	36	9.53%	5	6.74%		8.41%	16	8.18%
Policy Index			9.33%	25	9.33%	25	4.05%	60	8.44%	40	5.93%	52	7.50%	51	7.66%
Dynamic Index			9.48%	16	9.48%	16	4.14%	56	8.52%	<i>37</i>	6.02%	50	7.60%	47	
Fixed Income															
Richmond Capital Management	07/31/2007	\$76,331,456	3.21%	51	3.21%	51	4.74%	5	2.42%	44	3.21%	7	3.06%	23	4.67%
Barclays Govt/Credit			3.26%	47	3.26%	47	4.48%	16	2.12%	59	2.78%		2.59%	50	4.18%
Blackrock Strategic Income Opps Fund	05/31/2011	\$45,715,117	2.49%	87	2.49%	87	1.65%	99	3.70%	1	2.47%		3.32%	12	3.06%
Barclays Aggregate			2.94%	69	2.94%	69	4.48%	16	2.03%	65	2.74%	33	2.48%	59	2.85%
Delaware Diversified Income Fund	05/31/2011	\$45,999,666	4.37%	1	4.37%	1	3.48%	79	2.81%	24	2.67%		2.86%	35	3.02%
Barclays Aggregate			2.94%	69	2.94%	69	4.48%	16	2.03%	65	2.74%	33	2.48%	59	2.85%
Large Cap Value															
Eagle Capital Large Value	12/31/2002	\$71,385,937	12.93%	20	12.93%	20	7.69%	18	15.61%	1	11.39%	1	14.31%	1	13.11%
Russell 1000 Value			11.93%	41	11.93%	41	5.67%	28	10.45%	57	7.72%	54	11.14%	53	8.97%
Large Cap Core															
Vanguard 500 Index	05/31/1999	\$73,927,312	13.64%	24	13.64%	24	9.34%	15	13.43%		10.85%	2	12.80%	3	6.11%
S&P 500 Index			13.65%	24	13.65%	24	9.50%	12	13.51%	8	10.91%	1	12.85%	2	6.02%
Large Cap Growth															
TCW Large Cap Growth	04/30/2013	\$40,344,619	19.40%	3	19.40%	3	17.41%	3	17.49%	25	13.10%	40			14.37%
Russell 1000 Growth			16.10%	48	16.10%	48	12.75%	40	16.53%	44	13.50%				14.88%
Westfield Capital Large Growth	07/31/2007	\$48,186,072	16.73%	36	16.73%	36	11.34%	56	16.92%	33	12.48%		14.30%	37	9.25%
Russell 1000 Growth			16.10%	48	16.10%	48	12.75%	40	16.53%	44	13.50%	29	14.34%	35	10.23%
Mid Cap Core															
Vanguard Midcap Index Fund	05/31/2004	\$43,495,497	16.78%	4	16.78%	4	6.04%	12	11.61%	16	8.87%	1	11.81%	1	10.11%
Russell Midcap			16.54%	8	16.54%	8	6.47%	9	11.82%	14	8.81%	2	11.99%	1	9.84%
Small Cap Value															
Vaughan Nelson	04/30/2009	\$21,577,054	15.48%	8	15.48%	8	1.63%	26	9.19%	65	7.28%	23	11.33%	26	14.41%
Russell 2000 Value			11.93%	<i>73</i>	11.93%	73	0.17%	40	10.86%	31	5.59%	68	9.61%	79	12.56%
Small Cap Growth															
Eagle Small Cap Growth	10/31/2010	\$19,511,555	16.91%	56	16.91%	56	12.75%	31	18.53%	43	11.52%	26	13.02%	56	14.16%
Russell 2000 Growth			17.14%	51	17.14%	51	3.85%	83	14.87%	75	8.41%	<i>7</i> 8	11.79%	82	12.49%

### Performance Summary - Gross of Fees Cobb County Employees Retirement System As of March 31, 2019

	Inception	03/31/2019	Latest	%tile		%tile	1	%tile	3	%tile	5	%tile	7	%tile	
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International Equity															
Vanguard Total International Stock Fund	11/30/2006	\$37,504,436	10.25%	48	10.25%	48	-5.19%	42	8.08%	8	2.79%	18	5.00%	48	2.68%
International Index			10.31%	44	10.31%	44	-4.22%	24	8.09%	8	2.57%	25	5.45%	26	2.16%
Dodge & Cox International Stock Fund	07/31/2007	\$34,590,532	9.78%	73	9.78%	73	-8.00%	80	7.88%	11	0.80%	84	5.43%	28	1.96%
International Index			10.31%	44	10.31%	44	-4.22%	24	8.09%	8	2.57%	25	5.45%	26	1.25%
Vanguard International Growth	02/06/2019	\$36,056,263													1.63%
MSCI AC Wld X US Net															0.60%
Global Allocation															
Natixis Loomis Sayles Global Equity	11/30/2015	\$21,348,863	11.80%	1	11.80%	1	4.60%	4	10.62%	1					8.88%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99	1.95%	99					0.77%
First Eagle Global Fund	03/31/2010	\$22,027,433	9.96%	15	9.96%	15	2.03%	22	7.17%	14	4.89%	3	6.65%	6	7.50%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99	1.95%	99	-0.30%	98	0.93%	98	0.41%
Blackrock Global Allocation Fund	03/31/2010	\$18,417,031	7.53%	67	7.53%	67	0.04%	52	5.80%	61	3.49%	47	4.90%	52	5.22%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99	1.95%	99	-0.30%	98	0.93%	98	0.41%
Composite Global Allocation	03/31/2010	\$61,793,327	9.84%	17	9.84%	17	2.29%	19	7.88%	2	4.82%	5	6.24%	18	6.73%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99	1.95%	99	-0.30%	98	0.93%	98	0.41%

### Performance Summary - Net of Fees Cobb County Employees Retirement System As of March 31, 2019

	Inception	03/31/2019	Latest	%tile		%tile	1	%tile	3	%tile	5	%tile	7	%tile	
Account	Date	Market Value	QTR	Ranking	YTD	Ranking	Year	Ranking		Ranking	Year	Ranking	Year	Ranking	Inception
Composite	06/30/1994	\$656,418,842	10.71%	1	10.71%	1	4.19%	51	9.27%	12	6.49%	28	8.16%	30	7.91%
Policy Index			9.33%	25	9.33%	25	4.05%	60	8.44%	40	5.93%	52	7.50%	51	7.66%
Dynamic Index			9.48%	16	9.48%	16	4.14%	56	8.52%	<i>37</i>	6.02%	50	7.60%	47	
Fixed Income															
Richmond Capital Management	07/31/2007	\$76,331,456	3.16%	55	3.16%	55	4.53%	13	2.20%	55	2.99%	17	2.84%	36	4.44%
Barclays Govt/Credit			3.26%	47	3.26%	47	4.48%	16	2.12%	59	2.78%	30	2.59%	50	4.18%
Blackrock Strategic Income Opps Fund	05/31/2011	\$45,715,117	2.49%	87	2.49%	87	1.65%	99	3.70%	1	2.47%	56	3.32%	12	3.06%
Barclays Aggregate			2.94%	69	2.94%	69	4.48%	16	2.03%	65	2.74%	33	2.48%	59	2.85%
Delaware Diversified Income Fund	05/31/2011	\$45,999,666	4.37%	1	4.37%	1	3.48%	79	2.81%	24	2.67%	39	2.86%	35	3.02%
Barclays Aggregate			2.94%	69	2.94%	69	4.48%	16	2.03%	65	2.74%	33	2.48%	59	2.85%
Large Cap Value															
Eagle Capital Large Value	12/31/2002	\$71,385,937	12.73%	24	12.73%	24	6.88%	17	14.75%	1	10.56%	1	13.47%	1	12.19%
Russell 1000 Value			11.93%	37	11.93%	37	5.67%	21	10.45%	39	7.72%	30	11.14%	32	8.97%
Large Cap Core															
Vanguard 500 Index	05/31/1999	\$73,927,312	13.64%	24	13.64%	24	9.34%	15	13.43%	11	10.85%	2	12.80%	3	6.11%
S&P 500 Index			13.65%	24	13.65%	24	9.50%	12	13.51%	8	10.91%	1	12.85%	2	6.02%
Large Cap Growth															
TCW Large Cap Growth	04/30/2013	\$40,344,619	18.82%	6	18.82%	6	16.32%	9	16.63%	25	12.39%	41			13.70%
Russell 1000 Growth			16.10%	44	16.10%	44	12.75%	31	16.53%	26	13.50%	15			14.88%
Westfield Capital Large Growth	07/31/2007	\$48,186,072	16.58%	36	16.58%	36	10.72%	52	16.26%	34	11.83%	56	13.63%	38	8.62%
Russell 1000 Growth			16.10%	44	16.10%	44	12.75%	31	16.53%	26	13.50%	15	14.34%	21	10.23%
Mid Cap Core															
Vanguard Midcap Index Fund	05/31/2004	\$43,495,497	16.78%	4	16.78%	4	6.04%	12	11.61%	16	8.87%	1	11.81%	1	10.11%
Russell Midcap			16.54%	8	16.54%	8	6.47%	9	11.82%	14	8.81%	2	11.99%	1	9.84%
Small Cap Value															
Vaughan Nelson	04/30/2009	\$21,577,054	15.21%	8	15.21%	8	0.62%	25	8.12%	65	6.22%	27	10.22%	30	13.28%
Russell 2000 Value			11.93%	67	11.93%	67	0.17%	27	10.86%	21	5.59%	43	9.61%	46	12.56%
Small Cap Growth															
Eagle Small Cap Growth	10/31/2010	\$19,511,555	16.71%	52	16.71%	52	11.92%	31	17.66%	42	10.69%	26	12.17%	54	13.33%
Russell 2000 Growth			17.14%	48	17.14%	48	3.85%	77	14.87%	64	8.41%	62	11.79%	65	12.49%

### Performance Summary - Net of Fees Cobb County Employees Retirement System As of March 31, 2019

	Inception	03/31/2019	Latest	%tile		%tile	1	%tile	3	%tile	5	%tile	7	%tile	
Account	Date	Market Value	QTR	Ranking	YTD	Ranking	Year	Ranking	Year	Ranking	Year	Ranking	Year	Ranking	Inception
International Equity															
Vanguard Total International Stock Fund	11/30/2006	\$37,504,436	10.25%	48	10.25%	48	-5.19%	42	8.08%	8	2.79%	18	5.00%	48	2.68%
International Index			10.31%	44	10.31%	44	-4.22%	24	8.09%	8	2.57%	25	5.45%	26	2.16%
Dodge & Cox International Stock Fund	07/31/2007	\$34,590,532	9.78%	73	9.78%	73	-8.00%	80	7.88%	11	0.80%	84	5.43%	28	1.96%
International Index			10.31%	44	10.31%	44	-4.22%	24	8.09%	8	2.57%	25	5.45%	26	1.25%
Vanguard International Growth	02/06/2019	\$36,056,263													1.63%
MSCI AC Wld X US Net															0.60%
Global Allocation															
Natixis Loomis Sayles Global Equity	11/30/2015	\$21,348,863	11.80%	1	11.80%	1	4.60%	4	10.62%	1					8.88%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99	1.95%	99					0.77%
First Eagle Global Fund	03/31/2010	\$22,027,433	9.96%	15	9.96%	15	2.03%	22	7.17%	14	4.89%	3	6.65%	6	7.50%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99	1.95%	99	-0.30%	98	0.93%	98	0.41%
Blackrock Global Allocation Fund	03/31/2010	\$18,417,031	7.53%	67	7.53%	67	0.04%	52	5.80%	61	3.49%	47	4.90%	52	5.22%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99	1.95%	99	-0.30%	98	0.93%	98	0.41%
Composite Global Allocation	03/31/2010	\$61,793,327	9.84%	17	9.84%	17	2.29%	19	7.88%	2	4.82%	5	6.24%	18	6.73%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99	1.95%	99	-0.30%	98	0.93%	98	0.41%

Account Values							
	Latest Quarter	Fiscal YTD	Year to Date	One Year	Three Years	Five Years	Since Inception
Beginning Mkt Value	\$593,243,858.87	\$593,243,858.87	\$593,243,858.87	\$637,538,330.08	\$518,960,765.07	\$502,278,883.53	\$76,718,742.24
Net Contributions	(\$970,131.94)	(\$970,131.94)	(\$970,131.94)	(\$8,124,273.37)	(\$19,177,653.61)	(\$27,922,741.71)	\$143,106,325.31
Investment Earnings	\$64,145,115.35	\$64,145,115.35	\$64,145,115.35	\$27,004,785.57	\$156,634,820.37	\$182,133,031.04	\$436,664,105.31
Ending Mkt Value	\$656,418,842.28	\$656,418,842.28	\$656,418,842.28	\$656,418,842.28	\$656,418,842.28	\$656,418,842.28	\$656,418,842.28

Returns									
	Latest Quarter	Fiscal YTD	Calendar YTD	One Year	Three Years	Five Years	Ten Years	Fifteen Years	Since Inception
Account	10.80%	10.80%	10.80%	4.45%	9.53%	6.74%	10.79%	7.00%	8.18%
Policy Index	9.33%	9.33%	9.33%	4.05%	8.44%	5.93%	9.84%	6.39%	7.66%
Difference	1.46%	1.46%	1.46%	0.40%	1.08%	0.81%	0.95%	0.61%	0.52%

Calendar Year Re	eturns											
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Account	10.80%	-5.69%	18.13%	6.47%	0.14%	6.83%	20.45%	13.02%	-0.61%	13.51%	22.58%	-21.04%
Policy Index	9.33%	-5.73%	16.12%	7.64%	-0.96%	6.22%	18.13%	11.67%	0.23%	12.36%	19.16%	-20.91%
Difference	1.46%	0.04%	2.01%	-1.17%	1.10%	0.61%	2.31%	1.35%	-0.83%	1.15%	3.42%	-0.13%

Policy Index: 45% Russell 3000, 25% Bloomberg Barclays Aggregate Bond, 20% MSCI AC World X US Net, 10% HFRX Global Hedge Fund Index

	Quarter	YTD	1 Yr	2 Yr	3 Yr	5 Yr	10 Yr	Inception	Incept Date	Current Assets
Gross Time Weighted Return	10.80	10.80	4.45	8.14	9.53	6.74	10.79	8.18	06/30/1994	\$656,418,842
Universe Median	9.06	9.06	4.22	6.82	8.28	6.02	10.17			
Policy Index	9.33	9.33	4.05	7.01	8.44	5.93	9.84	7.66		
%-tile	1	1	36	6	5	17	16			
(45% Russell 3000, 25% Bloomberg Barclays Aggreg	gate Bond, 20% MSCI AC	World X US Net, 10	% HFRX Global He	dge Fund Index, esta	ablished 7/31/2013)					
Richmond Capital Management -	(Total Portfolio)									
Gross Time Weighted Return	3.21	3.21	4.74	3.18	2.42	3.21	4.90	4.67	07/31/2007	\$76,331,456
Universe Median	3.23	3.23	4.00	2.67	2.31	2.55	4.71	4.19		
BB Gov/Cr Bond	3.26	3.26	4.48	2.92	2.12	2.78	3.92	4.18		
%-tile	51	51	5	14	44	7	41	20		
(100.00% BB Gov/Cr Bond; established 7/31/2007)										
Blackrock Strategic Income Opps	Fund - (Total Po	ortfolio)								
Gross Time Weighted Return	2.49	2.49	1.65	2.72	3.70	2.47		3.06	05/31/2011	\$45,715,117
Universe Median	3.23	3.23	4.00	2.67	2.31	2.55		2.90		, , ,
BB Agg Bond	2.94	2.94	4.48	2.83	2.03	2.74		2.85		
%-tile	87	87	99	46	1	56		40		
(100.00% BB Agg Bond; established 5/31/2011)										
Delaware Diversified Income Fund	l - (Total Portfol	io)								
Gross Time Weighted Return	4.37	4.37	3.48	3.05	2.81	2.67		3.02	05/31/2011	\$45,999,666
Universe Median	3.23	3.23	4.00	2.67	2.31	2.55		2.90		
BB Agg Bond	2.94	2.94	4.48	2.83	2.03	2.74		2.85		
%-tile	1	1	79	21	24	39		41		
(100.00% BB Agg Bond; established 5/31/2011)										

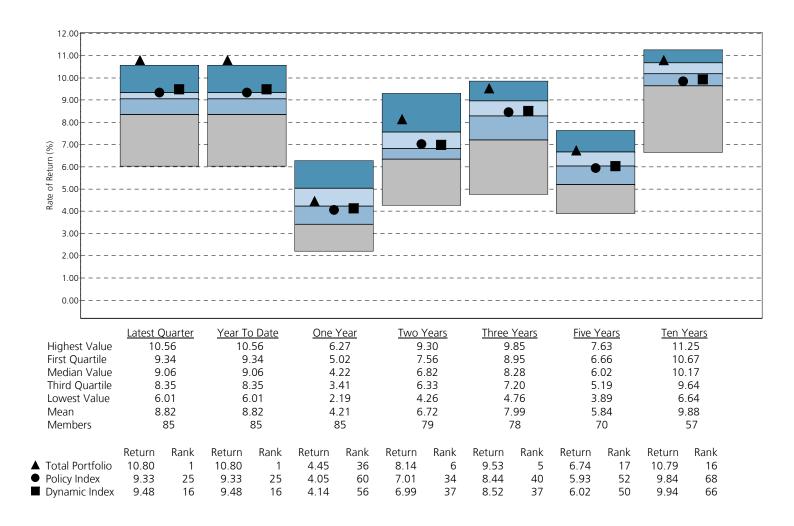
	Quarter	YTD	1 Yr	2 Yr	3 Yr	5 Yr	10 Yr	Inception	Incept Date	Current Assets
Eagle Capital Large Value - (Total P	ortfolio)									<u>.                                      </u>
Gross Time Weighted Return	12.93	12.93	7.69	12.59	15.61	11.39	17.95	13.11	12/31/2002	\$71,385,937
Universe Median	11.57	11.57	3.92	6.92	10.84	7.79	14.58	9.54		
Russell 1000 Value	11.93	11.93	5.67	6.31	10.45	7.72	14.52	8.97		
%-tile	20	20	18	1	1	1	1	1		
(100.00% Russell 1000 Value; established 12/31/2002)										
Vanguard 500 Index - (Total Portfol										
Gross Time Weighted Return	13.64	13.64	9.34	11.63	13.43	10.85	15.91	6.11	05/31/1999	\$73,927,312
Universe Median	13.15	13.15	7.33	10.15	12.14	9.15	14.65	5.81		
S&P 500 Index	13.65	13.65	9.50	11.72	13.51	10.91	15.92	6.02		
%-tile (100.00% S&P 500 Index; established 5/31/1999)	24	24	15	12	11	2	7	36		
TCW Large Cap Growth - (Total Po Gross Time Weighted Return Universe Median Russell 1000 Growth %-tile (100.00% Russell 1000 Growth; established 4/30/2013)	ortfolio) 19.40 16.08 16.10 3	19.40 16.08 16.10 3	17.41 11.99 12.75 3	19.76 16.05 16.92 16	17.49 16.38 16.53 25	13.10 12.71 13.50 40		14.37 14.63 14.88 56	04/30/2013	\$40,344,619
Westfield Capital Large Growth - (T Gross Time Weighted Return Universe Median Russell 1000 Growth %-tile (100.00% Russell 1000 Growth; established 7/31/2007)	Total Portfolio) 16.73 16.08 16.10 36	16.73 16.08 16.10 36	11.34 11.99 12.75 56	17.27 16.05 16.92 40	16.92 16.38 16.53 33	12.48 12.71 13.50 53	16.36 16.87 17.52 62	9.25 10.04 10.23 71	07/31/2007	\$48,186,072

	Quarter	YTD	1 Yr	2 Yr	3 Yr	5 Yr	10 Yr	Inception	Incept Date	Current Assets
Vanguard Midcap Index Fund -	(Total Portfolio)									
Gross Time Weighted Return	16.78	16.78	6.04	9.14	11.61	8.87	16.77	10.11	05/31/2004	\$43,495,497
Universe Median	14.47	14.47	2.36	5.75	9.59	6.44	14.65	8.50		
Russell Midcap	16.54	16.54	6.47	9.30	11.82	8.81	16.88	9.84		
%-tile	4	4	12	8	16	1	1	1		
(100.00% Russell Midcap; established 5/31/2004)										
Vaughan Nelson - (Total Portfol	io)									
Gross Time Weighted Return	15.48	15.48	1.63	3.29	9.19	7.28		14.41	04/30/2009	\$21,577,054
Universe Median	12.90	12.90	-0.77	3.07	9.69	6.26		14.23		
Russell 2000 Value	11.93	11.93	0.17	2.62	10.86	5.59		12.56		
%-tile (100.00% Russell 2000 Value; established 4/30/2009	8	8	26	47	65	23		47		
Eagle Small Cap Growth - (Tota Gross Time Weighted Return Universe Median Russell 2000 Growth %-tile (100.00% Russell 2000 Growth; established 10/31/20	16.91 17.24 17.14 56	16.91 17.24 17.14 56	12.75 9.89 3.85 31	15.62 15.27 11.00 41	18.53 17.58 14.87 43	11.52 9.74 8.41 26		14.16 14.14 12.49 50	10/31/2010	\$19,511,555
Vanguard Total International St Gross Time Weighted Return Universe Median International Index %-tile	10.25 10.22 10.31 48	Portfolio) 10.25 10.22 10.31 48	-5.19 -5.68 -4.22 42	5.37 4.33 5.65 17	8.08 6.56 8.09	2.79 1.95 2.57 18	8.92 8.45 8.82 30	2.68 2.06 2.16 29	11/30/2006	\$37,504,436

	Quarter	YTD	1 Yr	2 Yr	3 Yr	5 Yr	10 Yr	Inception	Incept Date	Current Assets
Dodge & Cox International Stock Fu	und - (Total Po	rtfolio)								
Gross Time Weighted Return	9.78	9.78	-8.00	1.05	7.88	0.80	10.22	1.96	07/31/2007	\$34,590,532
Universe Median	10.22	10.22	-5.68	4.33	6.56	1.95	8.45	1.09		
International Index	10.31	10.31	-4.22	5.65	8.09	2.57	8.82	1.25		
%-tile	73	73	80	99	11	84	3	25		
(100% MSCI AC World X US Net, established 7/01/2013)	)									
	(T) . I T									
Natixis Loomis Sayles Global Equity			4.50	10.50	10.53			0.00	44/00/004	<b>\$21.21</b> 0.052
Gross Time Weighted Return	11.80	11.80	4.60	10.69	10.62			8.88	11/30/2015	\$21,348,863
Universe Median	8.23	8.23	0.17	4.51	6.12			5.34		
HFRX Global Hedge	2.60	2.60	-3.32	-0.11	1.95			0.77		
%-tile (100.00% HFRX Global Hedge; established 11/30/2015)	1	1	4	1	1			1		
,										
First Eagle Global Fund - (Total Por	rtfolio)									
Gross Time Weighted Return	9.96	9.96	2.03	4.37	7.17	4.89		7.50	03/31/2010	\$22,027,433
Universe Median	8.23	8.23	0.17	4.51	6.12	3.41		5.39		
HFRX Global Hedge	2.60	2.60	-3.32	-0.11	1.95	-0.30		0.41		
%-tile	15	15	22	53	14	3		1		
(100.00% HFRX Global Hedge; established 3/31/2010)										
Blackrock Global Allocation Fund -	(Total Portfoli	io)								
Gross Time Weighted Return	7.53	7.53	0.04	4.12	5.80	3.49		5.22	03/31/2010	\$18,417,031
Universe Median	8.23	8.23	0.17	4.51	6.12	3.41		5.39		
HFRX Global Hedge	2.60	2.60	-3.32	-0.11	1.95	-0.30		0.41		
%-tile	67	67	52	60	61	47		54		
(100.00% HFRX Global Hedge; established 3/31/2010)										

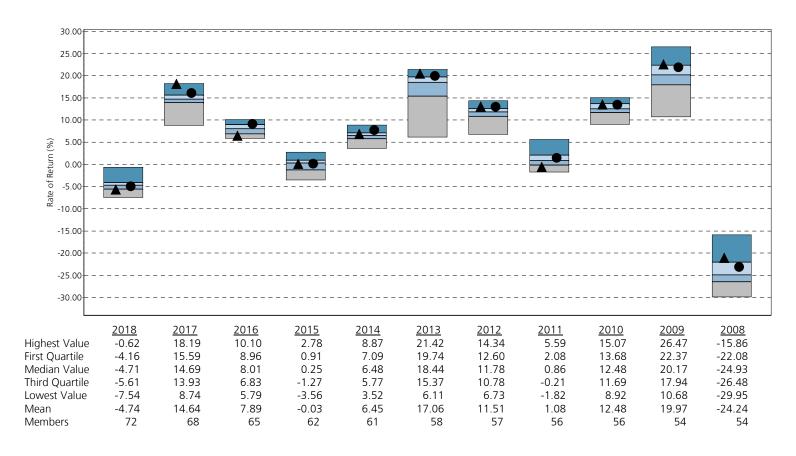
	Quarter	YTD	1 Yr	2 Yr	3 Yr	5 Yr	10 Yr	Inception	Incept Date	Current Assets
Vanguard International Growth -	(Total Portfolio)									
Gross Time Weighted Return								1.63	02/06/2019	\$36,056,263
Universe Median								0.75		
MSCI AC Wld X US Net								0.60		
%-tile								10		
(100.00% MSCI AC Wld X US Net; established 2/06/20	19)									

### Consolidated Portfolio vs Master Trusts - Public : Plans < \$1 Billion Managers June 30, 1994 Through March 31, 2019



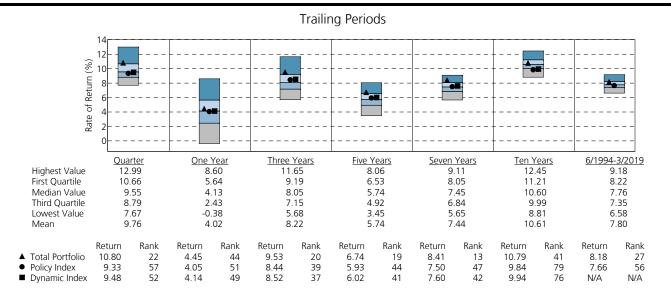
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### Consolidated Portfolio vs Master Trusts - Public : Plans < \$1 Billion Managers December 31, 2003 Through December 31, 2018

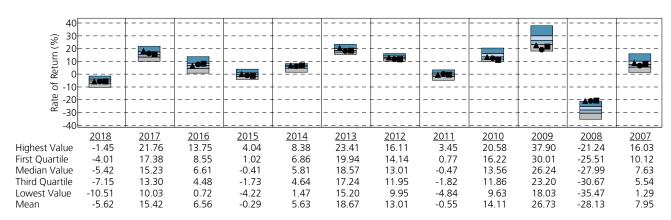


Returr Rank Returr

### Consolidated Portfolio Peer Universe Comparison versus 50% Equity, 35% Fixed, 15% International Managers



#### **Annual Periods**



Returr Rank Returr

- ▲ Total Portfolio -5.69 54 18.13 18 6.47 51 0.14 41 6.83 25 20.45 18 13.02 49 -0.61 52 13.51 50 22.58 79 -21.04 1 8.84 37 ◆ Policy Index -5.73 54 16.12 36 7.64 34 -0.96 59 6.22 39 18.13 57 11.67 79 0.23 35 12.36 67 19.16 96 -20.9′ 1 6.71 61
- Dynamic Index -5.71 54 15.61 43 8.21 28 -1.32 67 6.88 24 18.47 52 11.61 80 -0.41 48 11.24 83 21.64 85 -20.6: 1 8.05 45

### Performance Profile June 30, 1994 Through March 31, 2019

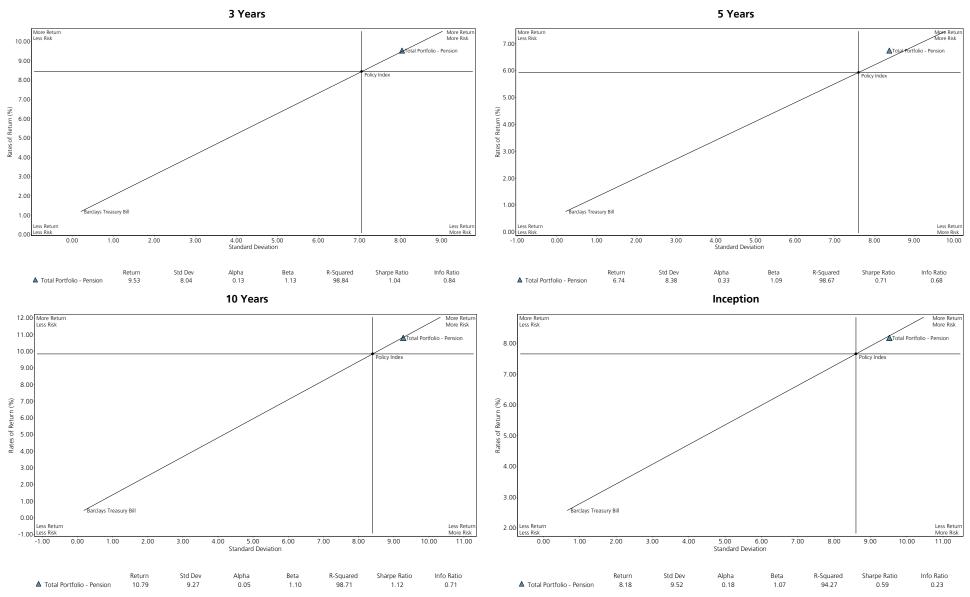
	Ended	Return
Best Quarter	6/1997	14.08
Worst Quarter	9/2011	-11.22
Best 4 Quarters	3/1998	35.16
Worst 4 Quarters	3/2009	-21.72

Total # of Periods:	297
# of Positive Periods:	192
# of Negative Periods:	105

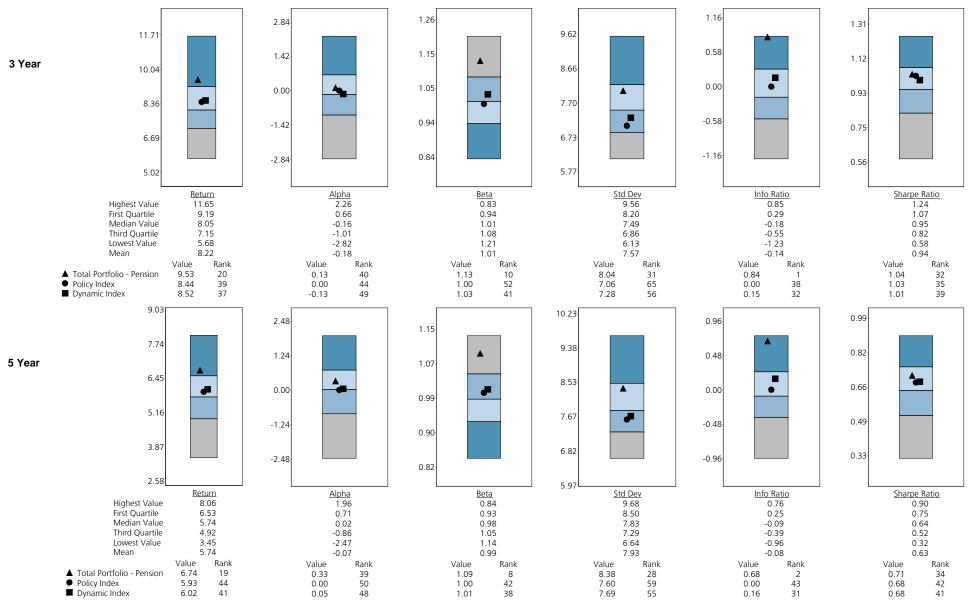
	Latest Month	Latest Quarter	One Year	Two Years	Three Years	Five Years	Ten Years	Since Inception
Consolidated Portfolio	1.24	10.80	4.45	8.14	9.53	6.74	10.79	8.18
Policy Index	1.24	9.33	4.05	7.01	8.44	5.93	9.84	7.66
Excess	0.00	1.46	0.40	1.13	1.08	0.81	0.95	0.52
Riskless Index	0.21	0.61	2.14	1.60	1.20	0.77	0.45	2.58
Real ROR	0.64	9.50	2.42	5.92	7.24	5.23	8.86	5.84
CPI	0.60	1.20	2.01	2.12	2.15	1.44	1.78	2.20

		Std	Sharpe				Relative	Track	Treynor	Info
Period	Return	Dev	Ratio	Alpha	Beta	R-Squared	Risk	Error	Ratio	Ratio
One Year	4.45	11.55	0.20	0.19	1.16	99.79	1.16	1.65	2.00	0.33
Two Years	8.14	9.20	0.71	0.38	1.14	99.35	1.14	1.35	5.74	0.85
Three Years	9.53	7.93	1.05	0.13	1.13	98.84	1.14	1.26	7.36	0.85
Five Years	6.74	8.31	0.72	0.33	1.09	98.67	1.10	1.19	5.46	0.69
Ten Years	10.79	9.23	1.12	0.05	1.10	98.71	1.10	1.32	9.43	0.71
Since Inception	8.18	9.51	0.59	0.18	1.07	94.27	1.11	2.37	5.21	0.23

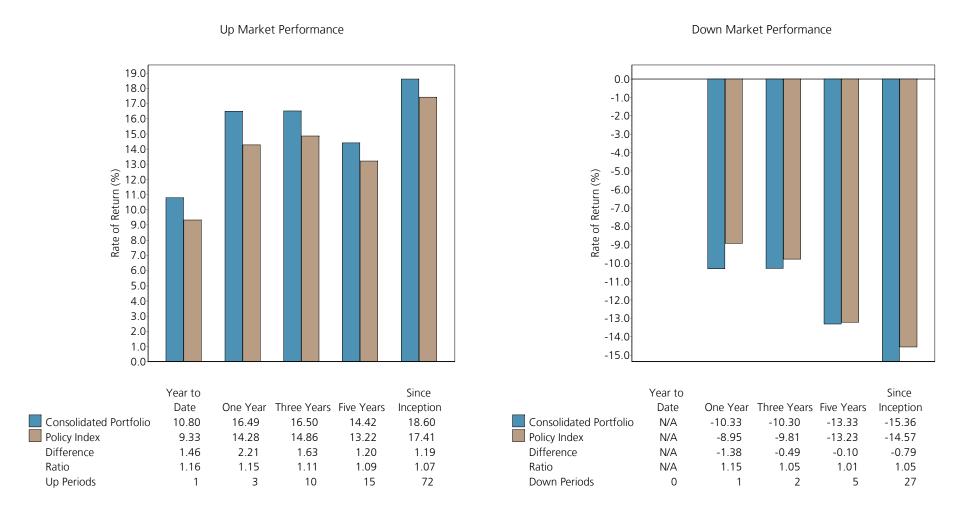
### Risk vs Reward Analysis June 30, 1994 Through March 31, 2019



### Consolidated Portfolio vs 50% Equity, 35% Fixed, 15% International Managers March 31, 2016 Through March 31, 2019



### Performance in Rising and Declining Markets June 30, 1994 Through March 31, 2019





#### **Investment Performance**

### Period Ending March 31, 2019

Prepared for: Cobb County Employees Retirement System May 14, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Richmond Capital Management

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

### Performance Analysis

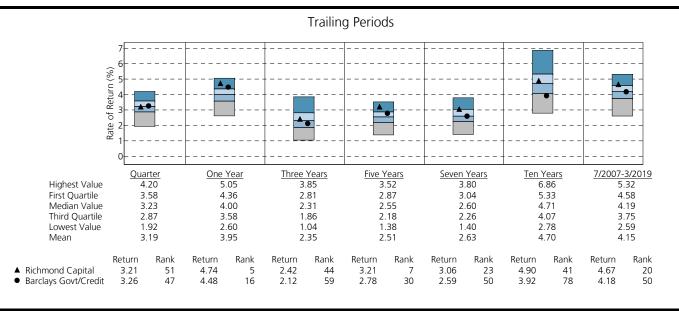
The primary index comparison for your portfolio and each of its asset classes is listed below.

#### **TOTAL FUND BENCHMARK**

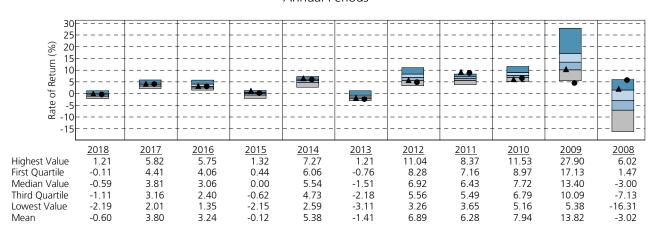
7/31/2007 - Present

100% Bloomberg Barclays Government/Credit Bond

### **TOTAL FUND Peer Universe Comparison versus Intermediate Bond Managers**



#### **Annual Periods**



Returr Rank Returr

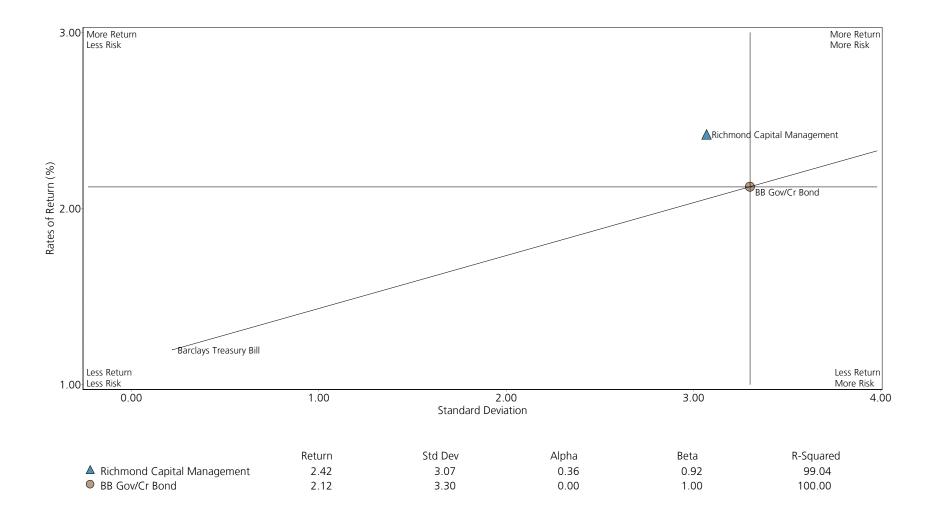
 ▲ Richmond Capital
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 4.15
 34
 3.26
 44
 1.19
 2
 6.60
 9
 -1.82
 61
 5.77
 70
 9.29
 1
 6.11
 89
 10.41
 72
 2.08
 23

 ● Barclays Govt/Credit
 -0.42
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 4.00
 41
 3.05
 50
 0.15
 41
 6.01
 25
 -2.35
 81
 4.82
 85
 8.74
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 6.59
 78
 4.53
 99
 5.71
 2

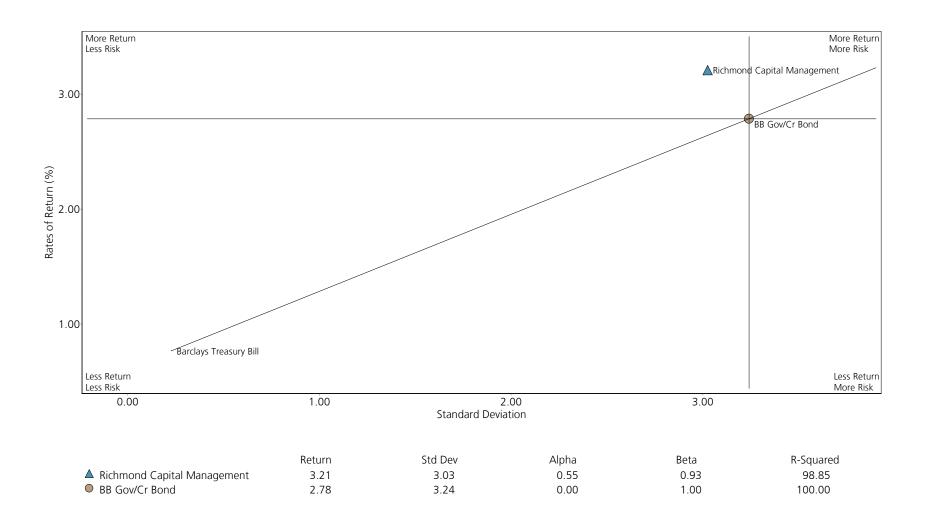
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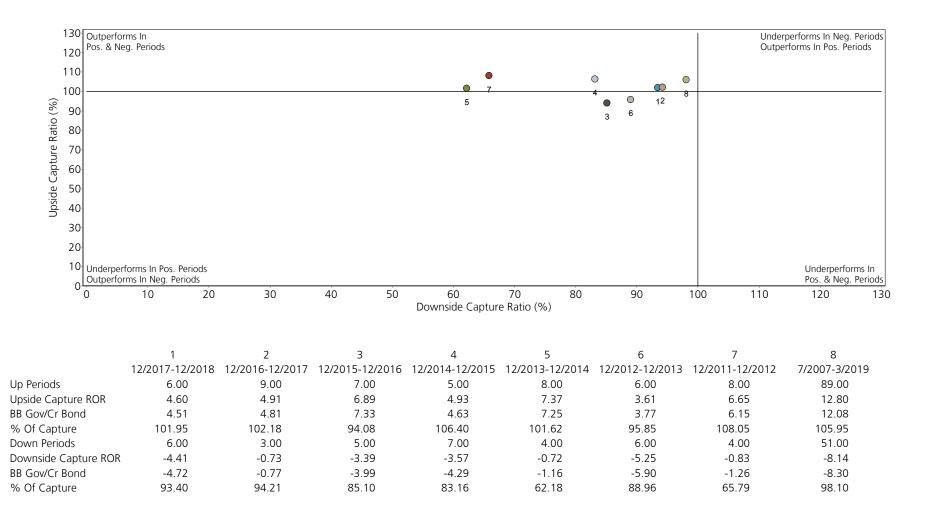
### Risk vs Reward Analysis March 31, 2016 Through March 31, 2019



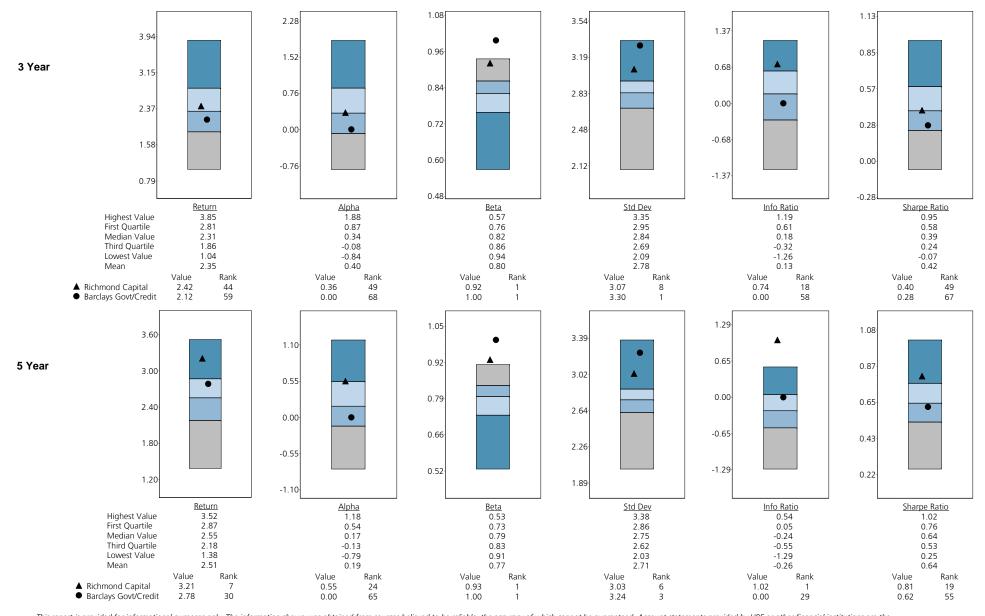
### Risk vs Reward Analysis March 31, 2014 Through March 31, 2019



### Capture Ratio July 31, 2007 Through March 31, 2019



### TOTAL FUND vs Intermediate Bond Managers March 31, 2016 Through March 31, 2019





#### **Investment Performance**

### Period Ending March 31, 2019

Prepared for: Cobb County Employees Retirement System May 14, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Blackrock Strategic Income Opps Fund

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

# Performance Analysis

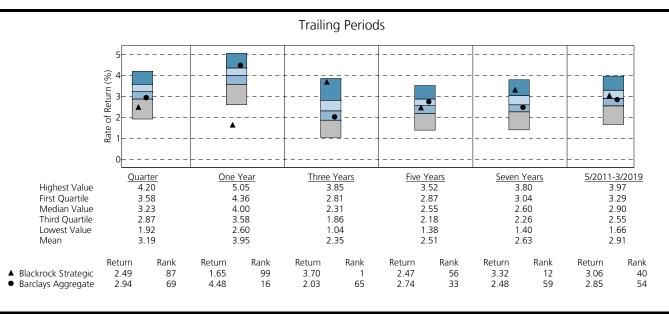
The primary index comparison for your portfolio and each of its asset classes is listed below.

#### **TOTAL FUND BENCHMARK**

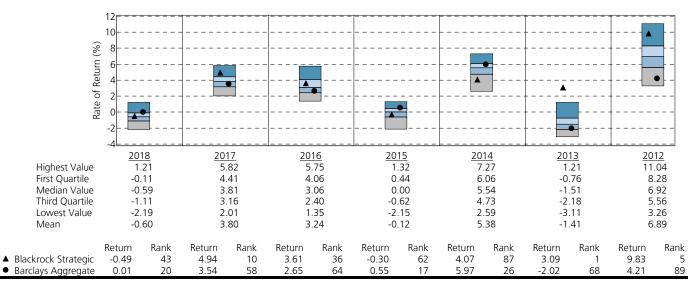
5/31/2011 - Present

100% Bloomberg Barclays Aggregate Bond

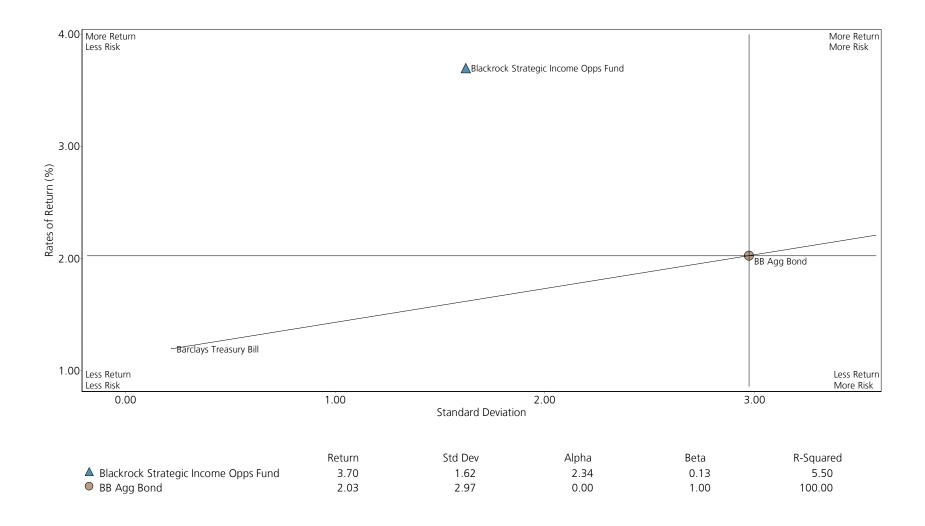
#### **TOTAL FUND Peer Universe Comparison versus Intermediate Bond Managers**



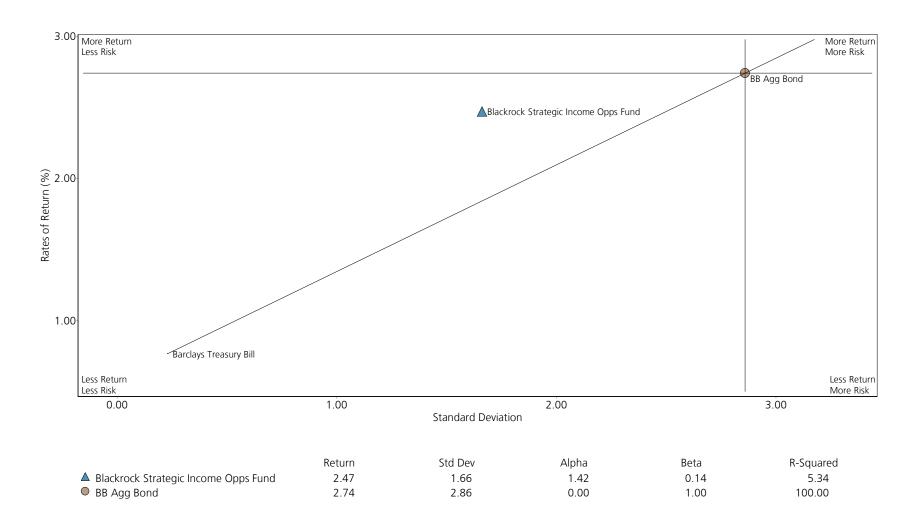
#### **Annual Periods**



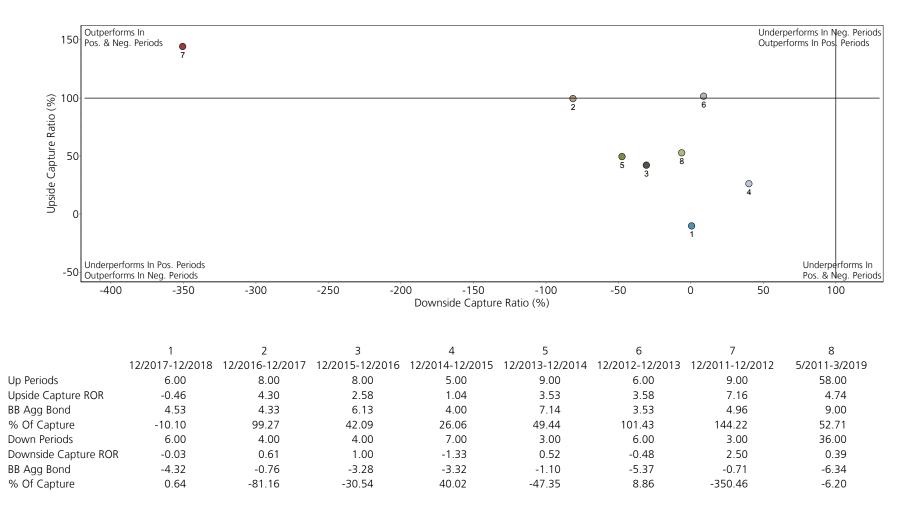
## Risk vs Reward Analysis March 31, 2016 Through March 31, 2019



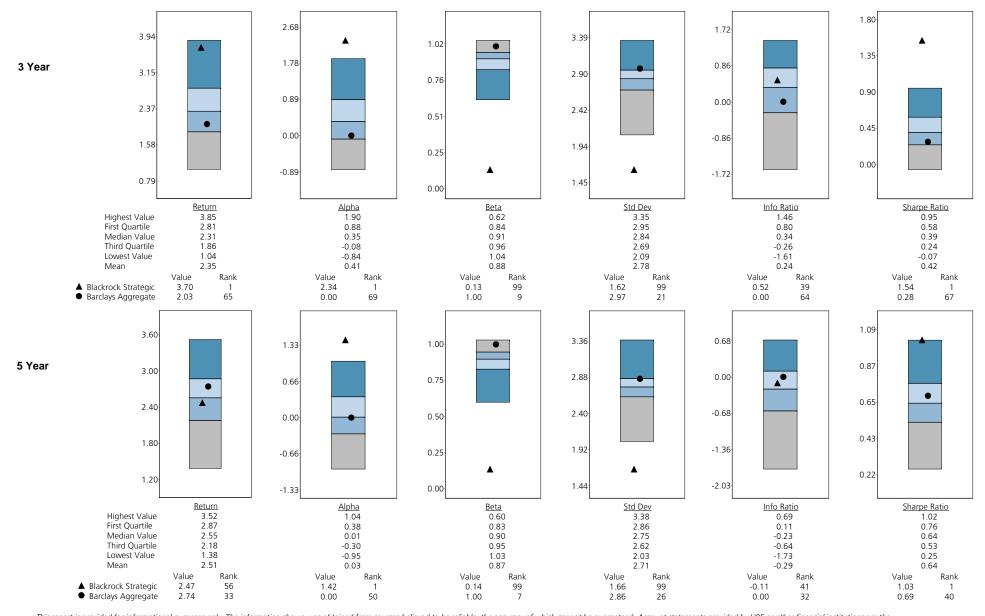
## Risk vs Reward Analysis March 31, 2014 Through March 31, 2019



# Capture Ratio May 31, 2011 Through March 31, 2019



# TOTAL FUND vs Intermediate Bond Managers March 31, 2016 Through March 31, 2019





#### **Investment Performance**

## Period Ending March 31, 2019

Prepared for: Cobb County Employees Retirement System May 14, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Delaware Diversified Income Fund

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

# Performance Analysis

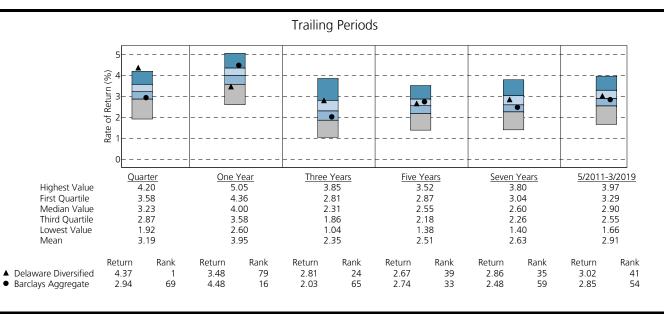
The primary index comparison for your portfolio and each of its asset classes is listed below.

#### **TOTAL FUND BENCHMARK**

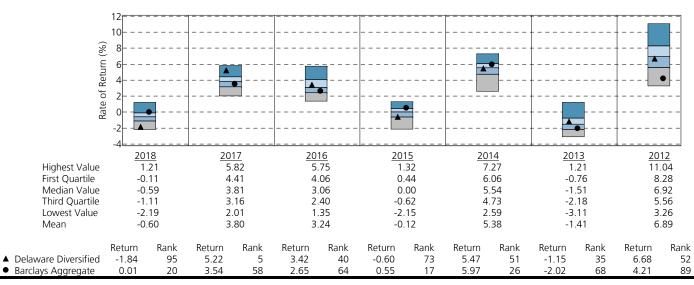
5/31/2011 - Present

100% Bloomberg Barclays Aggregate Bond

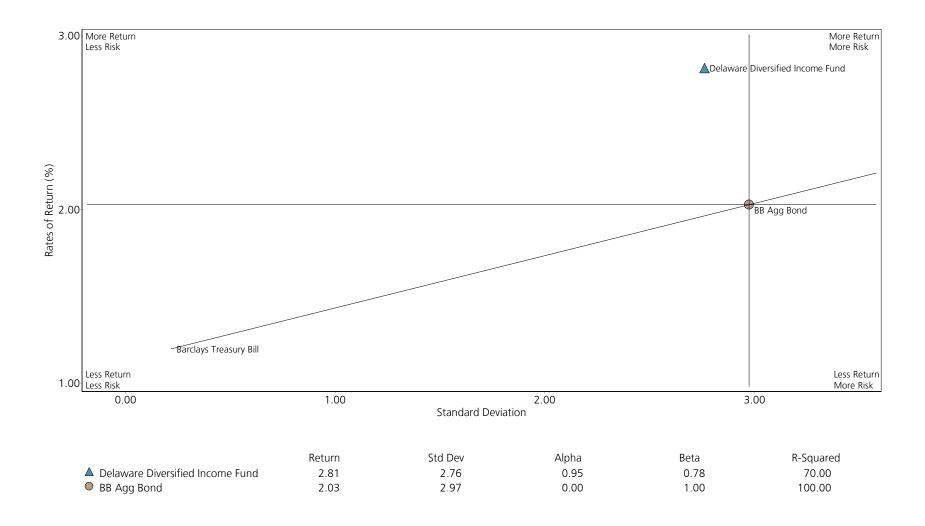
#### **TOTAL FUND Peer Universe Comparison versus Intermediate Bond Managers**



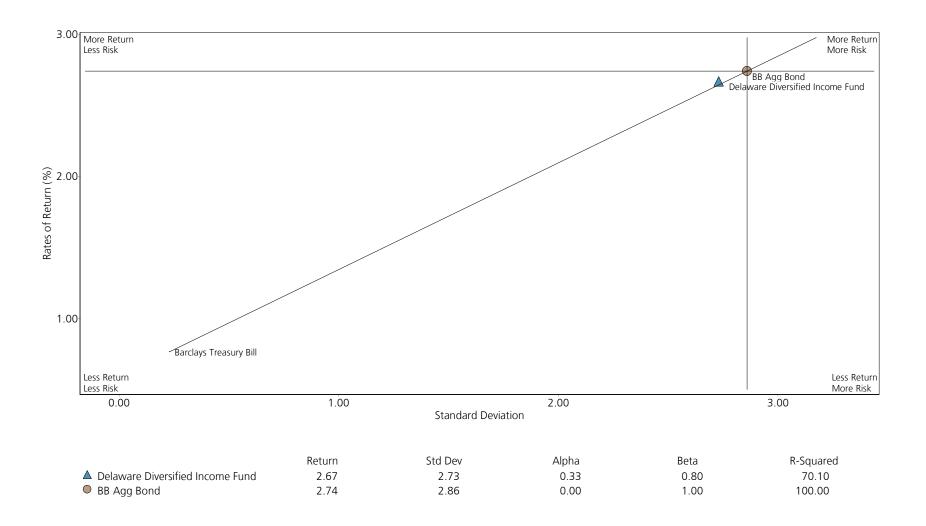
#### **Annual Periods**



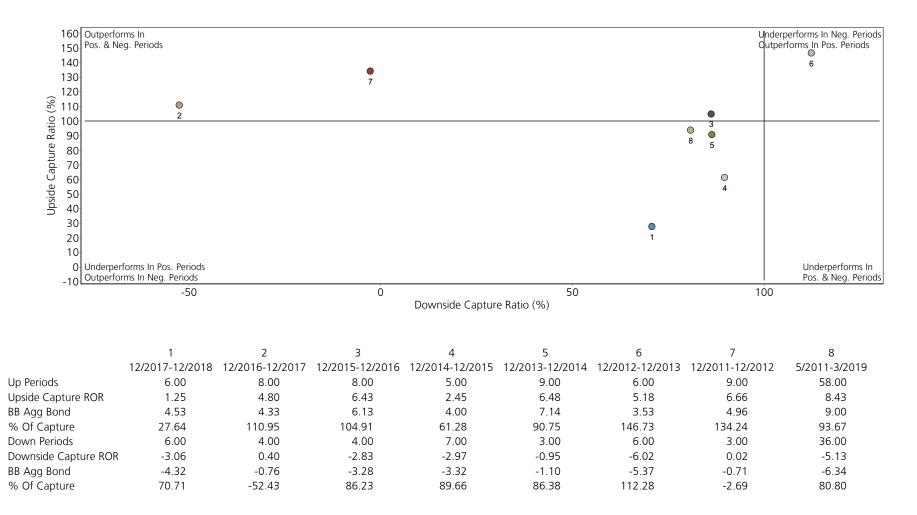
## Risk vs Reward Analysis March 31, 2016 Through March 31, 2019



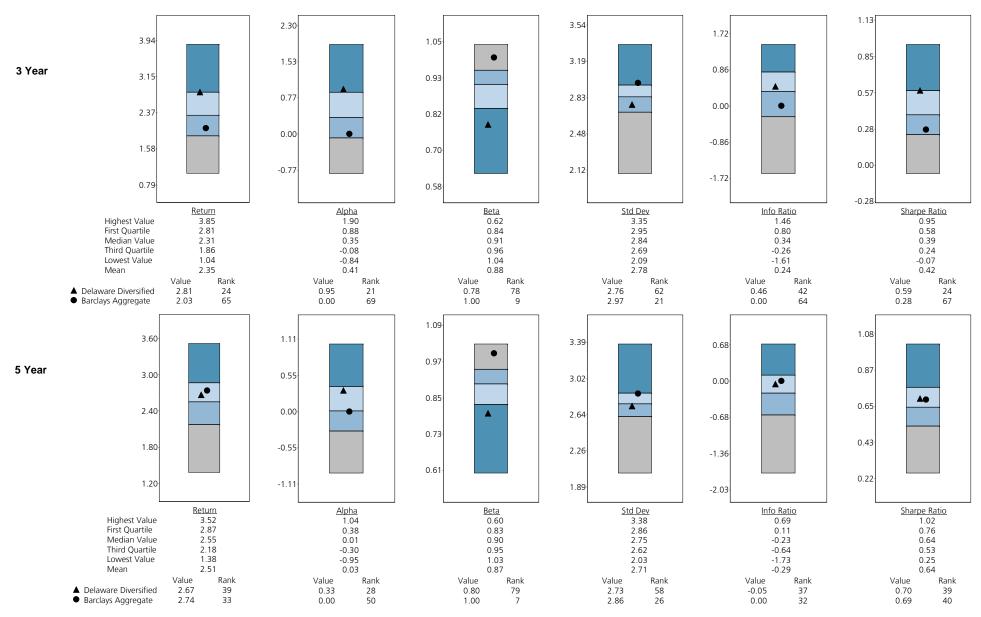
## Risk vs Reward Analysis March 31, 2014 Through March 31, 2019



# Capture Ratio May 31, 2011 Through March 31, 2019



### TOTAL FUND vs Intermediate Bond Managers March 31, 2016 Through March 31, 2019





#### **Investment Performance**

## Period Ending March 31, 2019

Prepared for: Cobb County Employees Retirement System May 14, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Eagle Capital Large Value

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

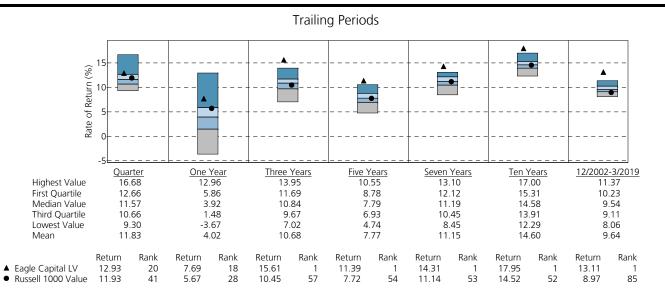
# Performance Analysis

The primary index comparison for your portfolio and each of its asset classes is listed below.

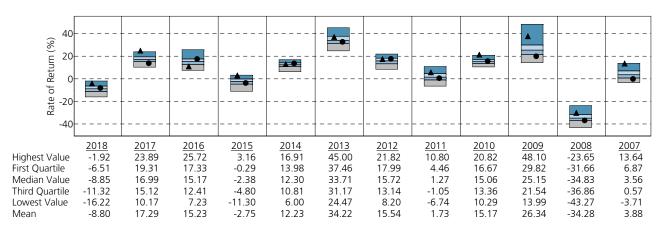
#### **TOTAL FUND BENCHMARK**

12/31/2002 - Present 100% Russell 1000 Value

#### **TOTAL FUND Peer Universe Comparison versus Large Cap Value Managers**



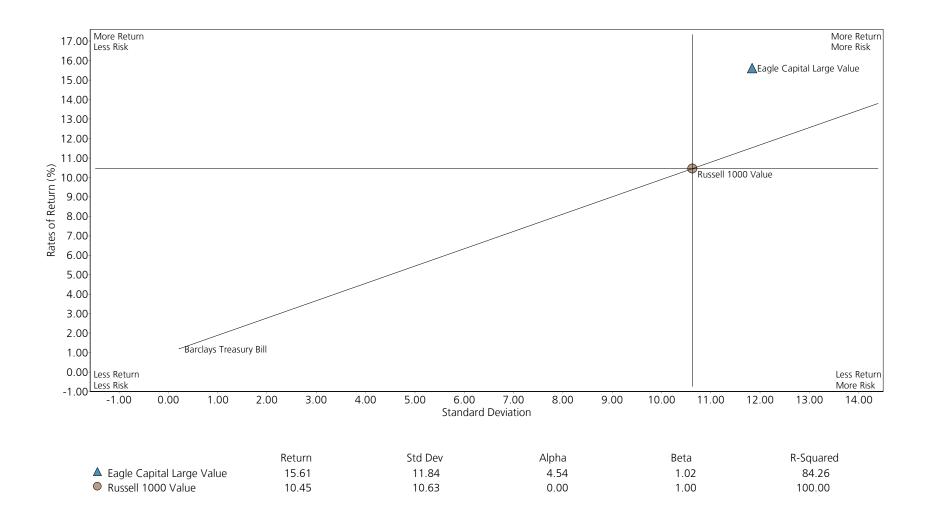
#### **Annual Periods**



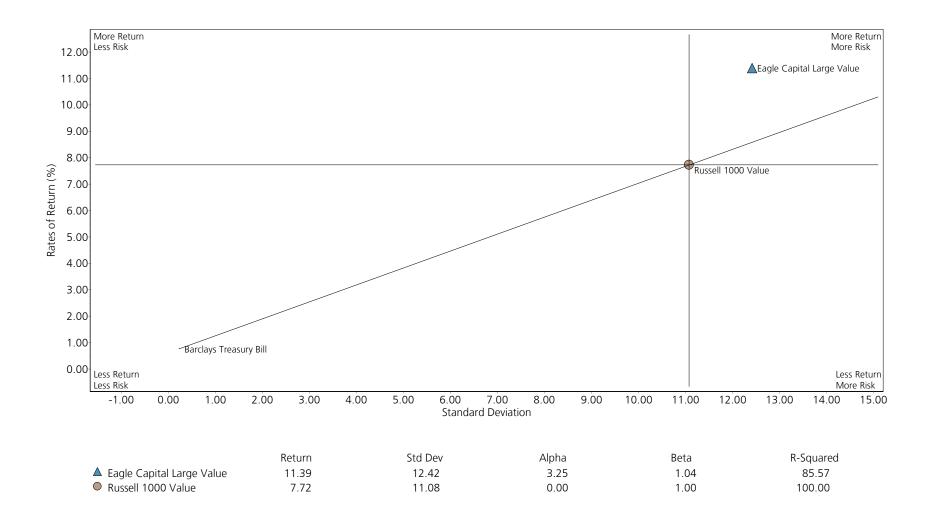
Returi Rank Returi

• Russell 1000 Value -8.27 44 13.66 91 17.34 24 -3.83 67 13.45 34 32.53 61 17.51 30 0.39 61 15.51 44 19.69 83 -36.8! 74 -0.17 81

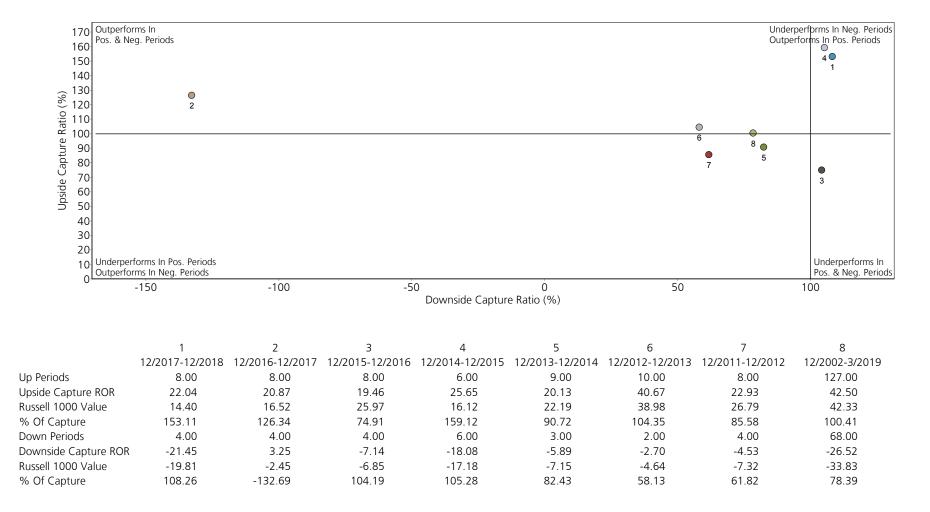
# Risk vs Reward Analysis March 31, 2016 Through March 31, 2019



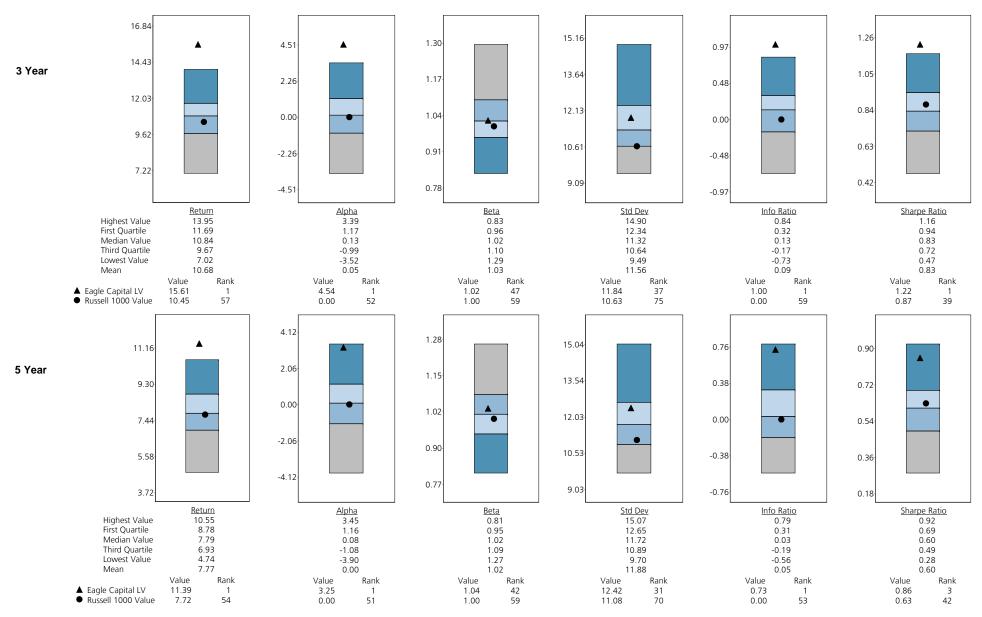
# Risk vs Reward Analysis March 31, 2014 Through March 31, 2019



# Capture Ratio December 31, 2002 Through March 31, 2019



# TOTAL FUND vs Large Cap Value Managers March 31, 2016 Through March 31, 2019





#### **Investment Performance**

## Period Ending March 31, 2019

Prepared for: Cobb County Employees Retirement System May 14, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Vanguard 500 Index

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

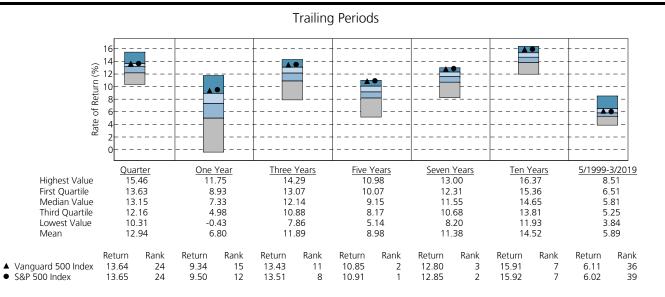
# Performance Analysis

The primary index comparison for your portfolio and each of its asset classes is listed below.

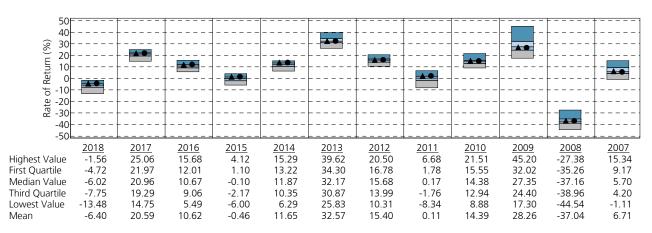
#### **TOTAL FUND BENCHMARK**

5/31/1999 - Present 100% S&P 500 Index

#### **TOTAL FUND Peer Universe Comparison versus Large Blend Managers**

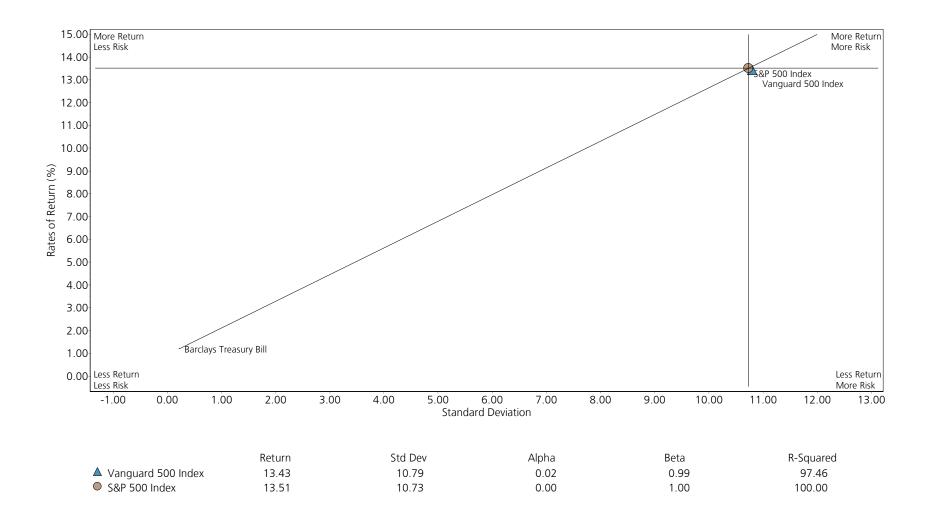


#### **Annual Periods**

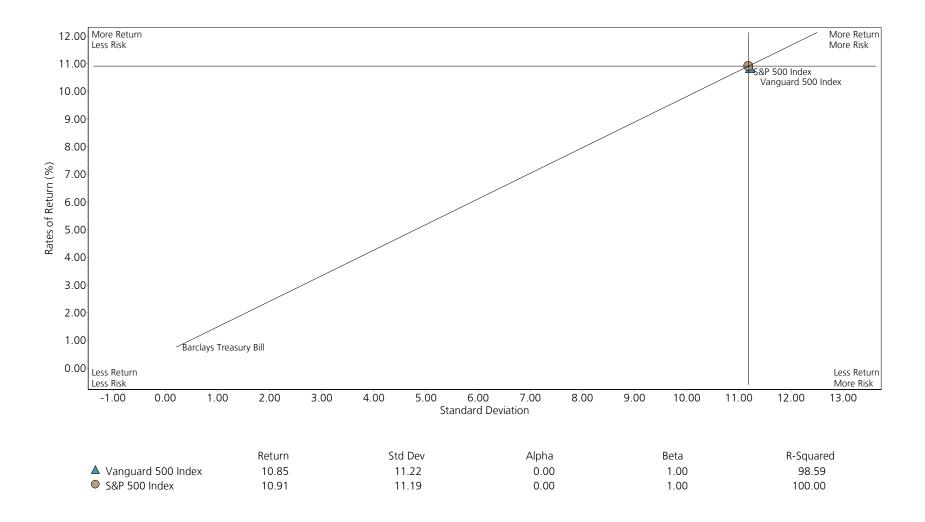


<sup>▲</sup> Vanguard 500 Index -4.51 18 21.7€ 27 11.9∃ 26 1.35 18 13.64 14 32.37 45 15.9€ 40 2.09 17 15.24 28 26.85 53 -36.8€ 38 6.21 43 
• S&P 500 Index -4.3€ 15 21.8∃ 26 11.9€ 26 1.3€ 18 13.69 13 32.3€ 45 16.0€ 39 2.11 16 15.0€ 30 26.4€ 56 -37.0€ 42 5.4€ 53

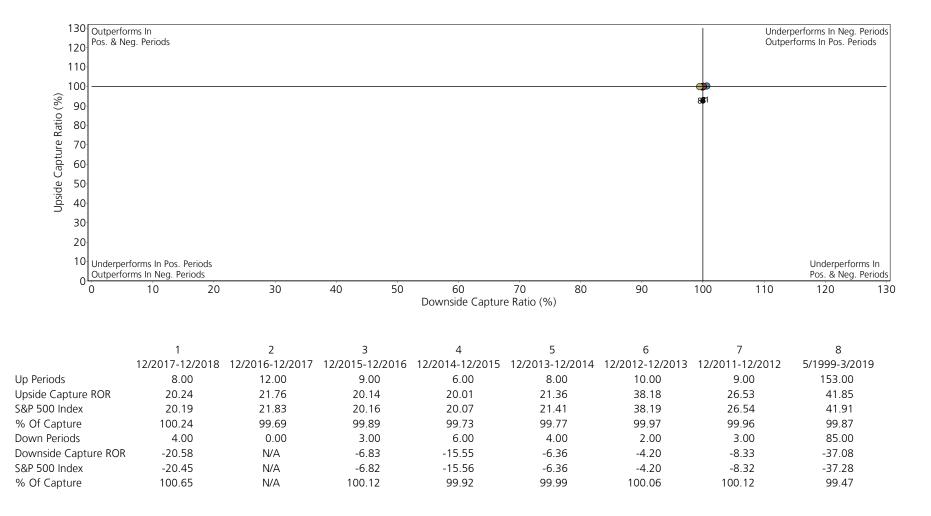
# Risk vs Reward Analysis March 31, 2016 Through March 31, 2019



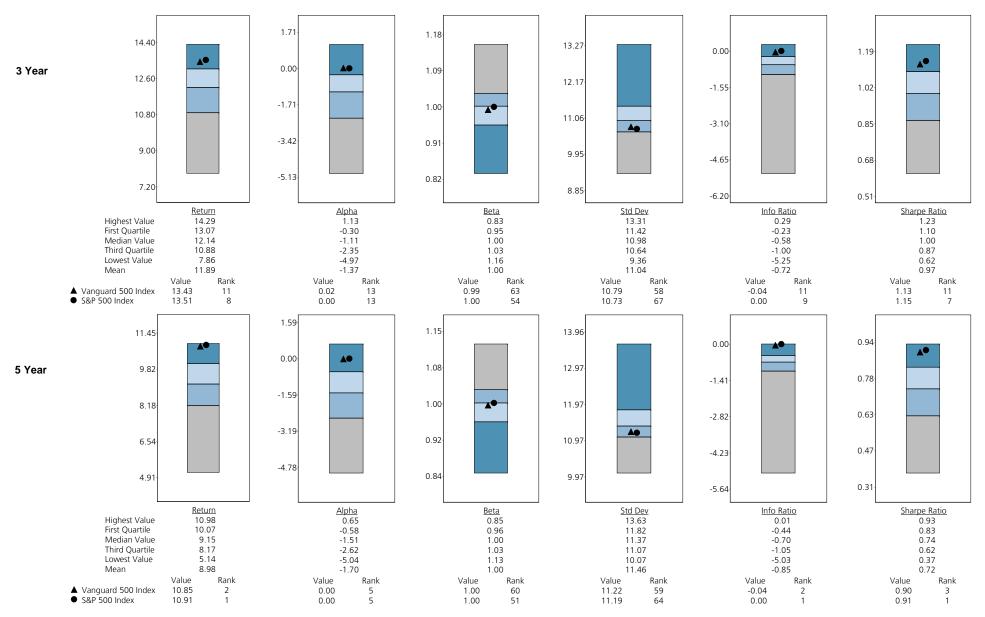
# Risk vs Reward Analysis March 31, 2014 Through March 31, 2019



# Capture Ratio May 31, 1999 Through March 31, 2019



# TOTAL FUND vs Large Blend Managers March 31, 2016 Through March 31, 2019





#### **Investment Performance**

## Period Ending March 31, 2019

Prepared for: Cobb County Employees Retirement System May 14, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# TCW Large Cap Growth

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

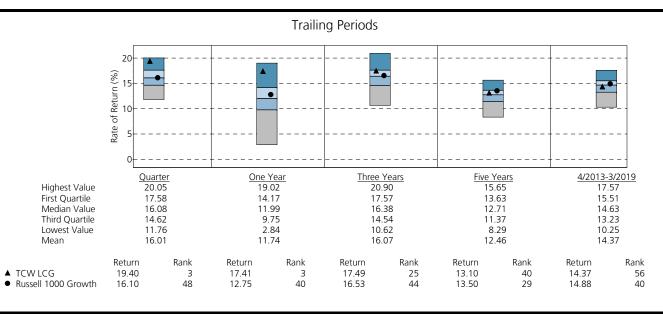
# Performance Analysis

The primary index comparison for your portfolio and each of its asset classes is listed below.

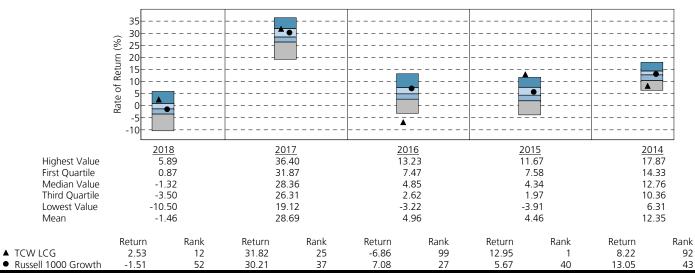
#### **TOTAL FUND BENCHMARK**

4/30/2013 - Present 100% Russell 1000 Growth

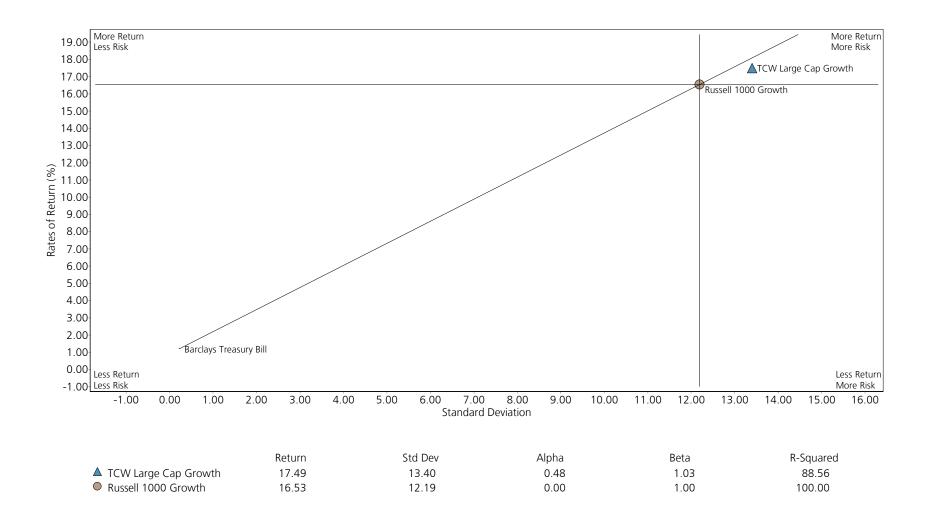
#### **TOTAL FUND Peer Universe Comparison versus Large Cap Growth Managers**



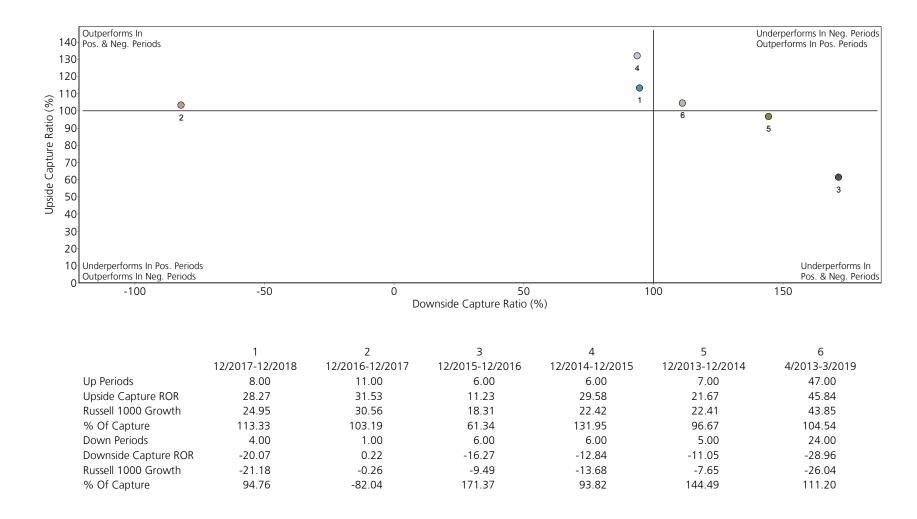
#### **Annual Periods**



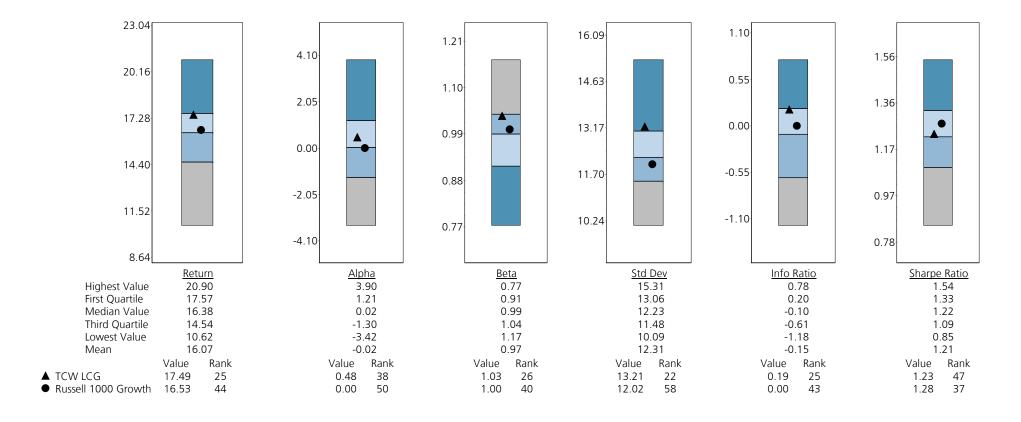
# Risk vs Reward Analysis March 31, 2016 Through March 31, 2019



# Capture Ratio April 30, 2013 Through March 31, 2019



### TOTAL FUND vs Large Cap Growth Managers March 31, 2016 Through March 31, 2019





#### **Investment Performance**

## Period Ending March 31, 2019

Prepared for: Cobb County Employees Retirement System May 14, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Westfield Capital Large Growth

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

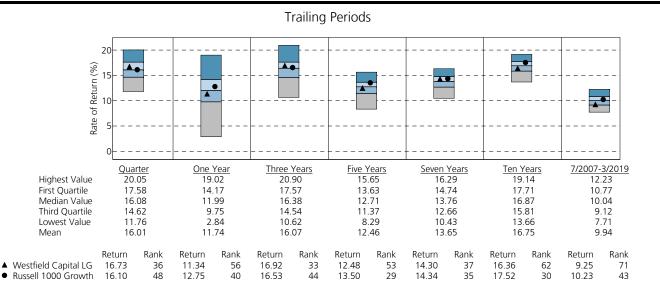
# Performance Analysis

The primary index comparison for your portfolio and each of its asset classes is listed below.

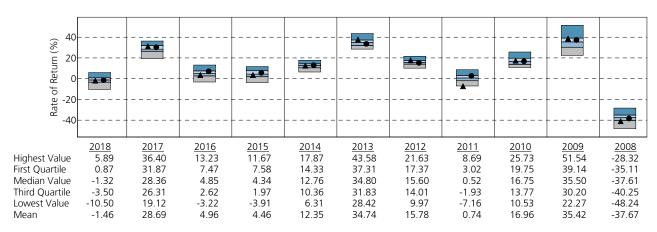
#### **TOTAL FUND BENCHMARK**

7/31/2007 - Present 100% Russell 1000 Growth

#### **TOTAL FUND Peer Universe Comparison versus Large Cap Growth Managers**



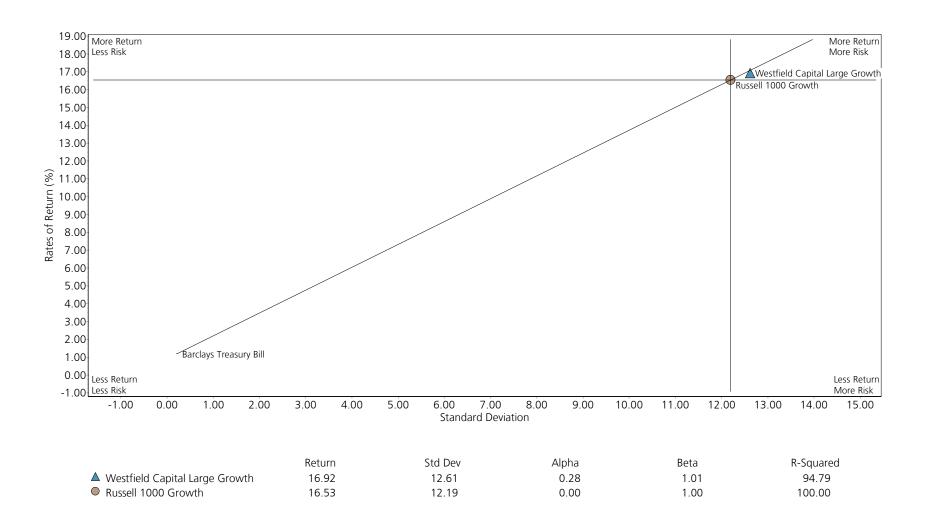
#### **Annual Periods**



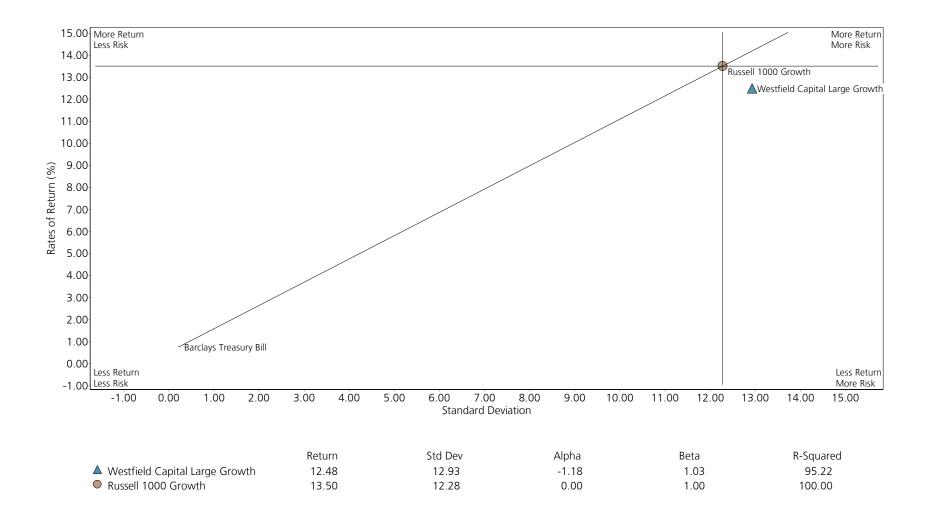
Returr Rank Retur

• Russell 1000 Growth -1.51 52 30.21 37 7.08 27 5.67 40 13.05 43 33.48 63 15.26 54 2.64 32 16.71 50 37.21 36 -38.44 58

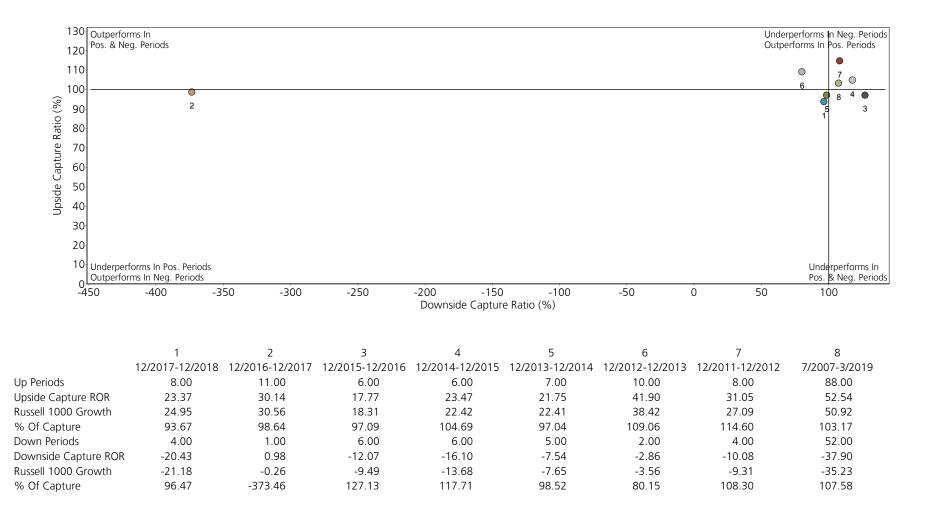
# Risk vs Reward Analysis March 31, 2016 Through March 31, 2019



# Risk vs Reward Analysis March 31, 2014 Through March 31, 2019

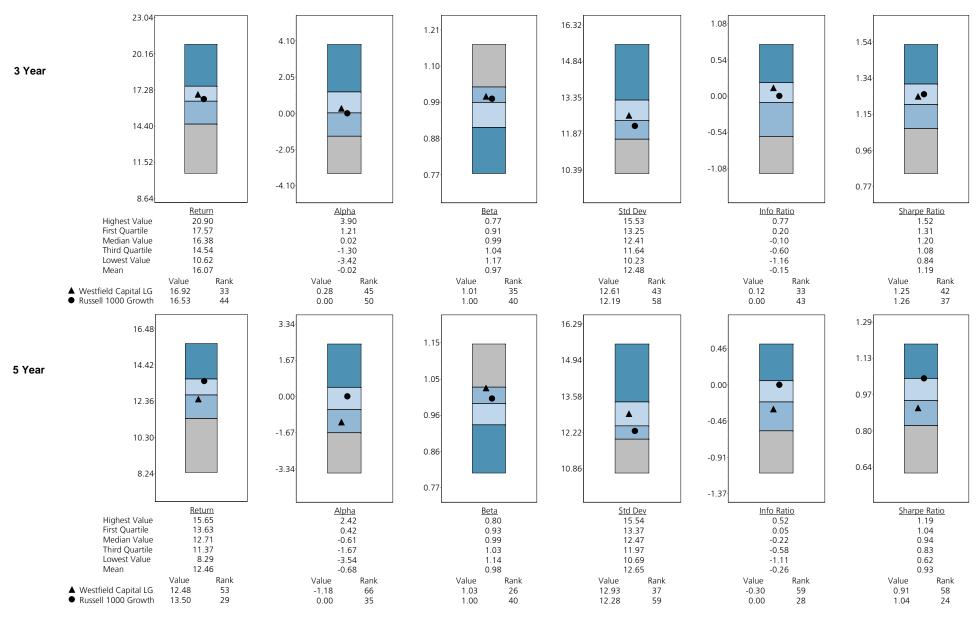


# Capture Ratio July 31, 2007 Through March 31, 2019



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# TOTAL FUND vs Large Cap Growth Managers March 31, 2016 Through March 31, 2019





#### **Investment Performance**

# Period Ending March 31, 2019

Prepared for: Cobb County Employees Retirement System May 14, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Vanguard Midcap Index Fund

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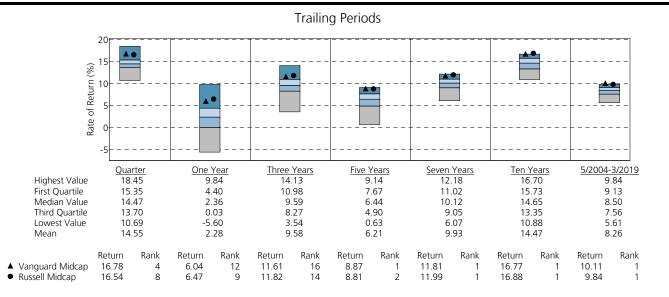
# Performance Analysis

The primary index comparison for your portfolio and each of its asset classes is listed below.

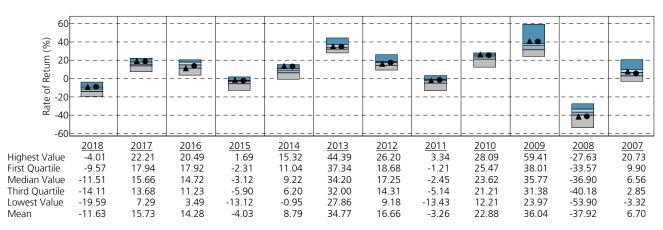
#### **TOTAL FUND BENCHMARK**

5/31/2004 - Present 100% Russell Midcap

#### **TOTAL FUND Peer Universe Comparison versus Mid Cap Blend Managers**



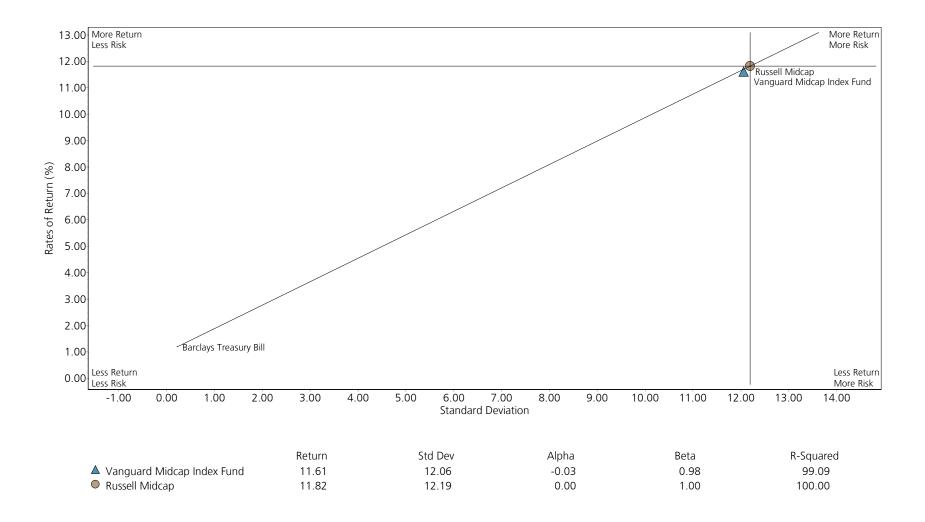
### **Annual Periods**



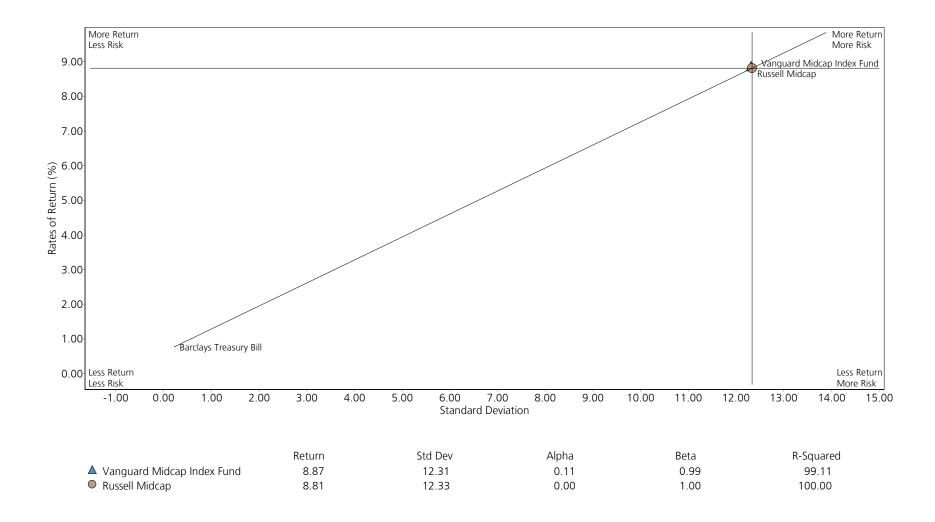
Returr Rank Returr

● Russell Midcap -9.06 18 18.52 18 13.8C 58 -2.44 28 13.22 10 34.76 46 17.28 50 -1.55 27 25.48 24 40.48 16 -41.4€ 78 5.6C 52

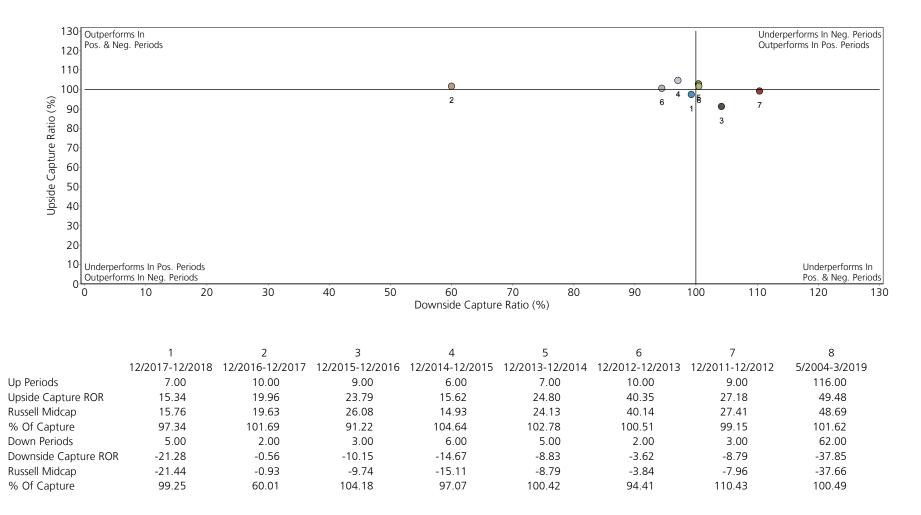
# Risk vs Reward Analysis March 31, 2016 Through March 31, 2019



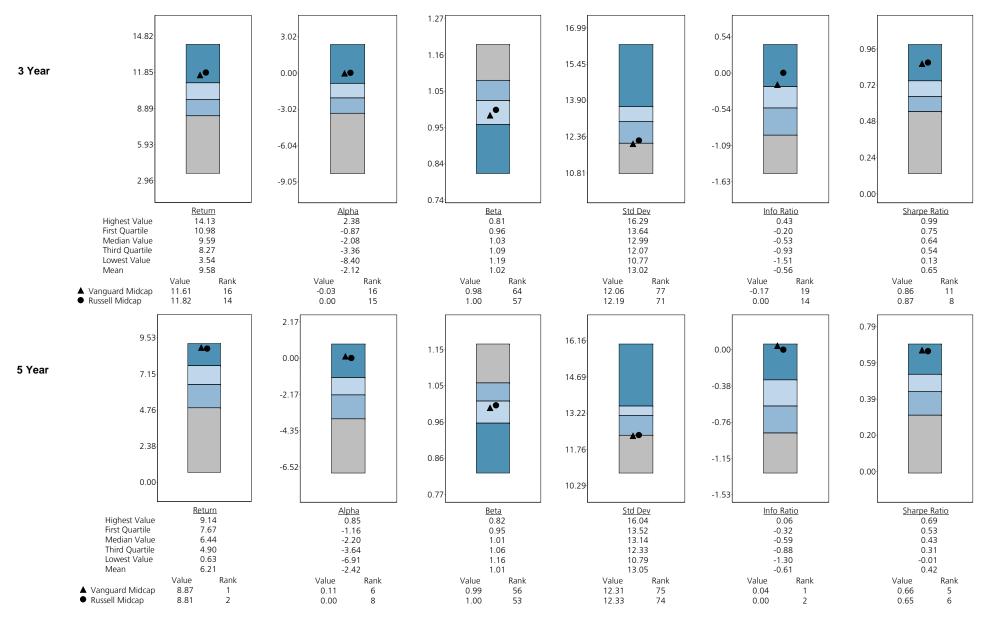
# Risk vs Reward Analysis March 31, 2014 Through March 31, 2019



# Capture Ratio May 31, 2004 Through March 31, 2019



### TOTAL FUND vs Mid Cap Blend Managers March 31, 2016 Through March 31, 2019





#### **Investment Performance**

# Period Ending March 31, 2019

Prepared for: Cobb County Employees Retirement System May 14, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Vaughan Nelson

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

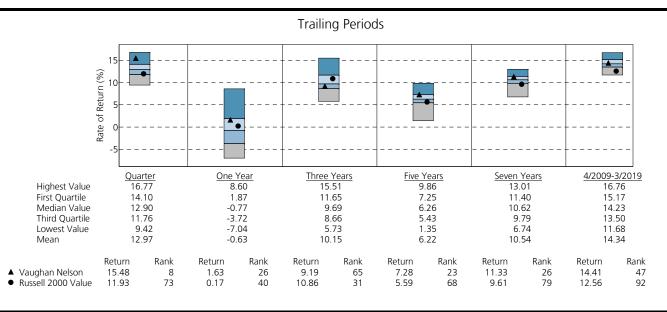
# Performance Analysis

The primary index comparison for your portfolio and each of its asset classes is listed below.

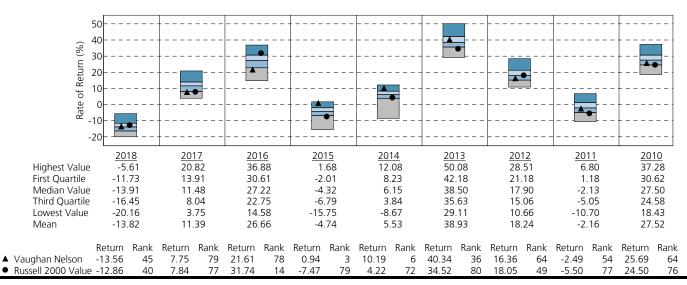
#### **TOTAL FUND BENCHMARK**

4/30/2009 - Present 100% Russell 2000 Value

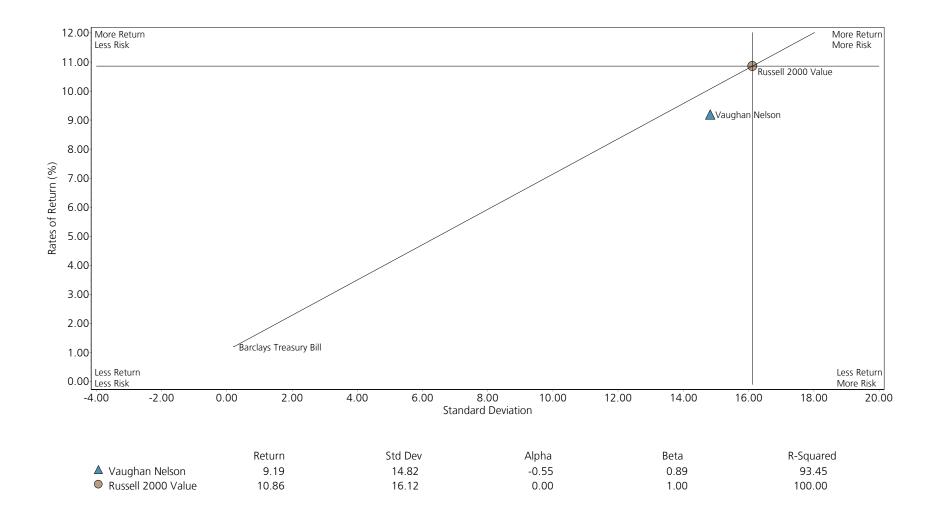
#### **TOTAL FUND Peer Universe Comparison versus Small Cap Value Managers**



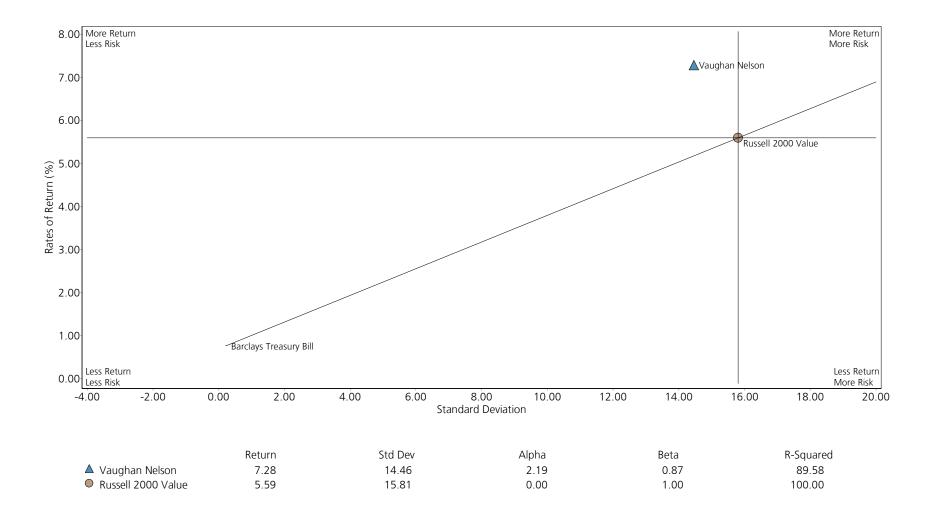
#### **Annual Periods**



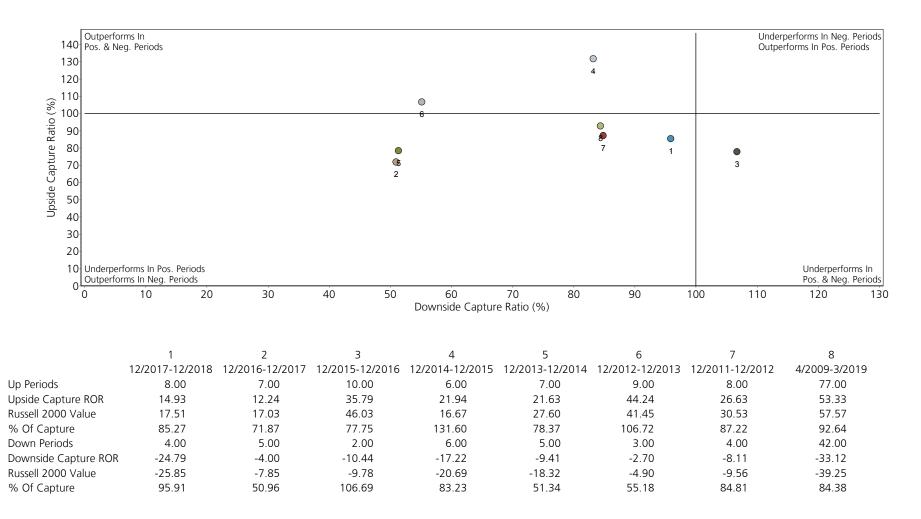
# Risk vs Reward Analysis March 31, 2016 Through March 31, 2019



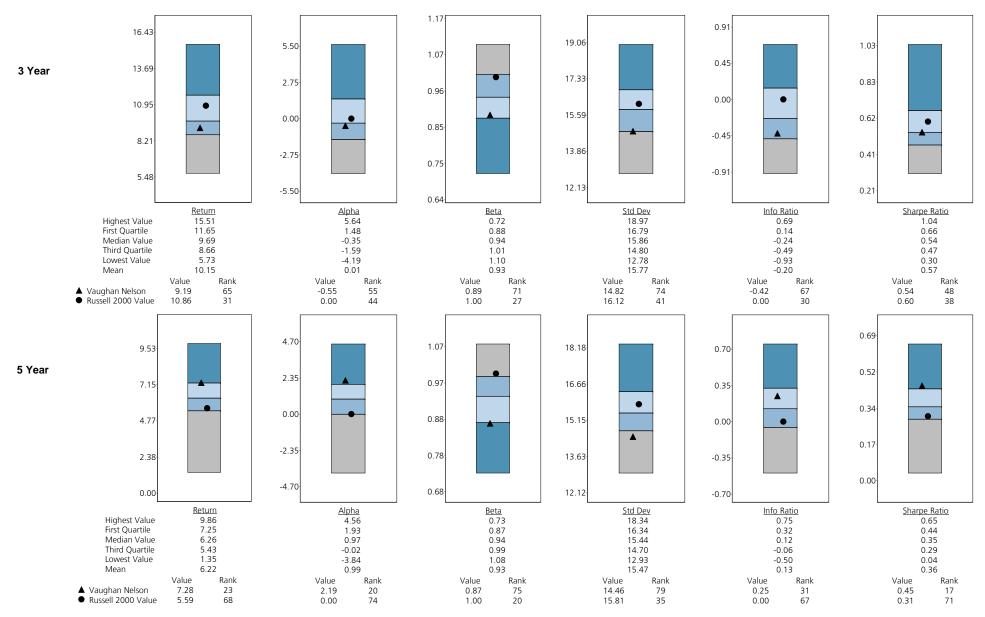
# Risk vs Reward Analysis March 31, 2014 Through March 31, 2019



# Capture Ratio April 30, 2009 Through March 31, 2019



### TOTAL FUND vs Small Cap Value Managers March 31, 2016 Through March 31, 2019





#### **Investment Performance**

# Period Ending March 31, 2019

Prepared for: Cobb County Employees Retirement System May 14, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Eagle Small Cap Growth

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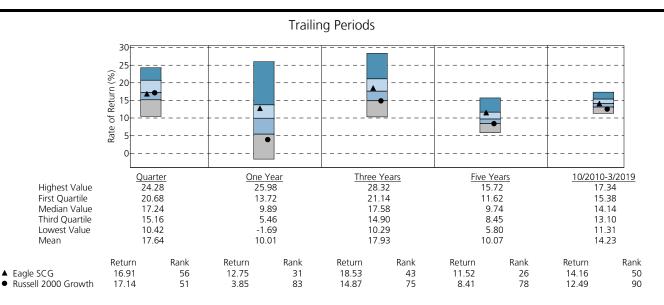
# Performance Analysis

The primary index comparison for your portfolio and each of its asset classes is listed below.

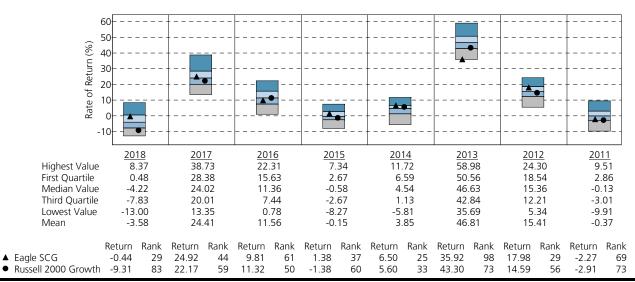
#### **TOTAL FUND BENCHMARK**

10/31/2010 - Present 100% Russell 2000 Growth

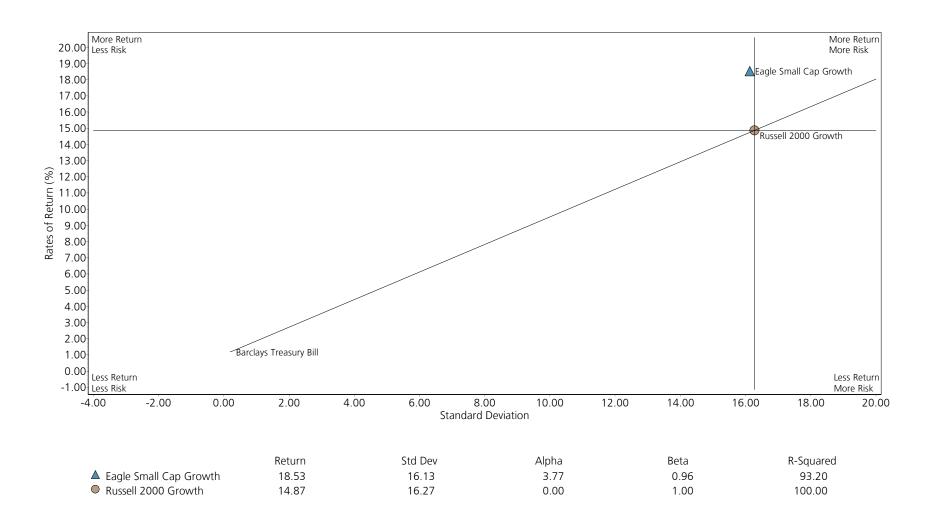
#### **TOTAL FUND Peer Universe Comparison versus Small Cap Growth Managers**



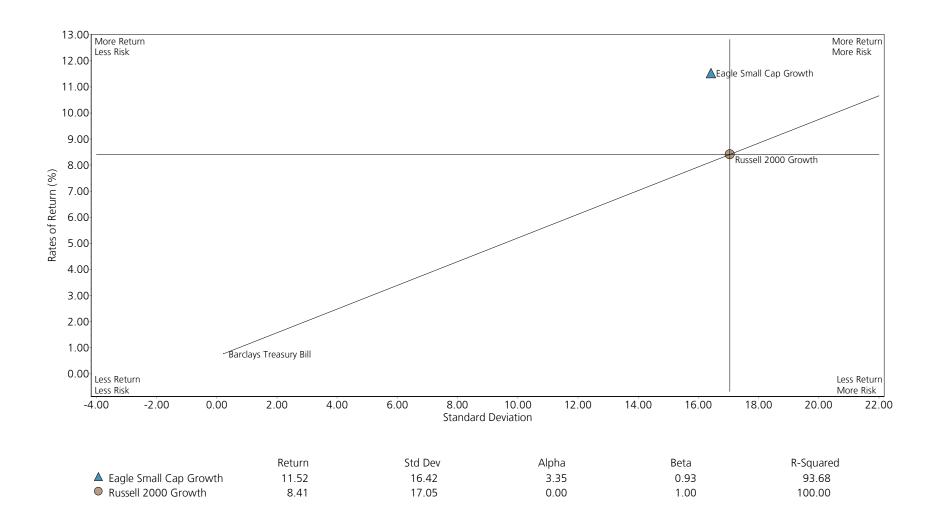
#### **Annual Periods**



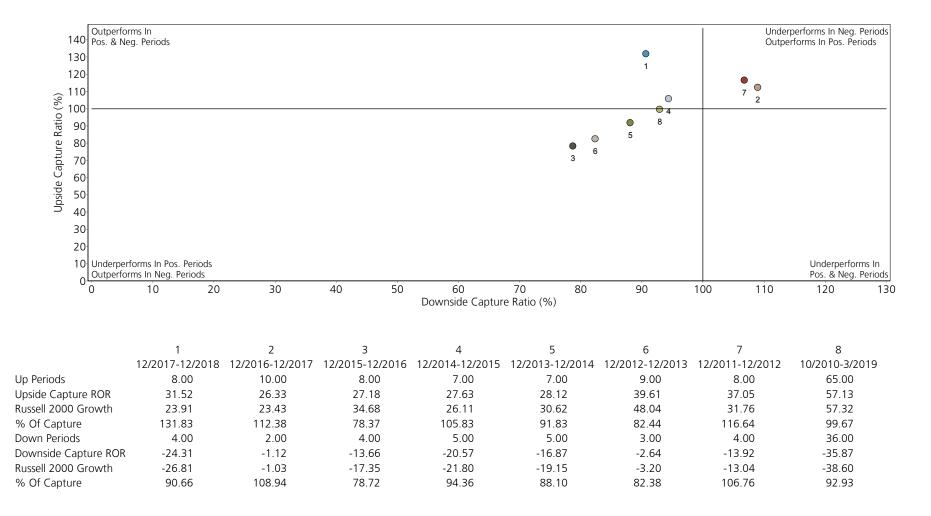
# Risk vs Reward Analysis March 31, 2016 Through March 31, 2019



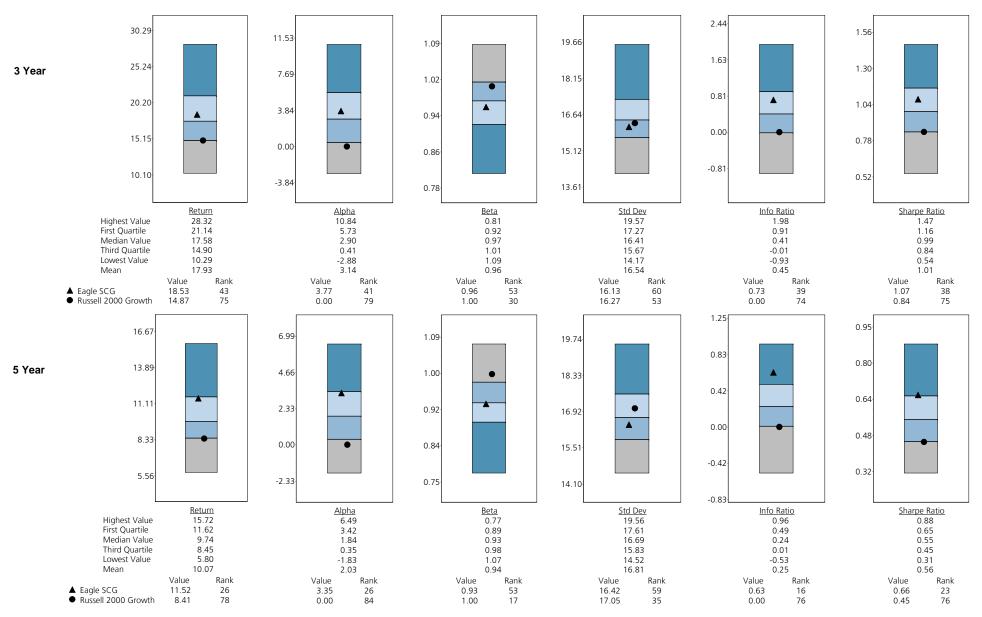
# Risk vs Reward Analysis March 31, 2014 Through March 31, 2019



# Capture Ratio October 31, 2010 Through March 31, 2019



### TOTAL FUND vs Small Cap Growth Managers March 31, 2016 Through March 31, 2019





#### **Investment Performance**

# Period Ending March 31, 2019

Prepared for: Cobb County Employees Retirement System May 14, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Vanguard Total International Stock Fund

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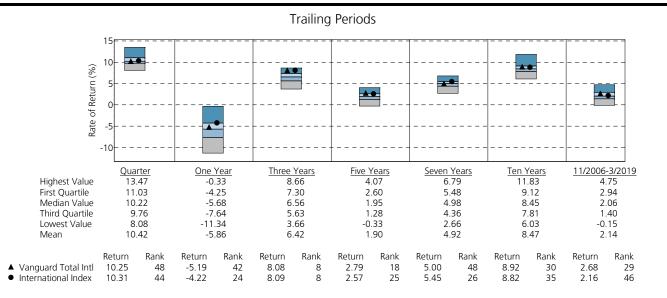
# Performance Analysis

The primary index comparison for your portfolio and each of its asset classes is listed below.

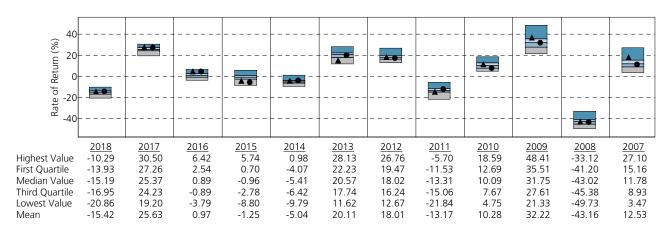
#### **TOTAL FUND BENCHMARK**

07/01/2013 - Present 100% MSCI AC World X US Net 12/31/1998 - 06/30/2013 100% MSCI Net EAFE

#### **TOTAL FUND Peer Universe Comparison versus Foreign Large Blend Managers**



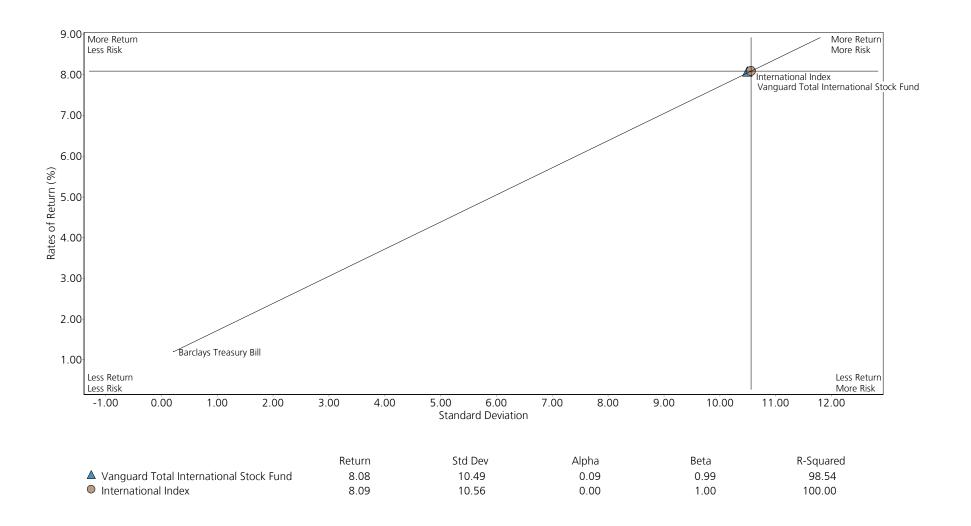
#### **Annual Periods**



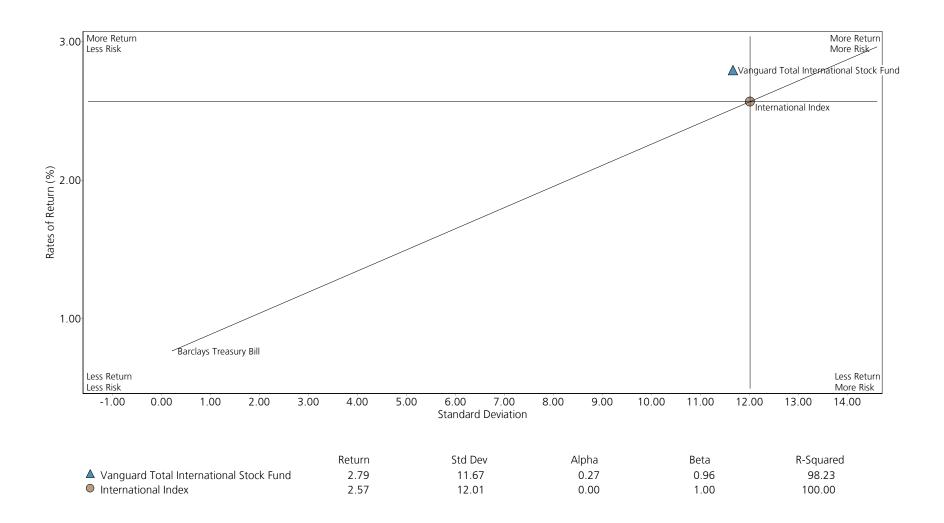
Returi Rank Retur

■ International Index -14.2( 32 27.19 26 4.5C 9 -5.66 92 -3.87 22 20.07 54 17.32 57 -12.14 33 7.75 74 31.78 48 -43.3 57 11.17 53

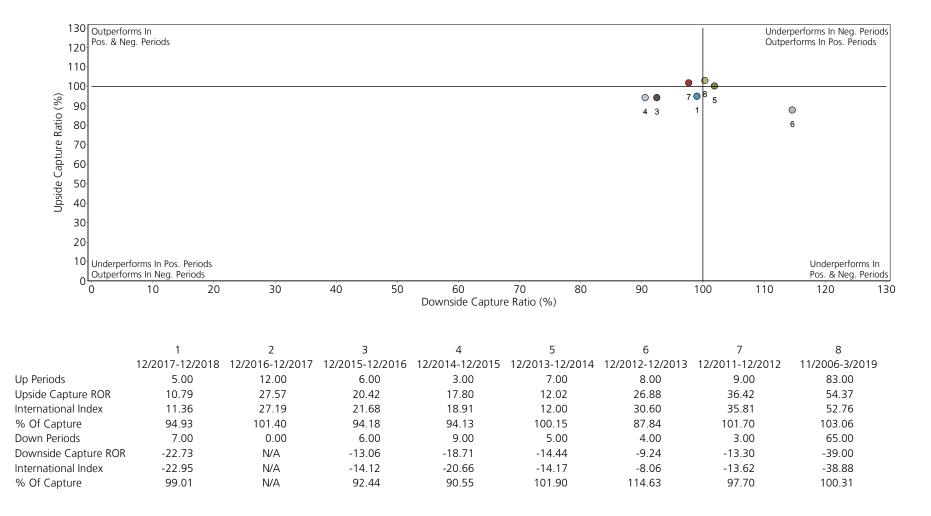
# Risk vs Reward Analysis March 31, 2016 Through March 31, 2019



# Risk vs Reward Analysis March 31, 2014 Through March 31, 2019

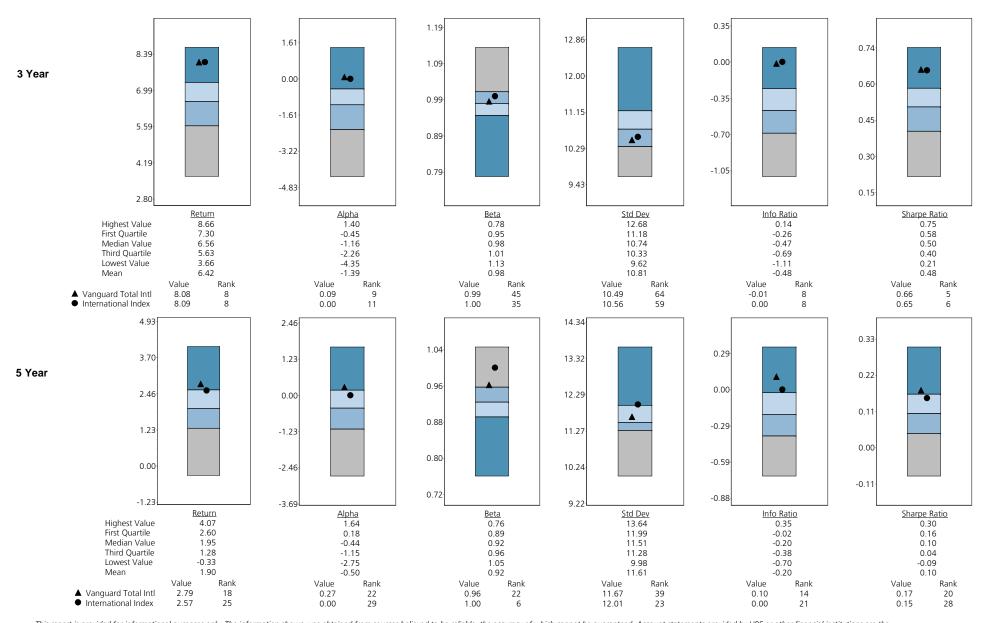


### Capture Ratio November 30, 2006 Through March 31, 2019



This report is provided for informational purposes only. The information shown was obtained from sources believed to be reliable, the accuracy of which cannot be guaranteed. Account statements provided by UBS or other financial institutions are the official record of your holdings, balances, transactions and security values and are not amended or superseded by any of the information presented in this report. Information is current as of the date shown. Past performance is no guarantee of future returns. See IMPORTANT INFORMATION at end of report for assumptions and limitations of the analysis in this report, risk considerations, valuation, fees and other details regarding this report.

# TOTAL FUND vs Foreign Large Blend Managers March 31, 2016 Through March 31, 2019





#### **Investment Performance**

# Period Ending March 31, 2019

Prepared for: Cobb County Employees Retirement System May 14, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Dodge & Cox International Stock Fund

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

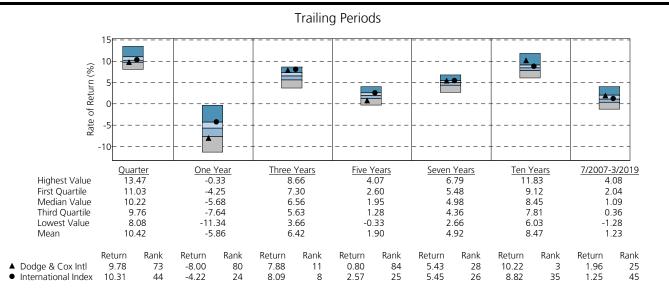
# Performance Analysis

The primary index comparison for your portfolio and each of its asset classes is listed below.

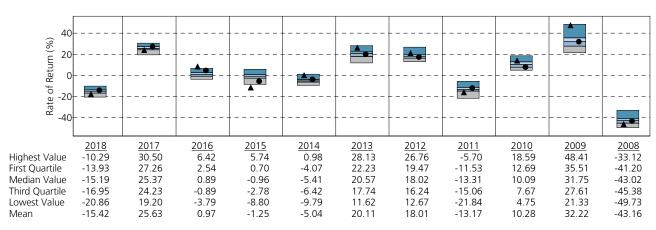
#### **TOTAL FUND BENCHMARK**

07/01/2013 - Present 100% MSCI AC World X US Net 12/31/1998 - 06/30/2013 100% MSCI Net EAFE

#### **TOTAL FUND Peer Universe Comparison versus Foreign Large Blend Managers**



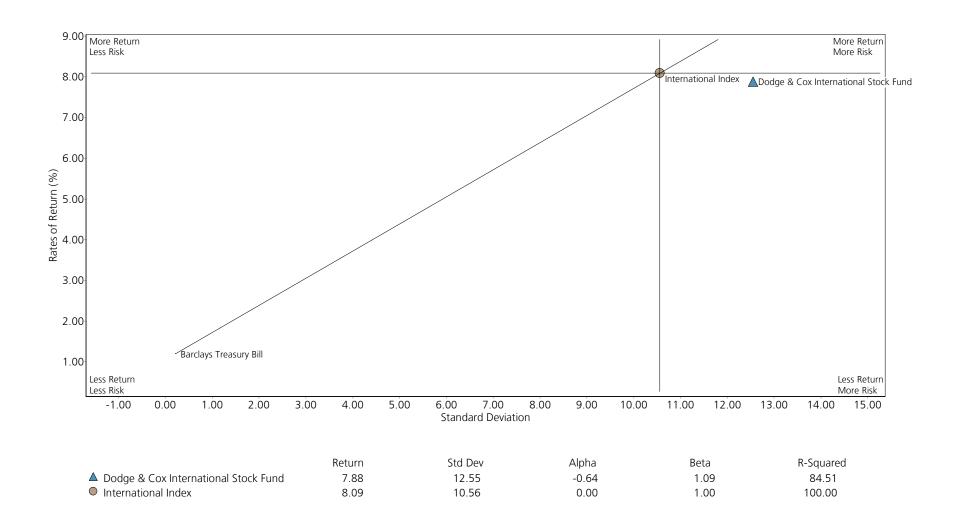
### **Annual Periods**



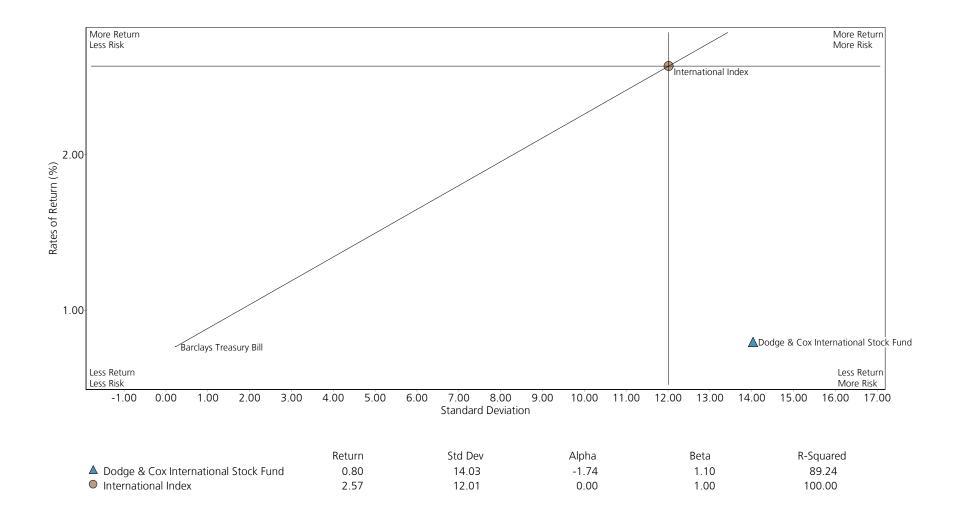
Return Rank Return

■ Dougle & Cox Inti -17.96 85 25.97 79 8.26 1-17.56 99 0.08 5 26.15 8 20.82 14-15.99 86 14.06 14 47.41 1-46.56 84
■ International Index-14.20 32 27.19 26 4.50 9 -5.66 92 -3.87 22 20.07 54 17.32 57 -12.14 33 7.75 74 31.78 48 -43.38 57

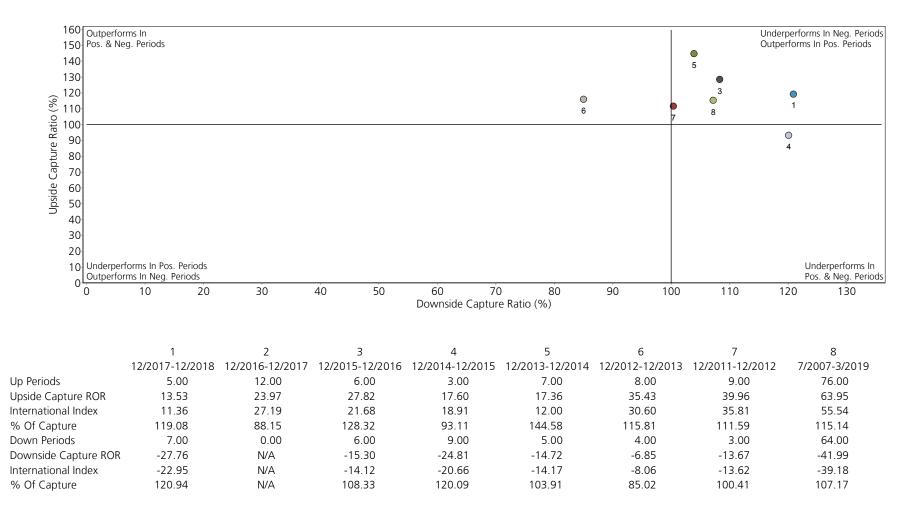
# Risk vs Reward Analysis March 31, 2016 Through March 31, 2019



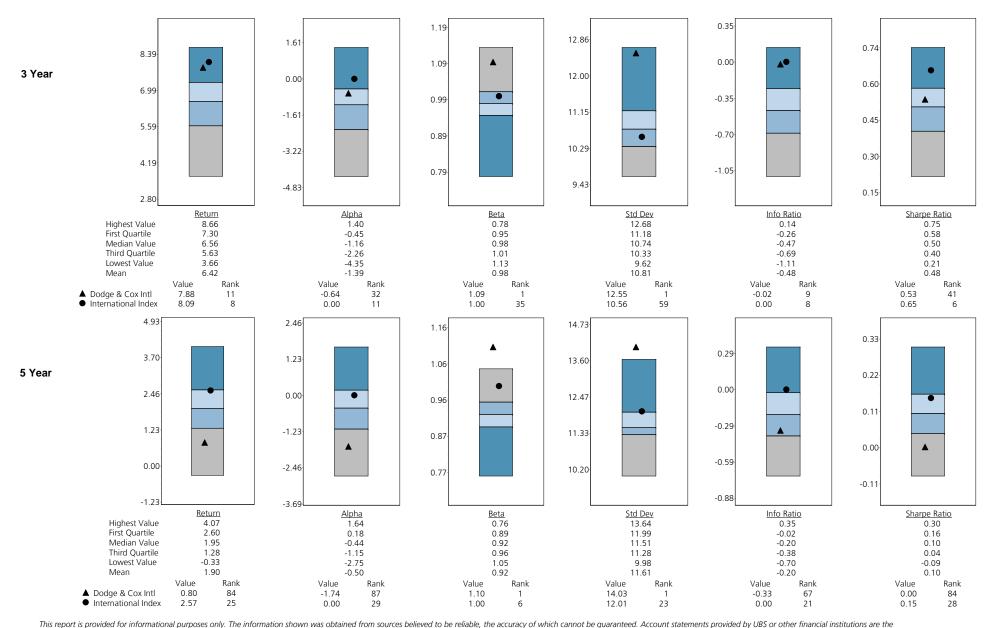
# Risk vs Reward Analysis March 31, 2014 Through March 31, 2019



# Capture Ratio July 31, 2007 Through March 31, 2019



# TOTAL FUND vs Foreign Large Blend Managers March 31, 2016 Through March 31, 2019



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#### **Investment Performance**

# Period Ending March 31, 2019

Prepared for: Cobb County Employees Retirement System May 14, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Oppenheimer International Growth

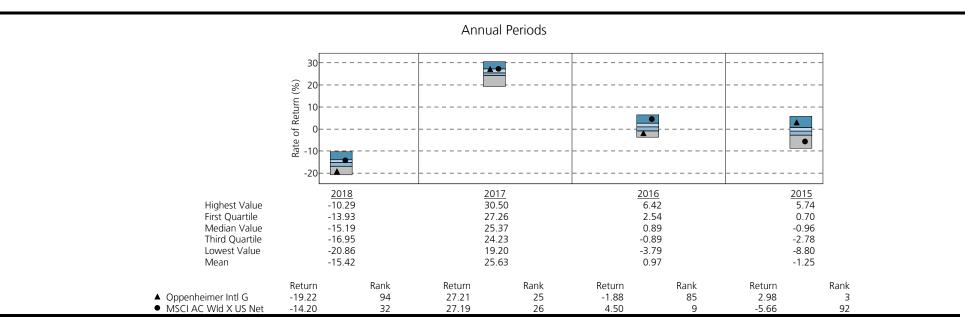
Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

# Performance Analysis

The primary index comparison for your portfolio and each of its asset classes is listed below.

#### **TOTAL FUND BENCHMARK**

5/31/2014 - Present 100% MSCI AC World X US Net **Trailing Periods** 





#### **Investment Performance**

### Period Ending March 31, 2019

Prepared for: Cobb County Employees Retirement System May 14, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Blackrock Global Allocation Fund First Eagle Global Fund Loomis Sayles Global Equity & Income Fund

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# Performance Analysis

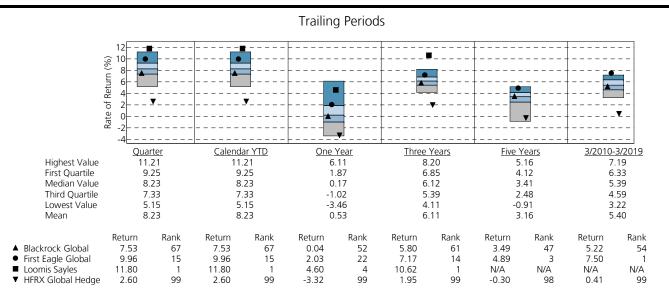
The primary index comparison for your portfolio and each of its asset classes is listed below.

#### **TOTAL FUND BENCHMARK**

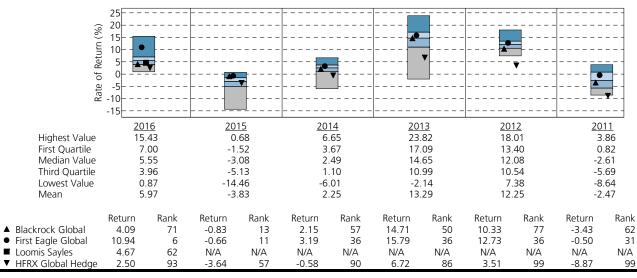
3/31/2010 - Present

100% HFRX Global Hedge Fund Index

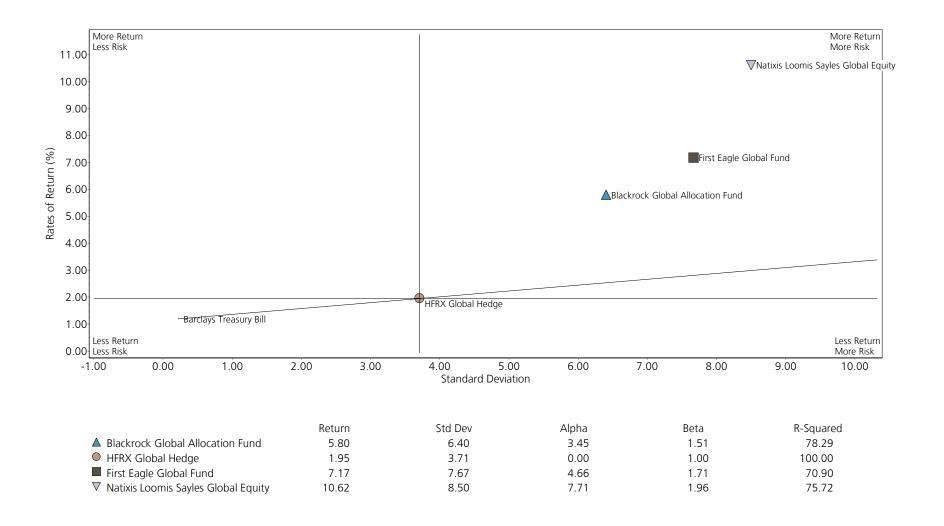
### **TOTAL FUND Peer Universe Comparison versus World Allocation Managers**



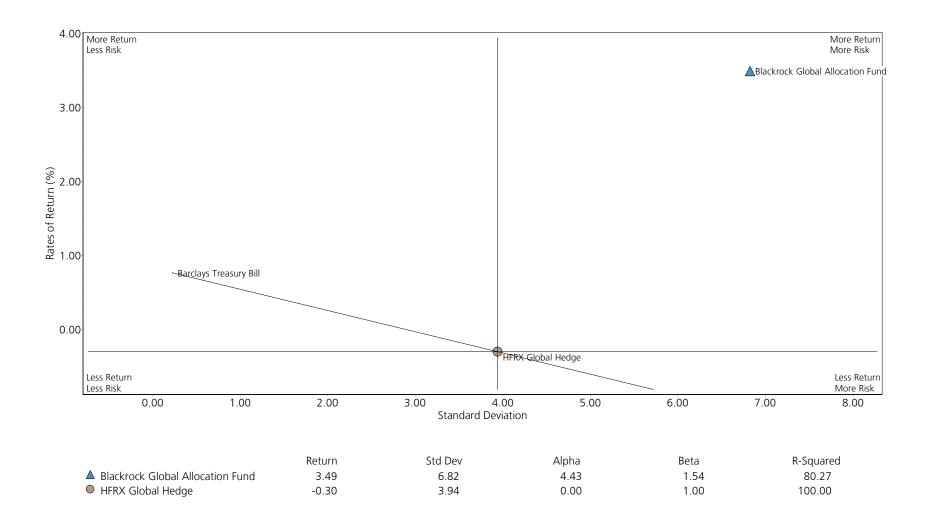
#### **Annual Periods**



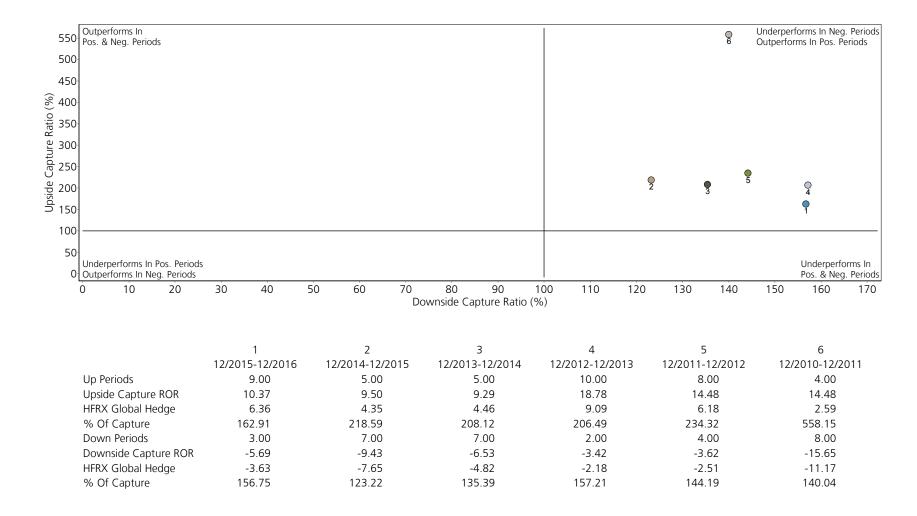
### Risk vs Reward Analysis March 31, 2016 Through March 31, 2019



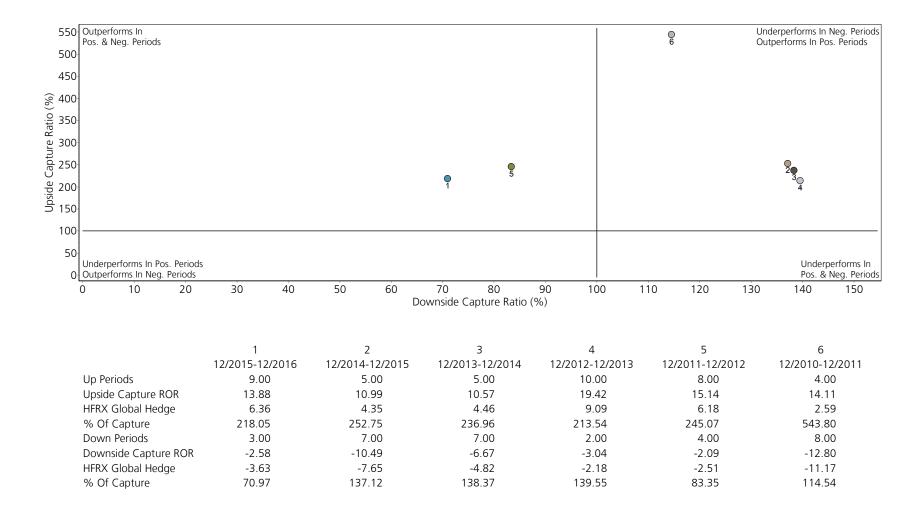
# Risk vs Reward Analysis March 31, 2014 Through March 31, 2019



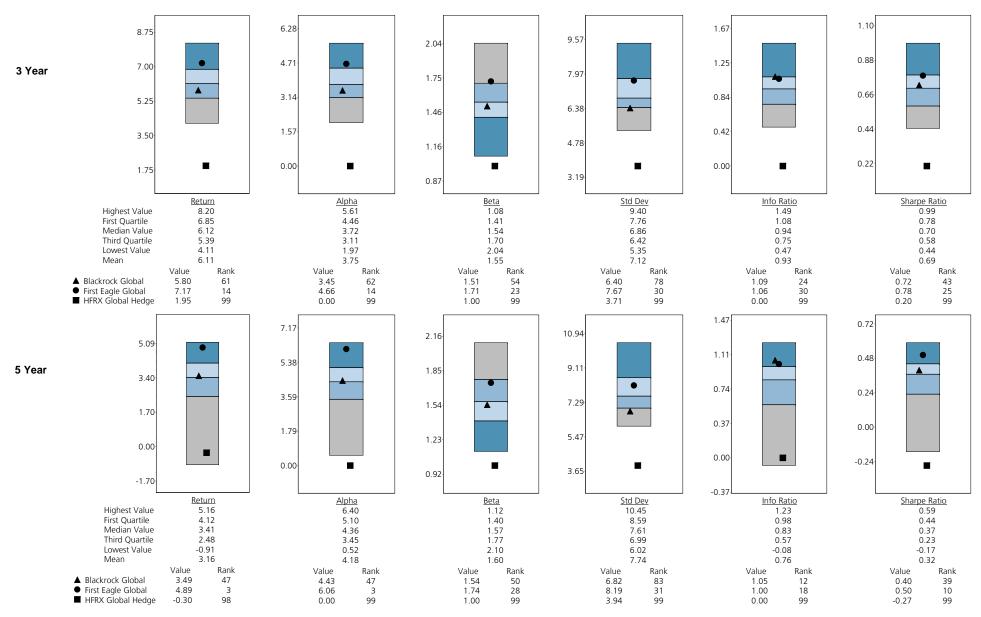
# Capture Ratio - Blackrock Global Allocation Fund December 31, 2010 Through December 31, 2016



### Capture Ratio - First Eagle Global Fund December 31, 2010 Through December 31, 2016



### TOTAL FUND vs World Allocation Managers March 31, 2016 Through March 31, 2019





#### **Investment Performance**

# Period Ending March 31, 2019

Prepared for: Cobb County Employees Retirement System May 14, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Vanguard International Growth

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

# Performance Analysis

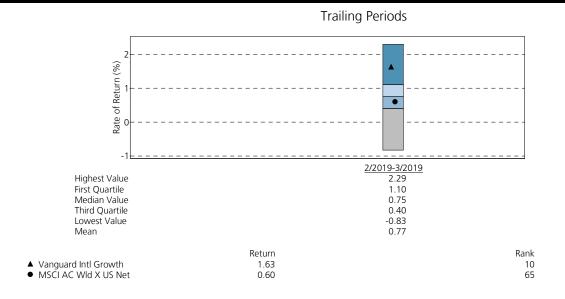
The primary index comparison for your portfolio and each of its asset classes is listed below.

#### **TOTAL FUND BENCHMARK**

2/6/2019 - Present

100% MSCI AC World X US Net

### **TOTAL FUND Peer Universe Comparison versus Foreign Large Blend Managers**



**Annual Periods** 

# Cobb County Employees Retirement System - Investments Not Reviewed by UBS

The firm (UBS) does not currently conduct due diligence and has not otherwise reviewed the following investments or strategies, which are included in this report at your request. The inclusion does not constitute an endorsement that you continue to hold these investments. Please see "Important Information" for additional details.

At the time of report creation, all investments in your portfolio are reviewed.

Cash and Money Market Funds are not included in this analysis. UBS does not research any money market mutual funds, other than those offered by UBS and its affiliates.

# **Performance Reconciliation Adjustments**

This section provides a record of differences between information reported by your custodian and information used to create this performance report, whether at your direction or as prescribed by your Institutional Consultant on your behalf.

Scenario	Description	Net Adjustment (+/-)

No differences in information were used in the creation of this performance report.

#### IMPORTANT INFORMATION

This report is provided for informational purposes only, does not constitute an offer to buy or sell securities or investment products, does not constitute a recommendation that you buy, sell or hold securities or investment products, and is current as of the date shown. It may include information regarding your Institutional Consulting accounts held at various UBS entities including UBS Financial Services Inc., UBS Securities LLC and UBS AG (collectively, "UBS" or "UBS entities"), as well as accounts you hold at other financial institutions. Accounts included in this report are identified at the beginning of the report. Also, information may be shown for individual accounts or as one or more combined portfolios; the accounts included in each portfolio are also identified at the beginning of the report.

Investment Monitoring: Neither UBS nor any of its employees will track or monitor specific investments you make to determine whether they complement your Investment Policy, unless you have engaged UBS for such services. Accounts and Assets Included: UBS account statements are the only official records of holdings, balances, transactions, and security values of assets held in UBS accounts and are not replaced, amended or superseded by any of the information presented in this report. If assets that you hold at other financial institutions are included in this report, they are being provided as part of your UBS IC Consulting Services Agreement with us. In either situation, the inclusion of those assets is based on information, including valuation and transactional information, furnished to UBS by your custodian. Because custodians vary in the information they provide to us, reflection of fees within this report will include your investment manager fees and your UBS fees only when your custodian has identified and provided this information to us. This report is not intended to provide you with consolidated information or reporting regarding your holdings at other firms. You should review and maintain the original documents for those assets, such as account statements for individual accounts held away from UBS. Those documents may contain their record of holdings, balances, transactions, and security values of assets held in those accounts, as well as notices, disclosures and other firms. You should accounts held away from UBS. Those documents may contain their record of holdings, balances, transactions are ference should questions arise regarding the accuracy of the information in this report. Values of assets held in those accounts, as well as notices, disclosures and other information important to you, and may also serve as a reference should questions arise regarding the accuracy of the information in this report. Values of assets held in those accuracy of the information in this report. Values of assets held in

Valuation: Values shown are not inclusive of margin balances. Every reasonable effort has been made to accurately price securities; however, we make no guarantee with respect to any security's price. To determine the value of securities in your account, we generally rely on third party quotation services. If a price is unavailable or believed to be unreliable, we may determine the price in good faith and may use other sources such as the last recorded transaction. We will generally rely on the value provided by you, the custodian or issuer of that security, when (i) securities are held at another custodian; (ii) investments not available through UBS or that our systems do not recognize. To obtain current quotations, when available, contact your Institutional Consultant. Prices may or may not represent current or future market value. Such pricing may affect the performance information provided in these reports. The services UBS provides to you may be based on and/or include information obtained from third-party sources. UBS will not independently verify pricing information obtained from third-party sources and cannot guarantee the accuracy of such third-party information. If pricing is indicated as "NA", the required data for that field was not provided by the other financial institution or you; this will affect the performance information provided in these reports.

Performance Analytics: Unless otherwise noted, performance shown is based on Time Weighted Rate of Return. Periods greater than one year have been annualized, but annual performance may not represent a full calendar year depending on the inception date of the first account included in these reports. Standard deviations are shown only for periods of 12 months or longer. This report may reflect performance before the deduction of manager fees and UBS Institutional Consulting advisory fees, unless your custodian provides that information to us or you custody your assets at UBS and the performance is reflected as net of those fees. The payment of fees and expenses will reduce the performance of the account and the reduction in performance will have a cumulative effect over time. The net effect of the payment of fees on the annualized performance, and the compounded or cumulative effect over time, is dependent on the amount of the fee and the account's investment performance. For example, an account that experiences an annual gross performance of 10% but incurs a 2.8% annual fee that is deducted quarterly on a prorated basis, will experience net annual performance of 7.1%, a reduction of 2.9% per year. Compounding will similarly affect the account's performance on a cumulative basis. Performance information incorporates data as of the date your accounts became available for these reports, not as of your initial acquisition of a particular investment unless performance history is imported at client's request. For reports that reflect combined account information, the Performance Start Date will be the earliest performance start date of any of the individual accounts selected for the consolidation time period. If an individual account's performance information is not available for a full reporting time period (month to date, quarter to date, year to date or performance to date), that account's information will only be included for the period when available. For consolidated accounts that include different account Performance Start Dates, the consolidated Additions/Withdrawals, Income Earned and Investment Appreciation/ Depreciation will include all activity that occurred during the consolidated reporting time period. Accounts that hold or held insurance products will be reported on from the month end date of when insurance and annuity activity could be obtained from the carrier. To the extent that your historical data contains a mixture of net and gross performance history related to manager or advisory fees, those distinctions will impact your performance reports to the extent that the different methods of reporting are blended. Note that various factors, including unpriced securities and certain holdings, adjustments or activity may cause the results shown in this report to differ from actual performance (see the Performance Reconciliation Adjustments section for detail on differences between your Custodial statement and information used to create this performance report). Note that these results may differ from other performance reports provided to you by UBS. Performance information may be impacted by the different ways each UBS entity or third party financial institution respectively records trade executions. Past performance is no quarantee of future results. Neither the UBS entities nor any of their respective representatives provide tax or legal advice. You must consult with your legal or tax advisors regarding your personal circumstances.

You have discussed the receipt of this individually customized report with your Financial Advisor. Your UBS account statements and trade confirmation are the official records of your accounts at UBS. We assign index benchmarks to our asset allocations, strategies in our separately managed accounts and discretionary programs based on our understanding of the allocation, strategy, the investment style and our research. The benchmarks included in this report can differ from those assigned through our research process. As a result, you may find that the performance comparisons may differ, sometimes significantly, from that presented in performance reports and other materials that are prepared and delivered centrally by the Firm. Depending upon the composition of your portfolio and your investment objectives, the indexes used in this report may not be an appropriate measure for comparison purposes, and as such, are represented for illustration only. Your portfolio holdings and performance may vary significantly from the index. Your financial advisor can provide additional information about how benchmarks within this report were selected.

#### Benchmark Index Information:

For comparison purposes, these reports may contain a number of general broad market indices, which were selected to demonstrate the performance of broad market indicators that are readily recognized, rather than for direct performance comparisons, and do not reflect the performance of actual investments. The selection and use of benchmarks is not a promise or guarantee that your accounts will meet or exceed the stated benchmarks. Benchmark information is illustrative and relates to historical performance of market indexes and not the performance of actual investments. Indexes are not available for direct investment and reflect an unmanaged universe of securities. Indices assume no management, custody, transaction fees or expenses that would lower the performance results, and assume reinvestment of dividends and capital gains. Information about indices is based on information obtained from sources believed to be reliable, but no independent verification has been made. UBS does not guarantee the accuracy or completeness of any index information presented. Market index data is subject to review and revision, and UBS reserves the right to substitute indices or display only those indices for which current updated information is available. Information regarding the indexes shown in this report can be found at the end of this report.

Risk Considerations: Some of the general risk considerations associated with the investment options included in this report are described below. The descriptions are not meant to be a complete list of all investment risks. For more complete information regarding fees, expenses, risks and restrictions associated with these investments please review the offering documents and marketing materials. Investors should consult their tax advisor about their specific tax situation before investing in any securities. In addition, clients should familiarize themselves with the particular market risks and the other risks associated with the specific investment. All investments contain risk and may lose value.

- Cash and cash alternatives: Cash and cash alternatives typically include money market securities or three-month T-Bills. These securities have short maturity dates and they typically provide a stable investment value as compared to other investments and current interest income. These investments may be subject to credit risks and inflation risks. Treasuries also carry liquidity risks for sales prior to maturity. Investments in money market funds are neither insured not guaranteed by the Federal Deposit Insurance Corporation ("FDIC"), the U.S. government or any other government agency. There can be no assurance that the funds will be able to maintain a stable net asset value at \$1.00 per share or unit.
- Alternative Investments: Non-traditional asset classes are alternative investments that include hedge funds, private equity, and private real estate (collectively, non-traditional or alternative investments). These investments can be subject to substantial risks (including the risks associated with limited liquidity, the use of leverage, short-sales and concentrated positions), may involve complex tax structures and strategies, and may not be easily valued. The risks of alternative investments should be carefully considered in light of your investment objectives, risk tolerance and net worth. Alternative investments are speculative and entail substantial risks, which may place your capital at risk. Alternative investments may not have been registered with the Securities and Exchange Commission or under any state securities laws. The market for such investments may be highly illiquid and subjectively valued, and these reports provide values for informational purposes only. Accuracy is not guaranteed. These values may differ substantially from prices, if any, at which a unit may be bought or sold and do not necessarily represent the value you would receive from the issuer upon liquidation. Issuer estimated values, if any, are generally updated on a regular (annual or semi-annual) basis and are supplied to us by the issuer, but may be calculated based on different information from what is used by third parties to derive their estimated values.
- U.S. Fixed Income: Fixed income represents exposure (whether direct or indirect) to debt issued by private corporations, governments or federal agencies. Historically, fixed income has higher return than cash investments but their value can fluctuate dramatically as they are subject to risks including market, interest rate, issuer, credit, default and inflation risk. An investment in a portfolio may be worth more or less than its original cost when redeemed. In addition, fixed income generally has less volatility and long-term return than equities. U.S. fixed income may be further classified as high yield. These investments are high yielding but may also carry more risk. A bond funds yield and value of its portfolio fluctuate and can be affected by changes in interest rates, general market conditions and other political, social and economic developments.
- **U.S. Equity:** Equities represent exposure (whether direct or indirect) to ownership interest in a corporation. Historically, equities are more risky than fixed income or cash investments as they experience greater volatility risk, which is the risk that the value of your investment may fluctuate over time. However, they have had higher returns. Investments in small and medium company stocks can be more volatile over the short term than investments in large company stocks, however, they may offer greater potential for appreciation.
- Non-U.S. equity and fixed income: Non-U.S. equity and fixed income represent exposure (whether direct or indirect) to ownership interests and debt, respectively, of foreign governments and corporations that can be sub-divided into those from countries that have developed markets or emerging markets. Further, non-U.S. companies not reporting with the SEC may be subject to accounting, auditing, and financial reporting standards and requirements that differ from companies reporting with the SEC and may have less publicly available information about them than companies reporting with the SEC.
- International: Investors in securities of issuers located outside of the United States should be aware that even for securities denominated in U.S. dollars, changes in the exchange rate between the U.S. dollar and the issues "home" currency can have unexpected effects on the market value and liquidity of those securities. Those securities may also be affected by other risks (such as political =, economic or regulatory changes) that may not be readily known to a U.S investor.
- Variable Annuities: A variable deferred annuity is a long-term financial product designed for retirement purposes. It is a contractual agreement in which payment(s) are made to an insurance company, which agrees to pay out an income or a lump sum amount at a later date. There are fees and charges associated with a variable annuity contract, which include, but are not limited to, operations charges, sales and surrender charges, administrative fees, and additional charges for optional benefits. Variable annuities are sold by prospectus and you should carefully consider important information on the sub-accounts' investment objectives, risk, charges and expenses. Please read the prospectus and offering documents carefully before you invest. Your Financial Advisor can provide a copy of the prospectus. For current month-end returns: <a href="http://advisor.morningstar.com/familyinfo.asp>">http://advisor.morningstar.com/familyinfo.asp>

Mutual Fund Performance Information: Mutual Funds are sold by prospectus and you should carefully consider important information on the fund's investment objectives, risk, charges and expenses. Please read the prospectus and offering documents carefully before you invest. Your UBS Institutional Consultant can provide a copy of the prospectus. For current month-end returns: <a href="http://advisor.morningstar.com/familyinfo.asp">http://advisor.morningstar.com/familyinfo.asp</a>. This analysis may incorporate mutual fund and exchange traded fund performance results. Analytics shown are calculated based on the fund's Net Asset Value, which may reflect the reinvestment of dividends and capital gains, as well as the deduction of 12b-1 fees and fund internal expenses (e.g. fund management fees). The analytics do not reflect the deduction of the sales load, where applicable, the UBS Consulting fee(s), where applicable, or the impact of taxes. Had the sales load, fee or taxes been included, the results used in this analysis would have been reduced.

Wilshire Trust Universe Comparison Service Information: These reports may contain comparative peer performance data provided by Wilshire Associates Incorporated (Wilshire®), entitled "Quartile Ranking Comparison." Output will be presented as a universe organized by asset type, plan type, plan size or other basis. Wilshire®, the Wilshire Trust Universe Comparison Service® and TUCS® are service marks of Wilshire Associates Incorporated and have been licensed for use by UBS Financial Services Inc. All content of TUCS is ©2016 Wilshire Associates Incorporated, all rights reserved.

Policy Index: A point of reference for evaluating a portfolio's investment performance. A policy Index can be comprised of single or multiple benchmarks (weighted blend). Portfolios with multiple benchmarks will be depicted with a description of benchmarks and weights that comprise the policy.

Gain/(Loss) Information: When data is available from UBS, estimated unrealized gains/losses are calculated for individual security lots. For assets transferred from another financial institution, gain/loss information will be reflected only for the period of time the assets have been held at UBS entities. For assets held at other financial institutions, information provided by that entity, if any, is reflected. Total realized gain/loss information may include calculations based upon non-UBS entities cost basis information. UBS Financial Services Inc. does not independently verify or guarantee the accuracy or validity of any information provided by sources other than UBS Financial Services Inc. When original cost information is unavailable, gain/loss amounts will represent current market value and total gains/losses may be inaccurate. Date information for when a particular security was acquired, when available, appears on these reports. When no acquisition date is provided for a security, these reports reflect "N/A" and omit this information. As a result, these figures may not be accurate and are provided for informational purposes only.

Interest and Dividend Income: When shown on this report, information does not reflect your account's tax status or reporting requirements. You should use only official IRS forms for tax reporting purposes. The classification of private investment distributions can only be determined by referring to the official year-end tax-reporting document provided by the issuer.

Contributions and Withdrawals: When shown on a report, information regarding contributions and withdrawals may represent the net value of all cash and securities contributions and withdrawals, and may include program fees (including wrap fees) and other fees added to or subtracted from your accounts from the first day to the last day of the period covered by these reports. Program fees may be separately identified or included in withdrawals except when paid via an invoice or through a separate account billing arrangement.

Cash Flow: Cash Flow analysis is based on the historical dividend, coupon and interest payments you have received as of the Record Date in connection with the securities listed and assumes that you will continue to hold the securities for the periods for which cash flows are projected. This may or may not include principal paybacks for the securities listed. These potential cash flows are subject to change due to a variety of reasons, including but not limited to, contractual provisions, changes in corporate policies, changes in the value of the underlying securities and interest rate fluctuations. The effect of a call on any security(s) and the consequential impact on its potential cash flow(s) is not reflected in this report. Payments that occur in the same month in which the report is generated — but prior to the report run ("As of") date — are not reflected in this report. In determining the potential cash flows, UBS relies on information obtained from third party services it believes to be reliable but does not independently verify or guarantee the accuracy or validity of any information provided by third parties. Cash flows for mortgage-backed, asset-backed, and other pass-through securities are based on the assumptions that the current face amount, principal pay-down, interest payment and payment frequency remain constant. Calculations may include principal payments, are intended to be an estimate of future projected interest cash flows and do not in any way guarantee accuracy. Important information about advisory & brokerage services: As a firm providing wealth management services to clients, we offer both investment advisory and brokerage services are separate and distinct, differ in material ways and are governed by different laws and separate contracts. For more information on the distinctions between our brokerage and investment advisory services, please speak with your Financial Advisor or visit our website at

<a href="thtp://ubs.com/workingwithus"></a>. While we strive to make sure the nature of our services is clear in the materials we publish, if at any time you would like clarification on the nature of your accounts or the services you are receiving, please speak with your UBS Institutional Consultant.

The ACCESS, SWP, MAC and Institutional Consulting ("IC") programs offer some of the same Separately Manage Account ("SMA") Managers for different SMA Manager fees. The amount of the fee paid to each SMA Manager is a function of that SMA Manager's investment style and the fee negotiated with the SMA Manager either by UBS (in ACCESS, SWP) and by you in the MAC or IC Program. Depending on your asset level and ability to negotiate the investment management fee with the SMA Manager in the dual-contract structure of the MAC or IC program, you may find that the single-contract structure in ACCESS and SWP provides a more cost-effective option or vice versa. In addition, based on the combination of our fees and your SMA Manager's fees, the overall fee for your SMA account in ACCESS, SWP, MAC or IC may exceed 3% of the account value. Please review your options and overall costs carefully with your Financial Advisor before investing.

#### **Calculation Definitions**

Alpha: Alpha measures the difference between an investment's actual performance, and its expected performance as indicated by the returns of a selected market index. A positive Alpha indicates the risk-adjusted performance is above that index. In calculating Alpha, Standard Deviation (total risk) is used as risk measure. Alpha is often used to judge the value added or subtracted by a manager.

Appreciation/Depreciation: Appreciation or Depreciation is the change in market value minus net cash flows. The value indicates by how much the portfolio value has changed due to changes in asset values. Appreciation would be an increase. Depreciation would be a decrease.

Average Exposure: Average Exposure is generally, the average allocation to a segment or an asset. Calculated as the beginning market value plus the weighted net cash flows as a percentage of the total portfolio market value.

**Beta:** Beta is defined as a Manager's sensitivity to market movements and is used to evaluate market related, or systematic risk. Beta is a measure of the linear relationship, over time, of the Manager's returns and those of the Benchmark. Beta is computed by regressing the Manager's excess returns over the risk free rate (cash proxy) against the excess returns of the Benchmark over the risk free rate. An investment that is as equally volatile as the market will have a Beta of 1.0; an investment half as volatile as the market will have a Beta of 0.5; and so on. Thus, Betas higher than 1.0 indicate that the fund is more volatile than the market.

Composite Benchmark: The Composite Benchmark is a weighted average benchmark based on the allocation of funds within each of the portfolios in the composite and the risk index assigned to each portfolio.

Correlation (R): The Correlation represents the degree to which investments move in tandem with one another and is a critical component of diversified portfolio construction. The Correlation varies between a minimum of -1 (move in opposite direction) and a maximum of 1 (completely correlated). Lower Correlations enhance diversification and lead to better risk-adjusted returns within diversified portfolios. An R of less than 0.3 is often considered low Correlation.

**Current Yield:** This measure looks at the current price of a bond instead of its face value and represents the return an investor would expect if he or she purchased the bond and held it for a year. This measure is not an accurate reflection of the actual return that an investor will receive in all cases because bond and stock prices are constantly changing due to market factors.

Distribution of Excess Returns: Distribution of Excess Returns

Downside Capture Return: The downside capture return is the cumulative performance of the portfolio in all periods during which the risk benchmark posted a negative return.

**Downside Probability:** The downside probability is the ratio of the number of periods during which the portfolio posted a negative return to the total number of periods under study. If, for example, during a 12 month span, the portfolio realized 5 months of negative returns, the downside probability would be equal to 5/12 or 42 percent. The sum of the downside and upside probabilities must equal 1.0. The downside probability does not consider the extent to which the portfolio will fail to exceed the target index. It merely considers the likelihood that the target will not be exceeded. It is important to bear in mind this point when comparing the downside probabilities of more than one portfolio. It is not necessarily correct, for example, to deem portfolio B simply because A has a higher downside probability.

Downside Risk (Semi Standard Deviation, Semi Std Dev, or Downside Deviation): Downside Risk only identifies volatility on the down side. Downside Risk measures the variability of returns below zero, whereas Standard Deviation attributes volatility in either direction to risk. The Downside Risk method calculates the deviations below zero for each observed return. Each time a return falls below zero, the sum is divided by the number of

observations and the square root is taken. This result is then shown on an annualized basis.

**Dynamic Index:** A weighted average blended benchmark of the risk indices assigned to each asset class, based on the asset allocation of the portfolio for a given period. The benchmark index weighting adjusts with changes to the asset allocation. A Dynamic Index should not be used when measuring against the client's *Investment Policy Statement*.

Effective Duration: A duration calculation for bonds with embedded options. Effective duration takes into account that expected cash flows will fluctuate as interest rates change.

Excess: Denotes that a statistic is being measured relative to the Market Index selected. The data set analyzed consists of the periodic differences between the investment's measure and the selected Market Index's definition.

Expense Ratio: Often referred to as the Net Expense Ratio, Morningstar pulls the net annual expense ratio from the fund's audited annual report. Annual-report expense ratios reflect the actual fees charged during a particular fiscal year. The annual report expense ratio for a fund of funds is the wrap or sponsor fee only. The expense ratio expresses the percentage of assets deducted each fiscal year for fund expenses, including 12b-1 fees, management fees, administrative fees, operating costs, and all other asset-based costs incurred by the fund. Portfolio transaction fees, or brokerage costs, as well as initial or deferred sales charges are not included in the expense ratio. The expense ratio, which is deducted from the fund's average net assets, is accrued on a daily basis. If the fund's assets are small, its expense ratio can be quite high because the fund must meet its expenses from a restricted asset base. Conversely, as the net assets of the fund grow, the expense percentage should ideally diminish as expenses are spread across the wider base. Funds may also opt to waive all or a portion of the expenses that make up their overall expense ratio.

Gross Dollar Weighted Return: Gross Dollar Weighted Return is the internal rate of return, excluding money manager fees.

Gross Expense Ratio: Represents the total gross expenses (net expenses with waivers added back in) divided by the fund's average net assets. If it is not equal to the net expense ratio, the gross expense ratio portrays the fund's expenses had the fund not waived a portion, or all, of its fees. Thus, to some degree, it is an indication of fee contracts. Some fee waivers have an expiration date; other waivers are in place indefinitely.

Gross Time Weighted Return: Gross Time Weighted Return is the Modified Dietz return, excluding money manager fees.

Index Value: Index Value is the unit value series based on the return stream. It can be used to calculate rates of return between any two dates in the report.

Information Ratio: The Information Ratio is a measure of value added by an investment manager. It is the ratio of (annualized) excess return above the selected Market Index to (annualized) Tracking Error. Excess return is calculated by linking the difference of the manager's return for each period minus the selected Market Index return for each period, then annualizing the result.

Manager Capture Ratio: The Manager Capture Ratio is manager return divided by the selected Market Index return. It shows what portion of the market performance was captured by the manager under certain market conditions: up market, down market, or both.

Market Experience: Market Experience is the presumable market value of the portfolio if it and its cash flows had grown at the policy index rate of return. It lets the reader know if active management has aided or hurt the portfolio.

Net Cash Flow: For the total portfolio, net cash flow is aggregate contributions minus aggregate withdrawals. At the asset class level, net cash flow is aggregate purchases minus aggregate sales minus aggregate income. It is used in the numerator of the Modified Dietz return calculation. It is the same as "New Money" and "Flow".

Net Dollar Weighted Return: Net Dollar Weighted Returns is the internal rate of return, including money manager fees.

Net Time Weighted Return: Net Time Weighted Return is the Modified Dietz return, including money manager fees.

New Money: For the total portfolio, New Money is aggregate contributions minus aggregate withdrawals. At the asset class level, New Money is aggregate purchases minus aggregate sales minus aggregate income. It is used in the numerator of the Modified Dietz return calculation. It is the same as "Net Cash Flow" and "Flow".

**Policy Index:** A point of reference for evaluating a portfolio's investment performance. A policy Index can be comprised of single or multiple benchmarks (weighted blend). Portfolios with multiple benchmarks will be depicted with a description of benchmarks and weights that comprise the policy.

Rate of Return, ROR, Return %, ROI: All Return terms refer to the Modified Dietz return.

**Relative Risk:** Relative risk is simply the ratio of the standard deviation of the portfolio to the standard deviation of the risk index. The statistic reveals how much of the variation of the risk index is "shared" by the portfolio. A relative risk of 1.0 indicates that the portfolio has the same level of return variability as the risk index. A relative risk of less than 1.0 indicates that the portfolio has shown a lower dispersion of returns than the index. A relative risk in excess of 1.0 indicates that the portfolio returns have been more dispersed than those of the index.

Riskless Index: The theoretical rate of return of an investment with zero risk. The risk-free rate represents the interest an investor would expect from an absolutely risk-free investment over a specified period of time. The 3 month T-Bill is the usual index used for riskless.

R-Squared (R2): The diversification measure R2 indicates the percentage of volatility in portfolio returns which can be "explained" by market volatility. This statistic indicates the degree to which the observed values of one variable, such as the returns of a managed portfolio, can be explained by, or are associated with the values of another variable, such as a Market Index. It is especially helpful in assessing how likely it is that Alpha and Beta are

statistically significant. The R2 values generally range from 0.0 to 1.0. An investment with an R2 of 1.0 is perfectly correlated with the market whereas an investment with an R2 of 0.0 will behave independently of the market. An R2 of 0.95, for example, implies that 95% of the fluctuations in a portfolio are explained by fluctuations in the market.

Sector Allocations: The percentage a manager has allocated to specific economic sectors.

Sharpe Ratio: The Sharpe Ratio indicates the excess return per unit of total risk as measured by Standard Deviation. It is a ratio of the arithmetic average of excess returns over the risk free rate to the Standard Deviation. The Sharpe Ratio is a measure of the premium earned for the risk incurred by the portfolio.

Sortino Ratio: The Sortino Ratio is a measure of reward per unit of risk. With Sortino, the numerator (i.e., reward) is defined as the incremental compounded average return over the minimum acceptable return (MAR). The denominator (i.e., risk) is defined as the downside deviation of the returns below the MAR. Since the downside deviation is the standard deviation of those returns which fail to exceed the MAR, the result of the Sortino Ratio is a measure of the average reward per unit of loss. As with Sharpe and Treynor, the Sortino Ratio only has value when it is used as the basis of comparison between portfolios. The higher the Sortino Ratio, the better.

Standard Deviation: A measure of the extent to which observations in a series vary from the arithmetic mean of the series. The Standard Deviation of a series of asset returns is a measure of volatility or risk of the asset.

Target Allocation: The Target Allocation goal of the portfolio approaches and long- and short-term holding periods.

**HFRI Relative Value:** Equally weighted index of investment managers who maintain positions in which the investment thesis is predicated on realization of a valuation discrepancy in the relationship between multiple securities. Managers employ a variety of fundamental and quantitative techniques to establish investment theses, and security types range broadly across equity, fixed income, derivative or other security types. **JP Morgan Global Ex-U.S. Bond Index:** Consists of regularly traded, fixed-rate domestic government debt instruments from 12 international bond markets. Countries included are Austria, Belgium, Canada, Denmark, France, Germany, Italy, Japan, the Netherlands, Spain, Sweden and the United Kingdom.

MSCI AC World Index ex USA: Consists of approximately 2,000 securities across 47 markets, with emerging markets representing approximately 18%. MSCI attempts to capture approximately 85% of the market capitalization in each country.

MSCI EAFE Index (Europe, Australasia, Far East): A free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the U.S. and Canada. As of June 2007, the MSCI EAFE Index consisted of the following 21 developed market country indexes: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, the Netherlands. New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland and the United Kingdom.

MSCI Emerging Markets Index: A free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets. As of November 2008, the MSCI Emerging Markets Index consisted of the following 24 emerging market country indexes: Argentina, Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Morocco, Pakistan, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand and Turkey.

MSCI Europe Index: A free float-adjusted market capitalization-weighted index that is designed to measure the equity market performance of the developed markets in Europe. As of June 2007, the MSCI Europe Index consisted of the following 16 developed market country indexes: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

MSCI Japan Index: A free float-adjusted market capitalization-weighted index that is designed to measure the equity market performance of Japan.

**NAREIT Index:** Benchmarks the performance of the REIT industry since its inception in 1972. It was designed to provide a comprehensive assessment of overall industry performance. Some REITs available from over-the-counter markets are not included due to the lack of real-time pricing.

NCREIF Property Index (NPI): A quarterly time series composite total rate of return measure of investment performance of a large pool of individual commercial real estate properties acquired in the private market for investment purposes only. All properties in the NPI have been acquired, at least in part, on behalf of tax-exempt institutional investors - the great majority being pension funds. As such, all properties are held in a fiduciary environment.

Russell 1000® Index: Measures the performance of the large-cap segment of the U.S. equity universe. It is a subset of the Russell 3000® Index and includes approximately 1000 of the largest securities based on a combination of their market cap and current index membership. The Russell 1000 represents approximately 92% of the U.S. market.

Russell 1000® Growth Index: Measures the performance of the large-cap growth segment of the U.S. equity universe. It includes those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

Russell 1000® Value Index: Measures the performance of the large-cap value segment of the U.S. equity universe. It includes those Russell 1000 companies with lower price-to-book ratios and lower expected growth values.

Russell 2000® Growth Index: Measures the performance of the small-cap growth segment of the U.S. equity universe. It includes those Russell 2000 companies with higher price-to-book ratios and higher forecasted growth values.

Russell 2000® Value Index: Measures the performance of the small-cap value segment of the U.S. equity universe. It includes those Russell 2000 companies with lower price-to-book ratios and lower forecasted growth values.

Russell Mid-Cap® Growth Index: Measures the performance of the mid-cap growth segment of the U.S. equity universe. It includes those Russell mid-cap companies with higher price-to-book ratios and higher forecasted growth values.

Russell Mid-Cap® Value Index: Measures the performance of the mid-cap value segment of the U.S. equity universe. It includes those Russell mid-cap companies with lower price-to-book ratios and lower forecasted growth values.

S&P 500 Index: Covers 500 large cap industrial, utility, transportation, and financial companies of the US markets. The index represents about 75% of NYSE market capitalization and 30% of NYSE issues. It is a

capitalization weighted index calculated on a total return basis with dividends reinvested.

TASS Index of CTAs: Is a dollar-weighted index based on historical managed futures performance of CTAs with established track records.

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#### **Investment Performance**

# Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Total Portfolio - OPEB

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

# Cobb OPEB March 31, 2019

# **Accounts Included in this Report**

UBS account statements represent the only official record of holdings, balances, transactions and security values of assets in your UBS Financial Services Inc. account and are not replaced, amended or superseded by any information presented in this report. As an accommodation to you, values of accounts that you hold at other financial institutions may be included as part of your UBS IC Consulting Services Agreement based on information, including pricing information, provided to us. This report does not include assets held in your UBS account(s) that are not a part of the Institutional Consulting program unless you have requested that those accounts be included in this report. UBS does not independently verify or guarantee the accuracy or validity of any information provided by sources other than UBS Financial Services Inc. Please see the 'Important Information' section at the end of this report for detailed pricing information.

Account Name	Account Number	Custodian Name
Richmond Capital Management	AXxxx92	UBS Financial Services
Multiple Funds	AXxxx57	<b>UBS Financial Services</b>
Eagle Capital Large Value	AXxxx00	<b>UBS Financial Services</b>
TCW Large Cap Growth	AXxxx93	<b>UBS Financial Services</b>
Westfield Capital Large Growth	AXxxx91	<b>UBS Financial Services</b>
Vaughan Nelson	AXxxx94	<b>UBS Financial Services</b>

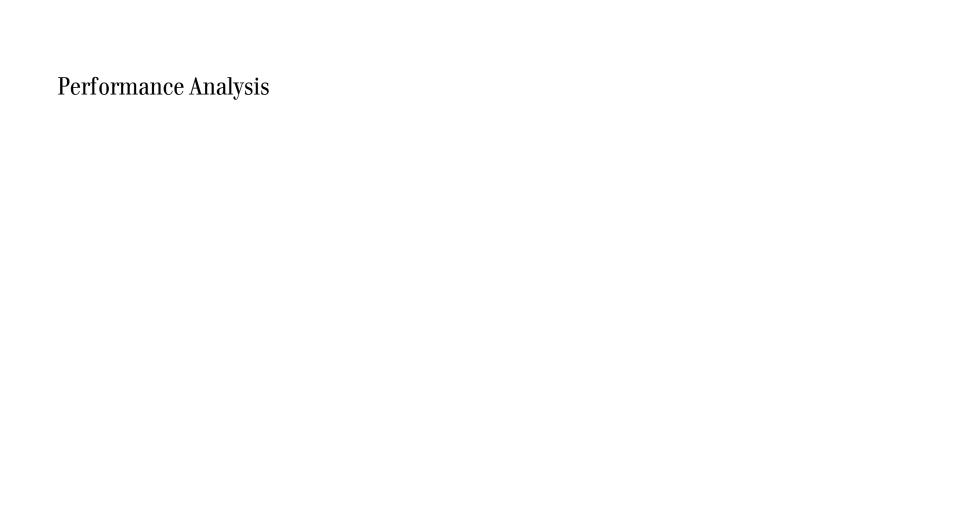
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This report is provided for informational purposes only. The information shown was obtained from sources believed to be reliable, the accuracy of which cannot be guaranteed. Account statements provided by UBS or other financial institutions are the official record of your holdings, balances, transactions and security values and are not amended or superseded by any of the information presented in this report. Information is current as of the date shown. Past performance is no guarantee of future returns. See IMPORTANT INFORMATION at end of report for assumptions and limitations of the analysis in this report, risk considerations, valuation, fees and other details regarding this report.

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# Performance Analysis

The primary index comparison for your portfolio and each of its asset classes is listed below.

### **CONSOLIDATED PORTFOLIO BENCHMARK**

08/31/2008 - Present

45% Russell 3000

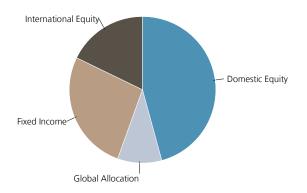
25% Bloomberg Barclays Aggregate Bond

20% MSCI AC World X US Net

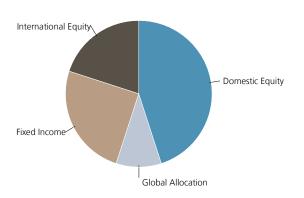
10% HFRX Global Hedge Fund Index

# Actual vs Target Asset Allocation As of March 31, 2019

Actual Asset Allocation



Target Asset Allocation



	Market Value Actual	Percent Actual	Market Value Target	Percent Target	Market Value Difference	Percent Difference
Fixed Income	33,375,294.4	26.7%	31,281,992.3	25.0%	2,093,302.1	1.7%
Domestic Equity	57,245,772.2	45.7%	56,307,586.1	45.0%	938,186.1	0.7%
International Equity	22,288,128.5	17.8%	25,025,593.8	20.0%	(2,737,465.3)	(2.2%)
Global Allocation	12,218,774.1	9.8%	12,512,796.9	10.0%	(294,022.8)	(0.2%)
Total Fund	\$125,127,969.2	100.0%	\$125,127,969.2	100.0%	\$0.0	0.0%

# Performance Summary - Gross of Fees Cobb OPEB As of March 31, 2019

	Inception	03/31/2019	Latest	%tile		%tile	1	%tile	3	%tile	5	%tile	7	%tile	
Account	Date	Market Value	QTR	Ranking	YTD	Ranking	Year	Ranking	Year	Ranking	Year	Ranking	Year	Ranking	Inception
Composite	08/31/2008	\$125,127,969	10.58%	1	10.58%	1	3.83%	63	9.38%	8	6.53%	28	8.76%	5	7.27%
Policy Index			9.33%	25	9.33%	25	4.10%	56	8.54%	36	6.04%	47	7.52%	51	6.45%
Dynamic Index			9.26%	27	9.26%	27	3.97%	60							
Fixed Income															
Richmond Capital Management	09/30/2017	\$15,420,879	3.31%	43	3.31%	43	4.92%	2							2.69%
BB Gov/Cr Bond			3.26%	47	3.26%	47	4.48%	16							2.21%
Blackrock Strategic Income I	09/30/2017	\$8,420,747	2.35%	91	2.35%	91	1.35%	99							1.74%
BB Agg Bond			2.94%	69	2.94%	69	4.48%	16							2.22%
Delaware Diversified Income I	09/30/2017	\$9,533,668	4.30%	1	4.30%	1	3.11%	91							1.74%
BB Agg Bond			2.94%	69	2.94%	69	4.48%	16							2.22%
Large Cap Value															
Eagle Capital Large Value	09/30/2017	\$12,955,040	12.80%	22	12.80%	22	6.78%	20							9.18%
Russell 1000 Value			11.93%	41	11.93%	41	5.67%	28							5.36%
Large Cap Blend															
Vanguard 500 Index	09/30/2017	\$13,839,843	13.65%	23	13.65%	23	9.47%	12							10.29%
S&P 500 Index			13.65%	24	13.65%	24	9.50%	12							10.33%
Large Cap Growth															
TCW Large Cap Growth	09/30/2017	\$7,592,952	19.28%	4	19.28%	4	17.25%	5							18.54%
Russell 1000 Growth			16.10%	48	16.10%	48	12.75%	40							15.01%
Westfield Capital Large Growth	09/30/2017	\$8,333,202	16.73%	36	16.73%	36	11.51%	54							13.90%
Russell 1000 Growth			16.10%	48	16.10%	48	12.75%	40							15.01%
Mid Cap Blend															
Vanguard Mid-Cap Index Fund Admiral	09/30/2017	\$7,465,917	16.77%	5	16.77%	5	5.98%	13							7.83%
Russell Midcap			16.54%	8	16.54%	8	6.47%	9							8.11%
Small Cap Value															
Vaughan Nelson	09/30/2017	\$3,851,314	15.43%	9	15.43%	9	0.73%	34							1.80%
Russell 2000 Value			11.93%	73	11.93%	73	0.17%	40							-0.32%
Small Cap Growth															
Eagle Small Cap Growth Fund	09/30/2017	\$3,207,502	17.69%	44	17.69%	44	4.20%	80							8.06%
Russell 2000 Growth		, ,	17.14%	51	17.14%		3.85%	83							7.28%

# Performance Summary - Gross of Fees Cobb OPEB As of March 31, 2019

	Inception	03/31/2019	Latest	%tile		%tile	1	%tile	3	%tile	5	%tile	7	%tile
Account	Date	Market Value	QTR	Ranking	YTD	Ranking	Year	Ranking	Year	Ranking	Year	Ranking	Year	RankingInception
International Equity														
Vanguard Total International Stock Fund	09/30/2017	\$8,210,307	10.25%	48	10.25%	48	-5.15%	42						-0.65%
MSCI ACWI ex US Net			10.32%	44	10.32%	44	-4.15%	22						-0.36%
Dodge & Cox International Stock Fund	09/30/2017	\$6,548,615	9.78%	73	9.78%	73	-8.00%	80						-6.01%
MSCI ACWI ex US Net			10.32%	44	10.32%	44	-4.15%	22						-0.36%
Vanguard International Growth Fund	02/07/2019	\$7,529,207												1.63%
MSCI ACWI ex US Net														0.60%
Global Allocation														
Loomis Sayles Global Equity	09/30/2017	\$4,470,052	11.84%	1	11.84%	1	4.56%	5						7.25%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99						-1.92%
First Eagle Global Funds Class I	09/30/2017	\$4,181,827	9.94%	15	9.94%	15	1.96%	23						2.76%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99						-1.92%
Blackrock Global Allocation Fund	09/30/2017	\$3,566,895	7.47%	68	7.47%	68	-0.04%	53						1.34%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99						-1.92%
Composite Global Allocation	09/30/2017	\$12,218,774	9.89%	16	9.89%	16	2.29%	19						3.91%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99						-1.92%

# Performance Summary - Net of Fees Cobb OPEB As of March 31, 2019

	Inception	03/31/2019	Latest	%tile		%tile	1	%tile	3	%tile	5	%tile	7	%tile	
Account	Date	Market Value	QTR	Ranking	YTD	Ranking	Year	Ranking	Year	Ranking	Year	Ranking	Year	Ranking	Inception
Composite	08/31/2008	\$125,127,969	10.52%	2	10.52%	2	3.61%	70	9.28%	12	6.48%	30	8.71%	5	7.24%
Policy Index			9.33%	25	9.33%	25	4.10%	56	8.54%	36	6.04%	47	7.52%	51	6.45%
Dynamic Index			9.26%	27	9.26%	27	3.97%	60							
Fixed Income															
Richmond Capital Management	09/30/2017	\$15,420,879	3.26%	47	3.26%	47	4.72%	6							2.52%
BB Gov/Cr Bond			3.26%	47	3.26%	47	4.48%	16							2.21%
Blackrock Strategic Income I	09/30/2017	\$8,420,747	2.35%	91	2.35%	91	1.35%	99							1.74%
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### Performance Summary - Net of Fees Cobb OPEB As of March 31, 2019

	Inception	03/31/2019	Latest	%tile		%tile	1	%tile	3	%tile	5	%tile	7	%tile
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HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99						-1.92%

Account Values							
	Latest Quarter	Fiscal YTD	Year to Date	One Year	Three Years	Five Years	Since Inception
Beginning Mkt Value	\$113,097,682.46	\$113,097,682.46	\$113,097,682.46	\$116,003,475.08	\$92,103,667.54	\$87,827,359.98	\$12,000,000.00
Net Contributions	\$0.00	\$0.00	\$0.00	\$4,756,707.30	\$4,756,707.30	\$4,756,707.30	\$56,466,707.30
Investment Earnings	\$12,030,286.74	\$12,030,286.74	\$12,030,286.74	\$4,367,786.82	\$28,267,594.36	\$32,543,901.92	\$56,661,261.90
Ending Mkt Value	\$125,127,969.20	\$125,127,969.20	\$125,127,969.20	\$125,127,969.20	\$125,127,969.20	\$125,127,969.20	\$125,127,969.20

Returns									
	Latest Quarter	Fiscal YTD	Calendar YTD	One Year	Three Years	Five Years	Ten Years	Fifteen Years	Since Inception
Account	10.58%	10.58%	10.58%	3.83%	9.38%	6.53%	9.25%		7.27%
Policy Index	9.33%	9.33%	9.33%	4.10%	8.54%	6.04%	10.33%		6.45%
Difference	1.25%	1.25%	1.25%	-0.27%	0.84%	0.50%	-1.08%		0.82%

Calendar Year R	eturns											
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Account	10.58%	-6.17%	18.12%	7.35%	0.18%	5.43%	17.61%	12.67%	-0.59%	12.98%	23.42%	
Policy Index	9.33%	-5.62%	16.17%	7.80%	-0.83%	6.32%	17.59%	12.33%	-0.67%	12.46%	23.92%	
Difference	1.25%	-0.55%	1.96%	-0.44%	1.01%	-0.89%	0.01%	0.35%	0.08%	0.52%	-0.50%	

Policy Index: 45% Russell 3000, 25% Bloomberg Barclays Aggregate Bond, 20% MSCI AC World X US Net, 10% HFRX Global Hedge Fund Index

	Quarter	YTD	1 Yr	2 Yr	3 Yr	5 Yr	10 Yr	Inception	Incept Date	Current Assets
Gross Time Weighted Return	10.58	10.58	3.83	7.93	9.38	6.53	9.25	7.27	08/31/2008	\$125,127,969
Universe Median	9.06	9.06	4.22	6.82	8.28	6.02	10.17			
Policy Index	9.33	9.33	4.10	7.09	8.54	6.04	10.33	6.45		
%-tile	1	1	63	10	8	28	77			
(45% Russell 3000, 25% Bloomberg Barclays Aggregat	e Bond, 20% MSCI AC	World X US Net, 10	% HFRX Global He	dge Fund Index, esta	ablished 8/31/2008)					
Richmond Capital Management - (T	Total Portfolio)									
Gross Time Weighted Return	3.31	3.31	4.92					2.69	09/30/2017	\$15,420,879
Universe Median	3.23	3.23	4.00					1.93		
BB Gov/Cr Bond	3.26	3.26	4.48					2.21		
%-tile	43	43	2					2		
(100.00% BB Gov/Cr Bond; established 9/30/2017)										
Blackrock Strategic Income I - (Total										
Gross Time Weighted Return	2.35	2.35	1.35					1.74	09/30/2017	\$8,420,747
Universe Median	3.23	3.23	4.00					1.93		
BB Agg Bond	2.94	2.94	4.48					2.22		
%-tile	91	91	99					66		
(100.00% BB Agg Bond; established 9/30/2017)										
Delaware Diversified Income I - (To	tal Portfolio)									
Gross Time Weighted Return	4.30	4.30	3.11					1.74	09/30/2017	\$9,533,668
Universe Median	3.23	3.23	4.00					1.93	07/30/2017	Ψ2,555,000
BB Agg Bond	2.94	2.94	4.48					2.22		
%-tile	2.94	2.94	91					66		
(100.00% BB Agg Bond; established 9/30/2017)	1	1	91					00		

Total Portfolio - OPEB Performance Summary Through March 31, 2019

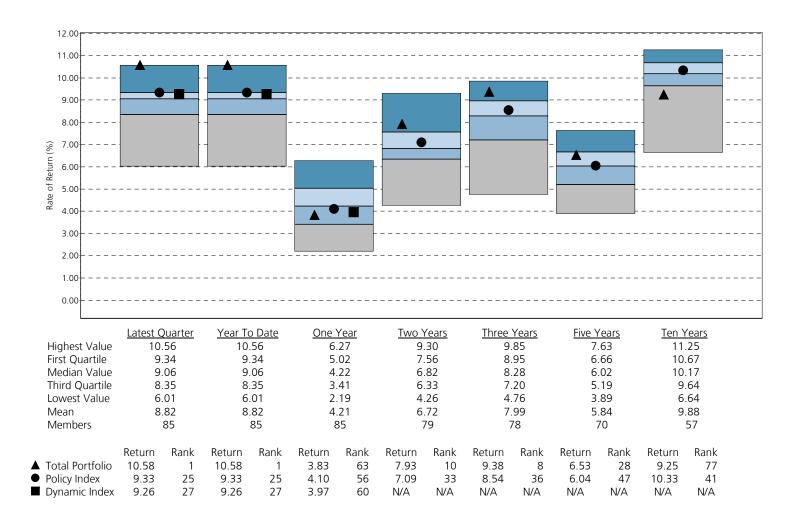
	Quarter	YTD	1 Yr	2 Yr	3 Yr	5 Yr	10 Yr	Inception	Incept Date	Current Assets
Eagle Capital Large Value - (Total Po	ortfolio)									,
Gross Time Weighted Return	12.80	12.80	6.78					9.18	09/30/2017	\$12,955,040
Universe Median	11.57	11.57	3.92					5.02		
Russell 1000 Value	11.93	11.93	5.67					5.36		
%-tile	22	22	20					9		
(100.00% Russell 1000 Value; established 9/30/2017)										
Vanguard 500 Index - (Total Portfoli	o)									
Gross Time Weighted Return	13.65	13.65	9.47					10.29	09/30/2017	\$13,839,843
Universe Median	13.15	13.15	7.33					8.51		
S&P 500 Index	13.65	13.65	9.50					10.33		
%-tile (100.00% S&P 500 Index; established 9/30/2017)	23	23	12					11		
TCW Large Cap Growth - (Total Por Gross Time Weighted Return Universe Median Russell 1000 Growth %-tile (100.00% Russell 1000 Growth; established 9/30/2017)	rtfolio) 19.28 16.08 16.10 4	19.28 16.08 16.10 4	17.25 11.99 12.75 5					18.54 14.29 15.01 11	09/30/2017	\$7,592,952
Westfield Capital Large Growth - (To										
Gross Time Weighted Return	16.73	16.73	11.51					13.90	09/30/2017	\$8,333,202
Universe Median	16.08	16.08	11.99					14.29		
Russell 1000 Growth	16.10	16.10	12.75					15.01		
%-tile (100.00% Russell 1000 Growth; established 9/30/2017)	36	36	54					53		

	Quarter	YTD	1 Yr	2 Yr	3 Yr	5 Yr	10 Yr	Inception	Incept Date	Current Assets
Vanguard Mid-Cap Index Fund Adn	niral - (Total I	Portfolio)								
Gross Time Weighted Return	16.77	16.77	5.98					7.83	09/30/2017	\$7,465,917
Universe Median	14.47	14.47	2.36					4.36		
Russell Midcap	16.54	16.54	6.47					8.11		
%-tile	5	5	13					8		
(100.00% Russell Midcap; established 9/30/2017)										
Vaughan Nelson - (Total Portfolio)										
Gross Time Weighted Return	15.43	15.43	0.73					1.80	09/30/2017	\$3,851,314
Universe Median	12.90	12.90	-0.77					0.25		
Russell 2000 Value	11.93	11.93	0.17					-0.32		
%-tile (100.00% Russell 2000 Value; established 9/30/2017)	9	9	34					31		
Eagle Small Cap Growth Fund - (Tot Gross Time Weighted Return Universe Median Russell 2000 Growth %-tile (100.00% Russell 2000 Growth; established 9/30/2017)	tal Portfolio) 17.69 17.24 17.14 44	17.69 17.24 17.14 44	4.20 9.89 3.85 80					8.06 12.03 7.28 72	09/30/2017	\$3,207,502
Vanguard Total International Stock	•									
Gross Time Weighted Return	10.25	10.25	-5.15					-0.65	09/30/2017	\$8,210,307
Universe Median	10.22	10.22	-5.68					-1.85		
MSCI ACWI ex US Net	10.32	10.32	-4.15					-0.36		
%-tile (100.00% MSCI ACWI ex US Net; established 9/30/2017)	48	48	42					18		

	Quarter	YTD	1 Yr	2 Yr	3 Yr	5 Yr	10 Yr	Inception	Incept Date	Current Assets
Dodge & Cox International Stock Fu	ınd - (Total Po	rtfolio)								
Gross Time Weighted Return	9.78	9.78	-8.00					-6.01	09/30/2017	\$6,548,615
Universe Median	10.22	10.22	-5.68					-1.85		
MSCI ACWI ex US Net	10.32	10.32	-4.15					-0.36		
%-tile	73	73	80					99		
(100.00% MSCI ACWI ex US Net; established 9/30/2017)										
Vanguard International Growth Fu	nd - (Total Por	tfolio)								
Gross Time Weighted Return								1.63	02/07/2019	\$7,529,207
Universe Median								0.75		
MSCI ACWI ex US Net								0.60		
%-tile								10		
(100.00% MSCI ACWI ex US Net; established 2/07/2019)										
<b>Loomis Sayles Global Equity - (Tota</b>										
Gross Time Weighted Return	11.84	11.84	4.56					7.25	09/30/2017	\$4,470,052
Universe Median	8.23	8.23	0.17					1.82		
HFRX Global Hedge	2.60	2.60	-3.32					-1.92		
%-tile	1	1	5					1		
(100.00% HFRX Global Hedge; established 9/30/2017)										
First Eagle Global Funds Class I - (T										
Gross Time Weighted Return	9.94	9.94	1.96					2.76	09/30/2017	\$4,181,827
Universe Median	8.23	8.23	0.17					1.82		
HFRX Global Hedge	2.60	2.60	-3.32					-1.92		
%-tile	15	15	23					24		
(100.00% HFRX Global Hedge; established 9/30/2017)										

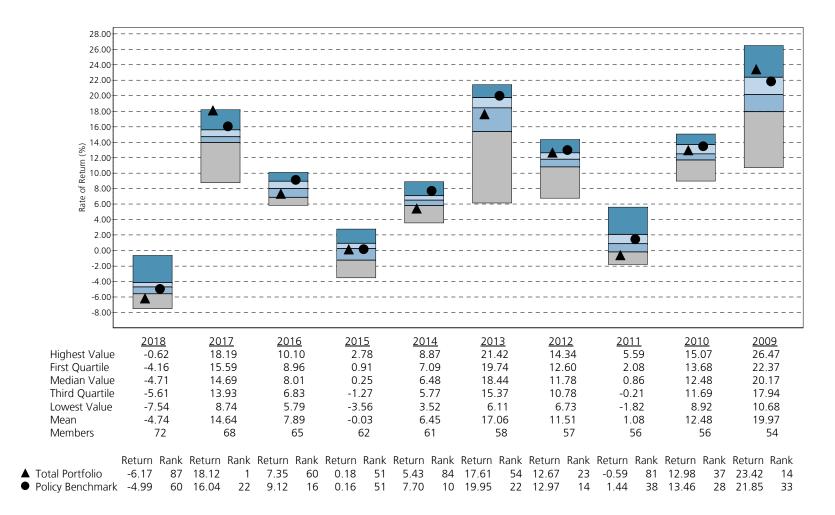
	Quarter	YTD	1 Yr	2 Yr	3 Yr	5 Yr	10 Yr	Inception	Incept Date	Current Assets
Blackrock Global Allocation Fund -	(Total Portfolio	<b>o</b> )								
Gross Time Weighted Return	7.47	7.47	-0.04					1.34	09/30/2017	\$3,566,895
Universe Median	8.23	8.23	0.17					1.82		
HFRX Global Hedge	2.60	2.60	-3.32					-1.92		
%-tile	68	68	53					68		
(100.00% HFRX Global Hedge; established 9/30/2017)										

## Consolidated Portfolio vs Master Trusts - Public : Plans < \$1 Billion Managers August 31, 2008 Through March 31, 2019

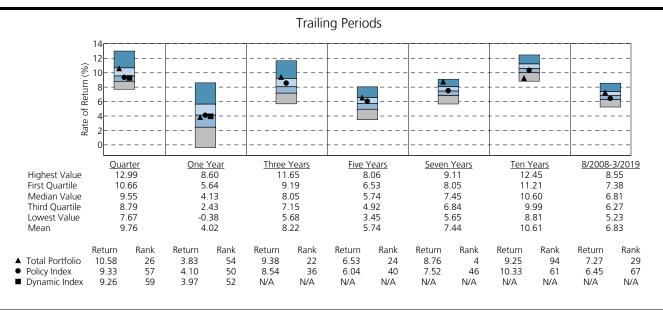


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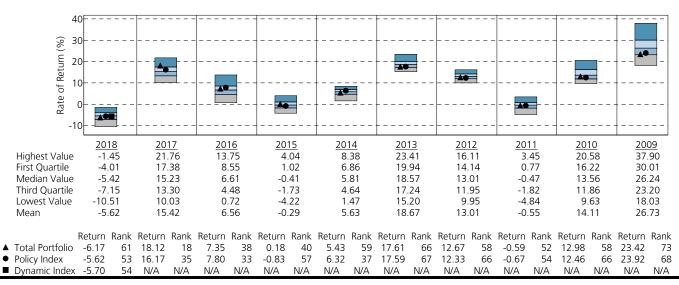
## Consolidated Portfolio vs Master Trusts - Public : Plans < \$1 Billion Managers December 31, 2003 Through December 31, 2018



### Consolidated Portfolio Peer Universe Comparison versus 50% Equity, 35% Fixed, 15% International Managers



### **Annual Periods**



### Performance Profile August 31, 2008 Through March 31, 2019

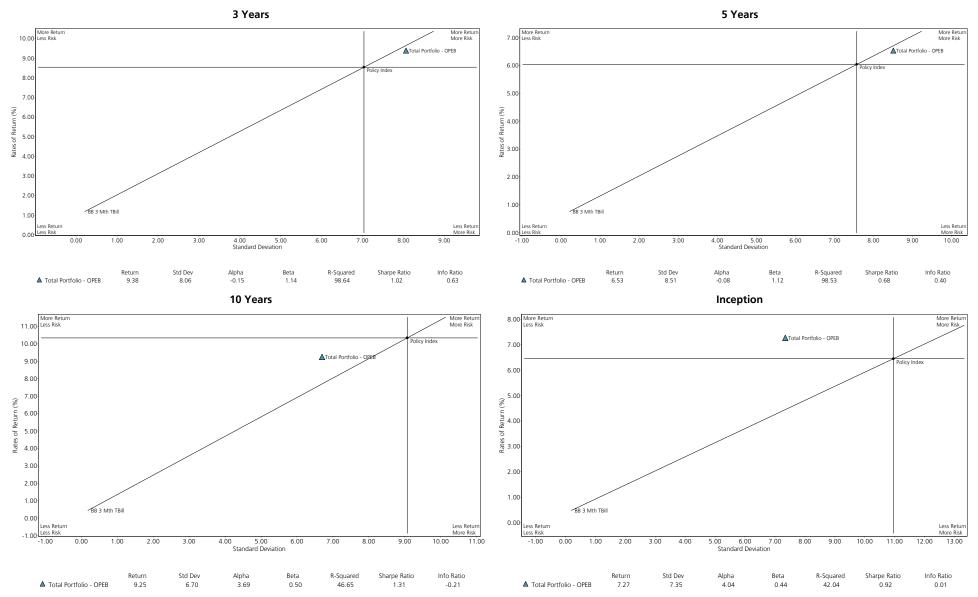
	Ended	Return
Best Quarter	3/2019	10.58
Worst Quarter	12/2008	-13.58
Best 4 Quarters	3/2010	20.72
Worst 4 Quarters	3/2016	-2.23

Total # of Periods:	127
# of Positive Periods:	84
# of Negative Periods:	43

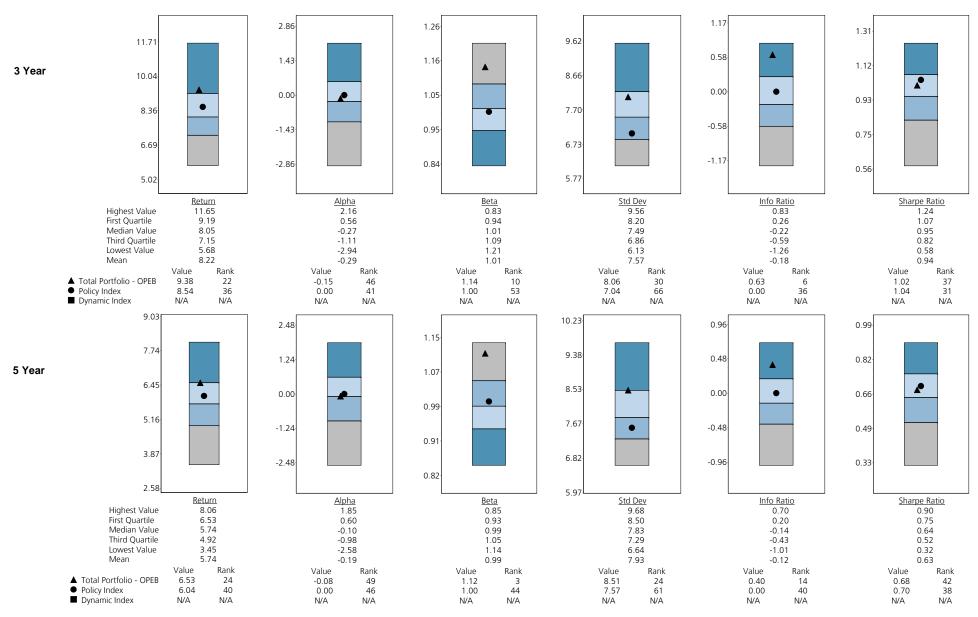
	Latest	Latest	One	Two	Three	Five	Ten	Since
	Month	Quarter	Year	Years	Years	Years	Years	Inception
Consolidated Portfolio	1.25	10.58	3.83	7.93	9.38	6.53	9.25	7.27
Policy Index	1.26	9.33	4.10	7.09	8.54	6.04	10.33	6.45
Excess	-0.01	1.25	-0.27	0.84	0.84	0.50	-1.08	0.82
Riskless Index	0.21	0.61	2.14	1.60	1.20	0.77	0.45	0.49
Real ROR	0.65	9.29	1.81	5.71	7.09	5.03	7.34	5.81
CPI	0.60	1.20	2.01	2.12	2.15	1.44	1.78	1.39

		Std	Sharpe				Relative	Track	Treynor	Info
Period	Return	Dev	Ratio	Alpha	Beta	R-Squared	Risk	Error	Ratio	Ratio
One Year	3.83	11.30	0.15	-0.44	1.13	99.81	1.13	1.41	1.50	-0.09
Two Years	7.93	9.12	0.69	0.14	1.13	99.13	1.14	1.36	5.60	0.64
Three Years	9.38	7.95	1.03	-0.15	1.14	98.64	1.15	1.34	7.19	0.64
Five Years	6.53	8.44	0.68	-0.08	1.12	98.53	1.12	1.34	5.17	0.40
Ten Years	9.25	6.67	1.32	3.69	0.50	46.65	0.74	6.62	17.43	-0.21
Since Inception	7.27	7.32	0.93	4.04	0.44	42.04	0.67	8.35	15.58	0.01

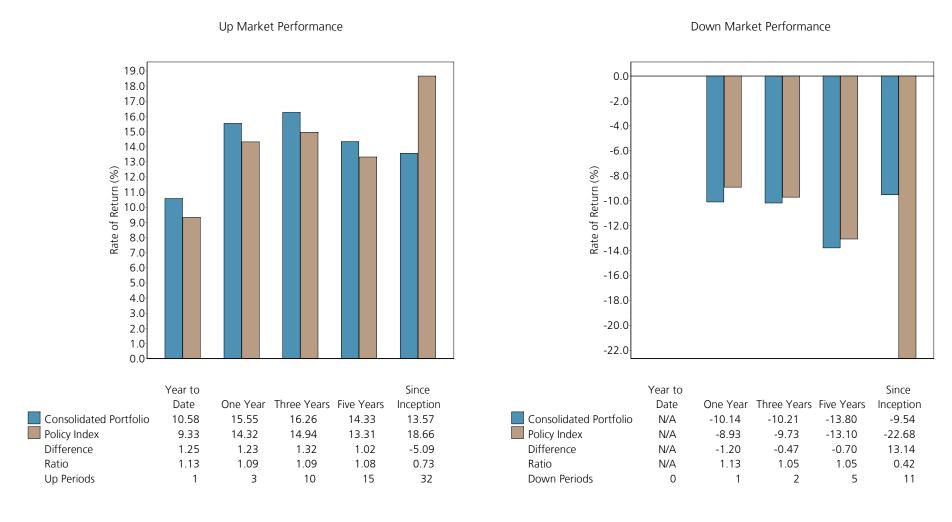
### Risk vs Reward Analysis August 31, 2008 Through March 31, 2019



## Consolidated Portfolio vs 50% Equity, 35% Fixed, 15% International Managers March 31, 2016 Through March 31, 2019



### Performance in Rising and Declining Markets August 31, 2008 Through March 31, 2019





### **Investment Performance**

### Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Richmond Capital Management

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

## Performance Analysis

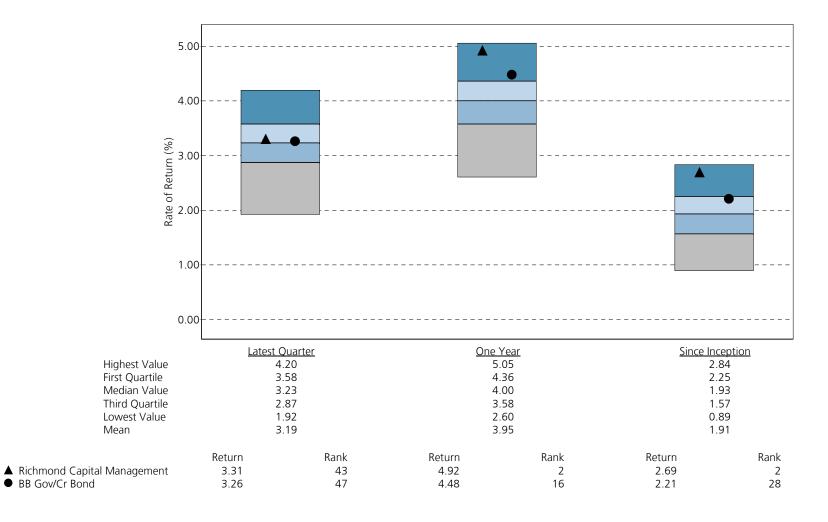
The primary index comparison for your portfolio and each of its asset classes is listed below.

### **TOTAL FUND BENCHMARK**

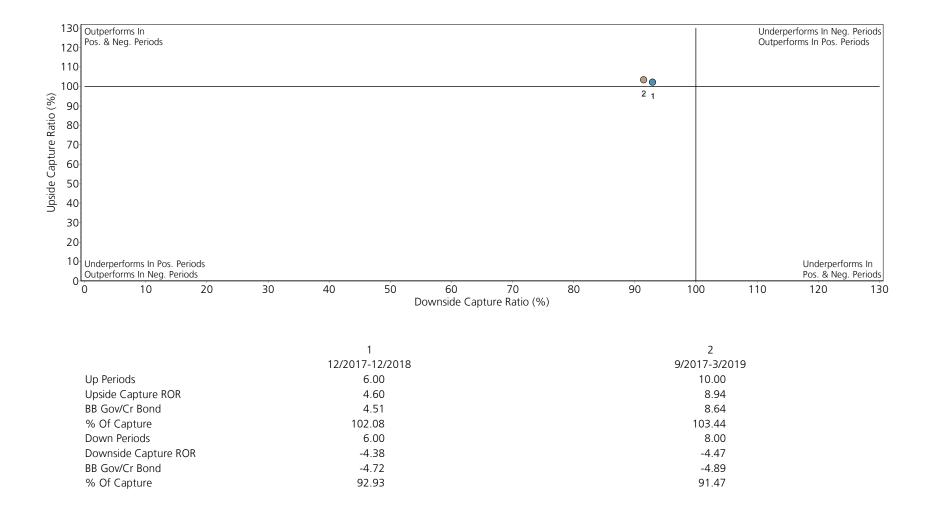
9/30/2017 - Present

100% Bloomberg Barclays Government/Credit Bond

### TOTAL FUND versus Intermediate Bond Managers September 30, 2017 Through March 31, 2019



### Capture Ratio September 30, 2017 Through March 31, 2019





### **Investment Performance**

### Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Blackrock Strategic Income I

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

## Performance Analysis

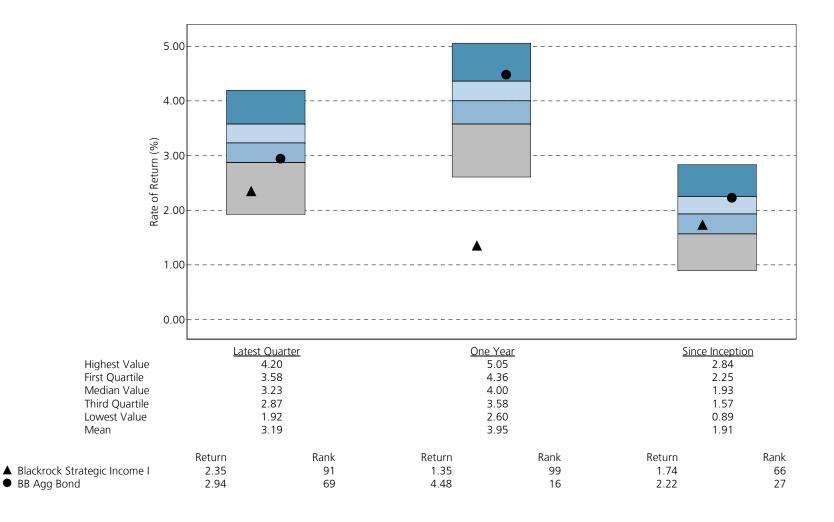
The primary index comparison for your portfolio and each of its asset classes is listed below.

### **TOTAL FUND BENCHMARK**

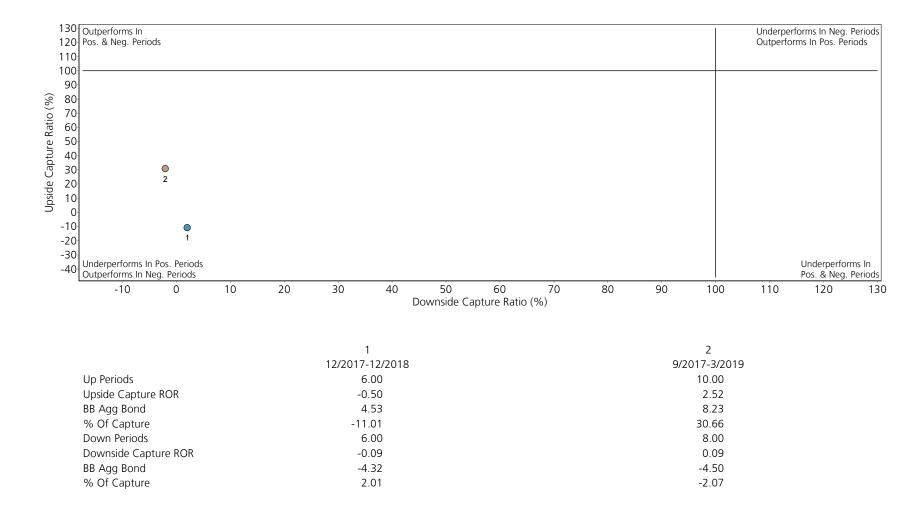
9/30/2017 - Present

100% Bloomberg Barclays Aggregate Bond

### **TOTAL FUND versus Intermediate Bond Managers September 30, 2017 Through March 31, 2019**



### Capture Ratio September 30, 2017 Through March 31, 2019





### **Investment Performance**

### Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

## Delaware Diversified Income I

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

## Performance Analysis

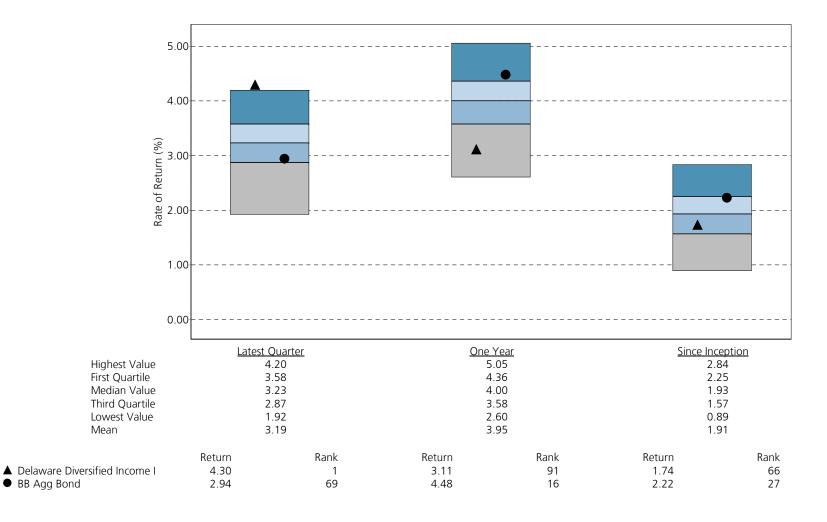
The primary index comparison for your portfolio and each of its asset classes is listed below.

### **TOTAL FUND BENCHMARK**

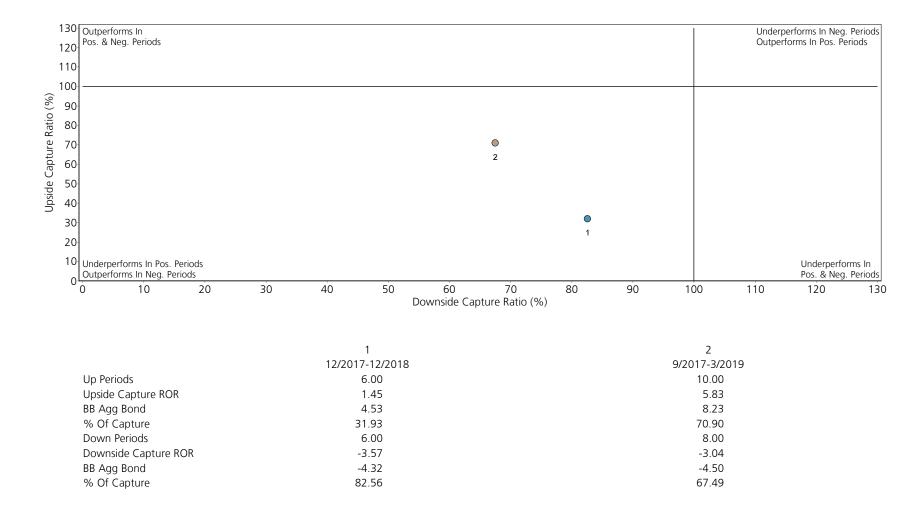
9/30/2017 - Present

100% Bloomberg Barclays Aggregate Bond

### **TOTAL FUND versus Intermediate Bond Managers September 30, 2017 Through March 31, 2019**



### Capture Ratio September 30, 2017 Through March 31, 2019





### **Investment Performance**

### Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Eagle Capital Large Value

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

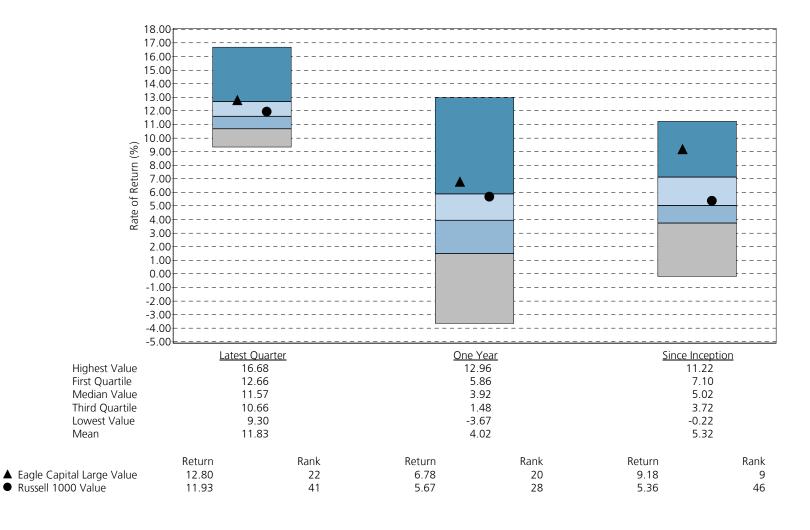
## Performance Analysis

The primary index comparison for your portfolio and each of its asset classes is listed below.

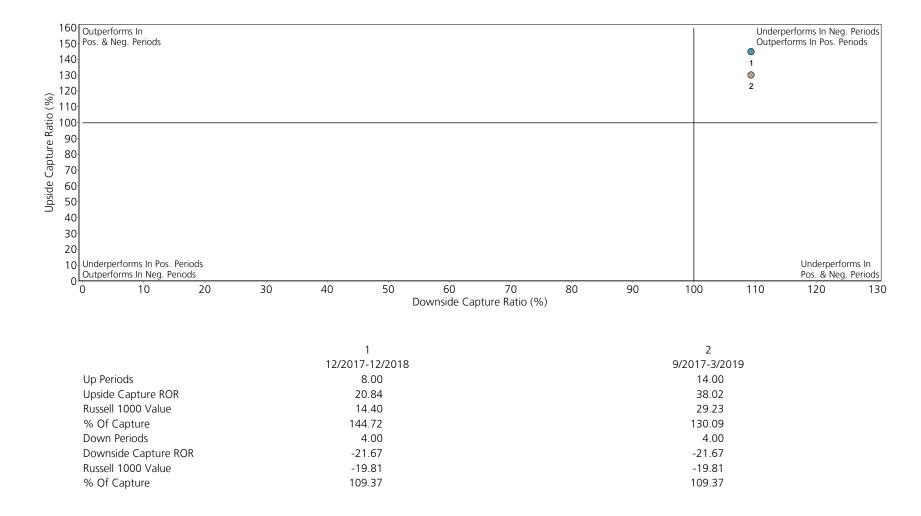
### **TOTAL FUND BENCHMARK**

9/30/2017 - Present 100% Russell 1000 Value

### TOTAL FUND versus Large Cap Value Managers September 30, 2017 Through March 31, 2019



### Capture Ratio September 30, 2017 Through March 31, 2019





### **Investment Performance**

### Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Vanguard 500 Index

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

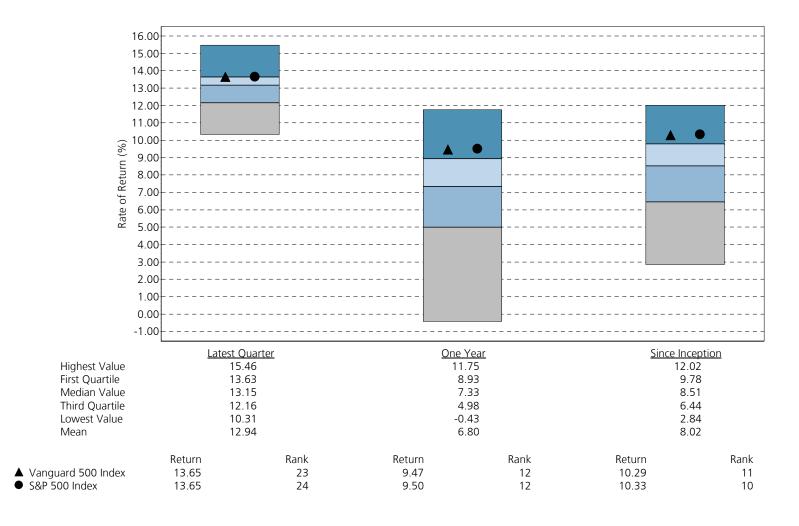
## Performance Analysis

The primary index comparison for your portfolio and each of its asset classes is listed below.

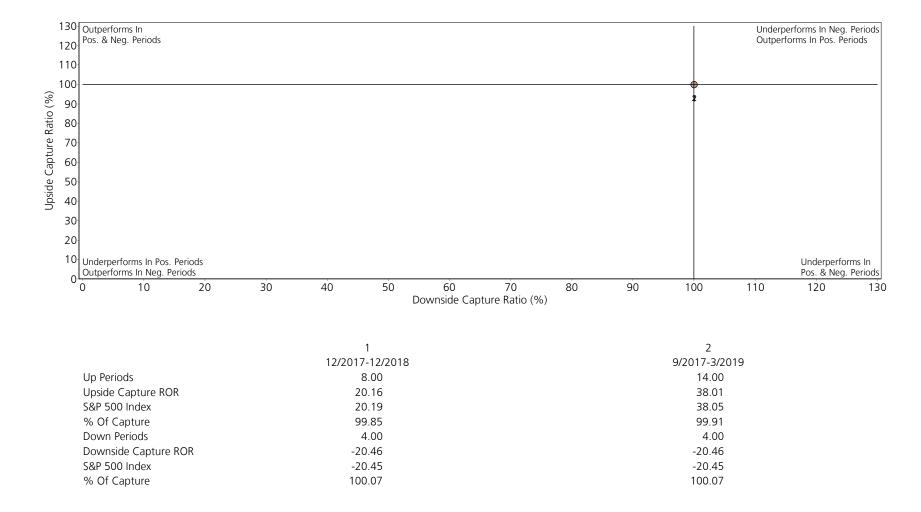
### **TOTAL FUND BENCHMARK**

9/30/2017 - Present 100% S&P 500 Index

### TOTAL FUND versus Large Blend Managers September 30, 2017 Through March 31, 2019



### Capture Ratio September 30, 2017 Through March 31, 2019





### **Investment Performance**

### Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# TCW Large Cap Growth

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

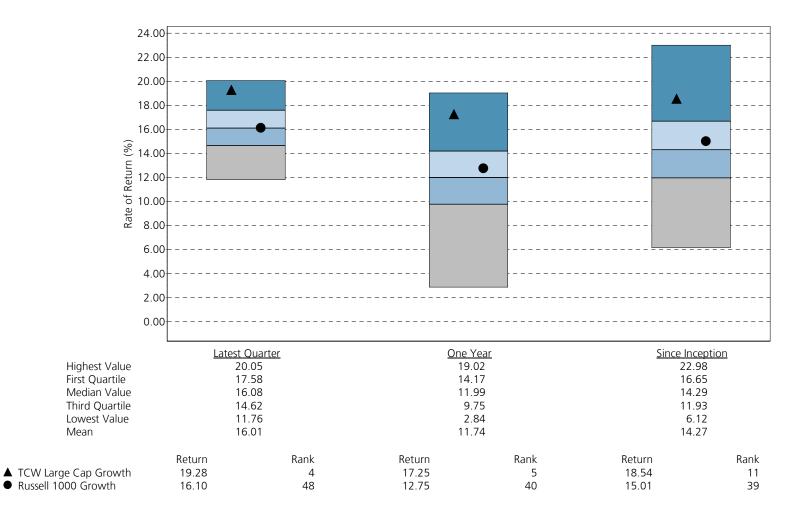
## Performance Analysis

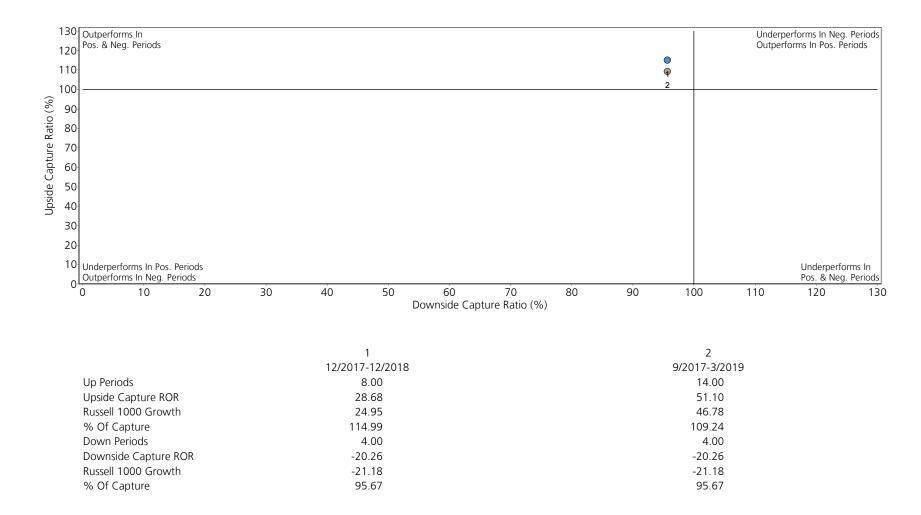
The primary index comparison for your portfolio and each of its asset classes is listed below.

### **TOTAL FUND BENCHMARK**

9/30/2017 - Present 100% Russell 1000 Growth

#### TOTAL FUND versus Large Cap Growth Managers September 30, 2017 Through March 31, 2019







#### Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

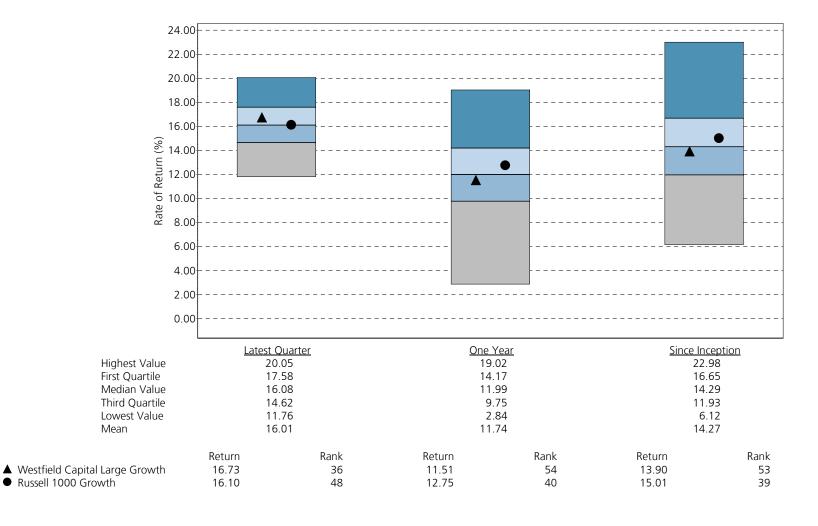
## Westfield Capital Large Growth

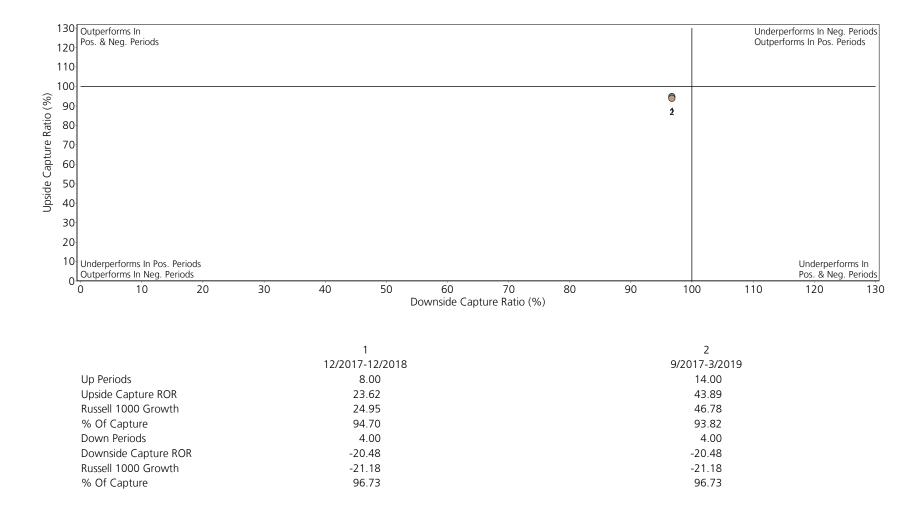
The primary index comparison for your portfolio and each of its asset classes is listed below.

#### **TOTAL FUND BENCHMARK**

9/30/2017 - Present 100% Russell 1000 Growth

#### TOTAL FUND versus Large Cap Growth Managers September 30, 2017 Through March 31, 2019







#### Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Vanguard Mid-Cap Index Fund Admiral

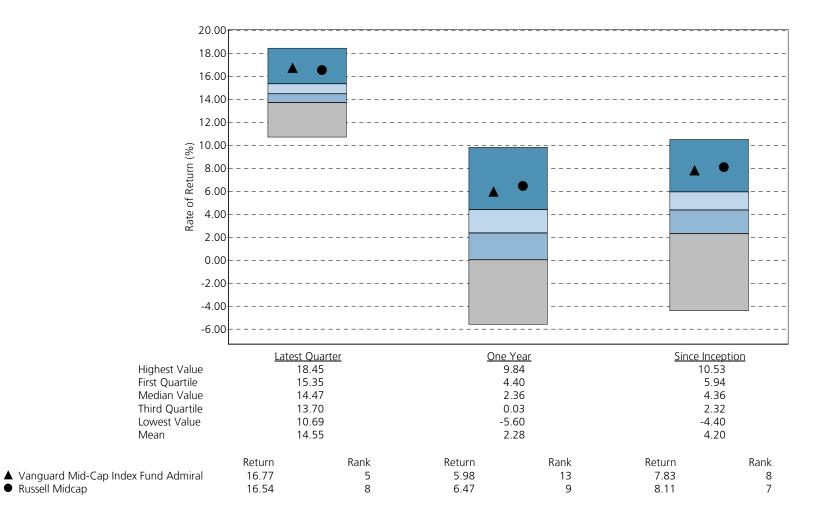
The primary index comparison for your portfolio and each of its asset classes is listed below.

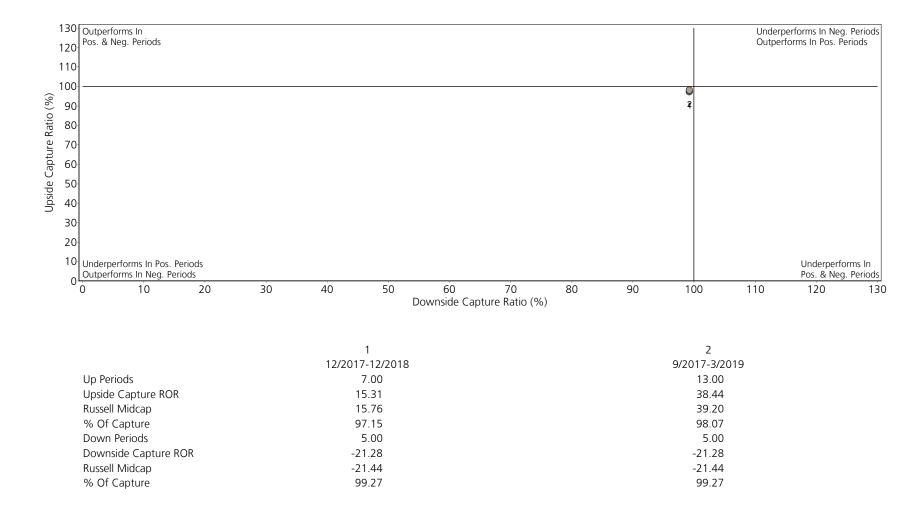
#### **TOTAL FUND BENCHMARK**

9/30/2017 - Present 100% Russell Midcap

#### **TOTAL FUND versus Mid Cap Blend Managers** September 30, 2017 Through March 31, 2019

Russell Midcap







#### Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

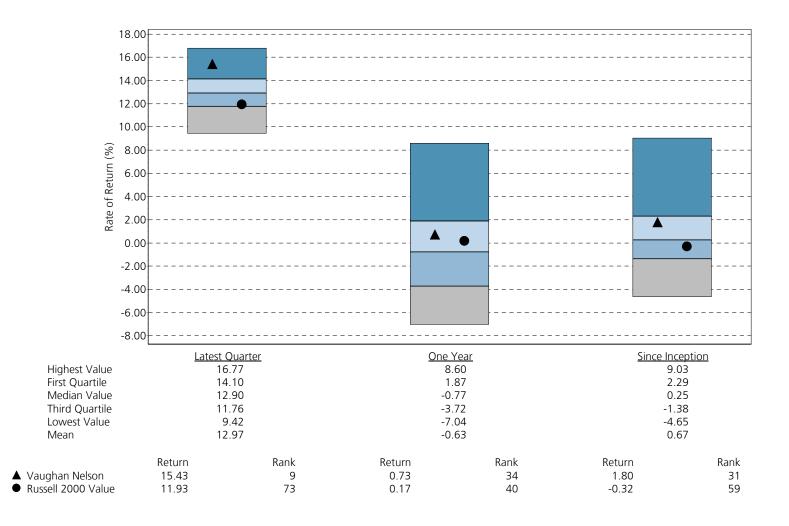
# Vaughan Nelson

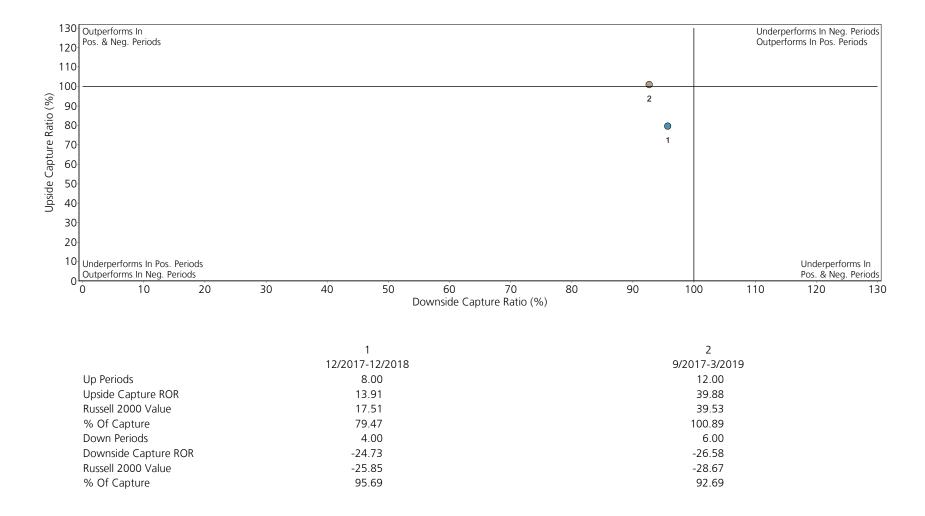
The primary index comparison for your portfolio and each of its asset classes is listed below.

#### **TOTAL FUND BENCHMARK**

9/30/2017 - Present 100% Russell 2000 Value

#### TOTAL FUND versus Small Cap Value Managers September 30, 2017 Through March 31, 2019







#### Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

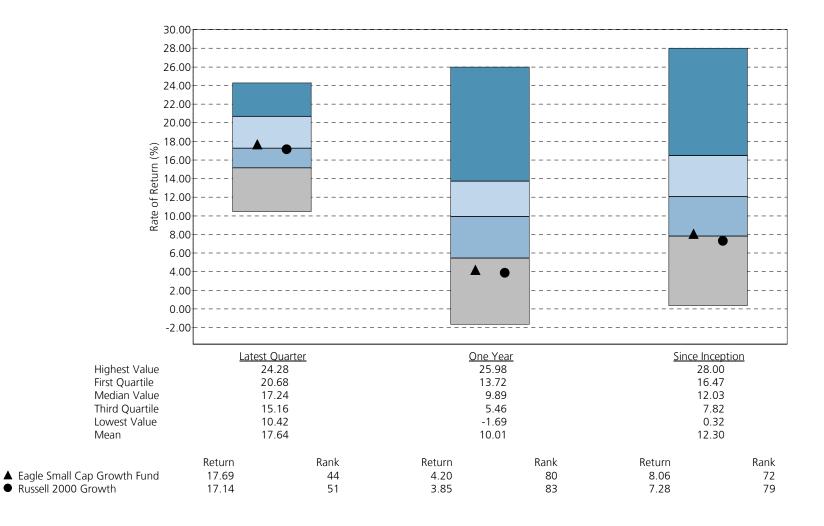
# Eagle Small Cap Growth Fund

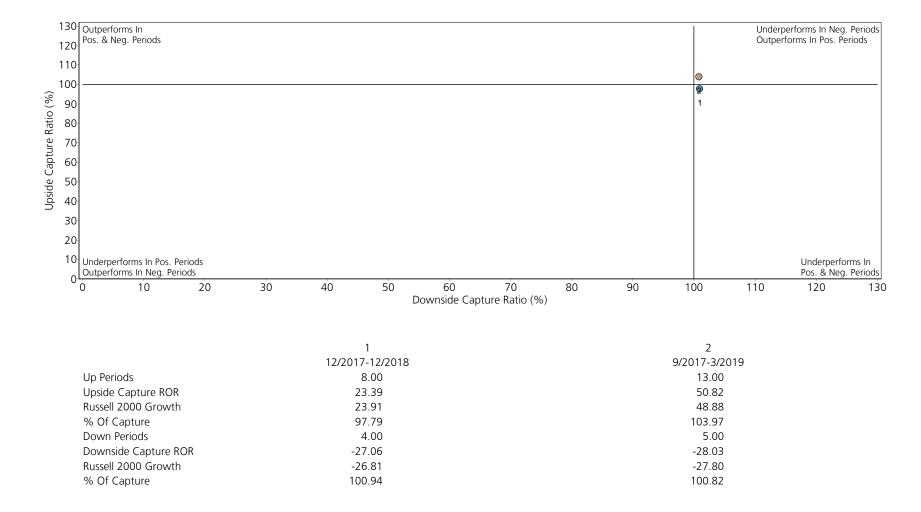
The primary index comparison for your portfolio and each of its asset classes is listed below.

#### **TOTAL FUND BENCHMARK**

9/30/2017 - Present 100% Russell 2000 Growth

#### TOTAL FUND versus Small Cap Growth Managers September 30, 2017 Through March 31, 2019







#### Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

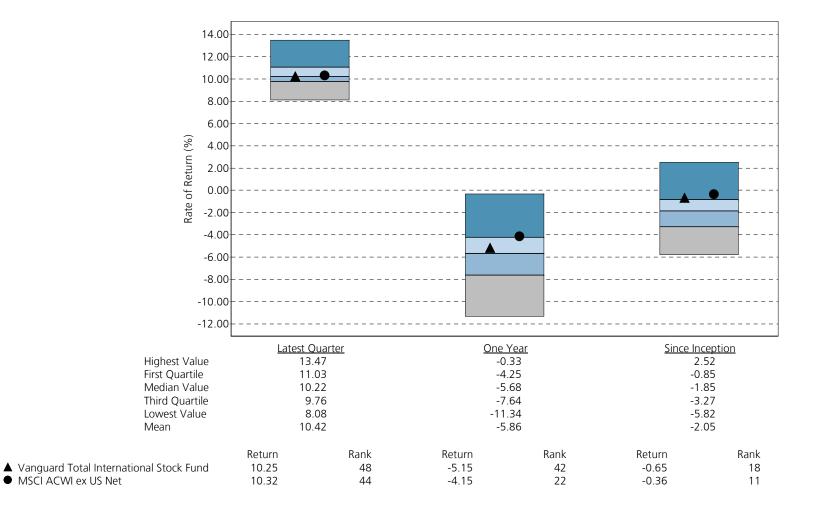
# Vanguard Total International Stock Fund

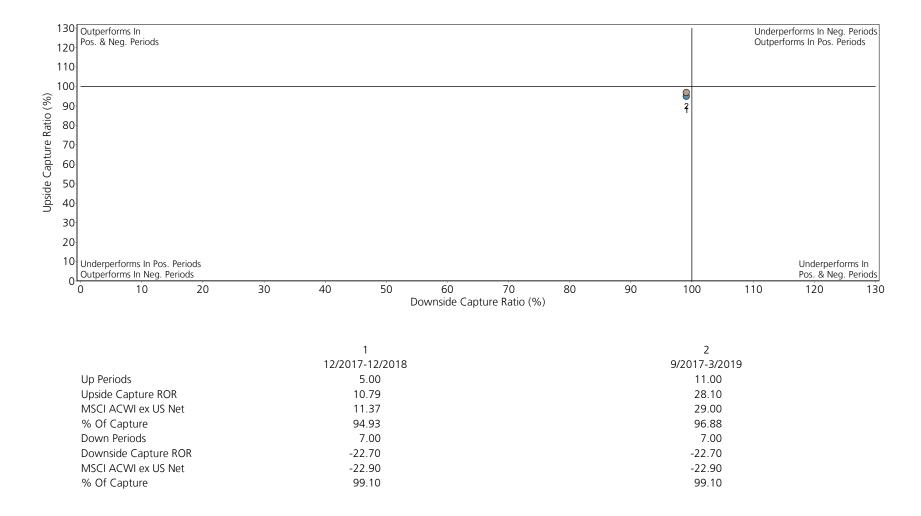
The primary index comparison for your portfolio and each of its asset classes is listed below.

#### **TOTAL FUND BENCHMARK**

9/30/2017 - Present 100% MSCI ACWI ex US Net

#### TOTAL FUND versus Foreign Large Blend Managers September 30, 2017 Through March 31, 2019







#### Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

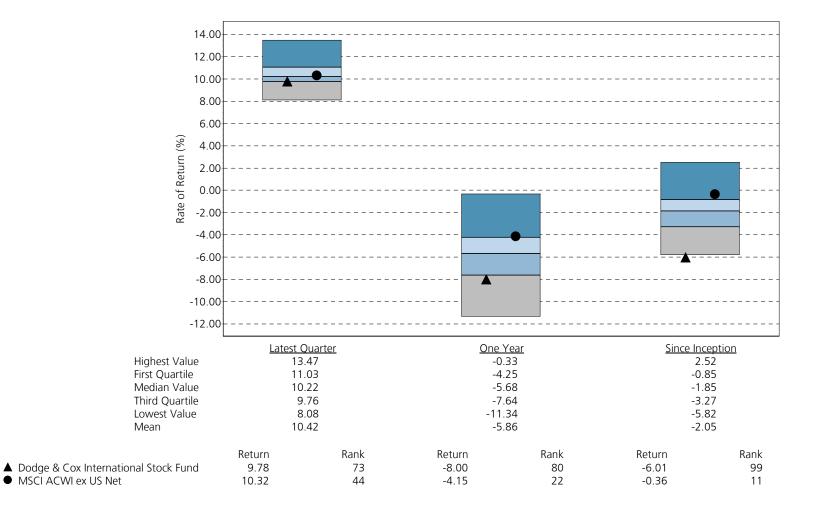
# Dodge & Cox International Stock Fund

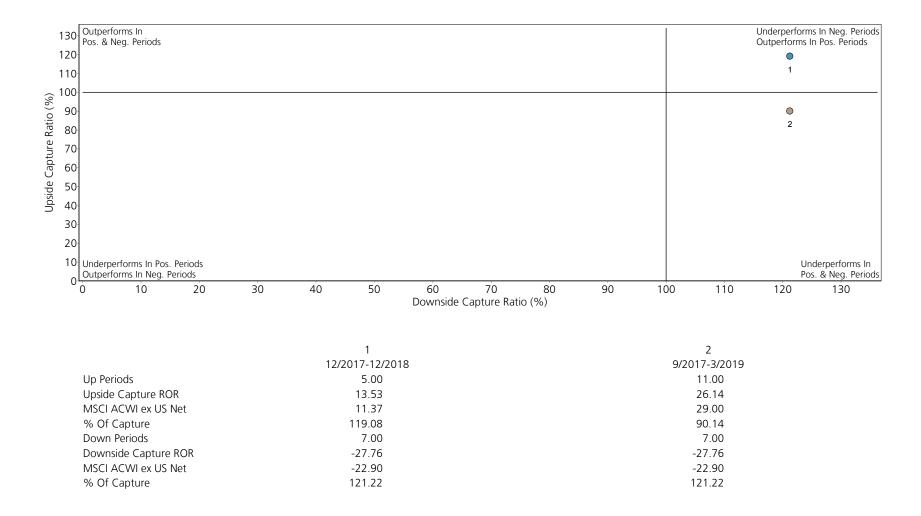
The primary index comparison for your portfolio and each of its asset classes is listed below.

#### **TOTAL FUND BENCHMARK**

9/30/2017 - Present 100% MSCI ACWI ex US Net

#### TOTAL FUND versus Foreign Large Blend Managers September 30, 2017 Through March 31, 2019







#### Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

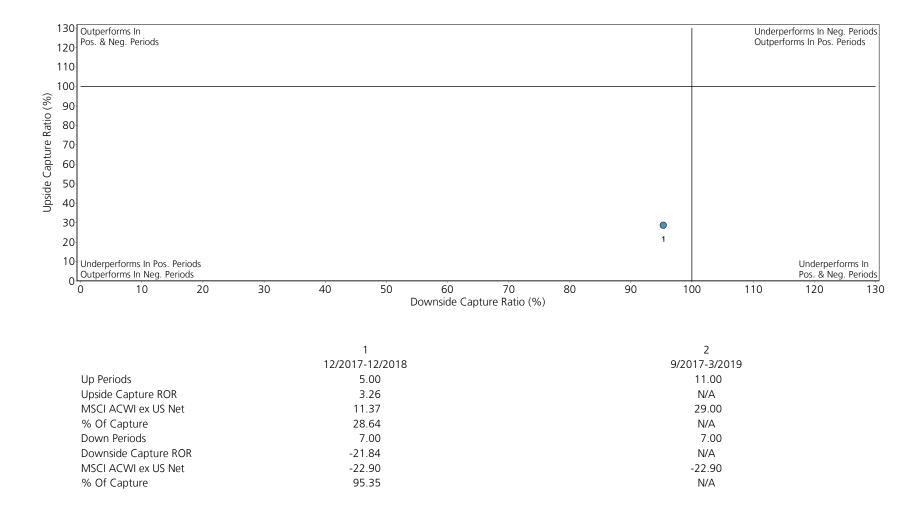
Earle Dodd, Van Price, Allen Wright

## Oppenheimer International Growth

The primary index comparison for your portfolio and each of its asset classes is listed below.

#### **TOTAL FUND BENCHMARK**

9/30/2017 - Present 100% MSCI ACWI ex US Net





#### Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

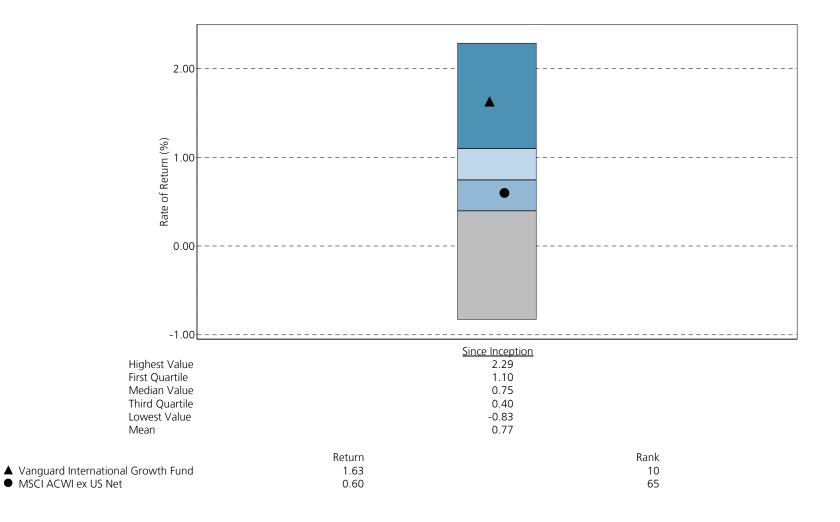
## Vanguard International Growth Fund

The primary index comparison for your portfolio and each of its asset classes is listed below.

#### **TOTAL FUND BENCHMARK**

2/7/2019 - Present 100% MSCI ACWI ex US Net

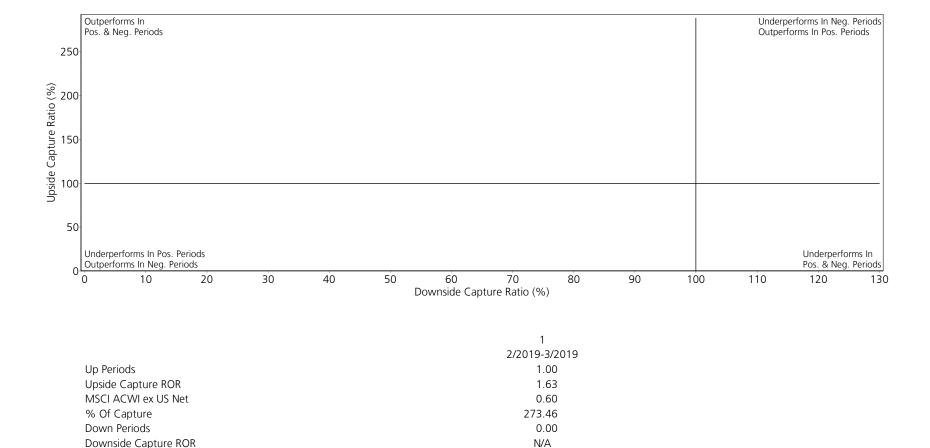
## TOTAL FUND versus Foreign Large Blend Managers February 28, 2019 Through March 31, 2019



#### Capture Ratio February 7, 2019 Through December 31, 2018

MSCI ACWI ex US Net

% Of Capture



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N/A

N/A



#### Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Loomis Sayles Global Equity

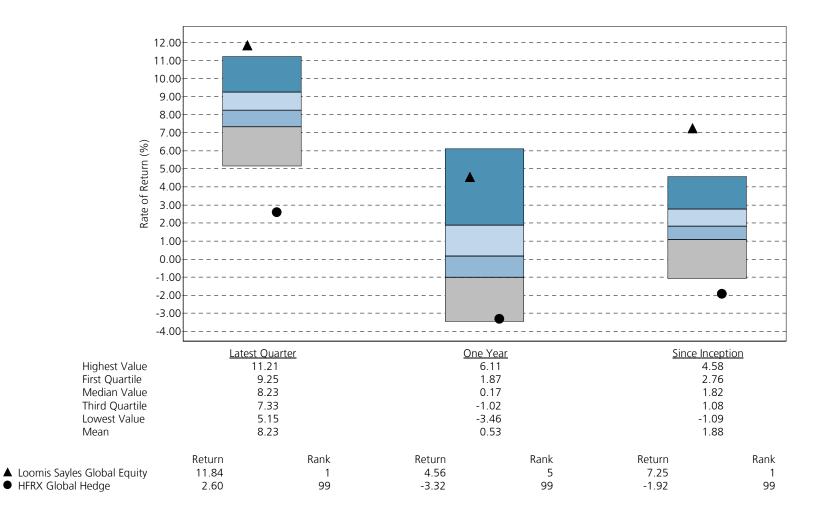
The primary index comparison for your portfolio and each of its asset classes is listed below.

#### **TOTAL FUND BENCHMARK**

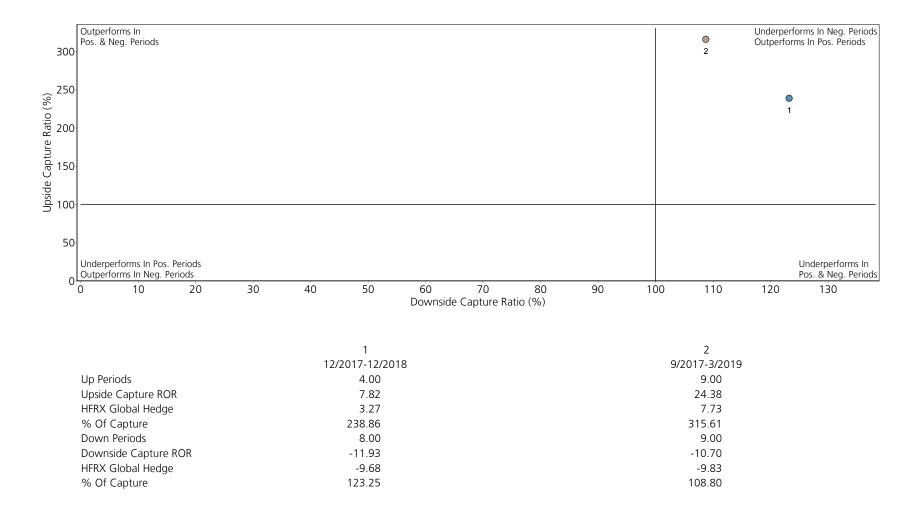
9/30/2017 - Present

100% HFRX Global Hedge Fund Index

#### TOTAL FUND versus World Allocation Managers September 30, 2017 Through March 31, 2019



### Capture Ratio September 30, 2017 Through March 31, 2019



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#### **Investment Performance**

### Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# First Eagle Global Funds Class I

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

# Performance Analysis

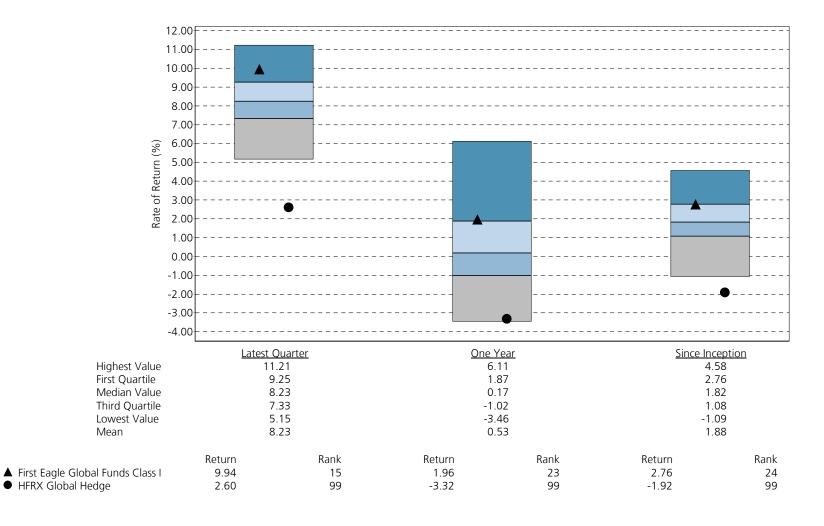
The primary index comparison for your portfolio and each of its asset classes is listed below.

#### **TOTAL FUND BENCHMARK**

9/30/2017 - Present

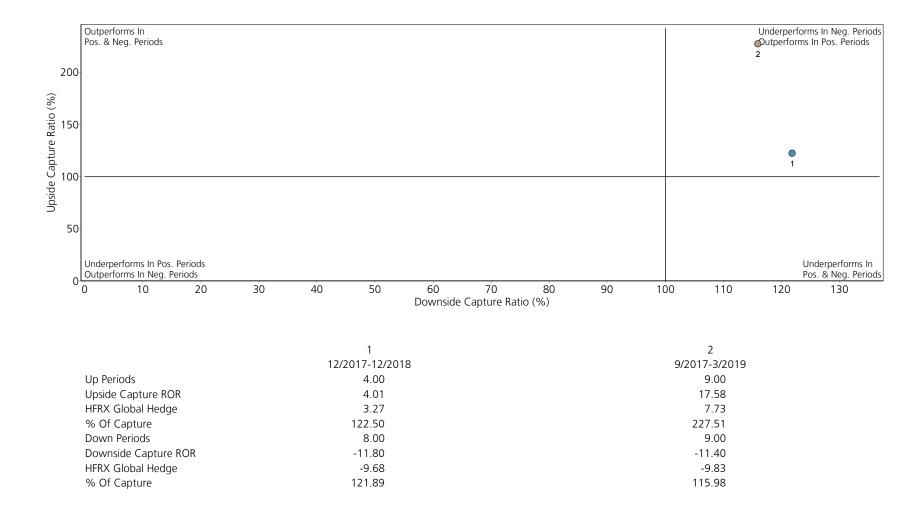
100% HFRX Global Hedge Fund Index

### TOTAL FUND versus World Allocation Managers September 30, 2017 Through March 31, 2019



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### Capture Ratio September 30, 2017 Through March 31, 2019



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#### **Investment Performance**

### Period Ending March 31, 2019

Prepared for: Cobb OPEB May 30, 2019

Prepared by:

Earle Dodd, Van Price, Allen Wright

# Blackrock Global Allocation Fund

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

# Performance Analysis

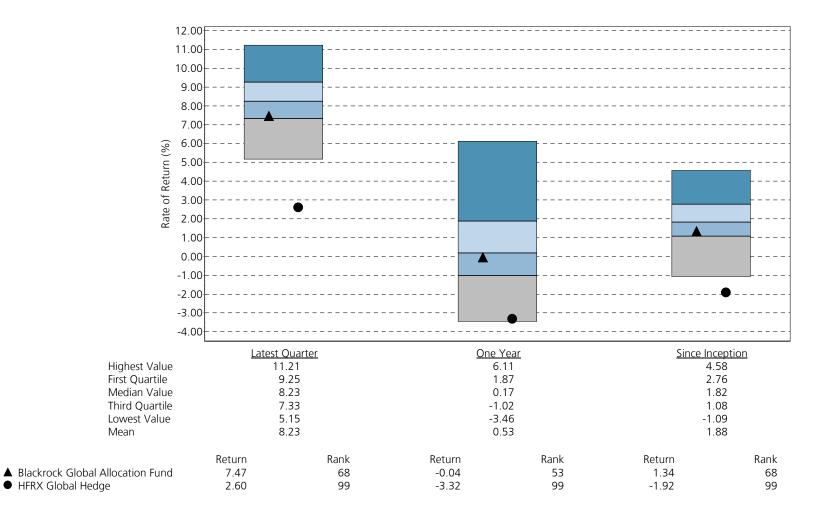
The primary index comparison for your portfolio and each of its asset classes is listed below.

#### **TOTAL FUND BENCHMARK**

9/30/2017 - Present

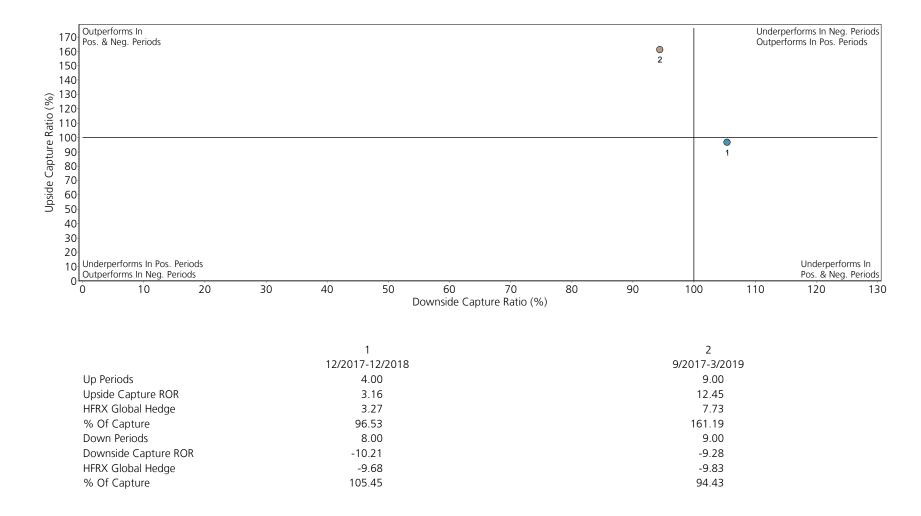
100% HFRX Global Hedge Fund Index

### TOTAL FUND versus World Allocation Managers September 30, 2017 Through March 31, 2019



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### Capture Ratio September 30, 2017 Through March 31, 2019



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# **Cobb OPEB - Investments Not Reviewed by UBS**

The firm (UBS) does not currently conduct due diligence and has not otherwise reviewed the following investments or strategies, which are included in this report at your request. The inclusion does not constitute an endorsement that you continue to hold these investments. Please see "Important Information" for additional details.

At the time of report creation, all investments in your portfolio are reviewed.

Cash and Money Market Funds are not included in this analysis. UBS does not research any money market mutual funds, other than those offered by UBS and its affiliates.

### **Performance Reconciliation Adjustments**

This section provides a record of differences between information reported by your custodian and information used to create this performance report, whether at your direction or as prescribed by your Institutional Consultant on your behalf.

Scenario Description Net Adjustment (+/-)

No differences in information were used in the creation of this performance report.

#### IMPORTANT INFORMATION

This report is provided for informational purposes only, does not constitute an offer to buy or sell securities or investment products, does not constitute a recommendation that you buy, sell or hold securities or investment products, and is current as of the date shown. It may include information regarding your Institutional Consulting accounts held at various UBS entities including UBS Financial Services Inc., UBS Securities LLC and UBS AG (collectively, "UBS" or "UBS entities"), as well as accounts you hold at other financial institutions. Accounts included in this report are identified at the beginning of the report. Also, information may be shown for individual accounts or as one or more combined portfolios; the accounts included in each portfolio are also identified at the beginning of the report.

Investment Monitoring: Neither UBS nor any of its employees will track or monitor specific investments you make to determine whether they complement your Investment Policy, unless you have engaged UBS for such services. Accounts and Assets Included: UBS account statements are the only official records of holdings, balances, transactions, and security values of assets held in UBS accounts and are not replaced, amended or superseded by any of the information presented in this report. If assets that you hold at other financial institutions are included in this report, they are being provided as part of your UBS IC Consulting Services Agreement or you have asked us to include those assets as an accommodation but they are not included as part of your UBS IC Consulting Services Agreement with us. In either situation, the inclusion of those assets is based on information, including valuation and transactional information, furnished to UBS by your custodian. Because custodians vary in the information they provide to us, reflection of fees within this report will include your investment manager fees and your UBS fees only when your custodian has identified and provided this information to us. This report is not intended to provide you with consolidated information or reporting regarding your holdings at other firms. You should review and maintain the original documents for those assets, such as account statements for individual accounts held away from UBS. Those documents may contain their record of holdings, balances, transactions, and security values of assets held in those accounts, as well as notices, disclosures and other information important to you, and may also serve as a reference should questions arise regarding the accuracy of the information in this report. UBS Financial Services Inc. SIPC coverage, would only apply to those assets respectively held at UBS Financial Services Inc. You should contact your financial representative at any other financial institutions where you hold an account to determine the av

Values shown are not inclusive of margin balances. Every reasonable effort has been made to accurately price securities; however, we make no guarantee with respect to any security's price. To determine the value of securities in your account, we generally rely on third party quotation services. If a price is unavailable or believed to be unreliable, we may determine the price in good faith and may use other sources such as the last recorded transaction. We will generally rely on the value provided by you, the custodian or issuer of that security, when (i) securities are held at another custodian; (ii) investments not available through UBS or that our systems do not recognize. To obtain current quotations, when available, contact your Institutional Consultant. Prices may or may not represent current or future market value. Such pricing may affect the performance information obtained from third-party sources. UBS will not independently verify pricing information obtained from third-party sources. UBS will not independently verify pricing information obtained from third-party sources and cannot guarantee the accuracy of such third-party information. If pricing is indicated as "NA", the required data for that field was not provided by the other financial institution or you; this will affect the performance information provided in these reports. Performance Analytics: Unless otherwise noted, performance shown is based on Time Weighted Rate of Return. Periods greater than one year have been annualized, but annual performance may not represent a full calendar year depending on the inception date of the first account included in these reports. Standard deviations are shown only for periods of 12 months or longer. This report may reflect performance before the deduction of manager fees and UBS Institutional Consulting advisory fees, unless your custodian provided by the other financial institution and the reduction in performance will have a cumulative effect over time. The net effect of the payment of fees on the annua

Performance information incorporates data as of the date your accounts became available for these reports, not as of your initial acquisition of a particular investment unless performance history is imported at client's request. For reports that reflect combined account information, the Performance Start Date will be the earliest performance start date of any of the individual accounts selected for the consolidation time period. If an individual account's performance information is not available for a full reporting time period (month to date, quarter to date, year to date or performance to date), that account's information will only be included for the period when available. For consolidated accounts that include different account Performance Start Dates, the consolidated Additions/Withdrawals, Income Earned and Investment Appreciation/ Depreciation will include all activity that occurred during the consolidated reporting time period. Accounts that hold or held insurance products will be reported on from the month end date of when insurance and annuity activity could be obtained from the carrier. To the extent that your historical data contains a mixture of net and gross performance history related to manager or advisory fees, those distinctions will impact your performance reports to the extent that the different methods of reporting are blended. Note that various factors, including unpriced securities and certain holdings, adjustments or activity may cause the results shown in this report to differ from actual performance (see the Performance Reconciliation Adjustments section for detail on differences between your Custodial statement and information used to create this performance report). Note that these results may differ from other performance reports provided to you by UBS. Performance information may be impacted by the different ways each UBS entities nor any of their respective representatives provide tax or legal advice. You must consult with your legal or tax advisors regarding your personal circums

You have discussed the receipt of this individually customized report with your Financial Advisor. Your UBS account statements and trade confirmation are the official records of your accounts at UBS. We assign index benchmarks to our asset allocations, strategies in our separately managed accounts and discretionary programs based on our understanding of the allocation, strategy, the investment style and our research. The benchmarks included in this report can differ from those assigned through our research process. As a result, you may find that the performance comparisons may differ, sometimes significantly, from that presented in performance reports and other materials that are prepared and delivered centrally by the Firm. Depending upon the composition of your portfolio and your investment objectives, the indexes used in this report may not be an appropriate measure for comparison purposes, and as such, are represented for illustration only. Your portfolio holdings and performance may vary significantly from the index. Your financial advisor can provide additional information about how benchmarks within this report were selected.

#### Benchmark Index Information:

For comparison purposes, these reports may contain a number of general broad market indices, which were selected to demonstrate the performance of broad market indicators that are readily recognized, rather than for direct performance comparisons, and do not reflect the performance of actual investments. The selection and use of benchmarks is not a promise or guarantee that your accounts will meet or exceed the stated benchmarks. Benchmark information is illustrative and relates to historical performance of market indexes and not the performance of actual investments. Indexes are not available for direct investment and reflect an unmanaged universe of securities. Indices assume no management, custody, transaction fees or expenses that would lower the performance results, and assume reinvestment of dividends and capital gains. Information about indices is based on information obtained from sources believed to be reliable, but no independent verification has been made. UBS does not guarantee the accuracy or completeness of any index information presented. Market index data is subject to review and revision, and UBS reserves the right to substitute indices or display only those indices for which current updated information is available. Information regarding the indexes shown in this report can be found at the end of this report.

Risk Considerations: Some of the general risk considerations associated with the investment options included in this report are described below. The descriptions are not meant to be a complete list of all investment risks. For more complete information regarding fees, expenses, risks and restrictions associated with these investments please review the offering documents and marketing materials. Investors should consult their tax advisor about their specific tax situation before investing in any securities. In addition, clients should familiarize themselves with the particular market risks and the other risks associated with the specific investment. All investments contain risk and may lose value.

Cash and cash alternatives: Cash and cash alternatives typically include money market securities or three-month T-Bills. These securities have short maturity dates and they typically provide a stable investment value as compared to other investments and current interest income. These investments may be subject to credit risks and inflation risks. Treasuries also carry liquidity risks for sales prior to maturity. Investments in money market funds are neither insured not guaranteed by the Federal Deposit Insurance Corporation ("FDIC"), the U.S. government or any other government agency. There can be no assurance that the funds will be able to maintain a stable net asset value at \$1.00 per share or unit.

Alternative Investments: Non-traditional asset classes are alternative investments that include hedge funds, private equity, and private real estate (collectively, non-traditional or alternative investments). These investments can be subject to substantial risks (including the risks associated with limited liquidity, the use of leverage, short-sales and concentrated positions), may involve complex tax structures and strategies, and may not be easily valued. The risks of alternative investments should be carefully considered in light of your investment objectives, risk tolerance and net worth. Alternative investments are speculative and entail substantial risks, which may place your capital at risk. Alternative investments may not have been registered with the Securities and Exchange Commission or under any state securities laws. The market for such investments may be highly illiquid and subjectively valued, and these reports provide values for informational purposes only. Accuracy is not guaranteed. These values may differ substantially from prices, if any, at which a unit may be bought or sold and do not necessarily represent the value you would receive from the issuer upon liquidation. Issuer estimated values, if any, are generally updated on a regular (annual or semi-annual) basis and are supplied to us by the issuer, but may be calculated based on different information from what is used by third parties to derive their estimated values.

U.S. Fixed Income: Fixed income represents exposure (whether direct or indirect) to debt issued by private corporations, governments or federal agencies. Historically, fixed income has higher return than cash investments but their value can fluctuate dramatically as they are subject to risks including market, interest rate, issuer, credit, default and inflation risk. An investment in a portfolio may be worth more or less than its original cost when redeemed. In addition, fixed income generally has less volatility and long-term return than equities. U.S. fixed income may be further classified as high yield. These investments are high yielding but may also carry more risk. A bond funds yield and value of its portfolio fluctuate and can be affected by changes in interest rates, general market conditions and other political, social and economic developments.

**U.S. Equity:** Equities represent exposure (whether direct or indirect) to ownership interest in a corporation. Historically, equities are more risky than fixed income or cash investments as they experience greater volatility risk, which is the risk that the value of your investment may fluctuate over time. However, they have had higher returns. Investments in small and medium company stocks can be more volatile over the short term than investments in large company stocks, however, they may offer greater potential for appreciation.

Non-U.S. equity and fixed income: Non-U.S. equity and fixed income represent exposure (whether direct or indirect) to ownership interests and debt, respectively, of foreign governments and corporations that can be sub-divided into those from countries that have developed markets or emerging markets. Further, non-U.S. companies not reporting with the SEC may be subject to accounting, auditing, and financial reporting standards and requirements that differ from companies reporting with the SEC.

International: Investors in securities of issuers located outside of the United States should be aware that even for securities denominated in U.S. dollars, changes in the exchange rate between the U.S. dollar and the issues "home" currency can have unexpected effects on the market value and liquidity of those securities. Those securities may also be affected by other risks (such as political =, economic or regulatory changes) that may not be readily known to a U.S investor.

Variable Annuities: A variable deferred annuity is a long-term financial product designed for retirement purposes. It is a contractual agreement in which payment(s) are made to an insurance company, which agrees to pay out an income or a lump sum amount at a later date. There are fees and charges associated with a variable annuity contract, which include, but are not limited to, operations charges, sales and surrender charges, administrative fees, and additional charges for optional benefits. Variable annuities are sold by prospectus and you should carefully consider important information on the sub-accounts' investment objectives, risk, charges and expenses. Please read the prospectus and offering documents carefully before you invest. Your Financial Advisor can provide a copy of the prospectus. For current month-end returns: <a href="http://advisor.morningstar.com/familyinfo.asp>">http://advisor.morningstar.com/familyinfo.asp

Mutual Fund Performance Information: Mutual Funds are sold by prospectus and you should carefully consider important information on the fund's investment objectives, risk, charges and expenses. Please read the prospectus and offering documents carefully before you invest. Your UBS Institutional Consultant can provide a copy of the prospectus. For current month-end returns: <a href="http://advisor.mormingstar.com/familyinfo.asp">http://advisor.mormingstar.com/familyinfo.asp</a>. This analysis may incorporate mutual fund and exchange traded fund performance results. Analytics shown are calculated based on the fund's Net Asset Value, which may reflect the reinvestment of dividends and capital gains, as well as the deduction of 12b-1 fees and fund internal expenses (e.g. fund management fees). The analytics do not reflect the deduction of the sales load, where applicable, the UBS Consulting fee(s), where applicable, or the impact of taxes. Had the sales load, fee or taxes been included, the results used in this analysis would have been reduced.

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Policy Index: A point of reference for evaluating a portfolio's investment performance. A policy Index can be comprised of single or multiple benchmarks (weighted blend). Portfolios with multiple benchmarks will be depicted with a description of benchmarks and weights that comprise the policy.

Gain/(Loss) Information: When data is available from UBS, estimated unrealized gains/losses are calculated for individual security lots. For assets transferred from another financial institution, gain/loss information will be reflected only for the period of time the assets have been held at UBS entities. For assets held at other financial institutions, information provided by that entity, if any, is reflected. Total realized gain/loss information may include calculations based upon non-UBS entities cost basis information. UBS Financial Services Inc. does not independently verify or guarantee the accuracy or validity of any information provided by sources other than UBS Financial Services Inc. When original cost information is unavailable, gain/loss amounts will represent current market value and total gains/losses may be inaccurate. Date information for when a particular security was acquired, when available, appears on these reports. When no acquisition date is provided for a security, these reports reflect "N/A" and omit this information. As a result, these figures may not be accurate and are provided for informational purposes only.

Interest and Dividend Income: When shown on this report, information does not reflect your account's tax status or reporting requirements. You should use only official IRS forms for tax reporting purposes. The classification of private investment distributions can only be determined by referring to the official year-end tax-reporting document provided by the issuer.

Contributions and Withdrawals: When shown on a report, information regarding contributions and withdrawals may represent the net value of all cash and securities contributions and withdrawals, and may include program fees (including wrap fees) and other fees added to or subtracted from your accounts from the first day to the last day of the period covered by these reports. Program fees may be separately identified or included in withdrawals except when paid via an invoice or through a separate account billing arrangement.

Cash Flow: Cash Flow analysis is based on the historical dividend, coupon and interest payments you have received as of the Record Date in connection with the securities listed and assumes that you will continue to hold the securities for the periods for which cash flows are projected. This may or may not include principal paybacks for the securities listed. These potential cash flows are subject to change due to a variety of reasons, including but not limited to, contractual provisions, changes in corporate policies, changes in the value of the underlying securities and interest rate fluctuations. The effect of a call on any security(s) and the consequential impact on its potential cash flow(s) is not reflected in this report. Payments that occur in the same month in which the report is generated — but prior to the report run ("As of") date — are not reflected in this report. In determining the potential cash flows, UBS relies on information obtained from third party services it believes to be reliable but does not independently verify or guarantee the accuracy or validity of any information provided by third party services are based on the assumptions that the current face amount, principal pay-down, interest payment and payment frequency remain constant. Calculations may include principal payments, are intended to be an estimate of future projected interest cash flows and do not in any way guarantee accuracy. Important information about advisory & brokerage services: As a firm providing wealth management services to clients, we offer both investment advisory and brokerage services are separate and distinct, differ in material ways and are governed by different laws and

separate contracts. For more information on the distinctions between our brokerage and investment advisory services, please speak with your Financial Advisor or visit our website at <a href="http://ubs.com/workingwithus">http://ubs.com/workingwithus</a>. While we strive to make sure the nature of our services is clear in the materials we publish, if at any time you would like clarification on the nature of your accounts or the services you are receiving, please speak with your UBS Institutional Consultant.

The ACCESS, SWP, MAC and Institutional Consulting ("IC") programs offer some of the same Separately Manage Account ("SMA") Managers for different SMA Manager fees. The amount of the fee paid to each SMA Manager is a function of that SMA Manager's investment style and the fee negotiated with the SMA Manager either by UBS (in ACCESS, SWP) and by you in the MAC or IC Program. Depending on your asset level and ability to negotiate the investment management fee with the SMA Manager in the dual-contract structure of the MAC or IC program, you may find that the single-contract structure in ACCESS and SWP provides a more cost-effective option or vice versa. In addition, based on the combination of our fees and your SMA Manager's fees, the overall fee for your SMA account in ACCESS, SWP, MAC or IC may exceed 3% of the account value. Please review your options and overall costs carefully with your Financial Advisor before investing.

#### **Calculation Definitions**

Alpha: Alpha measures the difference between an investment's actual performance, and its expected performance as indicated by the returns of a selected market index. A positive Alpha indicates the risk-adjusted performance is above that index. In calculating Alpha, Standard Deviation (total risk) is used as risk measure. Alpha is often used to judge the value added or subtracted by a manager.

Appreciation/Depreciation: Appreciation or Depreciation is the change in market value minus net cash flows. The value indicates by how much the portfolio value has changed due to changes in asset values. Appreciation would be an increase. Depreciation would be a decrease.

Average Exposure: Average Exposure is generally, the average allocation to a segment or an asset. Calculated as the beginning market value plus the weighted net cash flows as a percentage of the total portfolio market value

**Beta:** Beta is defined as a Manager's sensitivity to market movements and is used to evaluate market related, or systematic risk. Beta is a measure of the linear relationship, over time, of the Manager's returns and those of the Benchmark. Beta is computed by regressing the Manager's excess returns over the risk free rate (cash proxy) against the excess returns of the Benchmark over the risk free rate. An investment that is as equally volatile as the market will have a Beta of 1.0; an investment half as volatile as the market will have a Beta of 0.5; and so on. Thus, Betas higher than 1.0 indicate that the fund is more volatile than the market.

Composite Benchmark: The Composite Benchmark is a weighted average benchmark based on the allocation of funds within each of the portfolios in the composite and the risk index assigned to each portfolio.

Correlation (R): The Correlation represents the degree to which investments move in tandem with one another and is a critical component of diversified portfolio construction. The Correlation varies between a minimum of -1 (move in opposite direction) and a maximum of 1 (completely correlated). Lower Correlations enhance diversification and lead to better risk-adjusted returns within diversified portfolios. An R of less than 0.3 is often considered low Correlation

**Current Yield:** This measure looks at the current price of a bond instead of its face value and represents the return an investor would expect if he or she purchased the bond and held it for a year. This measure is not an accurate reflection of the actual return that an investor will receive in all cases because bond and stock prices are constantly changing due to market factors.

Distribution of Excess Returns: Distribution of Excess Returns displays an arrangement of statistical data that exhibits the frequency of occurrence of the investment's returns in excess of the selected Market Index.

Down Market (Mkt) Capture Ratio: Down Market Capture Ratio is a measure of an investment's performance in down markets relative to the market itself. A down market is one in which the market's return is less than zero. The lower the investment's Down Market Capture Ratio indicates that an investment's returns rose while the market declined.

A negative Down Market Capture Ratio indicates that an investment's returns rose while the market declined.

Downside Capture Return: The downside capture return is the cumulative performance of the portfolio in all periods during which the risk benchmark posted a negative return.

**Downside Probability:** The downside probability is the ratio of the number of periods during which the portfolio posted a negative return to the total number of periods under study. If, for example, during a 12 month span, the portfolio realized 5 months of negative returns, the downside probability would be equal to 5/12 or 42 percent. The sum of the downside probabilities must equal 1.0. The downside probability does not consider the extent to which the portfolio will fail to exceed the target index. It merely considers the likelihood that the target will not be exceeded. It is important to bear in mind this point when comparing the downside probabilities of more than one portfolio. It is not necessarily correct, for example, to deem portfolio B simply because A has a higher downside probability.

**Downside Risk (Semi Standard Deviation, Semi Std Dev, or Downside Deviation):** Downside Risk only identifies volatility on the down side. Downside Risk measures the variability of returns below zero, whereas Standard Deviation attributes volatility in either direction to risk. The Downside Risk method calculates the deviations below zero for each observed return. Each time a return falls below zero, the sum is divided by the number of observations and the square root is taken. This result is then shown on an annualized basis.

**Dynamic Index:** A weighted average blended benchmark of the risk indices assigned to each asset class, based on the asset allocation of the portfolio for a given period. The benchmark index weighting adjusts with changes to the asset allocation. A Dynamic Index should not be used when measuring against the client's *Investment Policy Statement*.

Effective Duration: A duration calculation for bonds with embedded options. Effective duration takes into account that expected cash flows will fluctuate as interest rates change.

Excess: Denotes that a statistic is being measured relative to the Market Index selected. The data set analyzed consists of the periodic differences between the investment's measure and the selected Market Index's definition. Expense Ratio: Often referred to as the Net Expense Ratio, Morningstar pulls the net annual expense ratio from the fund's audited annual report. Annual-report expense ratios reflect the actual fees charged during a particular fiscal year. The annual report expense ratio for a fund of funds is the wrap or sponsor fee only. The expense ratio expresses the percentage of assets deducted each fiscal year for fund expenses, including 12b-1 fees, management fees, administrative fees, operating costs, and all other asset-based costs incurred by the fund. Portfolio transaction fees, or brokerage costs, as well as initial or deferred sales charges are not included in the expense ratio. The expense ratio, which is deducted from the fund's average net assets, is accrued on a daily basis. If the fund's assets are small, its expense ratio can be quite high because the fund must meet its expenses from a restricted asset base. Conversely, as the net assets of the fund grow, the expense percentage should ideally diminish as expenses are spread across the wider base. Funds may also opt to waive all or a portion of the expenses that make up their overall expense ratio.

Gross Dollar Weighted Return: Gross Dollar Weighted Return is the internal rate of return, excluding money manager fees.

Gross Expense Ratio: Represents the total gross expenses (net expenses with waivers added back in) divided by the fund's average net assets. If it is not equal to the net expense ratio, the gross expense ratio portrays the fund's expenses had the fund not waived a portion, or all, of its fees. Thus, to some degree, it is an indication of fee contracts. Some fee waivers have an expiration date; other waivers are in place indefinitely.

Gross Time Weighted Return: Gross Time Weighted Return is the Modified Dietz return, excluding money manager fees.

Index Value: Index Value is the unit value series based on the return stream. It can be used to calculate rates of return between any two dates in the report.

Information Ratio: The Information Ratio is a measure of value added by an investment manager. It is the ratio of (annualized) excess return above the selected Market Index to (annualized) Tracking Error. Excess return is calculated by linking the difference of the manager's return for each period minus the selected Market Index return for each period, then annualizing the result.

Manager Capture Ratio: The Manager Capture Ratio is manager return divided by the selected Market Index return. It shows what portion of the market performance was captured by the manager under certain market conditions: up market, down market, or both.

Market Experience: Market Experience is the presumable market value of the portfolio if it and its cash flows had grown at the policy index rate of return. It lets the reader know if active management has aided or hurt the portfolio

Net Cash Flow: For the total portfolio, net cash flow is aggregate contributions minus aggregate withdrawals. At the asset class level, net cash flow is aggregate purchases minus aggregate sales minus aggregate income. It is used in the numerator of the Modified Dietz return calculation. It is the same as "New Money" and "Flow".

Net Dollar Weighted Return: Net Dollar Weighted Returns is the internal rate of return, including money manager fees.

Net Time Weighted Return: Net Time Weighted Return is the Modified Dietz return, including money manager fees.

New Money: For the total portfolio, New Money is aggregate contributions minus aggregate withdrawals. At the asset class level, New Money is aggregate purchases minus aggregate sales minus aggregate income. It is used in the numerator of the Modified Dietz return calculation. It is the same as "Net Cash Flow" and "Flow".

**Policy Index:** A point of reference for evaluating a portfolio's investment performance. A policy Index can be comprised of single or multiple benchmarks (weighted blend). Portfolios with multiple benchmarks will be depicted with a description of benchmarks and weights that comprise the policy.

Rate of Return, ROR, Return %, ROI: All Return terms refer to the Modified Dietz return.

Relative Risk: Relative risk is simply the ratio of the standard deviation of the portfolio to the standard deviation of the risk index. The statistic reveals how much of the variation of the risk index is "shared" by the portfolio. A relative risk of 1.0 indicates that the portfolio has the same level of return variability as the risk index. A relative risk of less than 1.0 indicates that the portfolio has shown a lower dispersion of returns than the index. A relative risk in excess of 1.0 indicates that the portfolio returns have been more dispersed than those of the index.

Riskless Index: The theoretical rate of return of an investment with zero risk. The risk-free rate represents the interest an investor would expect from an absolutely risk-free investment over a specified period of time. The 3 month T-Bill is the usual index used for riskless.

R-Squared (R2): The diversification measure R2 indicates the percentage of volatility in portfolio returns which can be "explained" by market volatility. This statistic indicates the degree to which the observed values of one variable, such as the returns of a managed portfolio, can be explained by, or are associated with the values of another variable, such as a Market Index. It is especially helpful in assessing how likely it is that Alpha and Beta are statistically significant. The R2 values generally range from 0.0 to 1.0. An investment with an R2 of 1.0 is perfectly correlated with the market whereas an investment with an R2 of 0.0 will behave independently of the market. An R2 of 0.95, for example, implies that 95% of the fluctuations in a portfolio are explained by fluctuations in the market.

Sector Allocations: The percentage a manager has allocated to specific economic sectors.

Sharpe Ratio: The Sharpe Ratio indicates the excess return per unit of total risk as measured by Standard Deviation. It is a ratio of the arithmetic average of excess returns over the risk free rate to the Standard Deviation. The Sharpe Ratio is a measure of the premium earned for the risk incurred by the portfolio.

**Sortino Ratio:** The Sortino Ratio is a measure of reward per unit of risk. With Sortino, the numerator (i.e., reward) is defined as the incremental compounded average return over the minimum acceptable return (MAR). The denominator (i.e., risk) is defined as the downside deviation of the returns below the MAR. Since the downside deviation is the standard deviation of those returns which fail to exceed the MAR, the result of the Sortino Ratio is a measure of the average reward per unit of loss. As with Sharpe and Treynor, the Sortino Ratio only has value when it is used as the basis of comparison between portfolios. The higher the Sortino Ratio, the better.

Standard Deviation: A measure of the extent to which observations in a series vary from the arithmetic mean of the series. The Standard Deviation of a series of asset returns is a measure of volatility or risk of the asset.

Target Allocation: The Target Allocation is the allocation goal of the portfolio approaches and long- and short-term holding periods.

HFRI Relative Value: Equally weighted index of investment managers who maintain positions in which the investment thesis is predicated on realization of a valuation discrepancy in the relationship between multiple securities. Managers employ a variety of fundamental and quantitative techniques to establish investment theses, and security types range broadly across equity, fixed income, derivative or other security types.

JP Morgan Global Ex-U.S. Bond Index: Consists of regularly traded, fixed-rate domestic government debt instruments from 12 international bond markets. Countries included are Austria, Belgium, Canada, Denmark, France, Germany, Italy, Japan, the Netherlands, Spain, Sweden and the United Kingdom.

MSCI AC World Index ex USA: Consists of approximately 2,000 securities across 47 markets, with emerging markets representing approximately 18%. MSCI attempts to capture approximately 85% of the market capitalization in each country.

MSCI EAFE Index (Europe, Australasia, Far East): A free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the U.S. and Canada. As of June 2007, the MSCI EAFE Index consisted of the following 21 developed market country indexes: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland and the United Kingdom.

MSCI Emerging Markets Index: A free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets. As of November 2008, the MSCI Emerging Markets Index consisted of the following 24 emerging market country indexes: Argentina, Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Morocco, Pakistan, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand and Turkey.

MSCI Europe Index: A free float-adjusted market capitalization-weighted index that is designed to measure the equity market performance of the developed markets in Europe. As of June 2007, the MSCI Europe Index consisted of the following 16 developed market country indexes: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom

MSCI Japan Index: A free float-adjusted market capitalization-weighted index that is designed to measure the equity market performance of Japan.

**NAREIT Index:** Benchmarks the performance of the REIT industry since its inception in 1972. It was designed to provide a comprehensive assessment of overall industry performance. Some REITs available from over-the-counter markets are not included due to the lack of real-time pricing.

NCREIF Property Index (NPI): A quarterly time series composite total rate of return measure of investment performance of a large pool of individual commercial real estate properties acquired in the private market for investment purposes only. All properties in the NPI have been acquired, at least in part, on behalf of tax-exempt institutional investors - the great majority being pension funds. As such, all properties are held in a fiduciary environment

Russell 1000® Index: Measures the performance of the large-cap segment of the U.S. equity universe. It is a subset of the Russell 3000® Index and includes approximately 1000 of the largest securities based on a combination of their market cap and current index membership. The Russell 1000 represents approximately 92% of the U.S. market.

Russell 1000® Growth Index: Measures the performance of the large-cap growth segment of the U.S. equity universe. It includes those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

Russell 1000® Value Index: Measures the performance of the large-cap value segment of the U.S. equity universe. It includes those Russell 1000 companies with lower price-to-book ratios and lower expected growth values.

Russell 2000® Growth Index: Measures the performance of the small-cap growth segment of the U.S. equity universe. It includes those Russell 2000 companies with higher price-to-book ratios and higher forecasted growth values.

Russell 2000® Value Index: Measures the performance of the small-cap value segment of the U.S. equity universe. It includes those Russell 2000 companies with lower price-to-book ratios and lower forecasted growth values

Russell Mid-Cap® Growth Index: Measures the performance of the mid-cap growth segment of the U.S. equity universe. It includes those Russell mid-cap companies with higher price-to-book ratios and higher forecasted growth values.

Russell Mid-Cap® Value Index: Measures the performance of the mid-cap value segment of the U.S. equity universe. It includes those Russell mid-cap companies with lower price-to-book ratios and lower forecasted growth values

**S&P 500 Index:** Covers 500 large cap industrial, utility, transportation, and financial companies of the US markets. The index represents about 75% of NYSE market capitalization and 30% of NYSE issues. It is a capitalization weighted index calculated on a total return basis with dividends reinvested.

TASS Index of CTAs: Is a dollar-weighted index based on historical managed futures performance of CTAs with established track records.

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### Performance Summary - Gross of Fees Cobb OPEB As of March 31, 2019

	Inception	03/31/2019	Latest	%tile		%tile	1	%tile	3	%tile	5	%tile	7	%tile	
Account	Date	Market Value	QTR	Ranking	YTD	Ranking	Year	Ranking	Year	Ranking	Year	Ranking	Year	Ranking	Inception
Composite	08/31/2008	\$125,127,969	10.58%	1	10.58%	1	3.83%	63	9.38%	8	6.53%	28	8.76%	5	7.27%
Policy Index			9.33%	25	9.33%	25	4.10%	56	8.54%	36	6.04%	47	7.52%	51	6.45%
Dynamic Index			9.26%	27	9.26%	27	3.97%	60							
Fixed Income															
Richmond Capital Management	09/30/2017	\$15,420,879	3.31%	43	3.31%	43	4.92%	2							2.69%
BB Gov/Cr Bond			3.26%	47	3.26%	47	4.48%	16							2.21%
Blackrock Strategic Income I	09/30/2017	\$8,420,747	2.35%	91	2.35%		1.35%	99							1.74%
BB Agg Bond			2.94%	69	2.94%	69	4.48%	16							2.22%
Delaware Diversified Income I	09/30/2017	\$9,533,668	4.30%	1	4.30%	1	3.11%	91							1.74%
BB Agg Bond			2.94%	69	2.94%	69	4.48%	16							2.22%
Large Cap Value															
Eagle Capital Large Value	09/30/2017	\$12,955,040	12.80%	22	12.80%	22	6.78%	20							9.18%
Russell 1000 Value			11.93%	41	11.93%	41	5.67%	28							5.36%
Large Cap Blend															
Vanguard 500 Index	09/30/2017	\$13,839,843	13.65%	23	13.65%	23	9.47%	12							10.29%
S&P 500 Index			13.65%	24	13.65%	24	9.50%	12							10.33%
Large Cap Growth															
TCW Large Cap Growth	09/30/2017	\$7,592,952	19.28%	4	19.28%	4	17.25%	5							18.54%
Russell 1000 Growth			16.10%	48	16.10%	48	12.75%	40							15.01%
Westfield Capital Large Growth	09/30/2017	\$8,333,202	16.73%	36	16.73%	36	11.51%	54							13.90%
Russell 1000 Growth			16.10%	48	16.10%	48	12.75%	40							15.01%
Mid Cap Blend															
Vanguard Mid-Cap Index Fund Admiral	09/30/2017	\$7,465,917	16.77%	5	16.77%	5	5.98%	13							7.83%
Russell Midcap			16.54%	8	16.54%	8	6.47%	9							8.11%
Small Cap Value															
Vaughan Nelson	09/30/2017	\$3,851,314	15.43%	9	15.43%	9	0.73%	34							1.80%
Russell 2000 Value			11.93%	73	11.93%	73	0.17%	40							-0.32%
Small Cap Growth															
Eagle Small Cap Growth Fund	09/30/2017	\$3,207,502	17.69%	44	17.69%	44	4.20%	80							8.06%
Russell 2000 Growth			17.14%	51	17.14%	51	3.85%	83							7.28%

### Performance Summary - Gross of Fees Cobb OPEB As of March 31, 2019

	Inception	03/31/2019	Latest	%tile		%tile	1	%tile	3	%tile	5	%tile	7	%tile
Account	Date	Market Value	QTR	Ranking	YTD	Ranking	Year	Ranking	Year	Ranking	Year	Ranking	Year	RankingInception
International Equity														
Vanguard Total International Stock Fund	09/30/2017	\$8,210,307	10.25%	48	10.25%	48	-5.15%	42						-0.65%
MSCI ACWI ex US Net			10.32%	44	10.32%	44	-4.15%	22						-0.36%
Dodge & Cox International Stock Fund	09/30/2017	\$6,548,615	9.78%	73	9.78%	73	-8.00%	80						-6.01%
MSCI ACWI ex US Net			10.32%	44	10.32%	44	-4.15%	22						-0.36%
Vanguard International Growth Fund	02/07/2019	\$7,529,207												1.63%
MSCI ACWI ex US Net														0.60%
Global Allocation														
Loomis Sayles Global Equity	09/30/2017	\$4,470,052	11.84%	1	11.84%	1	4.56%	5						7.25%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99						-1.92%
First Eagle Global Funds Class I	09/30/2017	\$4,181,827	9.94%	15	9.94%	15	1.96%	23						2.76%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99						-1.92%
Blackrock Global Allocation Fund	09/30/2017	\$3,566,895	7.47%	68	7.47%	68	-0.04%	53						1.34%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99						-1.92%
Composite Global Allocation	09/30/2017	\$12,218,774	9.89%	16	9.89%	16	2.29%	19						3.91%
HFRX Global Hedge			2.60%	99	2.60%	99	-3.32%	99						-1.92%

# UBS Financial Services Inc. Index Flash Report

March 31, 2019

Created on 04/02/2019	THRU	3/31/19	201	9 QUARTE	RLY RETUR	RNS		ANN	iualized i	RETURNS E	NDING 3/3	1/2019					CAL	ENDAR Y	EAR RETUR	INS			
INDEX	MONTH	YTD	Q1	Q2	Q3	Q4	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	15 Yrs	20 Yrs	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
S&P 500	1.94	13.65	13.65				9.50	13.51	10.91	12.85	15.92	8.57	6.04	(4.38)	21.83	11.96	1.38	13.69	32.39	16.00	2.11	15.06	26.46
S&P Mid Cap	(0.57)	14.49	14.49				2.59	11.24	8.29	11.39	16.28	9.52	10.08	(11.08)	16.24	20.74	(2.18)	9.77	33.50	17.88	(1.73)	26.64	37.38
S&P 500 Growth	2.73	14.95	14.95				12.77	15.91	13.36	14.45	17.17	9.44	5.71	(0.01)	27.44	6.89	5.52	14.89	32.75	14.61	4.65	15.05	31.57
S&P 500 Value	1.06	12.19	12.19				5.93	10.62	8.05	10.95	14.49	7.52	5.95	(8.95)	15.36	17.40	(3.13)	12.36	31.99	17.68	(0.48)	15.10	21.18
S&P 500 Equal Weighted	0.89	14.91	14.91				7.22	12.03	9.52	12.69	17.75	9.67	9.17	(7.64)	18.90	14.80	(2.20)	14.49	36.16	17.65	(0.11)	21.91	46.31
DJIA	0.17	11.81	11.81				10.09	16.37	12.21	12.86	15.97	9.02	7.50	(3.48)	28.11	16.50	0.21	10.04	29.65	10.24	8.38	14.06	22.68
NASDAQ Comp	2.70	16.81	16.81				10.63	17.97	14.29	15.36	18.93	10.57	6.79	(2.84)	29.64	8.87	6.96	14.75	40.12	17.45	(0.83)	18.02	45.36
Wilshire 5000	1.50	14.11	14.11				8.93	13.59	10.52	12.66	16.00	8.77	6.56	(5.27)	20.99	13.37	0.67	12.71	33.06	16.06	0.98	17.16	28.30
Russell 3000	1.46	14.04	14.04				8.77	13.48	10.36	12.63	16.00	8.68	6.48	(5.24)	21.13	12.74	0.48	12.56	33.55	16.42	1.03	16.93	28.34
Russell 3000G	2.53	16.18	16.18				12.06	16.40	13.10	14.14	17.44	9.64	5.63	(2.12)	29.59	7.39	5.09	12.44	34.23	15.21	2.18	17.64	37.01
Russell 3000V	0.39	11.93	11.93				5.30	10.50	7.56	11.02	14.50	7.60	6.87	(8.58)	13.19	18.40	(4.13)	12.70	32.69	17.55	(0.10)	16.23	19.76
Russell 1000	1.74	14.00	14.00				9.30	13.52	10.63	12.79	16.05	8.74	6.33	(4.78)	21.69	12.05	0.92	13.24	33.11	16.42	1.50	16.10	28.43
Russell 1000G	2.85	16.10	16.10				12.75	16.53	13.50	14.34	17.52	9.71	5.51	(1.51)	30.21	7.08	5.67	13.05	33.48	15.26	2.64	16.71	37.21
Russell 1000V	0.64	11.93	11.93				5.67	10.45	7.72	11.14	14.52	7.63	6.68	(8.27)	13.66	17.34	(3.83)	13.45	32.53	17.51	0.39	15.51	19.69
Russell 2000	(2.09)	14.58	14.58				2.05	12.92	7.05	10.74	15.36	8.04	8.44	(11.01)	14.65	21.31	(4.41)	4.89	38.82	16.35	(4.18)	26.85	27.16
Russell 2000G	(1.35)	17.14	17.14				3.85	14.87	8.41	11.79	16.52	8.71	7.08	(9.31)	22.17	11.32	(1.38)	5.60	43.30	14.59	(2.91)	29.09	34.47
Russell 2000V	(2.88)	11.93	11.93				0.17	10.86	5.59	9.61	14.12	7.24	9.40	(12.86)	7.84	31.74	(7.47)	4.22	34.52	18.05	(5.50)	24.50	20.55
Russell 2500	(0.82)	15.82	15.82				4.48	12.56	7.79	11.36	16.23	8.88	9.59	(10.00)	16.81	17.59	(2.90)	7.07	36.80	17.88	(2.51)	26.71	34.38
Russell 2500G	(0.25)	18.99	18.99				7.54	15.60	9.72	12.56	17.50	9.66	8.52	(7.47)	24.46	9.73	(0.19)	7.05	40.65	16.13	(1.57)	28.86	41.65
Russell 2500V	(1.33)	13.12	13.12				1.84	9.85	6.02	10.22	15.03	8.00	9.76	(12.36)	10.36	25.20	(5.49)	7.11	33.32	19.21	(3.36)	24.82	27.67
Russell Mid Cap	0.86	16.54	16.54				6.47	11.82	8.81	11.99	16.88	9.64	9.33	(9.06)	18.52	13.80	(2.44)	13.22	34.76	17.28	(1.55)	25.47	40.48
Russell Mid CapG	1.35	19.62	19.62				11.51	15.06	10.89	12.97	17.60	9.94	7.98	(4.75)	25.27	7.33	(0.20)	11.90	35.74	15.81	(1.65)	26.38	46.29
Russell Mid CapV	0.50	14.37	14.37				2.89	9.50	7.22	11.30	16.39	9.22	9.56	(12.29)	13.34	20.00	(4.78)	14.75	33.46	18.51	(1.38)	24.75	34.21
EAFE	0.74	10.13	10.13				(3.22)	7.80	2.81	6.13	9.47	5.59	4.38	(13.36)	25.62	1.51	(0.39)	(4.48)	23.29	17.90	(11.73)	8.21	32.46
EAFE Net	0.63	9.98	9.98				(3.71)	7.27	2.33	5.63	8.96	5.11	3.94	(13.79)	25.03	1.00	(0.81)	(4.90)	22.78	17.32	(12.14)	7.75	31.78
EAFE Ex-Japan	0.74	11.20	11.20				(1.80)	7.62	1.97	5.98	9.83	6.20	4.85	(13.61)	25.98	1.11	(3.18)	(4.71)	22.29	20.54	(11.04)	6.28	41.33
MSCI World	1.38	12.65	12.65				4.61	11.31	7.38	9.79	13.01	7.40	5.35	(8.20)	23.07	8.15	(0.32)	5.50	27.37	16.54	(5.02)	12.34	30.79
MSCI World Net	1.31	12.48	12.48				4.01	10.68	6.78	9.17	12.38	6.82	4.82	(8.71)	22.40	7.51	(0.87)	4.94	26.68	15.83	(5.54)	11.76	29.99
MSCI World xUS Net	0.51	10.45	10.45				(3.14)	7.29	2.20	5.28	8.82	5.18	4.11	(14.09)	24.21	2.75	(3.04)	(4.32)	21.02	16.41	(12.21)	8.95	33.67
MSCI Emerging Mkts	0.86	9.97	9.97				(7.06)	11.09	4.06	3.06	9.31	8.28	8.73	(14.25)	37.75	11.60	(14.60)	(1.82)	(2.27)	18.64	(18.17)	19.20	79.02
MSCI Emerging Mkts Net	0.84	9.91	9.91				(7.41)	10.68	3.68	2.69	8.95	7.92	8.39	(14.57)	37.28	11.19	(14.92)	(2.19)	(2.60)	18.23	(18.42)	18.88	78.51
MSCI ACWI	1.32	12.33	12.33				3.16	11.27	7.03	9.01	12.58	7.36	5.43	(8.93)	24.62	8.48	(1.84)	4.71	23.44	16.80	(6.86)	13.21	35.41
MSCI ACWI Net	1.26	12.18	12.18				2.60	10.67	6.45	8.42	11.98	6.80	#N/A	(9.41)	23.97	7.86	(2.36)	4.16	22.80	16.13	(7.35)	12.67	34.63
MSCI ACWI XUS	0.68	10.44	10.44				(3.74)	8.61	3.05	5.21	9.35	6.06	5.03	(13.78)	27.77	5.01	(5.25)	(3.44)	15.78	17.39	(13.33)	11.60	42.14
MSCI ACWI xUS Net	0.60	10.31	10.31				(4.22)	8.09	2.57	4.73	8.85	5.58	4.60	(14.20)	27.19	4.50	(5.66)	(3.87)	15.79	16.83	(13.71)	11.15	41.45
EURO STOXX 50	0.41	10.18	10.18				(6.34)	6.08	(0.25)	4.85	6.37	3.61	2.51	(16.25)	24.27	0.70	(4.47)	(8.66)	26.99	19.90	(16.88)	(9.13)	29.69
Barclay CTA Index	0.46	0.29	0.29				(1.10)	(1.43)	0.66	(0.02)	0.47	1.81	3.00	(3.15)	0.70	(1.23)	(1.50)	7.61	(1.42)	(1.70)	(3.09)	7.05	(0.10)
Alerian MLP	3.43	16.82	16.82				15.11	5.69	(4.73)	0.67	10.12	7.97	11.51	(12.42)	(6.52)	18.31	(32.59)	4.80	27.58	4.80	13.88	35.85	76.41
HFRI Equity Hedge (Total) Index	#N/A	#N/A	#N/A				#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	(7.12)	13.29	5.47	(0.97)	1.81	14.28	7.41	(8.38)	10.45	24.57
HFRI Fund of Funds Composite Index	#N/A	#N/A	#N/A				#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	(4.04)	7.77	0.51	(0.27)	3.37	8.96	4.79	(5.72)	5.70	11.47
HFRI Fund Weighted Composite Index	#N/A	#N/A	#N/A				#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	(4.75)	8.59	5.44	(1.12)	2.98	9.13	6.36	(5.25)	10.25	19.98
This rand weighted Composite Maex	#IWA	TIVA	#IVA				#IN/A	#IWA	#IV/A	#IVA	#IWA	πIVA	#IVA	(4.73)	0.39	5.44	(1.12)	2.30	9.13	0.30	(3.23)	10.23	13.30

# UBS Financial Services Inc. Index Flash Report

March 31, 2019	Marc	h	31	. 2	01	9
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Created on 04/02/2019	THRU	3/31/19	201	9 QUARTE	RLY RETUR	RNS		ANN	iualized i	RETURNS E	NDING 3/3	1/2019					CAL	LENDAR YE	AR RETUR	NS			
INDEX	MONTH	YTD	Q1	Q2	Q3	Q4	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	15 Yrs	20 Yrs	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
ML Preferred Stock Fixed Rate	1.12	8.70	8.70				5.03	5.01	6.29	5.94	11.46	3.53	4.60	(4.34)	10.58	2.32	7.58	15.44	(3.65)	13.60	4.11	13.66	20.07
BoA-ML All Convertible x-144a	(0.10)	9.40	9.40				5.47	11.19	6.76	9.41	12.55	6.86	#N/A	(1.41)	13.77	11.04	(3.37)	9.70	24.26	14.88	(5.53)	15.81	48.22
NAREIT (EQ)	4.45	17.17	17.17				20.46	7.84	10.00	9.99	18.80	8.84	11.09	(4.04)	8.67	8.63	2.83	28.03	2.86	19.70	8.28	27.95	27.99
DJ US Select REIT	2.88	15.72	15.72				19.73	5.29	8.93	8.86	18.50	8.34	10.86	(4.22)	3.76	6.68	4.48	32.00	1.22	17.12	9.37	28.07	28.46
BC Aggregate	1.92	2.94	2.94				4.48	2.03	2.74	2.48	3.77	3.89	4.73	0.01	3.54	2.65	0.55	5.97	(2.02)	4.21	7.84	6.54	5.93
BC Int Aggregate	1.39	2.28	2.28				4.33	1.71	2.31	2.08	3.27	3.56	4.43	0.92	2.27	1.97	1.21	4.12	(1.02)	3.56	5.97	6.15	6.46
CG Broad Inv Grd	1.95	2.95	2.95				4.48	2.04	2.74	2.48	3.64	3.96	4.78	(0.01)	3.60	2.66	0.53	5.91	(2.04)	4.23	7.85	6.30	5.06
BoA-ML C/G 1-3 yr	0.66	1.22	1.22				3.06	1.34	1.24	1.17	1.64	2.28	3.16	1.63	0.86	1.29	0.67	0.78	0.70	1.48	1.56	2.82	3.84
BC Int G/C	1.35	2.33	2.33				4.24	1.64	2.12	1.99	3.15	3.33	4.29	0.86	2.10	2.08	1.14	3.10	(0.84)	3.79	5.91	5.89	5.24
BC Gov Int	1.22	1.58	1.58				3.79	0.97	1.65	1.39	2.00	2.93	3.86	1.43	1.14	1.05	1.18	2.52	(1.25)	1.73	6.08	4.98	(0.32)
BC GC	2.12	3.26	3.26				4.48	2.12	2.78	2.60	3.92	3.86	4.78	(0.42)	4.00	3.05	0.15	6.01	(2.35)	4.82	8.74	6.59	4.52
BC US Tips	1.84	3.19	3.19				2.70	1.70	1.94	1.21	3.41	3.66	5.35	(1.26)	3.01	4.68	(1.44)	3.64	(8.61)	6.98	13.56	6.31	11.41
BC US Treasury	1.91	2.11	2.11				4.22	1.04	2.16	1.80	2.43	3.42	4.35	0.86	2.31	1.04	0.84	5.05	(2.75)	1.99	9.81	5.87	(3.57)
BC Gov	1.89	2.10	2.10				4.20	1.07	2.15	1.79	2.44	3.36	4.31	0.88	2.30	1.05	0.86	4.92	(2.60)	2.02	9.02	5.52	(2.20)
BC US Credit	2.44	4.87	4.87				4.89	3.48	3.61	3.71	6.22	4.66	5.48	(2.11)	6.18	5.63	(0.77)	7.53	(2.01)	9.37	8.35	8.47	16.04
BC Global Aggregate xUS	0.71	1.52	1.52				(4.13)	0.96	(0.26)	0.17	2.46	2.88	3.59	(2.15)	10.51	1.49	(6.02)	(3.08)	(3.08)	4.09	4.36	4.95	7.53
BC Global Aggregate	1.25	2.20	2.20				(0.38)	1.49	1.04	1.19	3.05	3.33	4.13	(1.20)	7.39	2.09	(3.15)	0.59	(2.60)	4.32	5.64	5.54	6.93
BC EM Sovereign	1.18	6.14	6.14				3.96	5.05	4.99	4.93	8.24	7.41	9.52	(3.86)	9.23	9.24	1.29	7.12	(6.34)	18.32	8.80	12.12	27.59
BC Muni	1.58	2.90	2.90				5.38	2.71	3.73	3.46	4.72	4.21	4.66	1.28	5.45	0.25	3.30	9.05	(2.55)	6.78	10.70	2.38	12.91
BC 3 yr Muni	0.44	1.33	1.33				3.00	1.32	1.36	1.36	1.89	2.43	3.01	1.76	1.56	0.08	1.18	1.22	1.33	1.86	3.46	1.81	5.78
BC 5 yr Muni	0.70	2.11	2.11				4.42	1.79	2.23	2.19	3.12	3.33	3.90	1.69	3.14	(0.39)	2.43	3.19	0.81	2.96	6.93	3.40	7.40
BC 7 yr Muni	0.97	2.69	2.69				5.66	2.26	3.11	2.93	4.05	4.00	4.50	1.66	4.49	(0.50)	3.26	6.09	(0.97)	4.20	10.14	4.63	7.61
BC 10 yr Muni	1.48	3.15	3.15				6.32	2.76	3.88	3.62	4.82	4.49	4.90	1.41	5.83	(0.12)	3.76	8.72	(2.17)	5.70	12.32	4.05	9.85
BC HY Muni	2.58	3.83	3.83				8.14	6.15	6.10	6.05	8.73	5.66	5.50	4.76	9.69	2.99	1.81	13.84	(5.51)	18.14	9.25	7.79	32.74
BC Agency	1.40	1.81	1.81				3.73	1.52	2.03	1.71	2.27	3.11	4.12	1.34	2.06	1.39	1.01	3.58	(1.38)	2.16	4.82	4.36	1.53
BC Mortgages	1.46	2.17	2.17				4.42	1.77	2.65	2.20	3.11	3.93	4.63	0.99	2.47	1.67	1.51	6.08	(1.41)	2.59	6.23	5.37	5.89
BC ABS	0.72	1.48	1.48				3.68	1.83	1.89	1.72	3.64	2.86	2.25	1.77	1.55	2.03	1.25	1.85	(0.51)	3.34	5.26	5.61	20.92
BC HY	0.94	7.26	7.26				5.93	8.56	4.68	6.25	11.26	7.33	6.83	(2.08)	7.50	17.13	(4.47)	2.45	7.44	15.81	4.98	15.12	58.21
BoA-ML High Yield	0.98	7.40	7.40				5.96	8.65	4.68	6.24	11.11	7.18	6.81	(2.26)	7.48	17.34	(4.55)	2.45	7.38	15.44	4.50	15.24	56.28
BoA-ML Treasury 1-5 yr	0.85	1.22	1.22				3.14	0.97	1.29	1.09	1.46	2.40	#N/A	1.52	0.65	1.09	0.98	1.24	(0.19)	0.91	3.36	3.61	0.23
CG T-Bill (90 Day)	0.21	0.60	0.60				2.11	1.17	0.72	0.53	0.41	1.28	1.79	1.86	0.84	0.27	0.03	0.03	0.05	0.07	0.08	0.13	0.16
IFC Invest Comp	0.99	9.53	9.53				(7.22)	11.12	4.59	3.63	9.89	8.86	9.58	(14.22)	37.89	10.78	(12.38)	(1.12)	(0.58)	18.89	(19.03)	20.64	81.03
CG Wld Gov Bond	1.27	1.74	1.74				(1.57)	0.95	0.59	0.52	2.20	3.00	3.98	(0.84)	7.49	1.60	(3.57)	(0.48)	(4.00)	1.65	6.35	5.17	2.55
CG Wld Gov Bond xUS	0.89	1.52	1.52				(4.55)	0.87	(0.06)	(0.01)	2.02	2.81	3.74	(1.82)	10.33	1.81	(5.54)	(2.68)	(4.56)	1.51	5.17	5.21	4.38
Bloomberg Commodity Total Return	(0.18)	6.32	6.32				(5.25)	2.22	(8.92)	(7.17)	(2.61)	(3.80)	0.20	(11.25)	1.70	11.77	(24.67)	(17.04)	(9.58)	(1.14)	(13.37)	16.67	18.72

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# UBS Financial Services Inc. Index Flash Report

March	31,	2019
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Created on 04/02/2019	THRU	3/31/19	201	9 QUARTI	RLY RETUR	RNS		ANN	ualized i	returns e	NDING 3/3	1/2019					CAL	ENDAR Y	ear retur	NS.			
INDEX	MONTH	YTD	Q1	Q2	Q3	Q4	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	15 Yrs	20 Yrs	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
70S&P/30BCAGG	1.94	10.39	10.39				8.25	10.09	8.55	9.79	12.35	7.37	5.90	(2.82)	16.08	9.23	1.34	11.39	21.12	12.49	4.08	12.92	20.44
70S&P/30BCIGC	1.77	10.19	10.19				8.18	9.97	8.35	9.63	12.14	7.19	5.77	(2.57)	15.61	9.04	1.49	10.49	21.54	12.37	3.46	12.70	20.22
60S&P/40BCIGC	1.71	9.05	9.05				7.69	8.78	7.49	8.55	10.87	6.70	5.63	(2.02)	13.58	8.06	1.52	9.41	18.11	11.12	3.91	11.84	18.11
50S&P/50BCIGC	1.65	7.91	7.91				7.17	7.59	6.61	7.46	9.59	6.18	5.47	(1.49)	11.59	7.08	1.51	8.35	14.75	9.89	4.30	10.93	15.98
40S&P/60BCIGC	1.59	6.79	6.79				6.63	6.40	5.73	6.37	8.31	5.64	5.28	(0.97)	9.64	6.08	1.47	7.30	11.48	8.67	4.67	9.99	13.85
60S&P/40 BCAGG	1.93	9.31	9.31				7.78	8.95	7.75	8.76	11.14	6.93	5.81	(2.35)	14.21	8.31	1.28	10.62	17.56	11.31	4.69	12.13	18.40
50S&P/20EAFE (net)/30BC AGG	1.67	9.66	9.66				5.52	8.88	6.85	8.39	11.02	6.73	5.54	(4.79)	16.70	7.06	0.92	7.52	19.36	12.84	1.08	11.54	21.53
70 MSCI ACWI(net) / 30 Citi WBIG	1.27	9.13	9.13				1.91	7.94	4.92	6.35	9.34	5.99	#N/A	(6.87)	18.79	6.20	(2.44)	3.21	14.87	12.56	(3.37)	10.47	25.74
60 MSCI ACWI(net) / 40 Citi WBIG	1.27	8.13	8.13				1.63	7.02	4.39	5.64	8.44	5.67	#N/A	(6.04)	17.11	5.63	(2.50)	2.88	12.32	11.36	(2.05)	9.68	22.81
50 MSCI ACWI(net) / 50 Citi WBIG	1.28	7.12	7.12				1.34	6.10	3.85	4.92	7.53	5.34	#N/A	(5.23)	15.45	5.04	(2.58)	2.55	9.82	10.16	(0.75)	8.86	19.91
70 MSCI ACWI(net) / 30 BC AGG	1.46	9.38	9.38				3.38	8.13	5.47	6.76	9.69	6.18	#N/A	(6.48)	17.50	6.42	(1.30)	4.77	14.87	12.66	(2.67)	11.31	25.93
60 MSCI ACWI(net) / 40 BC AGG	1.52	8.45	8.45				3.59	7.27	5.11	6.18	8.89	5.92	#N/A	(5.52)	15.41	5.92	(0.98)	4.96	12.32	11.48	(1.13)	10.77	23.03
S&P Target Risk Aggressive	1.41	10.30	10.30				2.39	9.27	6.39	8.49	12.23	#N/A	#N/A	(7.65)	20.06	7.66	(0.79)	6.11	22.52	15.19	(1.58)	17.08	26.48
S&P Target Risk Conservative	1.70	5.84	5.84				3.81	5.06	3.80	4.35	5.77	#N/A	#N/A	(2.73)	9.70	5.09	(1.06)	3.97	6.71	6.59	4.35	7.28	9.38
S&P Target Risk Growth	1.53	8.48	8.48				2.96	7.61	5.57	6.99	9.59	#N/A	#N/A	(5.69)	15.93	6.67	(0.94)	6.30	16.03	11.44	1.30	11.18	19.15
S&P Target Risk Moderate	1.64	6.71	6.71				3.53	5.92	4.34	5.30	7.20	#N/A	#N/A	(3.72)	11.78	5.63	(1.06)	4.49	10.47	8.59	2.26	8.22	13.81

	THRU	2/28/19	201	9 QUARTE	RLY RETUR	RNS		ANN	iualized i	returns e	NDING 2/2	8/2019					CAL	ENDAR YE	ar retur	NS			
	MONTH	YTD	Q1	Q2	Q3	Q4	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	15 Yrs	20 Yrs	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
CPI (1 month lag, Seasonally Adjusted)	0.17	0.15					1.40	2.12	1.48	1.44	1.75	2.05	2.17	2.03	2.18	0.67	1.49	1.76	3.02	1.43	2.82	(0.02)	4.11

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UBS DC Report

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March 31, 2019

### Prepared by:

UBS Institutional Consulting Group UBS Financial Services Inc.

# Alerts Summary

Recent Alerts 04-05-2019					
	Performance	Portfolio		Operations	
Name	5 Yr. Total Return (% Rank in Category)	Equity Style Box Change	Morningstar Category Change	Manager Change	Prospectus Net Expense Ratio (% Rank in Cat.)
American Funds 2010 Trgt Date Retire R6	•	•	•	•	•
American Funds 2015 Trgt Date Retire R6	<b>©</b>	•	•	•	©
American Funds 2020 Trgt Date Retire R6	<b>©</b>	•	<b>©</b>	•	C
American Funds 2025 Trgt Date Retire R6	<b>©</b>	•	<b>©</b>	•	C
American Funds 2030 Trgt Date Retire R6	<b>Ø</b>	_	<b>©</b>	<b>©</b>	•
American Funds 2035 Trgt Date Retire R6	<b>Ø</b>	<b>Ø</b>	<b>Ø</b>	<b>⊘</b>	<b>⊙</b>
American Funds 2040 Trgt Date Retire R6	<b>Ø</b>	•	<b>©</b>	•	•
American Funds 2045 Trgt Date Retire R6	<b>©</b>	•	•	•	©
American Funds 2050 Trgt Date Retire R6	<b>©</b>	•	•	•	©
American Funds 2055 Trgt Date Retire R6	<b>©</b>	•	<b>©</b>	•	•
American Funds 2060 Trgt Date Retire R6	_	<b>Ø</b>	<b>Ø</b>	<b>⊘</b>	<b>⊙</b>
American Funds Europacific Growth R6	•	<b>©</b>	<b>Ø</b>	•	•
American Funds New Perspective R6	<b>Ø</b>	<b>©</b>	<b>©</b>	•	•
American Funds Washington Mutual R6	•	•	•	•	•
ClearBridge Small Cap I	<b>©</b>	•	<b>©</b>	•	C
Harbor Mid Cap Growth Retirement	<b>Ø</b>	<b>Ø</b>	<b>Ø</b>	<b>©</b>	<b>⊙</b>
JHancock Fundamental Large Cap Core R6	8	8	<b>©</b>	<b>©</b>	•
Nuveen Real Estate Securities R6	<b>Ø</b>	•	<b>©</b>	•	•
Oakmark International Institutional	8	•	<b>©</b>	•	•
PGIM High Yield R6	<b>©</b>	_	•	•	©
T. Rowe Price Growth Stock I	<b>Ø</b>	<b>©</b>	<b>©</b>	<b>©</b>	<b>⊘</b>
Vanguard 500 Index Admiral	•	•	<b>Ø</b>	•	•
Vanguard Treasury Money Market Investor	_	_	<b>Ø</b>	•	•
Victory Sycamore Established Value R6	•	•	<b>Ø</b>	•	•

Alerts Triggered

Alerts Not Triggered

Note: funds that display a dash for any data column above are due to lack of data. The Alerts displayed in this report are being provided to assist retirement plan fiduciaries in evaluating the investment options offered under a defined contribution retirement plan. A number of different factors should be considered when choosing to add, remove or maintain retirement plan investment options. Please refer to Important Information on Alerts in back of this report.

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# Alerts Summary

Recent Alerts 04-05-2019					
	Performance	Portfolio		Operations	
Name	5 Yr. Total Return (% Rank in Category)	Equity Style Box Change	Morningstar Category Change	Manager Change	Prospectus Net Expense Ratio (% Rank in Cat.)
Western Asset Core Plus Bond IS	•	•	•	•	<b>⋄</b>



Alerts Not Triggered

Note: funds that display a dash for any data column above are due to lack of data. The Alerts displayed in this report are being provided to assist retirement plan fiduciaries in evaluating the investment options offered under a defined contribution retirement plan. A number of different factors should be considered when choosing to add, remove or maintain retirement plan investment options. Please refer to Important Information on Alerts in back of this report.

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# **Alerts**

5 Yr. Total Return (% Rank in Category) greater tha	an 50			
Security Name	Initial Trigger Value	Current Trigger Value	Current Comparison Value	Current Comparison Subject
JHancock Fundamental Large Cap Core R6	61.00 (as of 11-08-2018)	57.00	50.00	_
Oakmark International Institutional	62.00 (as of 11-08-2018)	67.00	50.00	_
Portfolio Statistics 04-05-2019				
Equity Style Box Change				
Security Name	Initial Trigger Value	Current Trigger Value	Current Comparison Value	Current Comparison Subject
JHancock Fundamental Large Cap Core R6	(as of 02-08-2019)	Ħ	<b>#</b>	_

All performance rankings are based on each fund's total returns relative to other funds in it's Morningstar Category for each period shown. All other percentage rankings displayed are measured on an absolute basis and compared to its Morningstar Category for the each period shown.

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The Alerts displayed in this report are being provided to assist retirement plan fiduciaries in evaluating the investment options offered under a defined contribution retirement plan. A number of different factors should be considered when choosing to add, remove or maintain retirement plan investment options. Please refer to Important Information on Alerts in back of this report.

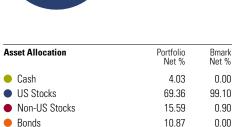
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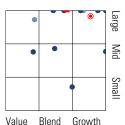
# Plan Summary

**Composition** 03-31-2019



0.15

0.00



#### Equity Ownership Zone<sup>TM</sup>

- Plan
- Domestic Equity
- International Equity
- ▲ Benchmark

#### **Benchmark** S&P 500 TR USD

# Plan Value

#### **Total Number of Options**

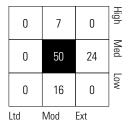
117,332,430.65

25

#### Style Analysis 03-31-2019

15	18	47	Large
2	5	8	Mid
1	2	2	Small
\/_I	DI	C4l-	•

Value	Blend	Growth



**Equity Investment Style Actual %** Geo Avg Cap Plan (\$Mil)

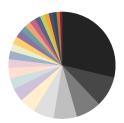
Geo Avg Cap Bmark (\$Mil)

53,864.55 105,009.97 Fixed-Income Investment Style Actual %

Avg Effective Duration (Yrs) Avg Effective Maturity (Yrs) Avg Credit Quality

5.59 10.28

#### Composition By Fund 03-31-2019



Other/Not Clsfd

Fur	d Name	Ticker	Plan %	Amount \$
lacksquare	T. Rowe Price Growth Stock I	PRUFX	28.75	33,737,497.51
	American Funds Washington Mutual R6	RWMGX	7.59	8,905,264.80
	Harbor Mid Cap Growth Retirement	HNMGX	6.30	7,394,527.08
	American Funds 2030 Trgt Date Retire R6	RFETX	3.99	4,682,455.93
	Western Asset Core Plus Bond IS	WAPSX	3.22	3,777,141.46
	American Funds 2035 Trgt Date Retire R6	RFFTX	2.51	2,941,854.61
•	Oakmark International Institutional	OANIX	2.27	2,667,955.17
	Victory Sycamore Established Value R6	VEVRX	1.89	2,221,690.09
	American Funds 2040 Trgt Date Retire R6	RFGTX	1.77	2,073,963.48
	American Funds 2045 Trgt Date Retire R6	RFHTX	1.42	1,671,514.34
lacksquare	American Funds 2010 Trgt Date Retire R6	RFTTX	1.22	1,431,143.67
•	Vanguard 500 Index Admiral	VFIAX	1.05	1,236,282.70
•	American Funds 2060 Trgt Date Retire R6	RFUTX	0.04	48,076.72

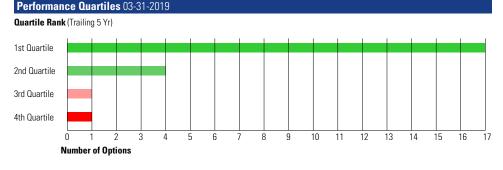
8	Fun	nd Name	Ticker	Plan %	Amount \$
		JHancock Fundamental Large Cap Core R6	JLCWX	9.20	10,790,344.74
)		American Funds New Perspective R6	RNPGX	7.03	8,252,339.69
3		ClearBridge Small Cap I	LMNSX	4.87	5,709,857.28
}		American Funds Europacific Growth R6	RERGX	3.39	3,977,281.48
6		American Funds 2025 Trgt Date Retire R6	RFDTX	2.57	3,017,288.78
		American Funds 2020 Trgt Date Retire R6	RRCTX	2.31	2,707,739.88
7		Nuveen Real Estate Securities R6	FREGX	2.13	2,494,297.90
)		American Funds 2015 Trgt Date Retire R6	RFJTX	1.86	2,186,727.68
3		PGIM High Yield R6	PHYQX	1.66	1,948,305.30
ļ		Vanguard Treasury Money Market Investor	VUSXX	1.31	1,539,540.96
7	•	American Funds 2050 Trgt Date Retire R6	RFITX	1.09	1,279,465.76
)		American Funds 2055 Trgt Date Retire R6	RFKTX	0.55	639,873.64

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## Performance

#### **Style Count** 03-31-2019 **Equity Investment Style Fixed-Income Investment Style** Large High 0 0 0 Small 0 0 Value Blend Growth Mod Ext Ltd **Equity Style Options: 11** Fixed-Income Options: 2



Fund Performance 03-31-2019														
	Туре	Inception Date	Ret % YTD	Ret % 3 Mo	Ret % 1 Yr	Ret % 3 Yr	Ret % 5 Yr	Ret % 10 Yr	Ret % Since Incep	Gross Fund Exp Ratio	1 Yr % Rank	3 Yr % Rank	5 Yr % Rank	10 Yr % Rank
Large Blend(Fds)	Avg	_	12.94	12.94	6.90	11.84	8.91	14.54	_	2.71	_	_	_	
American Funds Washington Mutual R6	MF	05-01-2009	10.43	10.43	8.93	13.09	10.05	15.21	14.42	0.29	34(1412)	32(1218)	35(1081)	39(810)
JHancock Fundamental Large Cap Core R6	MF	09-01-2011	17.09	17.09	2.78	12.18	9.17	13.76	12.86	0.68	88(1412)	53(1218)	52(1081)	75(810)
Vanguard 500 Index Admiral	MF	11-13-2000	13.65	13.65	9.46	13.47	10.87	15.90	6.17	0.04	22(1412)	17(1218)	10(1081)	15(810)
Russell 1000 TR USD	ldx	12-31-1978	14.00	14.00	9.30	13.52	10.63	16.05	_	_	_	_	_	_
Large Growth(Fds)	Avg	_	15.67	15.67	10.71	15.35	11.26	15.94	_	1.76	_	_	_	_
T. Rowe Price Growth Stock I	MF	08-28-2015	15.92	15.92	10.62	18.16	13.81	17.85	14.26	0.52	53(1397)	19(1256)	16(1114)	14(805)
Russell 1000 Growth TR USD	ldx	12-31-1978	16.10	16.10	12.75	16.53	13.50	17.52	_	_	_	_	_	_

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<sup>\*</sup> Does not include 11 hybrid funds.

<sup>\*</sup> Style Count data is not available for 1 holdings.

<sup>\*</sup> Category % Rank is not available for 2 holdings.

# Performance

Fund Performance 03-31-2019														
	Туре	Inception Date	Ret % YTD	Ret % 3 Mo	Ret % 1 Yr	Ret % 3 Yr	Ret % 5 Yr	Ret % 10 Yr	Ret % Since Incep	Gross Fund Exp Ratio	1 Yr % Rank	3 Yr % Rank	5 Yr % Rank	10 Yr % Rank
Mid-Cap Value(Fds)	Avg	_	12.94	12.94	0.66	8.55	5.87	14.46	_	2.42	_	_	_	_
Victory Sycamore Established Value R6	MF	03-04-2014	13.75	13.75	3.57	11.34	9.66	15.91	9.65	0.57	21(417)	9(368)	3(318)	21(225)
Russell Mid Cap Value TR USD	ldx	12-31-1985	14.37	14.37	2.89	9.50	7.22	16.39	_	_	_	_	_	_
Mid-Cap Growth(Fds)	Avg	_	18.19	18.19	8.04	14.18	8.99	15.70	_	2.48	_	_	_	_
Harbor Mid Cap Growth Retirement	MF	03-01-2016	24.40	24.40	15.94	20.23	11.49	16.78	21.48	0.81	7(615)	7(555)	17(495)	25(352)
Russell Mid Cap Growth TR USD	ldx	12-31-1985	19.62	19.62	11.51	15.06	10.89	17.60	_	_	_	_	_	_
Small Growth(Fds)	Avg	_	17.01	17.01	7.70	15.88	8.45	16.24	_	1.88	_	_	_	_
ClearBridge Small Cap I	MF	12-01-1994	16.96	16.96	7.53	14.76	9.33	16.94	11.09	0.98	49(679)	59(588)	34(522)	37(392)
Russell 2000 Growth TR USD	ldx	12-31-1978	17.14	17.14	3.85	14.87	8.41	16.52	_	_	_	_	_	_
Real Estate(Fds)	Avg	_	16.14	16.14	17.08	6.00	8.29	17.24	_	2.31	_	_	_	_
Nuveen Real Estate Securities R6	MF	04-30-2013	16.57	16.57	18.58	6.01	9.02	18.17	7.29	0.87	41(251)	44(225)	33(198)	31(139)
S&P United States REIT TR USD	ldx	12-31-1992	15.77	15.77	21.27	5.85	8.90	18.40	_	_	_	_	_	_
Foreign Large Blend(Fds)	Avg	_	10.24	10.24	-5.01	6.62	2.10	8.43	_	2.38	_	_	_	_
Oakmark International Institutional	MF	11-30-2016	9.10	9.10	-13.97	6.55	1.16	11.88	5.17	0.84	99(753)	59(644)	80(514)	4(384)
MSCI ACWI Ex USA NR USD	ldx	01-01-2001	10.31	10.31	-4.22	8.09	2.57	8.85	_	_	_	_	_	_
Foreign Large Growth(Fds)	Avg	_	13.00	13.00	-3.20	8.05	3.86	9.97	_	1.50	_	_	_	_
American Funds Europacific Growth R6	MF	05-01-2009	13.20	13.20	-4.66	9.33	4.27	9.94	8.87	0.49	64(442)	31(373)	39(314)	48(228)
MSCI ACWI Ex USA Growth NR USD	ldx	01-01-2001	12.31	12.31	-3.05	8.42	4.01	9.47	_	_	_	_	_	_
World Large Stock(Fds)	Avg	_	12.27	12.27	1.85	9.96	5.89	11.79	_	2.17	_	_	_	_
American Funds New Perspective R6	MF	05-01-2009	13.99	13.99	5.34	13.37	9.18	14.07	13.12	0.45	22(900)	14(732)	11(617)	13(370)
MSCI ACWI NR USD	ldx	01-01-2001	12.18	12.18	2.60	10.67	6.45	11.98	_	_	_	_	_	_

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# Performance

Fund Performance 03-31-2019														
	Type	Inception Date	Ret % YTD	Ret % 3 Mo	Ret % 1 Yr	Ret % 3 Yr	Ret % 5 Yr	Ret % 10 Yr	Ret % Since Incep	Gross Fund Exp Ratio	1 Yr % Rank	3 Yr % Rank	5 Yr % Rank	10 Yr % Rank
Intermediate-Term Bond(Fds)	Avg	_	3.13	3.13	3.98	2.37	2.51	4.56	_	1.84	_	_	_	_
Western Asset Core Plus Bond IS	MF	08-04-2008	4.25	4.25	3.83	3.93	4.09	7.46	6.44	0.43	62(1024)	5(901)	3(769)	2(564)
BBgBarc US Agg Bond TR USD	ldx	01-01-1976	2.94	2.94	4.48	2.03	2.74	3.77	_	_	_	_	_	_
High Yield Bond(Fds)	Avg	_	6.35	6.35	4.33	6.97	3.45	9.49	_	2.42	_	_	_	_
PGIM High Yield R6	MF	10-31-2011	7.21	7.21	6.43	8.47	5.14	10.33	6.84	0.42	6(700)	14(610)	5(519)	24(332)
ICE BofAML US High Yield TR USD	ldx	08-29-1986	7.40	7.40	5.94	8.69	4.70	11.24	_	_	_	_	_	_
Target-Date 2000-2010(Fds)	Avg	_	6.08	6.08	3.36	5.56	4.16	8.16	_	2.86	_	_	_	_
American Funds 2010 Trgt Date Retire R6	MF	07-13-2009	5.96	5.96	4.37	6.02	4.94	9.24	8.28	0.33	12(138)	34(113)	1(92)	9(72)
Morningstar Lifetime Mod 2010 TR USD	ldx	02-18-2009	6.81	6.81	4.28	5.88	4.28	8.26	_	_	_	_	_	_
Target-Date 2015(Fds)	Avg	_	6.90	6.90	3.48	6.16	4.42	8.81	_	4.75	_	_	_	_
American Funds 2015 Trgt Date Retire R6	MF	07-13-2009	6.49	6.49	4.58	6.45	5.23	9.80	8.81	0.33	10(139)	36(112)	8(83)	12(50)
Morningstar Lifetime Mod 2015 TR USD	ldx	02-18-2009	7.44	7.44	4.41	6.42	4.62	9.05	_	_	_	_	_	_
Target-Date 2020(Fds)	Avg	_	7.44	7.44	3.38	6.57	4.58	9.23	_	1.60	_	_	_	_
American Funds 2020 Trgt Date Retire R6	MF	07-13-2009	6.82	6.82	4.61	7.12	5.70	10.67	9.59	0.34	12(251)	34(204)	1(166)	6(106)
Morningstar Lifetime Mod 2020 TR USD	ldx	02-18-2009	8.13	8.13	4.50	7.08	5.00	9.99	_	_	_	_	_	_
Target-Date 2025(Fds)	Avg	_	8.44	8.44	3.38	7.51	5.09	10.25	_	1.68	_	_	_	_
American Funds 2025 Trgt Date Retire R6	MF	07-13-2009	7.86	7.86	4.42	8.18	6.27	11.82	10.67	0.36	13(227)	30(187)	1(147)	3(74)
Morningstar Lifetime Mod 2025 TR USD	ldx	02-18-2009	8.96	8.96	4.52	7.94	5.47	11.00	_	_	_	_	_	_
Target-Date 2030(Fds)	Avg	_	9.43	9.43	3.31	8.34	5.56	10.79	_	1.50	_	_	_	_
American Funds 2030 Trgt Date Retire R6	MF	07-13-2009	9.01	9.01	4.48	9.65	7.12	12.63	11.46	0.38	14(240)	10(194)	1(156)	3(96)
Morningstar Lifetime Mod 2030 TR USD	ldx	02-18-2009	9.93	9.93	4.42	8.96	5.95	11.88	_	_	_	_	_	_

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# Performance

Fund Performance 03-31-2019														
	Туре	Inception Date	Ret % YTD	Ret % 3 Mo	Ret % 1 Yr	Ret % 3 Yr	Ret % 5 Yr	Ret % 10 Yr	Ret % Since Incep	Gross Fund Exp Ratio	1 Yr % Rank	3 Yr % Rank	5 Yr % Rank	10 Yr % Rank
Target-Date 2035(Fds)	Avg	_	10.36	10.36	3.17	9.13	5.95	11.53	_	2.26	_	_	_	_
American Funds 2035 Trgt Date Retire R6	MF	07-13-2009	10.66	10.66	4.61	10.88	7.77	13.03	11.84	0.39	12(222)	1(182)	1(142)	3(69)
Morningstar Lifetime Mod 2035 TR USD	ldx	02-18-2009	10.88	10.88	4.18	9.87	6.33	12.46	_	_	_	_	_	_
Target-Date 2040(Fds)	Avg	_	11.00	11.00	3.04	9.54	6.18	11.71	_	1.79	_	_	_	_
American Funds 2040 Trgt Date Retire R6	MF	07-27-2009	11.18	11.18	4.63	11.28	7.98	13.20	11.16	0.40	9(240)	1(194)	1(156)	4(96)
Morningstar Lifetime Mod 2040 TR USD	ldx	02-18-2009	11.58	11.58	3.87	10.44	6.51	12.70	_	_	_	_	_	_
Target-Date 2045(Fds)	Avg	_	11.52	11.52	2.94	9.92	6.35	12.09	_	2.42	_	_	_	_
American Funds 2045 Trgt Date Retire R6	MF	07-13-2009	11.29	11.29	4.61	11.50	8.12	13.26	12.09	0.40	6(222)	1(182)	1(142)	3(68)
Morningstar Lifetime Mod 2045 TR USD	ldx	02-18-2009	11.92	11.92	3.59	10.65	6.53	12.74	_	_	_	_	_	_
Target-Date 2050(Fds)	Avg	_	11.66	11.66	2.87	9.94	6.41	12.02	_	1.73	_	_	_	_
American Funds 2050 Trgt Date Retire R6	MF	07-13-2009	11.46	11.46	4.66	11.62	8.19	13.30	12.13	0.41	7(240)	1(194)	1(156)	3(78)
Morningstar Lifetime Mod 2050 TR USD	ldx	02-18-2009	12.00	12.00	3.39	10.66	6.46	12.69	_	_	_	_	_	_
Target-Date 2055(Fds)	Avg	_	11.80	11.80	2.84	10.10	6.49	12.71	_	3.04	_	_	_	_
American Funds 2055 Trgt Date Retire R6	MF	02-01-2010	11.50	11.50	4.64	11.62	8.18	_	10.61	0.42	5(222)	1(180)	1(134)	_
Morningstar Lifetime Mod 2055 TR USD	ldx	02-18-2009	12.01	12.01	3.22	10.65	6.38	12.61	_	_	_	_	_	_
Target-Date 2060+(Fds)	Avg	_	11.92	11.92	2.99	10.21	6.30	_	_	6.60	_	_	_	_
American Funds 2060 Trgt Date Retire R6	MF	03-27-2015	11.43	11.43	4.55	11.58	_	_	8.24	0.44	10(206)	1(125)	_	_
Morningstar Lifetime Mod 2060 TR USD	ldx	06-23-2014	11.99	11.99	3.06	10.61	<i>6.29</i>	12.58	_	_	_	_	_	_
Money Market-Taxable(FM)	Avg	_	0.49	0.49	1.66	0.81	0.50	0.26	_	0.56	_	_	_	_
Vanguard Treasury Money Market Investor	FM	12-14-1992	0.58	0.58	2.04	1.12	0.69	0.36	2.47	0.09	_	_	_	_
ICE BofAML USD 3M Dep OR CM TR USD	ldx	12-30-1994	0.72	0.72	2.48	1.47	0.99	0.70	_	_	_	_	_	_

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## Performance

Standard Benchmark Returns 03-31-2019														
	Туре	Inception Date	Ret % YTD	Ret % 3 Mo	Ret % 1 Yr	Ret % 3 Yr	Ret % 5 Yr	Ret % 10 Yr	Ret % Since Incep	Gross Fund Exp Ratio	1 Yr % Rank	3 Yr % Rank	5 Yr % Rank	10 Yr % Rank
S&P 500 TR USD	ldx	_	13.65	13.65	9.50	13.51	10.91	15.92	_	_	_	_		
BBgBarc US Agg Bond TR USD	ldx	_	2.94	2.94	4.48	2.03	2.74	3.77	_	_	_	_	_	_
MSCI EAFE NR USD	ldx	_	9.98	9.98	-3.71	7.27	2.33	8.96	_	_	_	_	_	_
USTREAS T-Bill Auction Ave 3 Mon	ldx		0.62	0.62	2.24	1.29	0.80	0.45	_	_	_	_	_	_

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# **UBS Fund Scoring**

UBS Fund Scoring 12-31-2018												
	Modified Info Ratio vs. Category Bmark	Modified Info Ratio vs. Cat Average		Batting Avg vs. Category Bmark	Batting Avg vs. Cat Average	Performance vs. Peers	Capture Ratios vs. Category Benchmark	Capture Ratios vs. Cat Average	Manager Tenure	Expense Ratio	Overall Score	Notes
Large Blend(Fds)	_	_	_	_	_	_	_	_	_	_	_	
American Funds Washington Mutual R6	3	3	5	3	3	3	3	3	3	5	4	_
JHancock Fundamental Large Cap Core R6	3	3	2	3	2	3	3	3	3	3	3	_
Vanguard 500 Index Admiral	5	5	5	4	5	4	5	5	2	5	5	_
Large Growth(Fds)	_	_	_	_	_	_	_	_	_	_	_	_
T. Rowe Price Growth Stock I	4	5	4	5	5	5	5	4	3	5	5	_
Mid-Cap Value(Fds)	_	_	_	_	_	_	_	_	_	_	_	
Victory Sycamore Established Value R6	4	4	5	4	5	5	5	5	5	5	5	_
Mid-Cap Growth(Fds)	_	_	_	_	_	_	_	_	_	_	_	
Harbor Mid Cap Growth Retirement	3	3	3	5	4	3	3	3	4	4	4	_
Small Growth(Fds)	_	_	_	_	_	_	_	_	_	_	_	
ClearBridge Small Cap I	3	4	4	2	2	4	4	4	3	3	4	_
Real Estate(Fds)	_	_	_	_	_	_	_	_	_	_	_	
Nuveen Real Estate Securities R6	4	5	4	3	5	4	4	4	3	4	4	_

#### **Notes Legend**

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# **UBS Fund Scoring**

UBS Fund Scoring 12-31-2018												
	Modified Info Ratio vs. Category Bmark	Modified Info Ratio vs. Cat Average		Batting Avg vs. Category Bmark	Batting Avg vs. Cat Average	Performance vs. Peers	Capture Ratios vs. Category Benchmark	Capture Ratios vs. Cat Average	Manager Tenure	Expense Ratio	Overall Score	Notes
Foreign Large Blend(Fds)	_	_	_	_	_	_	_	_	_	_	_	
Oakmark International Institutional	3	3	4	4	3	5	3	3	5	3	4	_
Foreign Large Growth(Fds)	_	_	_	_	_	_	_	_	_	_	_	_
American Funds Europacific Growth R6	4	4	4	4	3	3	4	4	5	5	5	_
World Large Stock(Fds)	_	_	_	_	_	_	_	_		_		_
American Funds New Perspective R6	5	5	5	4	5	5	5	5	5	5	5	_
Intermediate-Term Bond(Fds)	_	_	_	_	_	_	_	_	_	_	_	
Western Asset Core Plus Bond IS	5	5	5	5	4	5	5	5	3	4	5	_
High Yield Bond(Fds)	_	_	_	_	_	_	_	_	_	_	_	_
PGIM High Yield R6	5	5	4	4	5	4	5	5	3	5	5	_
Target-Date 2000-2010(Fds)	_	_	_	_	_	_	_	_	_	_	_	_
American Funds 2010 Trgt Date Retire R6	5	5	5	4	4	5	5	5	4	4	5	_
Target-Date 2015(Fds)	_	_	_	_	_	_	_	_	_	_	_	
American Funds 2015 Trgt Date Retire R6	5	5	5	4	5	5	5	5	4	4	5	_

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# **UBS Fund Scoring**

UBS Fund Scoring 12-31-2018												
	Modified Info Ratio vs. Category Bmark	Modified Info Ratio vs. Cat Average		Batting Avg vs. Category Bmark	Batting Avg vs. Cat Average	Performance vs. Peers	Capture Ratios vs. Category Benchmark		Manager Tenure	Expense Ratio	Overall Score	Notes
Target-Date 2020(Fds)	_	_	_	_	_	_	_	_	_	_	_	
American Funds 2020 Trgt Date Retire R6	5	5	5	4	5	5	5	5	4	5	5	_
Target-Date 2025(Fds)	_	_	_	_	_	_	_	_	_	_	_	_
American Funds 2025 Trgt Date Retire R6	5	5	5	5	5	5	5	5	4	4	5	_
Target-Date 2030(Fds)	_	_	_	_	_	_	_	_	_	_	_	_
American Funds 2030 Trgt Date Retire R6	5	5	5	5	5	5	5	5	4	4	5	
Target-Date 2035(Fds)	_	_	_	_	_	_	_	_	_	_	_	_
American Funds 2035 Trgt Date Retire R6	5	5	5	5	5	5	5	5	4	4	5	_
Target-Date 2040(Fds)	_	_	_	_	_	_	_	_	_	_	_	_
American Funds 2040 Trgt Date Retire R6	5	5	5	5	5	5	5	5	4	4	5	_
Target-Date 2045(Fds)	_	_	_	_	_	_	_	_	_	_	_	_
American Funds 2045 Trgt Date Retire R6	5	5	5	5	5	5	5	5	4	4	5	
Target-Date 2050(Fds)	_	_	_	_	_	_	_	_	_	_	_	_
American Funds 2050 Trgt Date Retire R6	5	5	5	4	5	5	5	5	4	4	5	_

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# **UBS Fund Scoring**

UBS Fund Scoring 12-31-2018												
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Target-Date 2055(Fds)	_	_		_	_	_	_	_		_	_	
American Funds 2055 Trgt Date Retire R6	5	5	5	4	5	5	5	5	4	4	5	_
Target-Date 2060+(Fds)	_	_	_	_	_	_	_	_	_	_	_	
American Funds 2060 Trgt Date Retire R6	5	5	5	3	5	5	5	5	3	4	5	B,C
Money Market-Taxable(FM)	_	_	_	_	_	_	_	_	_	_	_	
Vanguard Treasury Money Market Investor	_	_	_	_	_	_	_	_		_	_	_

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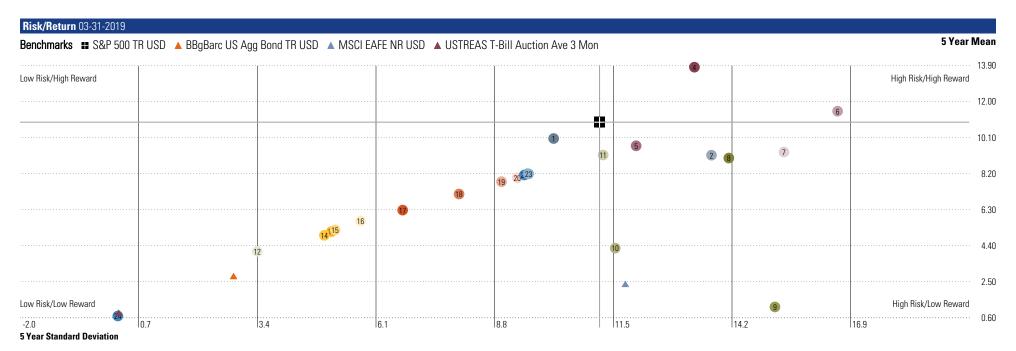
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# Risk and Return



<sup>\*</sup> Data not available for 1 options/funds.

Risk/Return Detail 03-31-2019											
	Туре	Std Dev 5 Yr	Mean 5 Yr	Alpha 5 Yr	Beta 5 Yr	R2 5 Yr	Information Ratio 5Yr	Treynor 5 Yr	Sharpe Ratio 5 Yr	Upside Capture 5 Yr	Downside Capture 5 Yr
Large Blend(Fds)	Avg	11.52	8.91	-1.38	0.98	93.04	-0.60	8.34	0.74	93.17	102.07
<ul> <li>American Funds Washington Mutual R6</li> </ul>	MF	10.14	10.05	0.61	0.87	94.74	-0.22	10.59	0.92	91.24	88.11
2 JHancock Fundamental Large Cap Core R6	MF	13.73	9.17	-2.59	1.15	90.18	-0.32	7.25	0.65	103.86	120.33
3 Vanguard 500 Index Admiral	MF	11.19	10.87	0.33	0.99	99.73	0.40	10.20	0.91	100.20	98.31
Russell 1000 TR USD	ldx	11.31	10.63	_	_	_	_	_	0.88	_	_
Large Growth(Fds)	Avg	12.90	11.26	-1.86	0.99	90.09	-0.65	10.51	0.84	93.53	105.00
T. Rowe Price Growth Stock I	MF	13.35	13.81	-0.04	1.04	90.69	0.08	12.56	0.98	101.20	100.01
Russell 1000 Growth TR USD	ldx	12.28	13.50	_	_	_	_	_	1.03	_	_

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# Risk and Return

Risk/Return Detail 03-31-2019											
	Туре	Std Dev 5 Yr	Mean 5 Yr	Alpha 5 Yr	Beta 5 Yr	R2 5 Yr	Information Ratio 5Yr	Treynor 5 Yr	Sharpe Ratio 5 Yr	Upside Capture 5 Yr	Downside Capture 5 Yr
Mid-Cap Value(Fds)	Avg	13.06	5.87	-1.34	1.03	89.72	-0.32	5.05	0.45	95.74	104.04
5 Victory Sycamore Established Value R6	MF	12.02	9.66	2.51	0.97	93.52	0.79	9.18	0.76	102.79	85.57
Russell Mid Cap Value TR USD	ldx	12.05	7.22	_	_	_	_	_	0.57	_	_
Mid-Cap Growth(Fds)	Avg	14.15	8.99	-1.64	1.00	88.64	-0.51	8.31	0.63	95.67	106.34
6 Harbor Mid Cap Growth Retirement	MF	16.60	11.49	-1.00	1.20	91.40	0.11	8.93	0.69	113.85	120.38
Russell Mid Cap Growth TR USD	ldx	13.26	10.89	_	_	_	_	_	0.79	_	_
Small Growth(Fds)	Avg	16.61	8.45	0.59	0.93	90.67	0.02	8.34	0.53	92.64	89.84
7 ClearBridge Small Cap I	MF	15.38	9.33	1.84	0.86	89.85	0.17	9.97	0.61	90.11	81.94
Russell 2000 Growth TR USD	ldx	17.05	8.41	_	_	_	_	_	0.51	_	_
Real Estate(Fds)	Avg	13.84	8.29	0.13	0.91	93.21	-0.27	8.58	0.60	89.92	88.42
Nuveen Real Estate Securities R6	MF	14.13	9.02	0.42	0.96	99.10	0.08	8.60	0.63	96.24	93.74
S&P United States REIT TR USD	ldx	14.73	8.90	_	_	_	_	_	0.60	_	_
Foreign Large Blend(Fds)	Avg	11.64	2.10	-0.32	0.92	90.45	-0.13	1.50	0.17	90.28	91.98
Oakmark International Institutional	MF	15.18	1.16	-1.36	1.17	84.92	-0.23	0.31	0.10	109.39	119.65
MSCI ACWI Ex USA NR USD	ldx	12.01	2.57	_	_	_	_	_	0.20	_	_
Foreign Large Growth(Fds)	Avg	12.04	3.86	0.04	0.96	89.12	-0.06	3.20	0.31	93.17	92.60
n American Funds Europacific Growth R6	MF	11.54	4.27	0.43	0.94	93.78	0.09	3.68	0.35	94.40	91.28
MSCI ACWI Ex USA Growth NR USD	ldx	11.89	4.01	_	_	_	_	_	0.32	_	_
World Large Stock(Fds)	Avg	11.46	5.89	-0.48	0.97	87.11	-0.22	5.30	0.49	95.11	98.79
11 American Funds New Perspective R6	MF	11.27	9.18	2.51	0.98	91.96	0.80	8.52	0.77	106.23	88.92
MSCI ACWI NR USD	ldx	11.06	6.45	_	_	_	_	_	0.55	_	_
Intermediate-Term Bond(Fds)	Avg	2.72	2.51	0.04	0.86	84.33	-0.35	2.03	0.64	89.17	86.80
12 Western Asset Core Plus Bond IS	MF	3.40	4.09	1.22	1.06	78.42	0.85	3.12	0.96	121.04	92.15
BBgBarc US Agg Bond TR USD	ldx	2.86	2.74	_	_	_	_	_	0.68	_	_

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# Risk and Return

Risk/Return Detail 03-31-2019	<b>-</b>	0.15		A	В.	DO.	1.6	<u> </u>	01		Б :1
	Туре	Std Dev 5 Yr	Mean 5 Yr	Alpha 5 Yr	Beta 5 Yr	R2 5 Yr	Information Ratio 5Yr	Treynor 5 Yr	Sharpe Ratio 5 Yr	Upside Capture 5 Yr	Downside Capture 5 Yr
High Yield Bond(Fds)	Avg	5.06	3.45	-0.64	0.85	87.46	-0.73	4.27	0.60	81.95	89.24
13 PGIM High Yield R6	MF	5.09	5.14	0.72	0.92	97.65	0.50	4.72	0.86	96.11	84.86
ICE BofAML US High Yield TR USD	ldx	5.47	4.70	_	_	_	_	_	0.72	_	_
Target-Date 2000-2010(Fds)	Avg	4.84	4.16	-0.01	0.97	93.37	-0.08	3.45	0.70	94.71	92.63
14 American Funds 2010 Trgt Date Retire R6	MF	4.93	4.94	0.68	0.99	93.76	0.54	4.19	0.84	103.99	94.02
Morningstar Lifetime Mod 2010 TR USD	ldx	4.84	4.28	_	_	_	_	_	0.73	_	_
Target-Date 2015(Fds)	Avg	5.47	4.42	-0.17	1.00	94.45	-0.11	3.64	0.67	96.08	96.41
15 American Funds 2015 Trgt Date Retire R6	MF	5.17	5.23	0.80	0.94	94.82	0.50	4.70	0.86	99.86	88.64
Morningstar Lifetime Mod 2015 TR USD	ldx	5.35	4.62	_	_	_	_	_	0.72	_	_
Target-Date 2020(Fds)	Avg	5.93	4.58	-0.24	0.96	93.68	-0.21	3.95	0.65	93.07	94.41
16 American Funds 2020 Trgt Date Retire R6	MF	5.75	5.70	0.93	0.94	95.06	0.52	5.24	0.86	99.94	88.54
Morningstar Lifetime Mod 2020 TR USD	ldx	6.00	5.00	_	_	_	_	_	0.71	_	_
Target-Date 2025(Fds)	Avg	6.97	5.09	-0.31	0.99	96.15	-0.21	4.33	0.63	96.15	98.43
10 American Funds 2025 Trgt Date Retire R6	MF	6.71	6.27	0.97	0.95	95.83	0.57	5.73	0.82	101.83	92.01
Morningstar Lifetime Mod 2025 TR USD	ldx	6.89	5.47	_	_	_	_	_	0.69	_	_
Target-Date 2030(Fds)	Avg	7.95	5.56	-0.25	0.98	95.80	-0.20	4.88	0.62	96.03	97.92
18 American Funds 2030 Trgt Date Retire R6	MF	7.99	7.12	1.19	0.98	96.38	0.77	6.42	0.80	105.07	94.78
Morningstar Lifetime Mod 2030 TR USD	ldx	7.98	5.95	_	_	_	_	_	0.67	_	_
Target-Date 2035(Fds)	Avg	8.90	5.95	-0.22	0.97	97.45	-0.22	5.28	0.61	95.85	97.10
19 American Funds 2035 Trgt Date Retire R6	MF	8.96	7.77	1.48	0.98	96.79	0.89	7.13	0.79	104.93	93.24
Morningstar Lifetime Mod 2035 TR USD	ldx	9.02	6.33	_	_	_	_	_	0.64	_	_
Target-Date 2040(Fds)	Avg	9.44	6.18	-0.06	0.95	96.27	-0.16	5.68	0.60	94.71	94.68
20 American Funds 2040 Trgt Date Retire R6	MF	9.31	7.98	1.68	0.94	97.02	0.86	7.62	0.79	102.22	89.68
Morningstar Lifetime Mod 2040 TR USD	ldx	9.75	6.51	_	_	_	_	_	0.62	_	_

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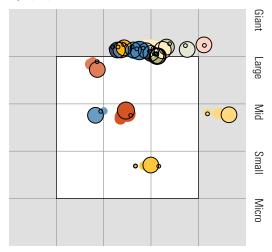
# Risk and Return

Risk/Return Detail 03-31-2019											
	Туре	Std Dev 5 Yr	Mean 5 Yr	Alpha 5 Yr	Beta 5 Yr	R2 5 Yr	Information Ratio 5Yr	Treynor 5 Yr	Sharpe Ratio 5 Yr	Upside Capture 5 Yr	Downside Capture 5 Yr
Target-Date 2045(Fds)	Avg	9.91	6.35	-0.02	0.97	97.64	-0.09	5.72	0.59	95.73	94.85
21 American Funds 2045 Trgt Date Retire R6	MF	9.48	8.12	1.89	0.93	96.79	0.86	7.91	0.79	99.86	85.17
Morningstar Lifetime Mod 2045 TR USD	ldx	10.08	6.53	_	_	_	_	_	0.60	_	_
Target-Date 2050(Fds)	Avg	9.98	6.41	0.16	0.96	96.19	0.01	5.86	0.59	95.62	93.57
22 American Funds 2050 Trgt Date Retire R6	MF	9.55	8.19	2.02	0.92	96.72	0.91	8.01	0.79	100.16	84.60
Morningstar Lifetime Mod 2050 TR USD	ldx	10.18	6.46	_	_	_	_	_	0.59	_	_
Target-Date 2055(Fds)	Avg	10.12	6.49	0.23	0.98	97.50	0.08	5.83	0.60	97.20	94.60
23 American Funds 2055 Trgt Date Retire R6	MF	9.57	8.18	2.10	0.92	96.59	0.93	8.02	0.79	100.25	84.19
Morningstar Lifetime Mod 2055 TR USD	ldx	10.23	6.38	_	_	_	_	_	0.58	_	_
Target-Date 2060+(Fds)	Avg	9.87	6.30	0.24	0.95	98.05	0.06	5.75	0.59	94.93	92.04
American Funds 2060 Trgt Date Retire R6	MF	_	_	_	_	_	_	_	_	_	_
Morningstar Lifetime Mod 2060 TR USD	ldx	10.25	6.29	_	_	_	_	_	0.57	_	_
Money Market-Taxable(FM)	Avg	0.19	0.50	-0.37	0.33	10.59	-5.63	-0.92	-4.05	50.09	-184.66
Vanguard Treasury Money Market Investor	FM	0.23	0.69	-0.15	0.20	23.01	-5.11	-0.56	-3.96	69.14	-466.67
ICE BofAML USD 3M Dep OR CM TR USD	ldx	0.24	0.99	_	_	_	_	_	2.78	_	_

# Style Drift

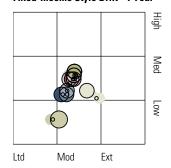
# Style Orientation 03-31-2019

# **Equity Style Drift - 1 Year**



Core Grth High Grth

# Fixed-Income Style Drift - 1 Year



- Earliest Portfolios 03-31-2018
- O Latest Portfolios 02-28-2019

# **Equity Options**

- American Funds 2010 Trgt Date Retire R6
- American Funds 2020 Trgt Date Retire R6
- American Funds 2030 Trgt Date Retire R6
- American Funds 2040 Trgt Date Retire R6
- American Funds 2050 Trgt Date Retire R6
- American Funds 2060 Trgt Date Retire R6
- American Funds New Perspective R6
- ClearBridge Small Cap I

Deep Val Core Val Blend

- JHancock Fundamental Large Cap Core R6
- Oakmark International Institutional
- T. Rowe Price Growth Stock I
- Victory Sycamore Established Value R6

- American Funds 2015 Trgt Date Retire R6
- American Funds 2025 Trgt Date Retire R6
- American Funds 2035 Trgt Date Retire R6
- American Funds 2045 Trgt Date Retire R6
- American Funds 2055 Trot Date Retire R6
- American Funds Europacific Growth R6
- American Funds Washington Mutual R6
- American runus washington wutuar
- Harbor Mid Cap Growth Retirement
- Nuveen Real Estate Securities R6
- PGIM High Yield R6
- Vanguard 500 Index Admiral

### **Fixed-Income Options**

- American Funds 2010 Trgt Date Retire R6
- American Funds 2020 Trgt Date Retire R6
- American Funds 2030 Trgt Date Retire R6
- American Funds 2040 Trgt Date Retire R6
- American Funds 2050 Trot Date Retire R6
- American Funds 2060 Trgt Date Retire R6
- American Funds 2000 Trgt Date hetire
- Western Asset Core Plus Bond IS

- American Funds 2015 Trgt Date Retire R6
- American Funds 2025 Trgt Date Retire R6
- American Funds 2035 Trgt Date Retire R6
- American Funds 2045 Trgt Date Retire R6
- American Funds 2055 Trot Date Retire R6
- PGIM High Yield R6

Please refer to "Style Drift" in the back of this report for more complete information on the graphical illustrations above.

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Style Drift

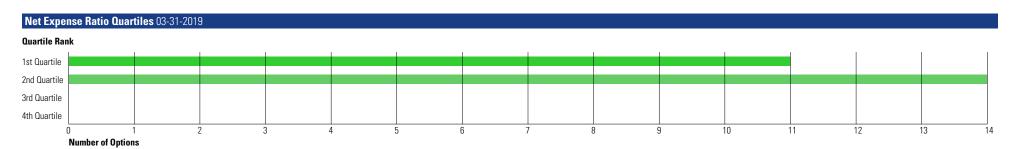
Style Orientation 03-31-2019

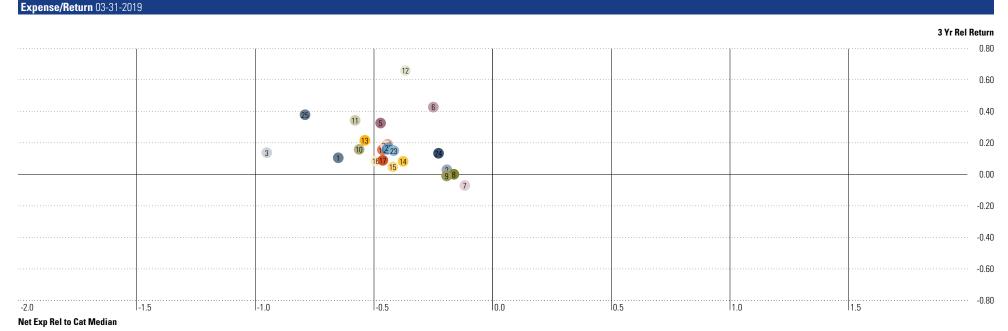
\*Data not available for 1 options/funds

Please refer to "Style Drift" in the back of this report for more complete information on the graphical illustrations above.

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# **Investment Costs**





Cost measures for mutual funds use Prospectus Net Expense Ratio. For VAs, total insurance expense is included in the Prospectus ratio. For CITs, CEs, and ETFs, Net Operating Expense Ratio is used. The Weighted Average Cost is the total of each security's Expense Ratio, multiplied by the weight of each security's assets in the plan, multiplied by 100.

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# **Investment Costs**

Investment Costs 03-31-2019										
	Туре	Market Value \$	% of Portfolio	Gross Exp Ratio %	Net Exp Ratio %	Net Fund Exp \$ Rel t	Net Exp o Cat Median	Current 12b-1	Weighted Avg Cost	Net Exp % Rank in Cat
Large Blend(Fds)	Med	_		0.88	0.83	_	_	0.25		
American Funds Washington Mutual R6	MF	8,905,264.80	7.59	0.29	0.29	25,825.27	-0.65	_	0.0220	20
2 JHancock Fundamental Large Cap Core R6	MF	10,790,344.74	9.20	0.68	0.671	72,295.31	-0.19	0.00	0.0616	38
3 Vanguard 500 Index Admiral	MF	1,236,282.70	1.05	0.04	0.04	494.51	-0.95	_	0.0004	7
Russell 1000 TR USD	ldx	_	_	_	_	_	_	_	_	_
Large Growth(Fds)	Med	_	_	0.97	0.94	_	_	0.25	_	_
T. Rowe Price Growth Stock I	MF	33,737,497.51	28.75	0.52	0.52	175,434.99	-0.45	_	0.1495	24
Russell 1000 Growth TR USD	ldx	_	_	_	_	_	_	_	_	_
Mid-Cap Value(Fds)	Med	_	_	1.08	1.08	_	_	0.25	_	_
5 Victory Sycamore Established Value R6	MF	2,221,690.09	1.89	0.57	0.57	12,663.63	-0.47	0.00	0.0108	17
Russell Mid Cap Value TR USD	ldx	_	_	_	_	_	_	_	_	_
Mid-Cap Growth(Fds)	Med	_	_	1.09	1.08	_	_	0.25	_	_
6 Harbor Mid Cap Growth Retirement	MF	7,394,527.08	6.30	0.81	0.81	59,895.67	-0.25	_	0.0510	30
Russell Mid Cap Growth TR USD	ldx	_	_	_	_	_	_	_	_	_
Small Growth(Fds)	Med	_	_	1.17	1.11	_	_	0.25	_	_
7 ClearBridge Small Cap I	MF	5,709,857.28	4.87	0.98	0.98	55,956.60	-0.12	_	0.0477	39
Russell 2000 Growth TR USD	ldx	_	_	_	_	_	_	_	_	_
Real Estate(Fds)	Med	_	_	1.10	1.04	_	_	0.25	_	_
Nuveen Real Estate Securities R6	MF	2,494,297.90	2.13	0.87	0.87	21,700.39	-0.16	0.00	0.0185	36
S&P United States REIT TR USD	ldx	_	_	_	_	_		_	_	_
Foreign Large Blend(Fds)	Med	_	_	1.02	0.98	_	_	0.25	_	_
Oakmark International Institutional	MF	2,667,955.17	2.27	0.84	0.792	21,076.85	-0.19	_	0.0180	42
MSCI ACWI Ex USA NR USD	ldx	_	_	_	_	_	_	_	_	_

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# **Investment Costs**

Investment Costs 03-31-2019										
	Туре	Market Value \$	% of Portfolio	Gross Exp Ratio %	Net Exp Ratio %	Net Fund Exp \$ Rel t	Net Exp o Cat Median	Current 12b-1	Weighted Avg Cost	Net Exp % Rank in Cat
Foreign Large Growth(Fds)	Med		_	1.13	1.12			0.25		_
10 American Funds Europacific Growth R6	MF	3,977,281.48	3.39	0.49	0.49	19,488.68	-0.56	_	0.0166	13
MSCI ACWI Ex USA Growth NR USD	ldx	_	_	_	_	_	_	_	_	_
World Large Stock(Fds)	Med	_	_	1.10	1.07	_	_	0.25	_	_
11 American Funds New Perspective R6	MF	8,252,339.69	7.03	0.45	0.45	37,135.53	-0.58	_	0.0316	17
MSCI ACWI NR USD	ldx	_	_	_	_	_	_	_	_	_
Intermediate-Term Bond(Fds)	Med	_	_	0.73	0.68	_	_	0.25	_	_
12 Western Asset Core Plus Bond IS	MF	3,777,141.46	3.22	0.43	0.43	16,241.71	-0.37	_	0.0138	33
BBgBarc US Agg Bond TR USD	ldx	_	_	_	_	_	_	_	_	_
High Yield Bond(Fds)	Med		_	0.95	0.91	_	_	0.25	_	_
13 PGIM High Yield R6	MF	1,948,305.30	1.66	0.42	0.42	8,182.88	-0.54	_	0.0070	13
ICE BofAML US High Yield TR USD	ldx	_	_	_	_	_	_	_	_	_
Target-Date 2000-2010(Fds)	Med	_		0.64	0.53	_	_	0.50	_	_
14 American Funds 2010 Trgt Date Retire R6	MF	1,431,143.67	1.22	0.33	0.33	4,722.77	-0.38	_	0.0040	23
Morningstar Lifetime Mod 2010 TR USD	ldx	_	_	_	_	_	_	_	_	_
Target-Date 2015(Fds)	Med	_	_	0.74	0.57	_	_	0.10	_	_
15 American Funds 2015 Trgt Date Retire R6	MF	2,186,727.68	1.86	0.33	0.33	7,216.20	-0.42	_	0.0062	25
Morningstar Lifetime Mod 2015 TR USD	ldx	_	_	_	_	_	_	_	_	_
Target-Date 2020(Fds)	Med	_	_	0.80	0.67	_	_	0.25	_	_
16 American Funds 2020 Trgt Date Retire R6	MF	2,707,739.88	2.31	0.34	0.34	9,206.32	-0.49	_	0.0078	24
Morningstar Lifetime Mod 2020 TR USD	ldx	_		_	_	_	_	_	_	_
Target-Date 2025(Fds)	Med	_	_	0.76	0.67	_	_	0.25	_	_
American Funds 2025 Trgt Date Retire R6	MF	3,017,288.78	2.57	0.36	0.36	10,862.24	-0.46	_	0.0093	31
Morningstar Lifetime Mod 2025 TR USD	ldx	_	_	_	_	_	_	_	_	_

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# **Investment Costs**

Investment Costs 03-31-2019										
	Туре	Market Value \$	% of Portfolio	Gross Exp Ratio %	Net Exp Ratio %	Net Fund Exp \$ Rel t	Net Exp to Cat Median	Current 12b-1	Weighted Avg Cost	Net Exp % Rank in Cat
Target-Date 2030(Fds)	Med	_		0.81	0.71	_		0.25	_	_
18 American Funds 2030 Trgt Date Retire R6	MF	4,682,455.93	3.99	0.38	0.38	17,793.33	-0.46	_	0.0152	27
Morningstar Lifetime Mod 2030 TR USD	ldx	_	_	_	_	_	_	_	_	_
Target-Date 2035(Fds)	Med	_	_	0.78	0.70	_	_	0.25	_	_
19 American Funds 2035 Trgt Date Retire R6	MF	2,941,854.61	2.51	0.39	0.39	11,473.23	-0.44	_	0.0098	33
Morningstar Lifetime Mod 2035 TR USD	ldx	_	_	_	_	_	_	_	_	_
Target-Date 2040(Fds)	Med	_	_	0.84	0.73	_	_	0.25	_	_
20 American Funds 2040 Trgt Date Retire R6	MF	2,073,963.48	1.77	0.40	0.40	8,295.85	-0.45	_	0.0071	28
Morningstar Lifetime Mod 2040 TR USD	ldx	_		_	_	_	_	_	_	_
Target-Date 2045(Fds)	Med	_	_	0.84	0.72	_	_	0.25	_	_
21 American Funds 2045 Trgt Date Retire R6	MF	1,671,514.34	1.42	0.40	0.40	6,686.06	-0.44	_	0.0057	35
Morningstar Lifetime Mod 2045 TR USD	ldx	_	_	_	_	_	_	_	_	_
Target-Date 2050(Fds)	Med	_	_	0.89	0.73	_	_	0.25	_	_
22 American Funds 2050 Trgt Date Retire R6	MF	1,279,465.76	1.09	0.41	0.41	5,245.81	-0.44	_	0.0045	30
Morningstar Lifetime Mod 2050 TR USD	ldx	_	_	_	_	_	_	_	_	_
Target-Date 2055(Fds)	Med	_	_	0.93	0.72	_	_	0.25	_	_
23 American Funds 2055 Trgt Date Retire R6	MF	639,873.64	0.55	0.42	0.42	2,687.47	-0.42	_	0.0023	33
Morningstar Lifetime Mod 2055 TR USD	ldx	_	_	_	_	_	_	_	_	_
Target-Date 2060+(Fds)	Med	_	_	0.97	0.57	_	_	0.25	_	_
American Funds 2060 Trgt Date Retire R6	MF	48,076.72	0.04	0.44	0.44	211.54	-0.23	_	0.0002	34
Morningstar Lifetime Mod 2060 TR USD	ldx	_		_	_	_	_	_	_	_
Money Market-Taxable(FM)	Med	_	_	0.47	0.43	_	_	0.25	_	_
Vanguard Treasury Money Market Investor	FM	1,539,540.96	1.31	0.09	0.09	1,385.59	-0.79	_	0.0012	6
ICE BofAML USD 3M Dep OR CM TR USD	ldx	_	_	_	_	_	_	_	_	_

Cost measures for mutual funds use Prospectus Net Expense Ratio. For VAs, total insurance expense is included in the Prospectus ratio. For CITs, CEs, and ETFs, Net Operating Expense Ratio is used. The Weighted Average Cost is the total of each security's Expense Ratio, multiplied by the weight of each security's assets in the plan, multiplied by 100.

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# **Investment Costs**

Investment Costs 03-31-2019										
	Туре	Market Value \$	% of Portfolio	Gross Exp Ratio %	Net Exp Ratio %	Net Fund Exp \$ Rel to	Net Exp o Cat Median	Current 12b-1	Weighted Avg Cost	Net Exp % Rank in Cat
Total	— 11	7,332,430.65	100.00	_	_	612,178.43	_	_	0.5200	_

Contractual waiver; 06-30-2020.
 Contractual waiver; 01-27-2020.

Cost measures for mutual funds use Prospectus Net Expense Ratio. For VAs, total insurance expense is included in the Prospectus ratio. For CITs, CEs, and ETFs, Net Operating Expense Ratio is used. The Weighted Average Cost is the total of each security's Expense Ratio, multiplied by the weight of each security's assets in the plan, multiplied by 100.

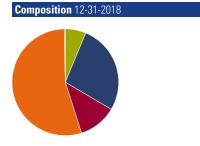
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# American Funds 2010 Trgt Date Retire R6 (USD)

<b>Details</b> 03-31-2019	
Ticker	RFTTX
Gross Expense Ratio %	0.33
Total Assets	\$3,225.60 mil
Family	American Funds
Manager	James Lovelace, John
	Smet, Alan Berro,
Tenure	12.2 Years
Objective	Asset Allocation

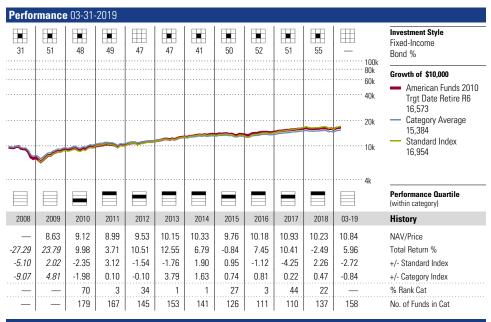
Risk and Return 03-31-2019	
Overall Morningstar Rating	***
	113 TA
Standard Deviation 3 Yr	4.10
Mean 3 Yr	6.02
Alpha 3 Yr	0.57
Beta 3 Yr	0.90
R-Squared 3 Yr	93.75
Upside Capture Ratio 3 Yr	95.74
Downside Capture Ratio 3 Yr	84.86
Standard Index	Morningstar Mod Tgt Risk TR USD
Category Index	Morningstar Lifetime Mod 2010 TR USD



Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	6.25	0.95
<ul><li>US Stocks</li></ul>	27.24	37.65
<ul><li>Non-US Stocks</li></ul>	11.59	23.73
Bonds	54.58	37.58
Other/Not Clsfd	0.33	0.09

		Stocks %	Rel Std Index
Դ	Cyclical	31.3	0.76
Æ	Basic Materials	4.6	0.91
<b>4</b>	Consumer Cyclical	8.8	0.78
•	Financial Services	14.3	0.85
<b>fi</b>	Real Estate	3.6	0.46
W	Sensitive	39.9	1.10
	Communication Services	4.8	1.41
	Energy	10.7	1.90
<b>O</b>	Industrials	8.6	0.78
	Technology	15.7	0.97
<b>→</b>	Defensive	28.8	1.27
$\equiv$	Consumer Defensive	10.3	1.29
	Healthcare	14.7	1.35
	Utilities	3.9	1.03

Sector Weightings 12-31-2018



### Style Analysis 12-31-2018

### **Equity Investment Style Actual %**

38	32	24	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
50	JZ	24		P/E Ratio TTM	13.6	0.83	0.81
3	2	1	Mid				
0	0	0	Small	Geo Avg Cap Pla Geo Avg Cap Bm			80,732 32,990
Value	Blend	Growth					

## Fixed-Income Investment Style Actual %

				A 500 11 D 11 D( )	
0	0	0	High	Avg Effective Duration (Yrs) Avg Effective Maturity (Yrs)	4.62
0	100	0	Med	Avg Credit Quality	
U	100	U	_		Bond %
_	_	_	Low	AAA	68.90
0	0	0	>	AA	4.30
			l	A	9.57
td	Mod	Ext		BBB	7.34
				BB	4.09
				В	4.35
				Below B	1.10
				NR	0.35

Performance rankings are based on each fund's total returns relative to other funds in its Morningstar Category for each period. The performance data represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate, thus an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than the return data quoted. For performance data current to the most recent month-end, visit http://advisor.morningstar.com/familyinfo.asp. The "Overall Morningstar Rating" is based on risk-adjusted returns, derived from a weighted average of the three, five and ten-year (if applicable) Morningstar metrics. An investment in the fund is not insured or guaranteed by the FDIC or any other government agency.

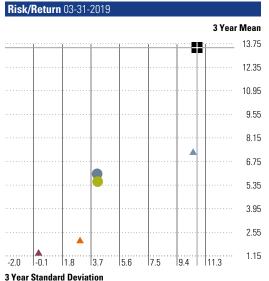
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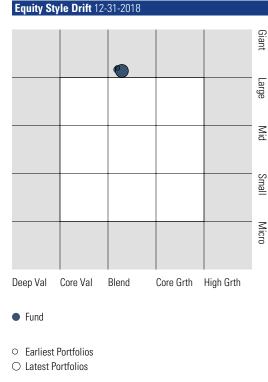
# American Funds 2010 Trgt Date Retire R6 (USD)



- Fund
- Target-Date 2000-2010

# **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon



Return vs C	Return vs Category Quartiles 03-31-2019							
Total Return Ov	Total Return Over Investment Period							
					12.00	► Fund		
				F	10.00	<ul> <li>Morningstar Mod Tgt Risk TR USD</li> </ul>		
1				•	8.00	<ul> <li>Morningstar Lifetime</li> <li>Mod 2010 TR USD</li> </ul>		
	····	<b>4</b>			6.00	E 90% of Category		
4	. <b>₽</b>		<b></b>		4.00	<ul><li>Top Quartile</li><li>2nd Quartile</li></ul>		
	.L				2.00	3rd Quartile		
					0.00	4th Quartile		
YTD	1 Yr	3 Yr	5 Yr	10 Yr				
158	138	113	92	72	Number	r of Funds in Category		
_	12	34	1	9	Percent	ile Rank		
5.96	4.37	6.02	4.94	9.24	America Retire F	an Funds 2010 Trgt Date R6		
8.68	4.42	8.05	5.40	9.55	Morning	gstar Mod Tgt Risk TR USD		
6.81	4.28	5.88	4.28	8.26	Morning USD	gstar Lifetime Mod 2010 TR		
7.23	4.89	6.69	4.97	9.48	Categor	ry High Return		
6.25	3.16	5.64	4.15	8.53	Categor	ry Median Return		

1.55

<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net Assets
American Funds Interm Bd Fd of Amer R6	13.06
American Funds Capital Income Bldr R6	11.93
American Funds Income Fund of Amer R6	11.93
American Funds Bond Fund of Amer R6	8.13
American Funds Inflation Linked Bd R6	7.11
American Funds Mortgage R6	6.11
American Funds American Mutual R6	5.14
American Funds Capital World Bond R6	5.13
American Funds American High-Inc R6	4.92
American Funds Washington Mutual R6	4.14

1.48

2.23

### **Investment Strategy** 03-31-2019

4.15 Category Low Return

The investment seeks growth, income and conservation of capital.

The fund normally invests a greater portion of its assets in bond, equity-income and balanced funds as it passes its target date. The adviser will attempt to achieve the fund's investment objectives by investing in a mix of American Funds in different combinations and weightings. The underlying American Funds represent a variety of fund categories, including growth-and-income funds, equity-income funds, balanced funds and fixed income funds. The fund categories represent differing investment objectives.

The performance data quoted represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate; thus an investor's shares, when sold or redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than return data quoted herein. For performance data current to the most recent month-end, please visit http://advisor.morningstar.com/familyinfo.asp.

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4.28

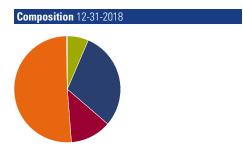
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# American Funds 2015 Trgt Date Retire R6 (USD)

<b>Details</b> 03-31-2019	
Ticker	RFJTX
Gross Expense Ratio %	0.33
Total Assets	\$5,029.31 mil
Family	American Funds
Manager	James Lovelace, John
	Smet, Alan Berro,
Tenure	12.2 Years
Objective	Asset Allocation

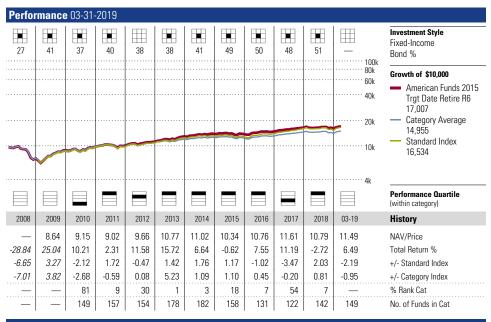
Risk and Return 03-31-2019	
Overall Morningstar Rating	***
	112 TD
Standard Deviation 3 Yr	4.46
Mean 3 Yr	6.45
Alpha 3 Yr	0.57
Beta 3 Yr	0.89
R-Squared 3 Yr	94.54
Upside Capture Ratio 3 Yr	94.44
Downside Capture Ratio 3 Yr	84.56
Standard Index	Morningstar Mod Tgt Risk TR USD
Category Index	Morningstar Lifetime Mod 2015 TR USD



Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	6.44	0.95
<ul><li>US Stocks</li></ul>	29.87	37.65
<ul><li>Non-US Stocks</li></ul>	12.48	23.73
<ul><li>Bonds</li></ul>	50.91	37.58
Other/Not Clsfd	0.31	0.09

		Stocks %	Rel Std Index
<b>∿</b> C	Cyclical	31.2	0.76
∴ B	Basic Materials	4.6	0.91
<b>a</b> 0	Consumer Cyclical	9.1	0.80
🤳 F	inancial Services	14.3	0.84
<b>☆</b> B	Real Estate	3.3	0.42
w S	Sensitive	40.4	1.11
	Communication Services	4.7	1.36
ð E	nergy	10.6	1.87
ф Ir	ndustrials	8.7	0.79
□ T	echnology	16.4	1.02
→ D	)efensive	28.3	1.25
<u> </u>	Consumer Defensive	10.0	1.25
o F	lealthcare	14.7	1.35
7 (	Itilities	3.6	0.97

Sector Weightings 12-31-2018

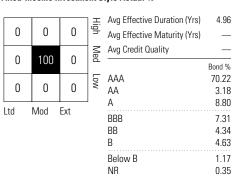


### Style Analysis 12-31-2018

## **Equity Investment Style Actual %**

37	31	26	Large	Portfolio Statistics	Port Avg	Rel Index	Re Car
37	JI	20		P/E Ratio TTM	13.8	0.83	0.82
3	2	1	Mid				
0	0	0	Small	Geo Avg Cap Plan Geo Avg Cap Bma			80,844 32,990
Value	Blend	Growth					

## Fixed-Income Investment Style Actual %



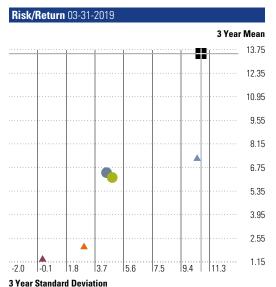
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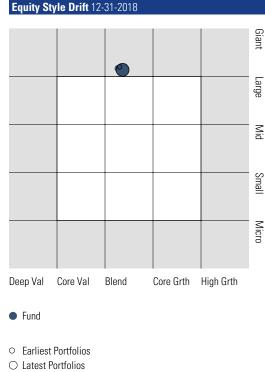
# American Funds 2015 Trgt Date Retire R6 (USD)

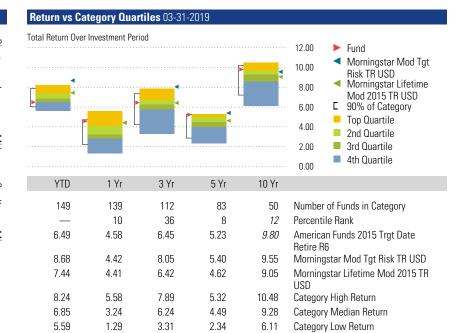


- Fund
- Target-Date 2015

# **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon





<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net Assets
American Funds Capital Income Bldr R6	11.21
American Funds Income Fund of Amer R6	11.12
American Funds Interm Bd Fd of Amer R6	9.18
American Funds Bond Fund of Amer R6	8.18
American Funds Inflation Linked Bd R6	7.18
American Funds Mortgage R6	6.18
American Funds American Mutual R6	5.91
American Funds US Government Sec R6	5.18
American Funds Capital World Bond R6	5.18
American Funds American High-Inc R6	4.98

## **Investment Strategy** 03-31-2019

The investment seeks growth, income and conservation of capital.

The fund normally invests a greater portion of its assets in bond, equity-income and balanced funds as it approaches and passes its target date. The advisor attempts to achieve its investment objectives by investing in a mix of American Funds in different combinations and weightings. The underlying American Funds represent a variety of fund categories, including growth funds, growth-and-income funds, equity-income funds, balanced funds and fixed income funds. The fund categories represent differing investment objectives.

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# American Funds 2020 Trgt Date Retire R6 (USD)

<b>Details</b> 03-31-2019	
Ticker	RRCTX
Gross Expense Ratio %	0.34
Total Assets	\$14,984.50 mil
Family	American Funds
Manager	James Lovelace, John
Tenure	Smet, Alan Berro, 12 2 Years
Objective	Asset Allocation

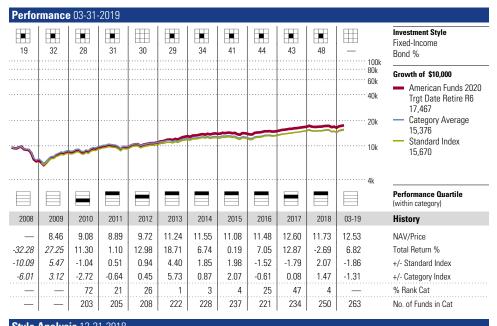
Risk and Return 03-31-2019	
Overall Morningstar Rating	****
	204 TE
Standard Deviation 3 Yr	4.86
Mean 3 Yr	7.12
Alpha 3 Yr	0.75
Beta 3 Yr	0.87
R-Squared 3 Yr	94.96
Upside Capture Ratio 3 Yr	94.57
Downside Capture Ratio 3 Yr	84.53
Standard Index	Morningstar Mod Tgt Risk TR USD
Category Index	Morningstar Lifetime Mod 2020 TR USD

# Composition 12-31-2018

Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	6.63	0.95
<ul><li>US Stocks</li></ul>	32.02	37.65
<ul><li>Non-US Stocks</li></ul>	13.07	23.73
<ul><li>Bonds</li></ul>	48.03	37.58
Other/Not Clsfd	0.26	0.09

		Stocks %	Rel Std Index
Դ	Cyclical	31.5	0.77
Æ	Basic Materials	4.5	0.89
<b>A</b>	Consumer Cyclical	10.4	0.92
	Financial Services	13.9	0.82
仓	Real Estate	2.6	0.33
W	Sensitive	41.3	1.14
	Communication Services	4.1	1.20
	Energy	10.1	1.79
	Industrials	8.9	0.80
	Technology	18.2	1.13
<b>→</b>	Defensive	27.2	1.20
	Consumer Defensive	9.2	1.15
•	Healthcare	15.0	1.38
	Utilities	3.1	0.82

Sector Weightings 12-31-2018



# Style Analysis 12-31-2018

### **Equity Investment Style Actual %**

32	30	31	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
JZ	30	J1		P/E Ratio TTM	14.2	0.86	0.83
3	2	2	Mid				
0	0	0	Small	Geo Avg Cap Pla Geo Avg Cap Bm			79,834 32,990
Value	Blend	Growth					

## Fixed-Income Investment Style Actual %

		Hic	Avg Effective Duration (Yrs)	5.00
0	0	3	Avg Effective Maturity (Yrs)	_
		≤	Avg Credit Quality	_
100	0	ed		Bond %
		5	AAA	71.48
0	0	<	AA	3.30
Mad	Г <sub>v/+</sub>	ļ	A	9.07
IVIOU	EXI		BBB	7.25
			BB	3.75
			В	3.87
			Below B	0.97
			NR	0.31
	0 100 0 Mod	100 0	100 0 Med 0 0 W	Avg Credit Quality  Avg Credit Quality  Avg Credit Quality  AAA  AAA  AA  BBB  BB  BB  Below B

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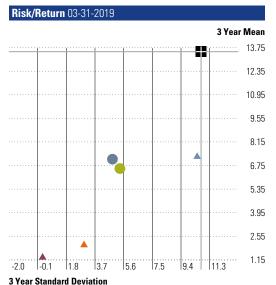
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# American Funds 2020 Trgt Date Retire R6 (USD)

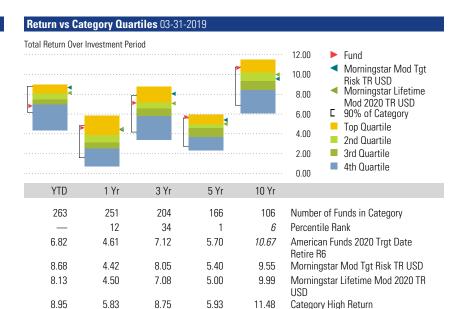


- Fund
- Target-Date 2020

# **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon





4.57

2.34

9.33

<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net Assets
American Funds Interm Bd Fd of Amer R6	9.23
American Funds Capital Income Bldr R6	7.76
American Funds Income Fund of Amer R6	7.71
American Funds Bond Fund of Amer R6	7.63
American Funds Inflation Linked Bd R6	6.80
American Funds Mortgage R6	6.03
American Funds American Mutual R6	5.92
American Funds US Government Sec R6	5.43
American Funds Capital World Bond R6	5.20
American Funds Washington Mutual R6	5.11

3.10

0.73

6.57

3.41

## **Investment Strategy** 03-31-2019

Category Median Return

Category Low Return

The investment seeks growth, income and conservation of capital.

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7.44

4.36

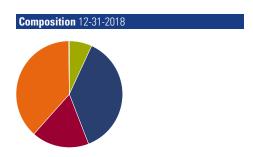
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# American Funds 2025 Trgt Date Retire R6 (USD)

RFDTX
0.36
\$19,971.44 mil
American Funds
James Lovelace, John
Smet, Alan Berro, 12.2 Years
Asset Allocation

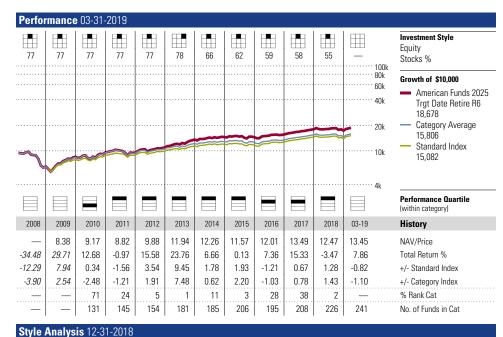
Risk and Return 03-31-2019	
Overall Morningstar Rating	****
	187 TG
Standard Deviation 3 Yr	5.81
Mean 3 Yr	8.18
Alpha 3 Yr	0.73
Beta 3 Yr	0.92
R-Squared 3 Yr	95.18
Upside Capture Ratio 3 Yr	99.33
Downside Capture Ratio 3 Yr	93.53
Standard Index	Morningstar Mod Tgt Risk TR USD
Category Index	Morningstar Lifetime Mod 2025 TR USD



Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	6.89	0.95
<ul><li>US Stocks</li></ul>	37.24	37.65
<ul><li>Non-US Stocks</li></ul>	17.46	23.73
<ul><li>Bonds</li></ul>	38.24	37.58
Other/Not Clsfd	0.18	0.09

		Stocks %	Rel Std Index
·	Cyclical	32.1	0.78
æ	Basic Materials	4.7	0.92
<b>4</b>	Consumer Cyclical	11.7	1.03
•	Financial Services	13.9	0.82
<b>fi</b>	Real Estate	1.8	0.24
W	Sensitive	42.1	1.16
	Communication Services	3.6	1.04
	Energy	9.6	1.70
<b>O</b>	Industrials	9.1	0.82
	Technology	19.8	1.23
<b>→</b>	Defensive	25.8	1.14
$\succeq$	Consumer Defensive	8.4	1.05
+	Healthcare	14.9	1.37
	Utilities	2.6	0.68

Sector Weightings 12-31-2018



# Equity Investment Style Actual %

28	27	37	Large	Portfolio Statistics	Port Avg	Rel Index	Re Ca
				P/E Ratio TTM	14.4	0.88	0.86
3	2	3	Mid				
0	0	0	Small	Geo Avg Cap Plan Geo Avg Cap Bma			73,632 32,990
Value	Blend	Growth					

### Fixed-Income Investment Style Actual %

0	0	Hig	, ,	5.14
U	U	-	Avg Effective Maturity (Yrs)	_
	Avg Credit Quality	_		
IUU	U	٥		Bond %
_		5	AAA	77.06
U	0	<	AA	3.65
Mad	Γ <sub>1/</sub> +	J	A	10.00
IVIUU	LXL		BBB	7.08
			BB	1.31
			В	0.66
			Below B	0.08
			NR	0.16
	0 100 0 Mod	100 0	100 0 Med 0 0 W	Avg Credit Quality  Avg Credit Quality  Avg Credit Quality  AAA  AAA  AA  BBB  BB  BB  Below B

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# American Funds 2025 Trgt Date Retire R6 (USD)



- Fund
- Target-Date 2025

# **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon



Return vs	Return vs Category Quartiles 03-31-2019						
Total Return Over Investment Period							
					25.00	► Fund	
					20.00	<ul> <li>Morningstar Mod Tgt Risk TR USD</li> </ul>	
					15.00	<ul> <li>Morningstar Lifetime</li> <li>Mod 2025 TR USD</li> </ul>	
	<b>√</b>	<b>-</b>			10.00	E 90% of Category	
			1		5.00	<ul><li>Top Quartile</li><li>2nd Quartile</li></ul>	
	_				0.00	3rd Quartile	
					-5.00	4th Quartile	
YTD	1 Yr	3 Yr	5 Yr	10 Yr			
241	227	187	147	74	Numbe	er of Funds in Category	
_	13	30	1	3	Percent	tile Rank	
7.86	4.42	8.18	6.27	11.82	Americ Retire F	an Funds 2025 Trgt Date R6	
8.68	4.42	8.05	5.40	9.55	Mornin	igstar Mod Tgt Risk TR USD	
8.96	4.52	7.94	5.47	11.00	Mornin USD	igstar Lifetime Mod 2025 TR	
9.84	5.50	9.44	6.41	12.29	Catego	ry High Return	
8.55	3.18	7.47	5.07	10.34	Catego	ry Median Return	
5.93	0.53	4.47	3.11	8.43	Catego	ry Low Return	

<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net Assets
American Funds Interm Bd Fd of Amer R6	8.31
American Funds US Government Sec R6	6.51
American Funds Washington Mutual R6	6.31
American Funds Invmt Co of Amer R6	6.09
American Funds Global Balanced R6	5.98
American Funds American Mutual R6	5.90
American Funds American Balanced R6	5.87
American Funds Capital World Bond R6	5.24
American Funds Mortgage R6	5.23
American Funds Fundamental Invs R6	5.10

# **Investment Strategy** 03-31-2019

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# American Funds 2030 Trgt Date Retire R6 (USD)

<b>Details</b> 03-31-2019	
Ticker	RFETX
Gross Expense Ratio %	0.38
Total Assets	\$21,684.44 mil
Family	American Funds
Manager	James Lovelace, John
	Smet, Alan Berro,
Tenure	12.2 Years
Objective	Asset Allocation

**Composition** 12-31-2018

Asset Allocation

Cash

Bonds

US Stocks

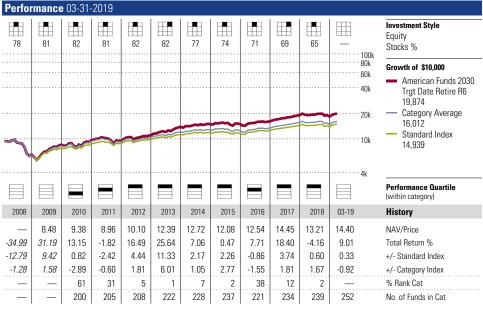
Non-US Stocks

Other/Not Clsfd

Risk and Return 03-31-2019	
Overall Morningstar Rating	****
	194 TH
Standard Deviation 3 Yr	6.92
Mean 3 Yr	9.65
Alpha 3 Yr	0.96
Beta 3 Yr	0.96
R-Squared 3 Yr	95.78
Upside Capture Ratio 3 Yr	102.60
Downside Capture Ratio 3 Yr	95.10
Standard Index	Morningstar Mod Tgt Risk TR USD
Category Index	Morningstar Lifetime Mod 2030 TR USD

# Standard Index | Morningstar Mod Tgt Risk TR USD | Category Index | Morningstar Mod Tgt Risk TR USD | Morningstar Lifetime Mod 2030 TR USD | Sector Weightings 12-31-2018 | Stocks % Rel Std Index | -34.99 | -12.79 | Basic Materials | 4.7 | 0.93 | Consumer Cyclical | 12.1 | 1.07 | Financial Services | 13.8 | 0.82 |

		SIUCKS /0	Hel Stu Huex
Դ	Cyclical	32.4	0.79
Æ	Basic Materials	4.7	0.93
A	Consumer Cyclical	12.1	1.07
	Financial Services	13.8	0.82
<b>fi</b>	Real Estate	1.7	0.22
W	Sensitive	42.1	1.16
	Communication Services	3.4	0.98
	Energy	9.2	1.63
<b>‡</b>	Industrials	9.2	0.83
	Technology	20.3	1.26
<b>→</b>	Defensive	25.5	1.13
	Consumer Defensive	8.1	1.01
	Healthcare	15.0	1.38
•	Utilities	2.4	0.64

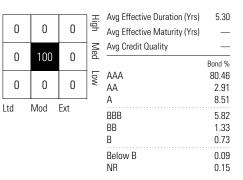


# Style Analysis 12-31-2018

### **Equity Investment Style Actual %**

27	26	35	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
21	20	55		P/E Ratio TTM	14.5	0.88	0.87
3	3	4	Mid				
0	1	1	Small	Geo Avg Cap Plan	n (\$Mil	) (	35,517
U	'		=	Geo Avg Cap Bm	ark (\$N	1iI) :	32,990
Value	Blend	Growth					

Fixed-Income	Investment St	yle Actual %
--------------	---------------	--------------



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Portfolio

Net %

6.89

43.61

21.30

28.05

0.15

**Bmark** 

Net %

0.95

37.65

23.73

37.58

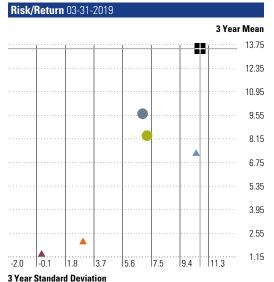
0.09

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# American Funds 2030 Trgt Date Retire R6 (USD)

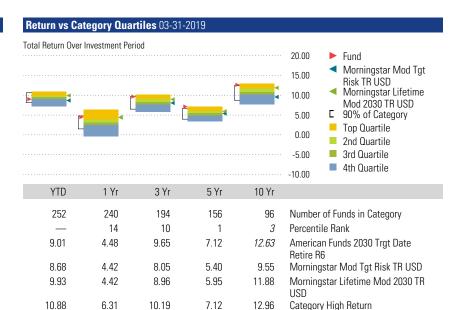


- Fund
- Target-Date 2030

# **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon





5.48

3.41

10.81

<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net Assets
American Funds Washington Mutual R6	7.91
American Funds US Government Sec R6	7.65
American Funds Invmt Co of Amer R6	6.90
American Funds Global Balanced R6	6.04
American Funds American Balanced R6	5.93
American Funds American Mutual R6	5.91
American Funds Fundamental Invs R6	5.90
American Funds New Perspective R6	5.19
American Funds Capital World Gr&Inc R6	4.90
American Funds Capital World Bond R6	4.22

3.07

-0.41

8.31

5.72

# **Investment Strategy** 03-31-2019

The investment seeks growth, income and conservation of capital.

Category Median Return

Category Low Return

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9.54

7.23

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# American Funds 2035 Trgt Date Retire R6 (USD)

<b>Details</b> 03-31-2019	
Ticker	RFFTX
Gross Expense Ratio %	0.39
Total Assets	\$17,304.13 mil
Family	American Funds
Manager	James Lovelace, John
	Smet, Alan Berro,
Tenure	12.2 Years
Objective	Asset Allocation

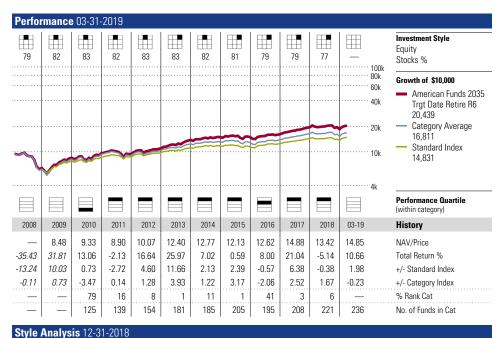
Risk and Return 03-31-2019	
Overall Morningstar Rating	****
	182 TI
Standard Deviation 3 Yr	8.14
Mean 3 Yr	10.88
Alpha 3 Yr	1.02
Beta 3 Yr	0.99
R-Squared 3 Yr	96.38
Upside Capture Ratio 3 Yr	105.10
Downside Capture Ratio 3 Yr	97.99
Standard Index	Morningstar Mod Tgt Risk TR USD
Category Index	Morningstar Lifetime Mod 2035 TR USD

# Composition 12-31-2018

Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	6.57	0.95
<ul><li>US Stocks</li></ul>	50.68	37.65
<ul><li>Non-US Stocks</li></ul>	26.37	23.73
Bonds	16.23	37.58
Other/Not Clsfd	0.15	0.09

		Stocks %	Rel Std Index
<b>Դ</b>	Cyclical	32.9	0.80
Æ.	Basic Materials	4.7	0.93
<b>A</b>	Consumer Cyclical	13.0	1.14
<b>P</b>	Financial Services	13.7	0.81
命	Real Estate	1.6	0.20
W	Sensitive	41.9	1.16
	Communication Services	3.0	0.88
•	Energy	8.6	1.53
Ф	Industrials	9.2	0.83
	Technology	21.0	1.30
<b>→</b>	Defensive	25.2	1.11
$\equiv$	Consumer Defensive	7.6	0.96
٠	Healthcare	15.3	1.41
0	Utilities	2.2	0.59

Sector Weightings 12-31-2018



# Equity Investment Style Actual %

# | 24 | 25 | 36 | Geo Avg Cap Plan (\$Mil) | 57,902 | Value | Blend | Growth | Statistics | Port | Rel Avg | Index | Cat | Avg | Index | Cat | Rel Avg | Index | Cat | Rel Avg | Index | Cat | Cat | Rel Avg | Index | Cat | Cat

### Fixed-Income Investment Style Actual %

0	100	0	High N	Avg Effective Duration (Yrs) Avg Effective Maturity (Yrs) Avg Credit Quality	5.44
0	0	0	Med	Avy credit quality	Bond %
0	0	0	Low	AAA AA	86.37 1.72
Ltd	Mod	Ext		A BBB BB B B Below B NR	5.04 4.70 1.26 0.75 0.10 0.06

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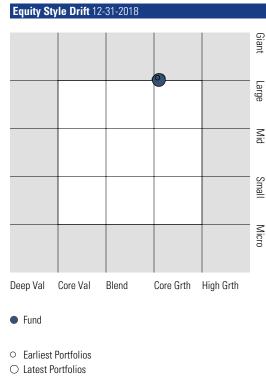
# American Funds 2035 Trgt Date Retire R6 (USD)

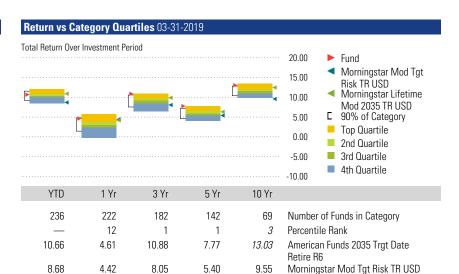


- Fund
- Target-Date 2035

# **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon





6.33

7.77

5.86

4.07

13.40

11.52

<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net Assets
American Funds Washington Mutual R6	7.94
American Funds US Government Sec R6	7.89
American Funds New Perspective R6	6.95
American Funds Invmt Co of Amer R6	6.93
American Funds SMALLCAP World R6	6.16
American Funds AMCAP R6	6.15
American Funds Growth Fund of Amer R	6.14
American Funds Global Balanced R6	6.09
American Funds American Balanced R6	5.98
American Funds American Mutual R6	5.94

4 18

5.77

3.00

-0.20

9 87

10.94

9.10

6.49

## **Investment Strategy** 03-31-2019

Category High Return

Category Low Return

Category Median Return

Morningstar Lifetime Mod 2035 TR

The investment seeks growth, income and conservation of capital.

The fund normally invests a greater portion of its assets in bond, equity-income and balanced funds as it approaches and passes its target date. The advisor attempts to achieve its investment objectives by investing in a mix of American Funds in different combinations and weightings. The underlying American Funds represent a variety of fund categories, including growth funds, growth-and-income funds, equity-income funds, balanced funds and fixed income funds. The fund categories represent differing investment objectives.

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10.88

12.04

10.28

8.52

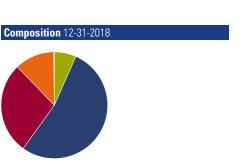
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# American Funds 2040 Trgt Date Retire R6 (USD)

<b>Details</b> 03-31-2019	
Ticker	RFGTX
Gross Expense Ratio %	0.40
Total Assets	\$15,089.95 mil
Family	American Funds
Manager	James Lovelace, John
Tenure	Smet, Alan Berro, 12.2 Years
Objective	Asset Allocation

Risk and Return 03-31-2019	
Overall Morningstar Rating	****
	194 TJ
Standard Deviation 3 Yr	8.56
Mean 3 Yr	11.28
Alpha 3 Yr	1.16
Beta 3 Yr	0.96
R-Squared 3 Yr	96.75
Upside Capture Ratio 3 Yr	102.15
Downside Capture Ratio 3 Yr	94.09
Standard Index	Morningstar Mod Tgt Risk TR USD
Category Index	Morningstar Lifetime Mod 2040 TR USD



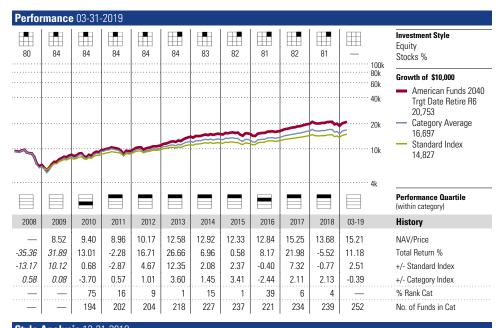
Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	6.64	0.95
<ul><li>US Stocks</li></ul>	53.31	37.65
<ul><li>Non-US Stocks</li></ul>	27.83	23.73
Bonds	12.07	37.58
Other/Not Clsfd	0.15	0.09

	Stocks %	Rel Std Index
Cyclical	33.0	0.80
Basic Materials	4.7	0.93
Consumer Cyclical	13.2	1.16
Financial Services	13.6	0.80
Real Estate	1.5	0.19
✓ Sensitive	41.9	1.16
Communication Services	2.9	0.85
Energy	8.5	1.50
Industrials	9.2	0.84
Technology	21.3	1.32
→ Defensive	25.1	1.11
Consumer Defensive	7.5	0.94
Healthcare	15.5	1.42

2.1

Sector Weightings 12-31-2018

Utilities

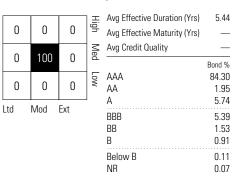


# Style Analysis 12-31-2018

### **Equity Investment Style Actual %**

24	24	35	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
24	24	JJ		P/E Ratio TTM	14.8	0.90	0.88
3	4	6	Mid				
1	1	2	Small	Geo Avg Cap Plan	n (\$Mil	)	56,292
_ '	'		=	Geo Avg Cap Bm	ark (\$N	1il)	32,990
Value	Blend	Growth					

### Fixed-Income Investment Style Actual %



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0.57

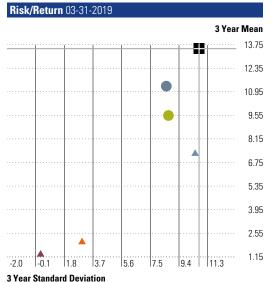
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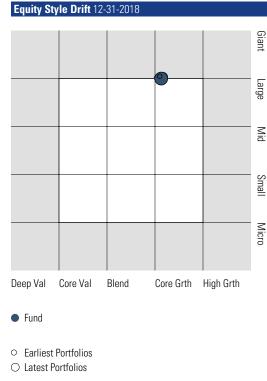
# American Funds 2040 Trgt Date Retire R6 (USD)



- Fund
- Target-Date 2040

# **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon



### Return vs Category Quartiles 03-31-2019 Total Return Over Investment Period Morningstar Mod Tgt Risk TR USD Morningstar Lifetime Mod 2040 TR USD ■ 90% of Category Top Quartile 2nd Quartile 3rd Quartile -5.00 4th Quartile -10 nn YTD 1 Yr 3 Yr 5 Yr 10 Yr Number of Funds in Category 252 240 194 156 9 1 1 Percentile Rank 11.18 4.63 11.28 7.98 American Funds 2040 Trgt Date Retire R6 Morningstar Mod Tgt Risk TR USD 4.42 5.40 8.68 8.05 11 58 3 87 10 44 6 51 Morningstar Lifetime Mod 2040 TR

7.98

6.06

3.90

13.63

11.79

<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net Assets
American Funds Washington Mutual R6	7.96
American Funds Invmt Co of Amer R6	7.15
American Funds SMALLCAP World R6	6.98
American Funds AMCAP R6	6.97
American Funds New Perspective R6	6.96
American Funds Growth Fund of Amer R6	6.96
American Funds American Mutual R6	6.16
American Funds Fundamental Invs R6	6.16
American Funds American Balanced R6	6.01
American Funds Global Balanced R6	5.92

6.55

2.88

-0.95

11.28

9.44

6.91

# **Investment Strategy** 03-31-2019

Category High Return

Category Low Return

Category Median Return

The investment seeks growth, income and conservation of capital.

The fund normally invests a greater portion of its assets in bond, equity-income and balanced funds as it approaches and passes its target date. The advisor attempts to achieve its investment objectives by investing in a mix of American Funds in different combinations and weightings. The underlying American Funds represent a variety of fund categories, including growth funds, growth-and-income funds, equity-income funds, balanced funds and fixed income funds. The fund categories represent differing investment objectives.

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12.81

10.97

9.52

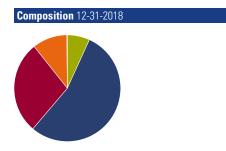
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# American Funds 2045 Trgt Date Retire R6 (USD)

<b>Details</b> 03-31-2019	
Ticker	RFHTX
Gross Expense Ratio %	0.40
Total Assets	\$10,957.14 mil
Family	American Funds
Manager	James Lovelace, John
Tenure	Smet, Alan Berro, 12.2 Years
Objective	Asset Allocation

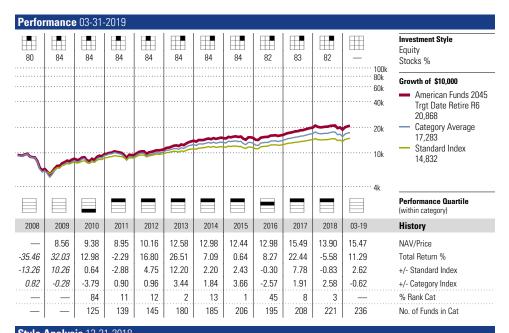
Risk and Return 03-31-2019	
Overall Morningstar Rating	****
	182 TK
Standard Deviation 3 Yr	8.74
Mean 3 Yr	11.50
Alpha 3 Yr	1.36
Beta 3 Yr	0.93
R-Squared 3 Yr	96.57
Upside Capture Ratio 3 Yr	100.75
Downside Capture Ratio 3 Yr	91.06
Standard Index	Morningstar Mod Tgt Risk TR USD
Category Index	Morningstar Lifetime Mod 2045 TR USD



Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	6.80	0.95
<ul><li>US Stocks</li></ul>	54.41	37.65
<ul><li>Non-US Stocks</li></ul>	28.10	23.73
<ul><li>Bonds</li></ul>	10.56	37.58
Other/Not Clsfd	0.13	0.09

		Stocks %	Rel Std Index
Դ	Cyclical	32.9	0.80
Æ	Basic Materials	4.7	0.92
A	Consumer Cyclical	13.3	1.17
	Financial Services	13.6	0.80
<b>fi</b>	Real Estate	1.4	0.17
W	Sensitive	42.2	1.16
	Communication Services	2.9	0.83
	Energy	8.4	1.49
	Industrials	9.3	0.84
	Technology	21.6	1.34
<b>→</b>	Defensive	24.9	1.10
$\succeq$	Consumer Defensive	7.4	0.92
•	Healthcare	15.5	1.42
	Utilities	2.1	0.55

Sector Weightings 12-31-2018



# Style Analysis 12-31-2018

### **Equity Investment Style Actual %**

23	24	37	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
23	24	3/		P/E Ratio TTM	14.8	0.90	0.87
3	3	6	Mid				
1	1	2	Small	Geo Avg Cap Pla Geo Avg Cap Bm			56,793 32.990
Value	Blend	Growth		3	. ,,	,	

## Fixed-Income Investment Style Actual %

			High	Avg Effective Duration (Yrs)	5.46
0	100	0	3	Avg Effective Maturity (Yrs)	_
			Med	Avg Credit Quality	_
0	0	0	ă		Bond %
_	_		Low	AAA	86.39
0	0	0	>	AA	1.75
Led	N AI	F. 4	ļ	A	5.13
Ltd	Mod	Ext		BBB	4.72
				BB	1.25
				В	0.65
				Below B	0.06
				NR	0.05

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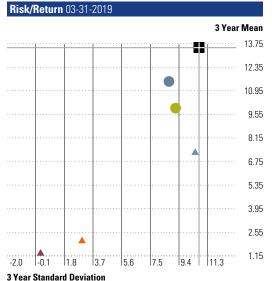
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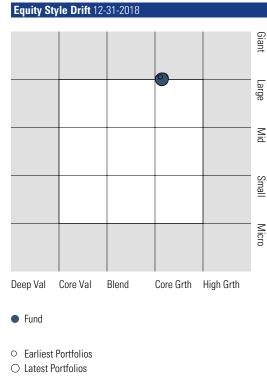
# American Funds 2045 Trgt Date Retire R6 (USD)

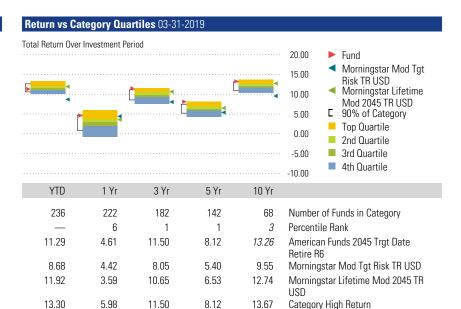


- Fund
- Target-Date 2045

# **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon





6.30

4.22

12.08

<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net
American Funds Washington Mutual R6	8.18
American Funds Invmt Co of Amer R6	8.16
American Funds American Mutual R6	7.18
American Funds Fundamental Invs R6	7.17
American Funds SMALLCAP World R6	7.00
American Funds AMCAP R6	6.99
American Funds New Perspective R6	6.98
American Funds Growth Fund of Amer R6	6.98
American Funds Capital World Gr&Inc R6	6.17
American Funds American Balanced R6	5.79

2.88

-0.77

9.78

7.60

# **Investment Strategy** 03-31-2019

The investment seeks growth, income and conservation of capital.

Category Median Return

Category Low Return

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11.51

10.17

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# American Funds 2050 Trgt Date Retire R6 (USD)

<b>Details</b> 03-31-2019	
Ticker	RFITX
Gross Expense Ratio %	0.41
Total Assets	\$9,140.37 mil
Family	American Funds
Manager	James Lovelace, John
<b>T</b>	Smet, Alan Berro,
Tenure	12.2 Years
Objective	Asset Allocation

Risk and Return 03-31-2019	
Overall Morningstar Rating	****
	194 TN
Standard Deviation 3 Yr	8.83
Mean 3 Yr	11.62
Alpha 3 Yr	1.45
Beta 3 Yr	0.93
R-Squared 3 Yr	96.56
Upside Capture Ratio 3 Yr	101.02
Downside Capture Ratio 3 Yr	90.68
Standard Index	Morningstar Mod Tgt Risk TR USD
Category Index	Morningstar Lifetime Mod 2050 TR USD

### Equity 84 84 84 84 Stocks % 100k 80k Growth of \$10,000 60k American Funds 2050 Trgt Date Retire R6 20.908 Category Average 17,058 Standard Index 14.832 Performance Quartile (within category) 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 03-19 History 8.43 9.21 8.78 9.97 12.35 12.70 12.16 12.69 15.16 13.61 15.17 NAV/Price -35.51 31.86 13.07 -2.28 16.72 26.65 7.02 0.65 8.33 22.61 -5.61 11.46 Total Return % 10.08 -2.87 4.68 12.34 0.74 2.13 2.44 -0.247.95 -0.85 2.78 +/- Standard Index 0.98 -0.90 -3.711.19 0.79 3.82 2.02 3.84 -2.56 1.83 2.80 -0.53+/- Category Index 80 12 16 18 43 8 3 % Rank Cat 150 168 177 202 212 226 213 230 239 252 No. of Funds in Cat Style Analysis 12-31-2018

# **Composition** 12-31-2018

Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	6.91	0.95
<ul><li>US Stocks</li></ul>	55.52	37.65
<ul><li>Non-US Stocks</li></ul>	27.99	23.73
<ul><li>Bonds</li></ul>	9.46	37.58
Other/Not Clsfd	0.11	0.09

	Stocks %	Rel Std Index
<b>∿</b> Cyclical	32.7	0.80
Basic Materials	4.6	0.92
Consumer Cyclical	13.3	1.17
Financial Services	13.6	0.80
	1.2	0.16
✓ Sensitive	42.4	1.17
Communication Services	2.8	0.82
Energy	8.4	1.49
Industrials	9.4	0.85
Technology	21.8	1.35
→ Defensive	24.9	1.10
Consumer Defensive	7.3	0.92
Healthcare	15.5	1.43

2.0

Sector Weightings 12-31-2018

Utilities

# Equity Investment Style Actual %

**Performance** 03-31-2019

23	24	37	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
23	24	3/		P/E Ratio TTM	14.8	0.90	0.88
3	3	6	Mid				
1	1	2	Small	Geo Avg Cap Pla Geo Avg Cap Bm	* *		57,525 32,990
Value	Blend	Growth					

### Fixed-Income Investment Style Actual %

0	100	0	High	Avg Effective Duration (Yrs) Avg Effective Maturity (Yrs)	5.48
0	0	0	Med	Avg Credit Quality	
_		Ŭ	_	AAA	Bond % 88.02
0	0	0	Low	AA	1.63
Ltd	Mod	Ext	J	Α	4.76
Liu	IVIOU	LAL		BBB	4.08
				BB	1.04
				В	0.43
				Below B NR	0.01 0.03

Investment Style

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0.54

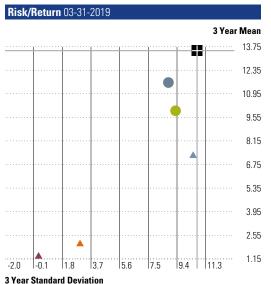
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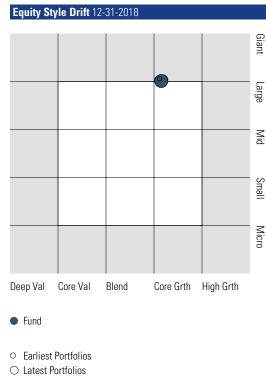
# American Funds 2050 Trgt Date Retire R6 (USD)

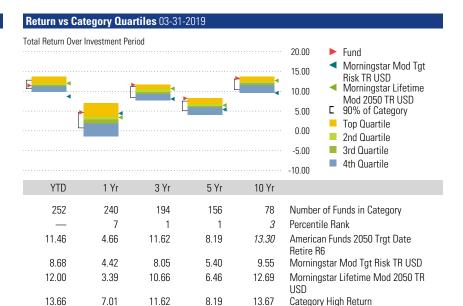


- Fund
- Target-Date 2050

# **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon





6.25

4.01

12.08

<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net Assets
American Funds Washington Mutual R6	8.97
American Funds Invmt Co of Amer R6	8.96
American Funds American Mutual R6	7.97
American Funds Fundamental Invs R6	7.97
American Funds SMALLCAP World R6	6.99
American Funds AMCAP R6	6.98
American Funds New Perspective R6	6.97
American Funds Growth Fund of Amer R6	6.97
American Funds Capital World Gr&Inc R6	6.96
American Funds US Government Sec R6	5.30

2.80

-1.38

9.78

7.62

11.56

9.87

## **Investment Strategy** 03-31-2019

Category Median Return

Category Low Return

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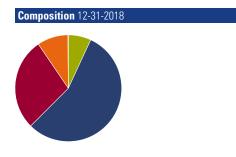
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# American Funds 2055 Trgt Date Retire R6 (USD)

<b>Details</b> 03-31-2019	
Ticker	RFKTX
Gross Expense Ratio %	0.42
Total Assets	\$4,747.14 mil
Family	American Funds
Manager	James Lovelace, John
	Smet, Alan Berro,
Tenure	9.2 Years
Objective	Asset Allocation

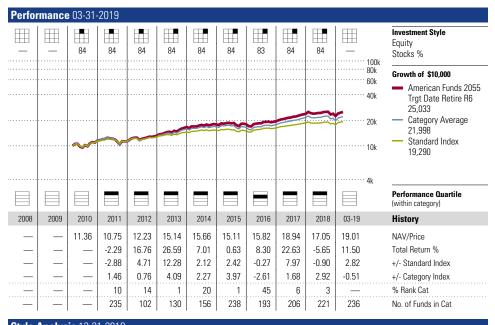
Risk and Return 03-31-2019	
Overall Morningstar Rating	****
0 0	180 TL
Standard Deviation 3 Yr	8.87
Mean 3 Yr	11.62
Alpha 3 Yr	1.45
Beta 3 Yr	0.93
R-Squared 3 Yr	96.62
Upside Capture Ratio 3 Yr	101.18
Downside Capture Ratio 3 Yr	90.94
Standard Index	Morningstar Mod Tgt Risk TR USD
Category Index	Morningstar Lifetime Mod 2055 TR USD



Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	6.91	0.95
<ul><li>US Stocks</li></ul>	55.59	37.65
<ul><li>Non-US Stocks</li></ul>	27.99	23.73
<ul><li>Bonds</li></ul>	9.40	37.58
Other/Not Clsfd	0.11	0.09

		Stocks %	Rel Std Index
ሌ (	Cyclical	32.7	0.80
Æ.	Basic Materials	4.6	0.92
<b>A</b> (	Consumer Cyclical	13.3	1.17
ə I	Financial Services	13.6	0.80
file I	Real Estate	1.2	0.15
W.	Sensitive	42.5	1.17
<b>E</b> (	Communication Services	2.8	0.82
<b>b</b> E	Energy	8.4	1.49
ф I	ndustrials	9.4	0.85
	Technology	21.8	1.35
<b>→</b> I	Defensive	24.9	1.10
<u> </u>	Consumer Defensive	7.3	0.92
<b>3</b> (	Healthcare	15.5	1.43
Q l	Jtilities	2.0	0.54

Sector Weightings 12-31-2018



# Style Analysis 12-31-2018

### **Equity Investment Style Actual %**

23	24	37	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
23	24	37		P/E Ratio TTM	14.8	0.90	0.88
3	3	6	Mid				
1	1	2	Small	Geo Avg Cap Plan	n (\$Mil	) !	57,522
'	'		=	Geo Avg Cap Bm	ark (\$N	1iI) :	32,990
Value	Blend	Growth					

### Fixed-Income Investment Style Actual %

		_	High	Avg Effective Duration (Yrs)	5.48
0	100	0	<u>→</u>	Avg Effective Maturity (Yrs)	_
			Med	Avg Credit Quality	_
U	0	0	ے ا		Bond %
0	_	0 0 AAA	88.02		
	0		AA	1.63	
td	Mod	L Ext	]	A	4.76
.lu	IVIOU	EXI		BBB	4.08
				BB	1.04
				В	0.43
				Below B	0.01
				NR	0.03

Performance rankings are based on each fund's total returns relative to other funds in its Morningstar Category for each period. The performance data represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate, thus an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than the return data quoted. For performance data current to the most recent month-end, visit http://advisor.morningstar.com/familyinfo.asp. The "Overall Morningstar Rating" is based on risk-adjusted returns, derived from a weighted average of the three, five and ten-year (if applicable) Morningstar metrics. An investment in the fund is not insured or guaranteed by the FDIC or any other government agency.

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# American Funds 2055 Trgt Date Retire R6 (USD)

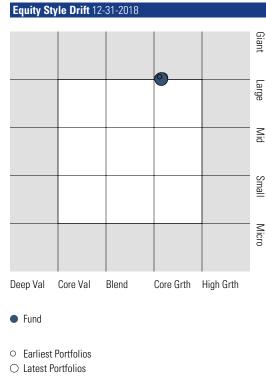


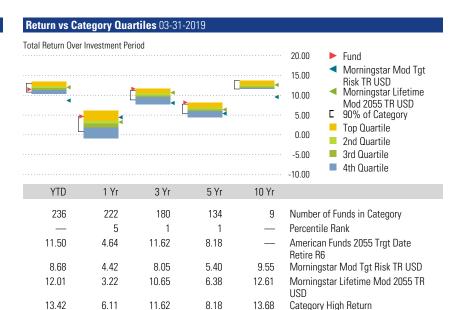


Target-Date 2055

# **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon





6.38

4.41

12.14

11.57

<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net Assets
American Funds Washington Mutual R6	8.98
American Funds Invmt Co of Amer R6	8.96
American Funds American Mutual R6	7.98
American Funds Fundamental Invs R6	7.98
American Funds SMALLCAP World R6	7.00
American Funds AMCAP R6	6.99
American Funds New Perspective R6	6.98
American Funds Growth Fund of Amer R6	6.98
American Funds Capital World Gr&Inc R6	6.97
American Funds US Government Sec R6	5.25

2.79

-0.90

9.89

7.75

11.71

10.34

## **Investment Strategy** 03-31-2019

The investment seeks growth, income and conservation of capital.

Category Median Return

Category Low Return

The fund normally invests a greater portion of its assets in bond, equity-income and balanced funds as it approaches and passes its target date. The advisor attempts to achieve its investment objectives by investing in a mix of American Funds in different combinations and weightings. The underlying American Funds represent a variety of fund categories, including growth funds, growth-and-income funds, equity-income funds, balanced funds and fixed income funds. The fund categories represent differing investment objectives.

The performance data quoted represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate; thus an investor's shares, when sold or redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than return data quoted herein. For performance data current to the most recent month-end, please visit http://advisor.morningstar.com/familyinfo.asp.

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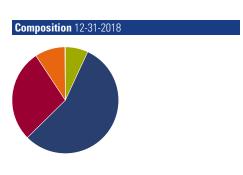


# American Funds 2060 Trgt Date Retire R6 (USD)

<b>Details</b> 03-31-2019	
Ticker	RFUTX
Gross Expense Ratio %	0.44
Total Assets	\$1,447.92 mil
Family	American Funds
Manager	James Lovelace, John
	Smet, Alan Berro,
	Andrew Suzman, Jody
	Jonsson, Wesley Phoa,
	Bradley Vogt,
Tenure	4.1 Years
Objective	Asset Allocation

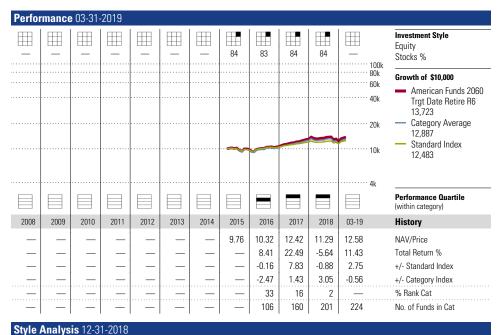
Risk and Return 03-31-2019	
Overall Morningstar Rating	****
	125 XQ
Standard Deviation 3 Yr	8.83
Mean 3 Yr	11.58
Alpha 3 Yr	1.47
Beta 3 Yr	0.93
R-Squared 3 Yr	96.74
Upside Capture Ratio 3 Yr	100.83
Downside Capture Ratio 3 Yr	90.10
Standard Index	Morningstar Mod Tgt
Category Index	Risk TR USD Morningstar Lifetime Mod 2060 TR USD

Sector Weightings 12-31-2018



Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	6.91	0.95
<ul><li>US Stocks</li></ul>	55.73	37.65
<ul><li>Non-US Stocks</li></ul>	28.07	23.73
<ul><li>Bonds</li></ul>	9.18	37.58
Other/Not Clsfd	0.11	0.09

		Stocks %	Rel Std Index
♣ Cyclica	I	32.7	0.80
🗻 Basic M	laterials	4.6	0.92
Consum	er Cyclical	13.3	1.17
Financia	al Services	13.6	0.80
Real Est	tate	1.2	0.16
w Sensitiv	/e	42.5	1.17
Commu	nication Services	2.8	0.82
Energy		8.4	1.49
Industria	als	9.4	0.85
Technol	ogy	21.8	1.35
→ Defensi	ve	24.9	1.10
Consum	er Defensive	7.3	0.92
Healthc	are	15.5	1.43
Utilities		2.0	0.54



### Otyle Allalysis 12 51 2010

### **Equity Investment Style Actual %**

23	24	37	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
25	24	37		P/E Ratio TTM	14.8	0.90	0.89
3	3	6	Mid				
1	1	2	Small	Geo Avg Cap Plan	n (\$Mil	)	57,510
'	'		=	Geo Avg Cap Bma	ark (\$N	1il)	32,990
Value	Blend	Growth					

### Fixed-Income Investment Style Actual %

				A 500 11 D 11 OV 1	- 10
_			High	Avg Effective Duration (Yrs)	5.49
U	100	0	3	Avg Effective Maturity (Yrs)	_
			Med	Avg Credit Quality	_
0	0	0	<u>a</u>		Bond %
			Low	AAA	87.91
0	0	0	>	AA	1.64
td	Mod	L Ext	]	A	4.80
.lu	IVIOU	EXI		BBB	4.13
				BB	1.05
				В	0.43
				Below B	0.01
				NR	0.03

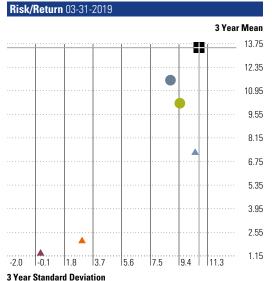
Performance rankings are based on each fund's total returns relative to other funds in its Morningstar Category for each period. The performance data represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate, thus an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than the return data quoted. For performance data current to the most recent month-end, visit http://advisor.morningstar.com/familyinfo.asp. The "Overall Morningstar Rating" is based on risk-adjusted returns, derived from a weighted average of the three, five and ten-year (if applicable) Morningstar metrics. An investment in the fund is not insured or guaranteed by the FDIC or any other government agency.

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# American Funds 2060 Trgt Date Retire R6 (USD)

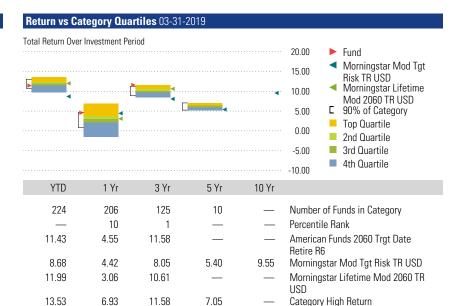


- Fund
- Target-Date 2060+

# **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon





6.31

5.23

<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net Assets
American Funds Invmt Co of Amer R6	9.00
American Funds Washington Mutual R6	9.00
American Funds American Mutual R6	8.00
American Funds Fundamental Invs R6	8.00
American Funds SMALLCAP World R6	7.02
American Funds AMCAP R6	7.01
American Funds Capital World Gr&Inc R6	7.00
American Funds New Perspective R6	7.00
American Funds Growth Fund of Amer R6	6.99
American Funds American Balanced R6	5.00

2.94

-1.51

10.11

8.40

### **Investment Strategy** 03-31-2019

Category Median Return

Category Low Return

The investment seeks growth, income and conservation of capital.

The fund normally invests a greater portion of its assets in bond, equity income and balanced funds as it approaches and passes its target date. The advisor attempts to achieve its investment objectives by investing in a mix of American Funds in different combinations and weightings. The underlying American Funds represent a variety of fund categories, including growth funds, growth-and-income funds, equity-income funds, balanced funds and fixed income funds. The fund categories represent differing investment objectives.

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11.97

9.77

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# American Funds Europacific Growth R6 (USD)

<b>Details</b> 03-31-2019	
Ticker Gross Expense Ratio %	RERGX 0.49
Total Assets	\$159,756.99 mil
Family	American Funds
Manager	Mark Denning,
Tenure	27.3 Years
Objective	Foreign Stock

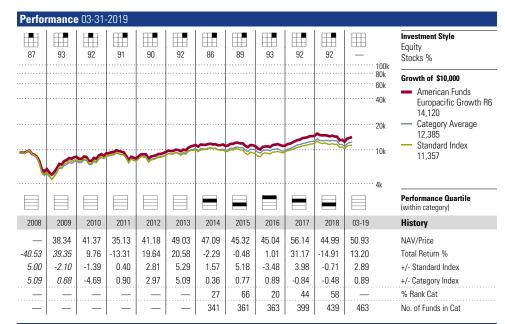
Risk and Return 03-31-2019	
Overall Morningstar Rating	***
	373 FG
Standard Deviation 3 Yr	11.38
Mean 3 Yr	9.33
Alpha 3 Yr	0.89
Beta 3 Yr	1.00
R-Squared 3 Yr	94.01
Upside Capture Ratio 3 Yr	100.12
Downside Capture Ratio 3 Yr	92.85
Standard Index	MSCI ACWI Ex USA NR USD
Category Index	MSCI ACWI Ex USA Growth NR USD

# Composition 12-31-2018

Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	5.69	0.01
<ul><li>US Stocks</li></ul>	2.11	0.77
<ul><li>Non-US Stocks</li></ul>	90.37	99.18
<ul><li>Bonds</li></ul>	1.77	0.00
Other/Not Clsfd	0.05	0.04

# Sector Weightings 12-31-2018

		STOCKS %	nei Sta iliaex
·	Cyclical	42.0	0.95
Æ.	Basic Materials	8.1	1.03
A	Consumer Cyclical	12.7	1.16
	Financial Services	19.6	0.90
n	Real Estate	1.6	0.45
W	Sensitive	38.8	1.14
	Communication Services	2.3	0.56
•	Energy	6.5	0.87
₽	Industrials	10.6	0.98
	Technology	19.5	1.64
<b>→</b>	Defensive	19.2	0.88
$\succeq$	Consumer Defensive	6.9	0.68
	Healthcare	9.0	1.08
	Utilities	3.3	1.00

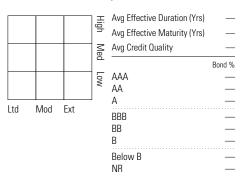


# Style Analysis 12-31-2018

### **Equity Investment Style Actual %**

20	18	54	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
20	10	J4		P/E Ratio TTM	12.4	0.88	0.64
2	2	4	Mid				
0	0	n	Small	Geo Avg Cap Pla	n (\$Mil	) :	37,546
	"	0	=	Geo Avg Cap Bm	ark (\$N	1iI) (	33,864
Value	Blend	Growth					

### Fixed-Income Investment Style Actual %



Performance rankings are based on each fund's total returns relative to other funds in its Morningstar Category for each period. The performance data represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate, thus an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than the return data quoted. For performance data current to the most recent month-end, visit http://advisor.morningstar.com/familyinfo.asp. The "Overall Morningstar Rating" is based on risk-adjusted returns, derived from a weighted average of the three, five and ten-year (if applicable) Morningstar metrics. An investment in the fund is not insured or guaranteed by the FDIC or any other government agency.

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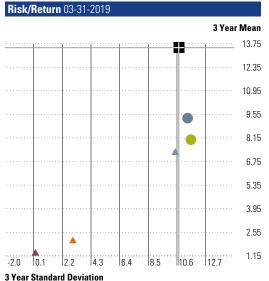
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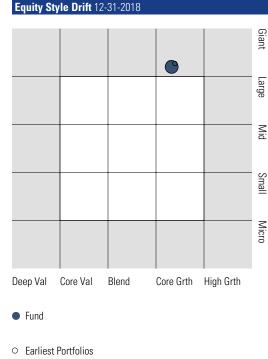
# American Funds Europacific Growth R6 (USD)



- Fund
- Foreign Large Growth

# **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon



Latest Portfolios

# **Return vs Category Quartiles** 03-31-2019



YTD	1 Yr	3 Yr	5 Yr	10 Yr	
463	442	373	314	228	Number of Funds in Category
_	64	31	39	48	Percentile Rank
13.20	-4.66	9.33	4.27	9.94	American Funds Europacific Growth R6
10.31	-4.22	8.09	2.57	8.85	MSCI ACWI Ex USA NR USD
12.31	-3.05	8.42	4.01	9.47	MSCI ACWI Ex USA Growth NR USD
22.44	8.86	19.35	13.23	14.38	Category High Return
12.81	-4.19	7.67	3.47	9.60	Category Median Return
0.00	-21.75	0.00	-0.09	6.07	Category Low Return

Holding Name	% Net Assets
AIA Group Ltd	2.68
HDFC Bank Ltd	2.44
Reliance Industries Ltd	2.27
Airbus SE	2.10
Samsung Electronics Co Ltd	1.93
Nintendo Co Ltd	1.91
Alibaba Group Holding Ltd ADR	1.66
Tencent Holdings Ltd	1.64
Taiwan Semiconductor Manufacturing Co Lt	d 1.47
ASML Holding NV	1.45

# Investment Strategy 03-31-2019

The investment seeks long-term growth of capital. The fund invests primarily in common stocks of issuers in Europe and the Pacific Basin that the investment adviser believes have the potential for growth. Growth stocks are stocks that the investment adviser believes have the potential for above-average capital appreciation. It normally will invest at least 80% of its net assets in securities of issuers in Europe and the Pacific Basin. The fund may invest a portion of its assets in common stocks and other securities of companies in emerging markets.

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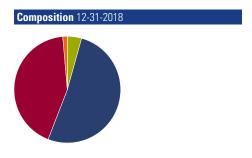
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# American Funds New Perspective R6 (USD)

<b>Details</b> 03-31-2019	
Ticker	RNPGX
Gross Expense Ratio %	0.45
Total Assets	\$87,592.40 mil
Family	American Funds
Manager	Robert Lovelace,
Tenure	18.3 Years
Objective	World Stock

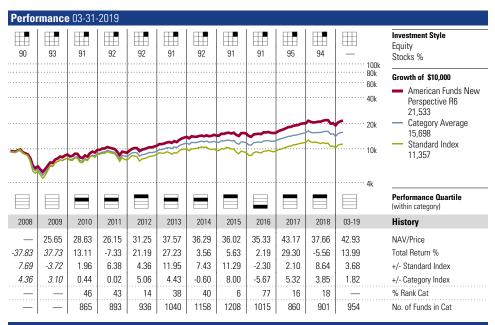
Risk and Return 03-31-2019	
Overall Morningstar Rating	****
	732 WS
Standard Deviation 3 Yr	10.82
Mean 3 Yr	13.37
Alpha 3 Yr	1.81
Beta 3 Yr	1.04
R-Squared 3 Yr	90.28
Upside Capture Ratio 3 Yr	110.11
Downside Capture Ratio 3 Yr	97.03
Standard Index	MSCI ACWI Ex USA NR USD
Category Index	MSCI ACWI NR USD



Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	4.33	0.01
<ul><li>US Stocks</li></ul>	51.56	0.77
<ul><li>Non-US Stocks</li></ul>	42.74	99.18
<ul><li>Bonds</li></ul>	1.33	0.00
Other/Not Clefd	0.04	0.04

ctor weightings 12-5	1-2010	
	Stocks %	Rel Std Index
Cyclical	39.4	0.89
Basic Materials	6.3	0.80
Consumer Cyclical	17.4	1.58
Financial Services	15.3	0.71
Real Estate	0.4	0.11
Sensitive	39.5	1.16
Communication Services	2.0	0.48
Energy	4.4	0.60
Industrials	7.9	0.74
Technology	25.2	2.11
Defensive	21.1	0.97
Consumer Defensive	8.9	0.88
Healthcare	11.0	1.30
Utilities	1.3	0.39
	Cyclical Basic Materials Consumer Cyclical Financial Services Real Estate Sensitive Communication Services Energy Industrials Technology Defensive Consumer Defensive Healthcare	Cyclical         39.4           Basic Materials         6.3           Consumer Cyclical         17.4           Financial Services         15.3           Real Estate         0.4           Sensitive         39.5           Communication Services         2.0           Energy         4.4           Industrials         7.9           Technology         25.2           Defensive         21.1           Consumer Defensive         8.9           Healthcare         11.0

Sector Weightings 12-31-2018

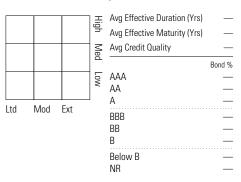


### Style Analysis 12-31-2018

### **Equity Investment Style Actual %**

13	16	62	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
13	10	UZ		P/E Ratio TTM	17.5	1.25	1.01
1	3	5	Mid				
0	0	0	Small	Geo Avg Cap Pla Geo Avg Cap Bm			63,195 33.864
∟ Value	Blend	Growth		Goo / wg oup bill	ark (ψιν	,	55,504

### Fixed-Income Investment Style Actual %



Performance rankings are based on each fund's total returns relative to other funds in its Morningstar Category for each period. The performance data represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate, thus an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than the return data quoted. For performance data current to the most recent month-end, visit http://advisor.morningstar.com/familyinfo.asp. The "Overall Morningstar Rating" is based on risk-adjusted returns, derived from a weighted average of the three, five and ten-year (if applicable) Morningstar metrics. An investment in the fund is not insured or guaranteed by the FDIC or any other government agency.

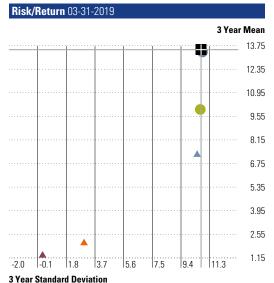
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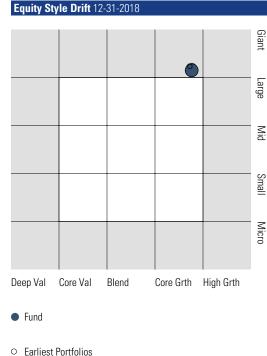
# American Funds New Perspective R6 (USD)



- Fund
- World Large Stock

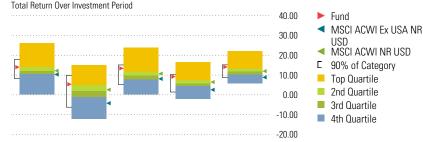
### **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon



Latest Portfolios

Return vs Category Quartiles 03-31-2019



	YTD	1 Yr	3 Yr	5 Yr	10 Yr	
	954	900	732	617	370	Number of Funds in Category
	_	22	14	11	13	Percentile Rank
	13.99	5.34	13.37	9.18	14.07	American Funds New Perspective R6
	10.31	-4.22	8.09	2.57	8.85	MSCI ACWI Ex USA NR USD
	12.18	2.60	10.67	6.45	11.98	MSCI ACWI NR USD
:	26.21	14.98	23.81	16.63	22.02	Category High Return
	11.96	1.86	9.73	5.82	11.76	Category Median Return
	0.21	-12.10	0.24	-2.05	5.88	Category Low Return

<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net
	Assets
Amazon.com Inc	4.26
Taiwan Semiconductor Manufacturing Co Ltd	2.15
Microsoft Corp	2.10
Facebook Inc A	2.05
Broadcom Inc	1.91
JPMorgan Chase & Co	1.68
CME Group Inc Class A	1.63
Mastercard Inc A	1.53
Tesla Inc	1.45
Visa Inc Class A	1.41

### **Investment Strategy** 03-31-2019

The investment seeks long-term growth of capital; future income is a secondary objective. The fund seeks to take advantage of investment opportunities generated by changes in international trade patterns and economic and political relationships by investing in common stocks of companies located around the world. In pursuing its primary investment objective, it invests primarily in common stocks that the investment adviser believes have the potential for growth. In pursuing its secondary objective, the fund invests in common stocks of companies with the potential to pay dividends in the future.

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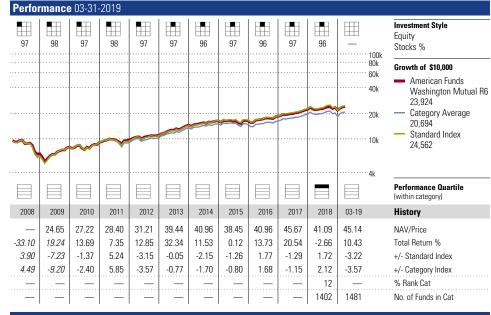
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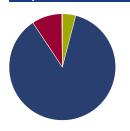
# American Funds Washington Mutual R6 (USD)

# Details 03-31-2019 Ticker RWMGX Gross Expense Ratio % 0.29 Total Assets \$115,246.98 mil Family American Funds Manager Alan Berro, Tenure 21.8 Years Objective Growth and Income

Risk and Return 03-31-2019	
Overall Morningstar Rating	****
	1,218 LB
Standard Deviation 3 Yr	9.26
Mean 3 Yr	13.09
Alpha 3 Yr	1.61
Beta 3 Yr	0.82
R-Squared 3 Yr	92.66
Upside Capture Ratio 3 Yr	90.91
Downside Capture Ratio 3 Yr	82.23
Standard Index	S&P 500 TR USD
Category Index	Russell 1000 TR USD



### **Composition** 12-31-2018



Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	4.07	0.00
<ul><li>US Stocks</li></ul>	86.61	99.10
<ul><li>Non-US Stocks</li></ul>	9.19	0.90
<ul><li>Bonds</li></ul>	0.13	0.00
Other/Not Clsfd	0.00	0.00

### **Sector Weightings** 12-31-2018

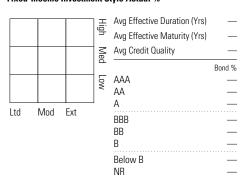
		Stocks %	Rel Std Index
·	Cyclical	30.1	0.93
æ.	Basic Materials	4.6	1.88
A	Consumer Cyclical	7.3	0.61
	Financial Services	16.8	1.09
命	Real Estate	1.4	0.58
W	Sensitive	43.8	1.04
	Communication Services	4.6	1.30
•	Energy	9.8	1.81
Ф	Industrials	12.1	1.19
	Technology	17.2	0.75
<b>→</b>	Defensive	26.1	1.02
Ħ	Consumer Defensive	7.0	0.90
	Healthcare	15.2	1.05
	Utilities	3.8	1 15

### Style Analysis 12-31-2018

### **Equity Investment Style Actual %**

32	37	27	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
JZ	37	27		P/E Ratio TTM	16.5	0.83	0.82
1	2	1	Mid				
0	0	0	Small	Geo Avg Cap Pla Geo Avg Cap Bm			99,928 105,01
Value	Blend	Growth					0

### Fixed-Income Investment Style Actual %



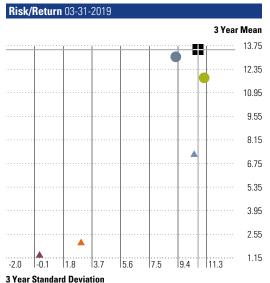
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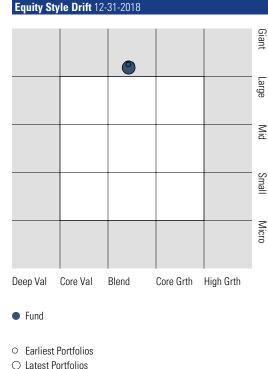
# American Funds Washington Mutual R6 (USD)



- Fund
- Large Blend

### **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon





<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net Assets
Microsoft Corp	5.34
Intel Corp	2.90
Merck & Co Inc	2.88
Broadcom Inc	2.86
The Home Depot Inc	2.60
Boeing Co	2.56
CME Group Inc Class A	2.47
Verizon Communications Inc	2.42
Royal Dutch Shell PLC ADR Class B	2.25
DowDuPont Inc	2.10

### **Investment Strategy** 03-31-2019

The investment seeks to produce income and to

provide an opportunity for growth of principal

consistent with sound common stock investing. The fund invests primarily in common stocks of established companies that are listed on, or meet the financial listing requirements of, the New York Stock Exchange and have a strong record of earnings and dividends. Its advisor strives to maintain a fully invested, diversified portfolio, consisting primarily of high-quality common stocks.

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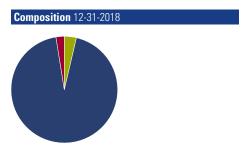
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# ClearBridge Small Cap I (USD)

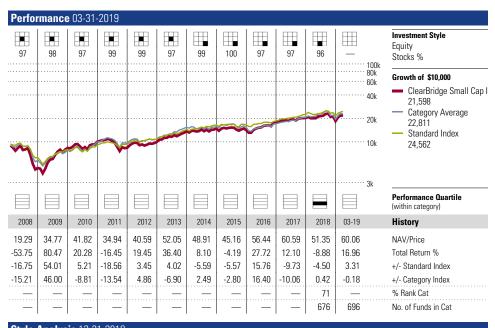
<b>Details</b> 03-31-2019	
Ticker	LMNSX
Gross Expense Ratio %	0.98
Total Assets	\$1,148.90 mil
Family	Legg Mason
Manager	Albert Grosman,
Tenure	7.5 Years
Objective	Small Company

Risk and Return 03-31-2019	
Overall Morningstar Rating	***
	588 SG
Standard Deviation 3 Yr	15.58
Mean 3 Yr	14.76
Alpha 3 Yr	1.07
Beta 3 Yr	0.91
R-Squared 3 Yr	89.83
Upside Capture Ratio 3 Yr	93.40
Downside Capture Ratio 3 Yr	87.76
Standard Index	S&P 500 TR USD
Category Index	Russell 2000 Growth TR USD



Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	3.65	0.00
<ul><li>US Stocks</li></ul>	93.82	99.10
<ul><li>Non-US Stocks</li></ul>	2.53	0.90
<ul><li>Bonds</li></ul>	0.00	0.00
Other/Not Clsfd	0.00	0.00

Sector Weightings 12-3	1-2018	
	Stocks %	Rel Std Index
<b>∿</b> Cyclical	44.9	1.39
Basic Materials	4.1	1.68
Consumer Cyclical	14.2	1.20
🔁 Financial Services	21.5	1.40
Real Estate	5.1	2.04
✓ Sensitive	36.1	0.86
Communication Services	1.3	0.36
Energy	2.9	0.53
Industrials	14.9	1.46
Technology	17.0	0.74
→ Defensive	19.0	0.74
Consumer Defensive	4.7	0.61
Healthcare	10.3	0.71
Utilities	3.9	1.18

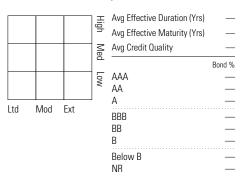


### Style Analysis 12-31-2018

### **Equity Investment Style Actual %**

0	0	n	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
U	U	0		P/E Ratio TTM	10.9	0.55	0.41
7	7	11	Mid				
15	35	25	Small	Geo Avg Cap Plat Geo Avg Cap Bm			1,811 105,01
Value	Blend	Growth					0

### Fixed-Income Investment Style Actual %



Performance rankings are based on each fund's total returns relative to other funds in its Morningstar Category for each period. The performance data represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate, thus an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than the return data quoted. For performance data current to the most recent month-end, visit http://advisor.morningstar.com/familyinfo.asp. The "Overall Morningstar Rating" is based on risk-adjusted returns, derived from a weighted average of the three, five and ten-year (if applicable) Morningstar metrics. An investment in the fund is not insured or guaranteed by the FDIC or any other government agency.

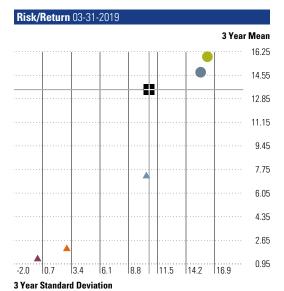
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# ClearBridge Small Cap I (USD)

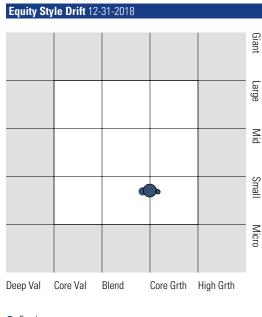




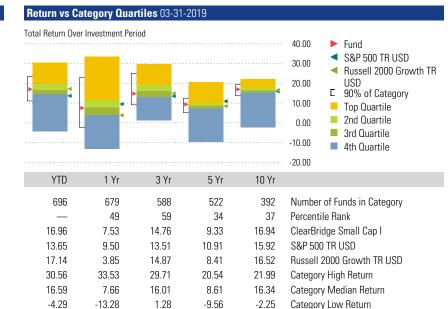
Small Growth

### **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon



- Fund
- Earliest Portfolios
- Latest Portfolios



<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net Assets
Amarin Corp PLC ADR	3.48
Gray Television Inc	2.58
Aaron's Inc	2.47
Cadence Bancorp A	2.38
Black Hills Corp	2.36
First Interstate BancSystem Inc	2.19
Murphy USA Inc	1.96
HealthEquity Inc	1.93
Sprouts Farmers Market Inc	1.90
Encompass Health Corp	1.77

### **Investment Strategy** 03-31-2019

The investment seeks capital appreciation. Under normal circumstances, the fund invests at least 80% of its net assets plus borrowings for investment purposes, if any, in common stocks and other equity securities of small capitalization companies or in other investments that the portfolio managers believe have similar economic characteristics. The adviser does not currently intend to borrow for investment purposes.

The performance data quoted represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate; thus an investor's shares, when sold or redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than return data quoted herein. For performance data current to the most recent month-end, please visit http://advisor.morningstar.com/familyinfo.asp.

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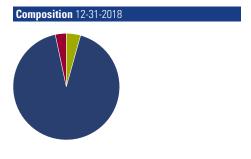
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# Harbor Mid Cap Growth Retirement (USD)

<b>Details</b> 03-31-2019	
Ticker	HNMGX
Gross Expense Ratio %	0.81
Total Assets	\$243.24 mil
Family	Harbor
Manager	Michael Carmen,
Tenure	13.6 Years
Objective	Growth

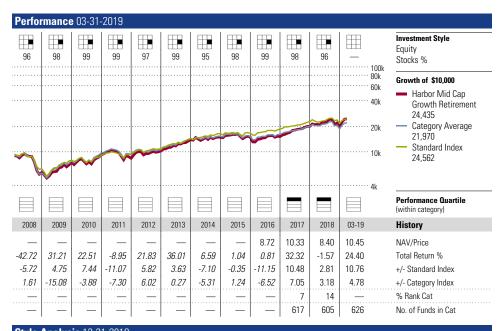
****
555 MG
16.51
20.23
2.26
1.20
92.60
120.29
103.49
S&P 500 TR USD
Russell Mid Cap Growth TR USD



Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	4.33	0.00
<ul><li>US Stocks</li></ul>	92.33	99.10
<ul><li>Non-US Stocks</li></ul>	3.34	0.90
<ul><li>Bonds</li></ul>	0.00	0.00
Other/Not Clsfd	0.00	0.00

ctor weightings 12-3	1-2010	
	Stocks %	Rel Std Index
Cyclical	25.9	0.80
Basic Materials	2.0	0.82
Consumer Cyclical	16.6	1.39
Financial Services	2.9	0.19
Real Estate	4.4	1.78
Sensitive	44.2	1.05
Communication Services	0.0	0.00
Energy	1.4	0.25
Industrials	6.0	0.59
Technology	36.8	1.60
Defensive	29.9	1.17
Consumer Defensive	6.8	0.87
Healthcare	23.1	1.60
Utilities	0.0	0.00
	Cyclical Basic Materials Consumer Cyclical Financial Services Real Estate Sensitive Communication Services Energy Industrials Technology Defensive Consumer Defensive Healthcare	Cyclical         25.9           Basic Materials         2.0           Consumer Cyclical         16.6           Financial Services         2.9           Real Estate         4.4           Sensitive         44.2           Communication Services         0.0           Energy         1.4           Industrials         6.0           Technology         36.8           Defensive         29.9           Consumer Defensive         6.8           Healthcare         23.1

Sector Weightings 12-31-2018

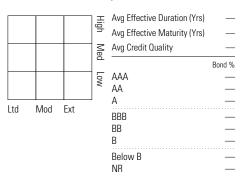


### Style Analysis 12-31-2018

### **Equity Investment Style Actual %**

0	2	30	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
U	J	30		P/E Ratio TTM	29.4	1.48	1.09
2	10	52	Mid				
0	0	3	Small	Geo Avg Cap Plan Geo Avg Cap Bm			10,495 105,01
Value	Blend	Growth					0

### Fixed-Income Investment Style Actual %



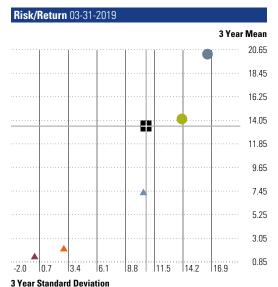
Performance rankings are based on each fund's total returns relative to other funds in its Morningstar Category for each period. The performance data represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate, thus an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than the return data quoted. For performance data current to the most recent month-end, visit http://advisor.morningstar.com/familyinfo.asp. The "Overall Morningstar Rating" is based on risk-adjusted returns, derived from a weighted average of the three, five and ten-year (if applicable) Morningstar metrics. An investment in the fund is not insured or guaranteed by the FDIC or any other government agency.

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# Harbor Mid Cap Growth Retirement (USD)



- Fund
- Mid-Cap Growth

### **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon



- Earliest Portfolios
- Latest Portfolios

Return vs Category Quartiles 03-31-2019								
Total Return Over I	nvestment Per	iod						
					40.00 Fund			
					30.00 S&P 500 TR USD			
4					Russell Mid Cap Growth 20.00 TR USD			
L F		4 .		4	□ 90% of Category			
	<b>→</b>		4		10.00 Top Quartile			
					<sub>0.00</sub> 2nd Quartile			
					3rd Quartile			
					4th Quartile			
					-20.00			
YTD	1 Yr	3 Yr	5 Yr	10 Yr				
626	615	555	495	352	Number of Funds in Category			
	7	7	17	25	Percentile Rank			
24.40	15.94	,			1 010011110 TIGHK			
24.40		20.23	11.49	16.78	Harbor Mid Cap Growth Retirement			
13.65	9.50	13.51	10.91	15.92	S&P 500 TR USD			

10.89

15.55

9.35

0.51

17.60

<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net Assets
Workday Inc Class A	4.50
ServiceNow Inc	3.63
Align Technology Inc	3.32
Exact Sciences Corp	3.30
Guidewire Software Inc	3.14
CoStar Group Inc	3.12
Monster Beverage Corp	2.96
Haemonetics Corp	2.77
TD Ameritrade Holding Corp	2.74
DexCom Inc	2.67

11.51

36.14

8.91

-14.45

15.06

27.20

14.30

-2.86

### Investment Strategy 03-31-2019

Category High Return

Category Median Return Category Low Return

The investment seeks long-term growth of capital. The fund invests primarily in equity securities, principally common and preferred stocks of mid cap companies. The adviser defines mid cap companies as those with market capitalizations that fall within the range of the Russell Midcap® Growth Index. Under normal market conditions, the fund invests at least 80% of its net assets, plus borrowings for investment purposes, in securities of mid cap companies. The fund may invest up to 25% of its total assets in the securities of foreign issuers, including issuers located or doing business in emerging markets.

Russell Mid Cap Growth TR USD

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19.62

31.16

18.23

1.79

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# JHancock Fundamental Large Cap Core R6 (USD)

### **Details** 03-31-2019 Ticker **JLCWX** Gross Expense Ratio % 0.68 Total Assets \$4.985.11 mil Family John Hancock Manager Emory (Sandy) Sanders, 7.3 Years Tenure Objective Growth

**Composition** 01-31-2019

Asset Allocation

Cash

Bonds

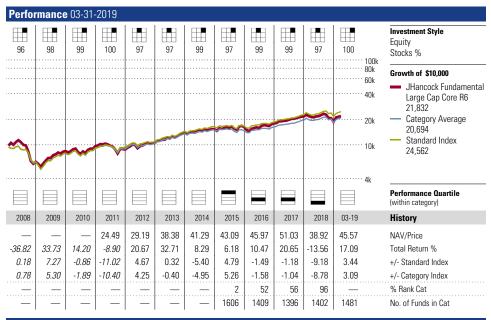
US Stocks

Non-US Stocks

Other/Not Clsfd

Risk and Return 03-31-2019	
Overall Morningstar Rating	***
	1,218 LB
Standard Deviation 3 Yr	13.30
Mean 3 Yr	12.18
Alpha 3 Yr	-2.83
Beta 3 Yr	1.16
R-Squared 3 Yr	89.49
Upside Capture Ratio 3 Yr	98.12
Downside Capture Ratio 3 Yr	109.33
Standard Index	S&P 500 TR USD
Category Index	Russell 1000 TR USD

Sector	Weightings 01-3	1-2019	
		Stocks %	Rel Std Index
⊌ Cycli	cal	43.3	1.34
Basic	Materials	0.0	0.00
Cons	ımer Cyclical	23.0	1.93
🔋 Finan	cial Services	20.3	1.32
Real	Estate	0.0	0.00
⊶ Sens	itive	39.8	0.94
Comr	nunication Services	3.3	0.91
Energ	у	6.1	1.12
🔢 Indus	trials	6.6	0.65
Techi	nology	23.9	1.04
→ Defe	ısive	16.9	0.66
Cons	umer Defensive	7.3	0.93
Healt	hcare	9.6	0.66
Utilit	es	0.0	0.00

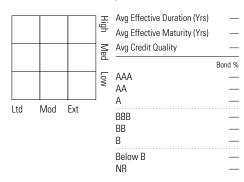


### Style Analysis 01-31-2019

### **Equity Investment Style Actual %**

30	16	40	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
- 50	10	70		P/E Ratio TTM	16.7	0.84	0.83
0	8	4	Mid				
0	2	0	Small	Geo Avg Cap Plan Geo Avg Cap Bma			98,541 105,01
Value	Blend	Growth					0

Fixed-Income	Investment St	yle Actual	%
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Performance rankings are based on each fund's total returns relative to other funds in its Morningstar Category for each period. The performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate, thus an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than the return data quoted. For performance data current to the most recent month-end, visit http://advisor.morningstar.com/familyinfo.asp. The "Overall Morningstar Rating" is based on risk-adjusted returns, derived from a weighted average of the three, five and ten-year (if applicable) Morningstar metrics. An investment in the fund is not insured or guaranteed by the FDIC or any other government agency.

### For Institutional Use Only - Not For Participant Distribution

Portfolio

Net %

0.10

93.66

6.24

0.00

0.00

Bmark

Net %

0.00

99.10

0.90

0.00

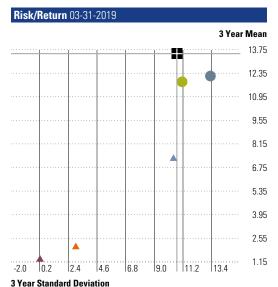
0.00

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# JHancock Fundamental Large Cap Core R6 (USD)

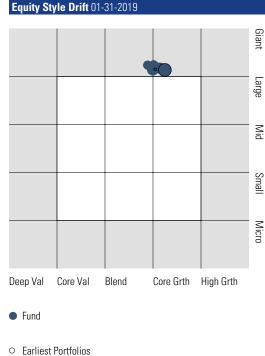




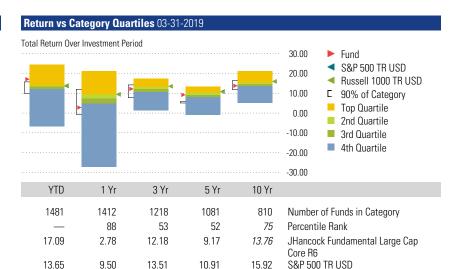
Large Blend

### **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon



Latest Portfolios



10.63

13.23

9.11

-0.98

16 05

21.07

Holding Name	% Net
Amazon com Inc	<b>Assets</b> 8 11
and control in o	0
Lennar Corp	4.97
Facebook Inc A	4.82
Alphabet Inc A	4.46
Bank of America Corporation	4.41
Apple Inc	3.84
Anheuser-Busch InBev SA/NV ADR	3.36
Citigroup Inc	3.34
Workday Inc Class A	3.08
Polaris Industries Inc	3.04

9.30

21.28

7.38

-27.29

13 52

17.31

12.10

1.48

### **Investment Strategy** 03-31-2019

Russell 1000 TR USD

Category High Return

Category Low Return

Category Median Return

The investment seeks long-term capital appreciation.

The fund normally invests at least 80% of its net assets (plus any borrowings for investment purposes) in equity securities of large-capitalization companies. It may invest up to 20% of its assets in bonds of any maturity, including up to 15% of net assets in below investment grade bonds (i.e., junk bonds) rated as low as CC by Standard & Poor's Ratings Services or Ca by Moody's Investors' Service, Inc. and their unrated equivalents. The fund may invest up to 35% of its assets in foreign securities and may trade securities actively.

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14.00

24.49

13.29

-6.60

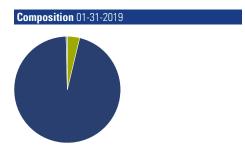
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# Nuveen Real Estate Securities R6 (USD)

<b>Details</b> 03-31-2019	
Ticker	FREGX
Gross Expense Ratio %	0.87
Total Assets	\$3,487.62 mil
Family	Nuveen
Manager	Jay Rosenberg,
Tenure	13.9 Years
Objective	Specialty - Real Estate

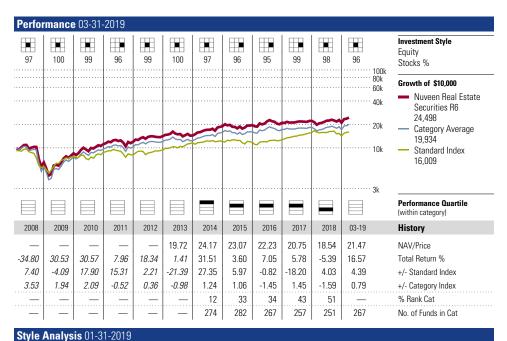
Risk and Return 03-31-2019	
Overall Morningstar Rating	***
	225 SR
Standard Deviation 3 Yr	13.27
Mean 3 Yr	6.01
Alpha 3 Yr	0.37
Beta 3 Yr	0.94
R-Squared 3 Yr	98.70
Upside Capture Ratio 3 Yr	94.37
Downside Capture Ratio 3 Yr	91.62
Standard Index	MSCI ACWI NR USD
Category Index	S&P United States REIT TR USD



Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	3.76	0.00
<ul><li>US Stocks</li></ul>	95.85	54.57
<ul><li>Non-US Stocks</li></ul>	0.00	45.41
<ul><li>Bonds</li></ul>	0.00	0.00
Other/Not Clsfd	0.39	0.02

ctor weightings of s		
	Stocks %	Rel Std Index
Cyclical	99.9	2.65
Basic Materials	0.0	0.00
Consumer Cyclical	0.0	0.00
Financial Services	0.0	0.00
Real Estate	99.9	32.03
Sensitive	0.1	0.00
Communication Services	0.1	0.02
Energy	0.0	0.00
Industrials	0.0	0.00
Technology	0.0	0.00
Defensive	0.0	0.00
Consumer Defensive	0.0	0.00
Healthcare	0.0	0.00
	Basic Materials Consumer Cyclical Financial Services Real Estate Sensitive Communication Services Energy Industrials Technology Defensive Consumer Defensive	Cyclical         99.9           Basic Materials         0.0           Consumer Cyclical         0.0           Financial Services         0.0           Real Estate         99.9           Sensitive         0.1           Communication Services         0.1           Energy         0.0           Industrials         0.0           Technology         0.0           Defensive         0.0           Consumer Defensive         0.0

Sector Weightings 01-31-2019

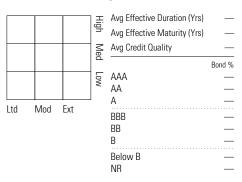


### Otyle Allulysis of 51 2015

### **Equity Investment Style Actual %**

0	39	5	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
U	33	0		P/E Ratio TTM	33.3	1.99	1.18
9	32	7	Mid				
4	2	2	Small	Geo Avg Cap Pla Geo Avg Cap Bm			13,160 59,694
Value	Blend	Growth					

### Fixed-Income Investment Style Actual %



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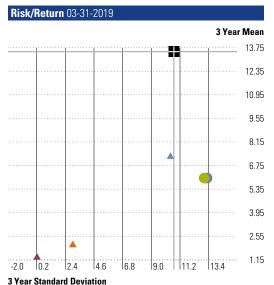
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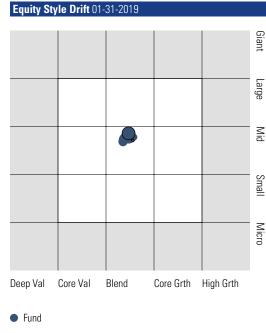
# Nuveen Real Estate Securities R6 (USD)



- Fund
- Real Estate

### **Benchmarks**

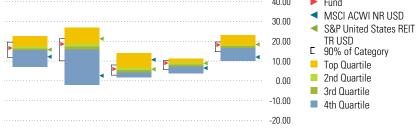
- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCLEAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon



Earliest Portfolios

Latest Portfolios





YTD	1 Yr	3 Yr	5 Yr	10 Yr	
267	251	225	198	139	Number of Funds in Category
	41	44	33	<i>31</i>	Percentile Bank
16.57	18.58	6.01	9.02	18.17	Nuveen Real Estate Securities R6
12.18	2.60	10.67	6.45	11.98	MSCI ACWI NR USD
15.77	21.27	5.85	8.90	18.40	S&P United States REIT TR USD
22.57	26.94	14.11	11.33	22.92	Category High Return
16.31	17.35	5.33	8.22	17.44	Category Median Return
7.00	-2.10	1.83	3.72	10.09	Category Low Return

<b>Top 10 Holdings</b> 01-31-2019	
Holding Name	% Net Assets
Simon Property Group Inc	7.05
Public Storage	4.73
Prologis Inc	4.35
AvalonBay Communities Inc	3.98
Ventas Inc	3.85
Equinix Inc	3.85
Duke Realty Corp	3.73
Boston Properties Inc	3.23
Camden Property Trust	2.97
Alexandria Real Estate Equities Inc	2.96

### **Investment Strategy** 03-31-2019

The investment seeks to provide above average current income and long-term capital appreciation. The fund normally invests at least 80% of the sum of its net assets and the amount of any borrowings for investment purposes in income-producing common stocks of publicly traded companies engaged in the real estate industry. The advisor expects to emphasize investments in equity REITs, although it may invest in all three kinds of REITs. It may invest up to 15% of its total assets in nondollar denominated equity securities of non-U.S. issuers. Up to 15% of the fund's total assets may be invested in equity securities of emerging market issuers.

The performance data quoted represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate; thus an investor's shares, when sold or redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than return data quoted herein. For performance data current to the most recent month-end, please visit http://advisor.morningstar.com/familyinfo.asp.

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# Oakmark International Institutional (USD)

# Details 03-31-2019 Ticker OANIX Gross Expense Ratio % 0.84 Total Assets \$35,705.80 mil Family Oakmark Manager David Herro, Tenure 26.6 Years Objective Foreign Stock

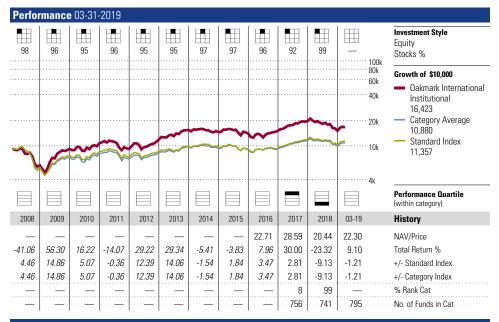
Risk and Return 03-31-2019	
Overall Morningstar Rating	***
	644 FB
Standard Deviation 3 Yr	14.69
Mean 3 Yr	6.55
Alpha 3 Yr	-2.77
Beta 3 Yr	1.26
R-Squared 3 Yr	82.06
Upside Capture Ratio 3 Yr	114.44
Downside Capture Ratio 3 Yr	136.51
Standard Index	MSCI ACWI Ex USA
Category Index	NR USD MSCI ACWI Ex USA NR USD

# Composition 12-31-2018

Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	1.08	0.01
<ul><li>US Stocks</li></ul>	5.81	0.77
<ul><li>Non-US Stocks</li></ul>	93.01	99.18
<ul><li>Bonds</li></ul>	0.00	0.00
Other/Not Clsfd	0.10	0.04

		Stocks %	Rel Std Index
J	Cyclical	60.7	1.38
Æ.	Basic Materials	6.9	0.88
A	Consumer Cyclical	25.3	2.30
<b>•</b>	Financial Services	28.4	1.31
命	Real Estate	0.0	0.00
W	Sensitive	32.6	0.95
	Communication Services	2.3	0.56
	Energy	1.4	0.18
Ф	Industrials	19.3	1.80
	Technology	9.6	0.81
$\rightarrow$	Defensive	6.7	0.31
$\succeq$	Consumer Defensive	2.7	0.27
•	Healthcare	4.0	0.47
	Utilities	0.0	0.00

Sector Weightings 12-31-2018

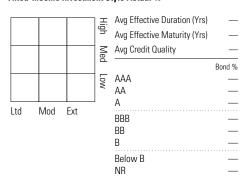


### Style Analysis 12-31-2018

### **Equity Investment Style Actual %**

42	21	20	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
42	21	20		P/E Ratio TTM	10.2	0.73	0.74
5	9	3	Mid				
0	0	0	Small	Geo Avg Cap Pla			27,089
-			_	Geo Avg Cap Bm	ark (\$N	1il) 3	33,864
Value	Blend	Growth					

### Fixed-Income Investment Style Actual %



Performance rankings are based on each fund's total returns relative to other funds in its Morningstar Category for each period. The performance data represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate, thus an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than the return data quoted. For performance data current to the most recent month-end, visit http://advisor.morningstar.com/familyinfo.asp. The "Overall Morningstar Rating" is based on risk-adjusted returns, derived from a weighted average of the three, five and ten-year (if applicable) Morningstar metrics. An investment in the fund is not insured or guaranteed by the FDIC or any other government agency.

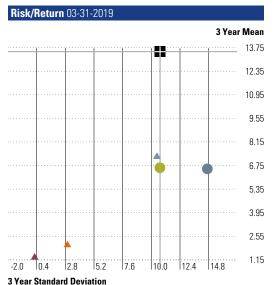
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### See Important Information and Disclosures at the end of this Report

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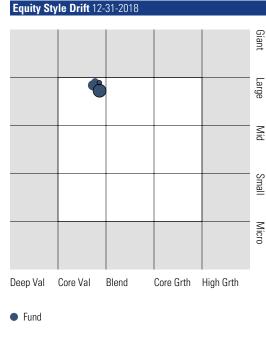
# Oakmark International Institutional (USD)



- Fund
- Foreign Large Blend

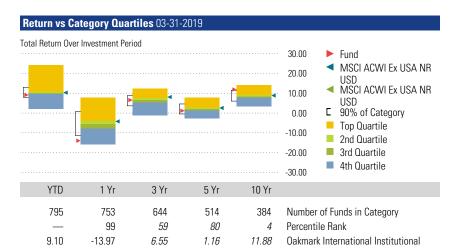
### **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon



Earliest Portfolios

Latest Portfolios



2.57

2.57

7.84

1.92

-2.75

14.04

8.36

<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net Assets
BNP Paribas	4.03
Daimler AG	3.86
Lloyds Banking Group PLC	3.81
Intesa Sanpaolo	3.73
Credit Suisse Group AG	3.54
Continental AG	3.40
CNH Industrial NV	3.23
Bayerische Motoren Werke AG	3.09
Glencore PLC	2.99
Hennes & Mauritz AB B	2.94

-4.22

-4.22

7.69

-5.61

-15.82

8.09

8.09

12.32

6.58

-1.12

### Investment Strategy 03-31-2019

Category High Return

Category Low Return

Category Median Return

MSCI ACWI Ex USA NR USD

MSCI ACWI Ex USA NR USD

The investment seeks long-term capital appreciation.

The fund invests primarily in a diversified portfolio of common stocks of non-U.S. companies. It may invest in non-U.S. markets throughout the world, including emerging markets. Ordinarily, the fund will invest in the securities of at least five countries outside of the U.S. There are no geographic limits on the fund's non-U.S. investments. The fund may invest in securities of large-, mid-, and small- capitalization companies.

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10.31

10.31

24.21

10.08

2.18

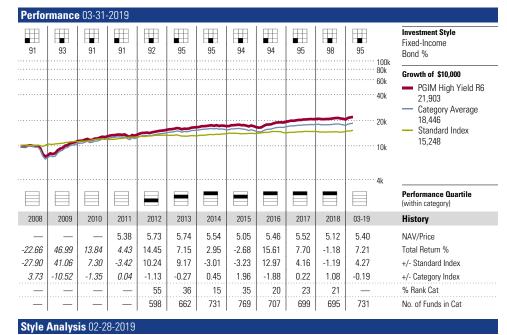
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# PGIM High Yield R6 (USD)

<b>Details</b> 03-31-2019	
Ticker Gross Expense Ratio %	PHYQX 0.42
Total Assets	\$8,609.56 mil
Family	PGIM Funds (Prudential)
Manager	Robert Spano,
Tenure	11.5 Years
Objective	Corporate Bond - High Yield

Risk and Return 03-31-2019	
Overall Morningstar Rating	****
	610 HY
Standard Deviation 3 Yr	4.38
Mean 3 Yr	8.47
Alpha 3 Yr	0.25
Beta 3 Yr	0.94
R-Squared 3 Yr	97.34
Upside Capture Ratio 3 Yr	96.47
Downside Capture Ratio 3 Yr	92.48
Standard Index	BBgBarc US Agg
Category Index	Bond TR USD ICE BofAML US High Yield TR USD



**Composition** 02-28-2019

Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	4.41	3.05
<ul><li>US Stocks</li></ul>	0.21	0.00
<ul><li>Non-US Stocks</li></ul>	0.00	0.00
<ul><li>Bonds</li></ul>	95.00	96.55
Other/Not Clsfd	0.38	0.40

		Stocks %	Rel Std Index
Դ	Cyclical	1.4	_
Æ.	Basic Materials	0.0	_
A	Consumer Cyclical	1.4	_
<b>P</b>	Financial Services	0.0	_
<b>f</b>	Real Estate	0.0	_
W	Sensitive	5.6	_
	Communication Services	0.0	_
	Energy	5.6	_
₽	Industrials	0.0	_
	Technology	0.0	_
<b>→</b>	Defensive	93.0	_
$\equiv$	Consumer Defensive	0.0	_
	Healthcare	0.0	_
	Utilities	93.0	_

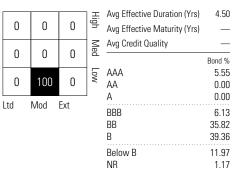
Sector Weightings 02-28-2019

1. 7						
		Lar	Portfolio Statistics	Port Ava	Rel Index	
		arge	P/E Ratio TTM	_	_	
		7				

**Equity Investment Style Actual %** 



xed-Income	Investment S	Style	Actual	%
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Performance rankings are based on each fund's total returns relative to other funds in its Morningstar Category for each period. The performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate, thus an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than the return data quoted. For performance data current to the most recent month-end, visit http://advisor.morningstar.com/familyinfo.asp. The "Overall Morningstar Rating" is based on risk-adjusted returns, derived from a weighted average of the three, five and ten-year (if applicable) Morningstar metrics. An investment in the fund is not insured or guaranteed by the FDIC or any other government agency.

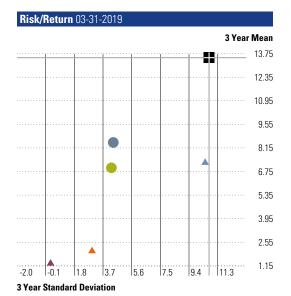
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# PGIM High Yield R6 (USD)

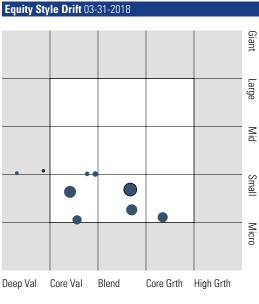




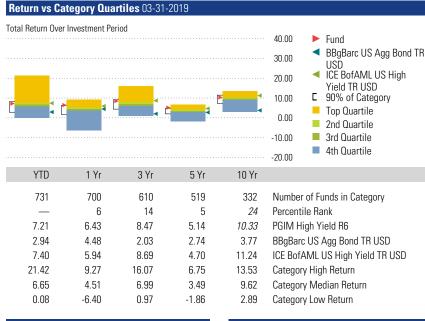
High Yield Bond

### **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon



- Fund
- Earliest Portfolios
- Latest Portfolios



<b>Top 10 Holdings</b> 02-28-2019	
Holding Name	% Ne
	Assets
2 Year US Treasury Note Future June19	4.0
US 5 Year Note (CBT) June19	1.9
US 10 Year Note (CBT) June19	1.8
DISH DBS Corporation 7.75%	1.3
Wind Tre S.p.A. 5%	1.1
Calpine Corporation 5.75%	1.0
Bombardier Inc. 7.5%	0.9
Wand Merger Corporation 9.12%	0.7
Citgo Holding, Inc 10.75%	0.7
Clear Channel Worldwide Holdings Inc. 9.25%	0.7

### **Investment Strategy** 03-31-2019

The investment seeks to maximize current income; and capital appreciation is a secondary objective. The fund normally invests at least 80% of its investable assets in a diversified portfolio of high yield fixed-income instruments rated Ba or lower by Moody's Investors Service (Moody's) or BB or lower by S&P Global Ratings (Standard & Poor's), and instruments either rated by another nationally recognized statistical rating organization (NRSRO), or considered to be of comparable quality, that is, junk bonds.

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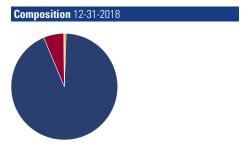
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# T. Rowe Price Growth Stock I (USD)

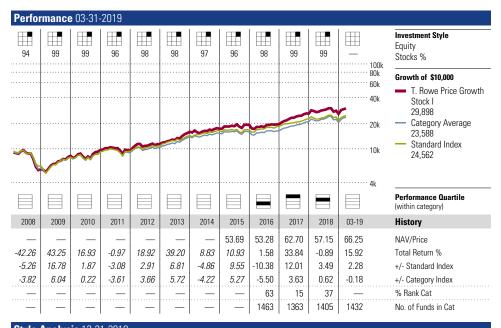
<b>Details</b> 03-31-2019	
Ticker	PRUFX
Gross Expense Ratio %	0.52
Total Assets	\$55,694.49 mil
Family	T. Rowe Price
Manager	Joseph Fath
Tenure	5.3 Years
Objective	Growth

Risk and Return 03-31-2019	
Overall Morningstar Rating	***
	1,256 LG
Standard Deviation 3 Yr	12.94
Mean 3 Yr	18.16
Alpha 3 Yr	1.34
Beta 3 Yr	1.01
R-Squared 3 Yr	90.55
Upside Capture Ratio 3 Yr	103.05
Downside Capture Ratio 3 Yr	93.24
Standard Index	S&P 500 TR USD
Category Index	Russell 1000 Growth TR USD



Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	0.56	0.00
<ul><li>US Stocks</li></ul>	93.11	99.10
<ul><li>Non-US Stocks</li></ul>	6.17	0.90
<ul><li>Bonds</li></ul>	0.00	0.00
Other/Not Clsfd	0.16	0.00



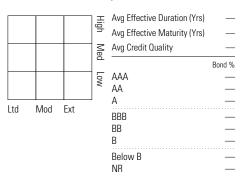


### Style Analysis 12-31-2018

### **Equity Investment Style Actual %**

4	16	74	Large	Portfolio Statistics	Port Avg	Rel Index	Re Ca
	10	/ 4		P/E Ratio TTM	26.0	1.31	1.08
0	2	4	Mid				
0	0	0	Small	Geo Avg Cap Plar Geo Avg Cap Bma			109,97 105,01
Value	Blend	Growth					0

### Fixed-Income Investment Style Actual %



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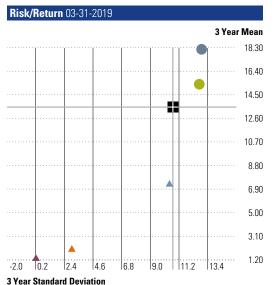
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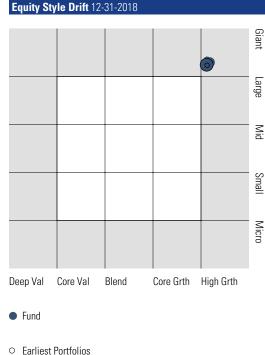
# T. Rowe Price Growth Stock I (USD)



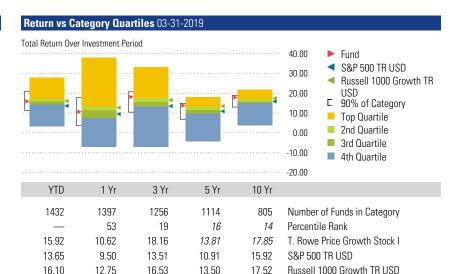
- Fund
- Large Growth

### **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon



Latest Portfolios



18.13

11.58

-4.33

Holding Name	% Net Assets
Amazon.com Inc	8.71
Microsoft Corp	5.35
Facebook Inc A	3.86
Boeing Co	3.61
Visa Inc Class A	3.52
Alphabet Inc A	3.22
Alphabet Inc Class C	3.11
UnitedHealth Group Inc	2.87
Mastercard Inc A	2.84
Tencent Holdings Ltd	2.32

38.00

11.06

-6.98

33.27

15.37

-7.09

# Investment Strategy 03-31-2019 The investment seeks long-term capital growth

Category High Return

Category Low Return

Category Median Return

through investments in stocks. The fund will normally invest at least 80% of its net assets (including any borrowings for investment purposes) in the common stocks of a diversified group of growth companies. While most assets will typically be invested in U.S. common stocks, the fund may invest in foreign stocks in keeping with the fund's objective.

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28.03

15.73

3.38

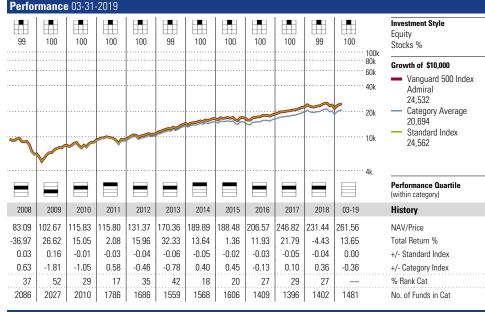
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# Vanguard 500 Index Admiral (USD)

# Details 03-31-2019 Ticker VFIAX Gross Expense Ratio % 0.04 Total Assets \$459,652.73 mil Family Vanguard Manager Donald Butler, Tenure 3.0 Years Objective Growth

Risk and Return 03-31-2019	
Overall Morningstar Rating	****
	1,218 LB
Standard Deviation 3 Yr	10.73
Mean 3 Yr	13.47
Alpha 3 Yr	0.11
Beta 3 Yr	0.99
R-Squared 3 Yr	99.80
Upside Capture Ratio 3 Yr	99.53
Downside Capture Ratio 3 Yr	99.37
Standard Index	S&P 500 TR USD
Category Index	Russell 1000 TR USD



# Composition 02-28-2019

Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	0.48	0.00
<ul><li>US Stocks</li></ul>	98.63	99.10
<ul><li>Non-US Stocks</li></ul>	0.89	0.90
<ul><li>Bonds</li></ul>	0.00	0.00
Other/Not Clsfd	0.00	0.00

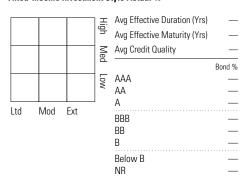
Sector Weightin	<b>ys</b> 02-20-2019	
	Stocks %	Rel Std Index
<b>⅓</b> Cyclical	32.7	1.01
Basic Materials	2.5	1.01
Consumer Cyclica	ıl 11.8	1.00
😝 Financial Services	15.9	1.04
♠ Real Estate	2.4	0.97
w Sensitive	41.7	0.99
☐ Communication S	ervices 3.5	0.98
Energy	5.4	0.99
Industrials	10.5	1.03
Technology	22.3	0.97
→ Defensive	25.6	1.00
Consumer Defens	sive 7.6	0.97
Healthcare	14.7	1.02
Utilities	3.3	0.98

### Style Analysis 02-28-2019

### **Equity Investment Style Actual %**

29	32	30	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
25	JZ	30		P/E Ratio TTM	19.2	0.97	0.95
3	4	2	Mid				
0	0	0	Small	Geo Avg Cap Pla Geo Avg Cap Bm			101,36 105,01
Value	Blend	Growth		0 1	•	·	0

### Fixed-Income Investment Style Actual %



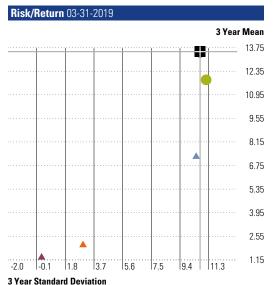
Performance rankings are based on each fund's total returns relative to other funds in its Morningstar Category for each period. The performance data represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate, thus an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than the return data quoted. For performance data current to the most recent month-end, visit http://advisor.morningstar.com/familyinfo.asp. The "Overall Morningstar Rating" is based on risk-adjusted returns, derived from a weighted average of the three, five and ten-year (if applicable) Morningstar metrics. An investment in the fund is not insured or guaranteed by the FDIC or any other government agency.

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# Vanguard 500 Index Admiral (USD)

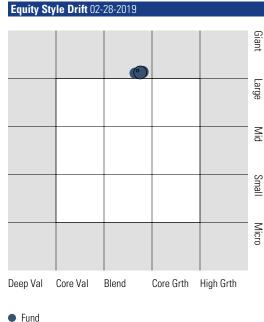




Large Blend

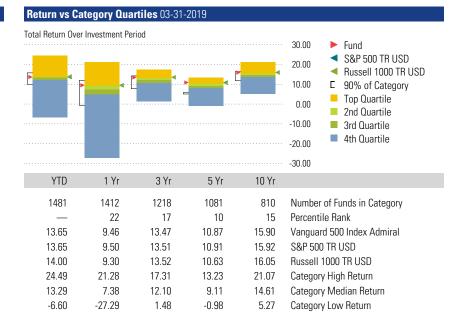
### **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon



Earliest Portfolios

Latest Portfolios



<b>Top 10 Holdings</b> 02-28-2019	
Holding Name	% Ne Assets
Microsoft Corp	3.68
Apple Inc	3.32
Amazon.com Inc	2.87
Facebook Inc A	1.65
Berkshire Hathaway Inc B	1.61
Johnson & Johnson	1.56
JPMorgan Chase & Co	1.48
Alphabet Inc Class C	1.47
Alphabet Inc A	1.43
Exxon Mobil Corp	1.42

# Investment Strategy 03-31-2019 The investment seeks to track the performance of a benchmark index that measures the investment return of large-capitalization stocks.

The fund employs an indexing investment approach designed to track the performance of the Standard & Poor's 500 Index, a widely recognized benchmark of U.S. stock market performance that is dominated by the stocks of large U.S. companies. The advisor attempts to replicate the target index by investing all, or substantially all, of its assets in the stocks that make up the index, holding each stock in approximately the same proportion as its weighting in the index.

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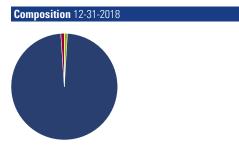
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# Victory Sycamore Established Value R6 (USD)

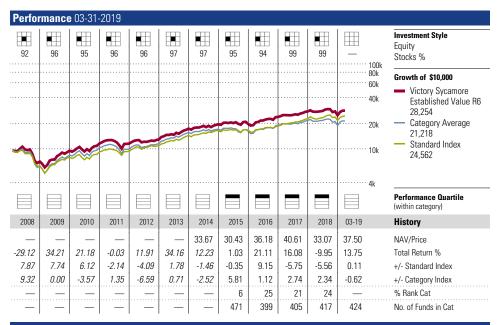
<b>Details</b> 03-31-2019	
Ticker	VEVRX
Gross Expense Ratio %	0.57
Total Assets	\$11,015.36 mil
Family	Victory
Manager	Gary Miller,
Tenure	20.8 Years
Objective	Growth

Risk and Return 03-31-2019	
Overall Morningstar Rating	**** 368 MV
Standard Deviation 3 Yr	11.72
Mean 3 Yr	11.34
Alpha 3 Yr	2.03
Beta 3 Yr	0.96
R-Squared 3 Yr	94.79
Upside Capture Ratio 3 Yr	100.13
Downside Capture Ratio 3 Yr	83.85
Standard Index	S&P 500 TR USD
Category Index	Russell Mid Cap Value TR USD



Asset Allocation	Portfolio Net %	Bmark Net %
<ul><li>Cash</li></ul>	0.93	0.00
<ul><li>US Stocks</li></ul>	98.02	99.10
<ul><li>Non-US Stocks</li></ul>	1.04	0.90
<ul><li>Bonds</li></ul>	0.00	0.00
Other/Not Clsfd	0.02	0.00



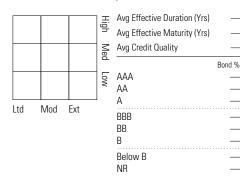


### Style Analysis 12-31-2018

### **Equity Investment Style Actual %**

20	8	3	Large	Portfolio Statistics	Port Avg	Rel Index	Rel Cat
20	0	J		P/E Ratio TTM	13.4	0.68	0.78
27	30	10	Mid				
1	1	0	Small	Geo Avg Cap Pla Geo Avg Cap Bm			10,561 105,01
Value	Blend	Growth					0

### Fixed-Income Investment Style Actual %



Performance rankings are based on each fund's total returns relative to other funds in its Morningstar Category for each period. The performance data represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate, thus an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than the return data quoted. For performance data current to the most recent month-end, visit http://advisor.momingstar.com/familyinfo.asp. The "Overall Morningstar Rating" is based on risk-adjusted returns, derived from a weighted average of the three, five and ten-year (if applicable) Morningstar metrics. An investment in the fund is not insured or guaranteed by the FDIC or any other government agency.

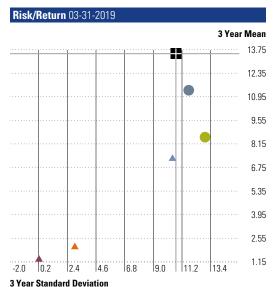
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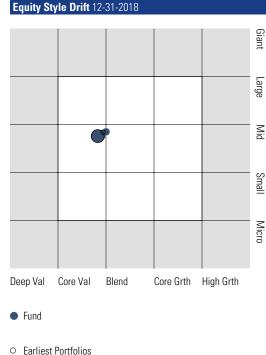
# Victory Sycamore Established Value R6 (USD)



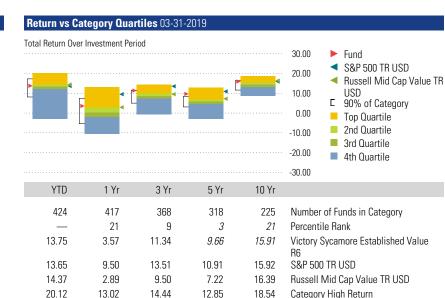
- Fund
- Mid-Cap Value

### **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon



Latest Portfolios



5.69

-3.01

<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net Assets
Alleghany Corp	2.63
National Retail Properties Inc	2.55
Reliance Steel & Aluminum Co	2.36
SunTrust Banks Inc	2.12
WR Berkley Corp	2.11
Archer-Daniels Midland Co	2.08
Hasbro Inc	2.02
Eastman Chemical Co	1.96
Fidelity National Information Services Inc	1.80
Lamar Advertising Co Class A	1.79

0.22

-10.55

8.60

-0.60

### **Investment Strategy** 03-31-2019

Category Median Return

The investment seeks long-term capital growth by

Category Low Return

investing primarily in common stocks. The fund pursues its investment objective by investing, under normal circumstances, at least 80% of its assets in equity securities of companies with market capitalizations, at the time of purchase, within the range of companies comprising the Russell MidCap® Value Index. The fund may invest a portion of its assets in equity securities of foreign companies traded in the U.S., including American Depositary Receipts and Global Depositary Receipts (ADRs and GDRs).

The performance data quoted represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate; thus an investor's shares, when sold or redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than return data quoted herein. For performance data current to the most recent month-end, please visit http://advisor.morningstar.com/familyinfo.asp.

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13.30

-2.99

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# Western Asset Core Plus Bond IS (USD)

<b>Details</b> 03-31-2019	
Ticker	WAPSX
Gross Expense Ratio %	0.43
Total Assets	\$25,160.95 mil
Family	Legg Mason
Manager	Carl Eichstaedt,
Tenure	20.8 Years
Objective	Corporate Bond - General

Risk and Return 03-31-2019	
Overall Morningstar Rating	**** 901 CI
Standard Deviation 3 Yr	3.67
Mean 3 Yr	3.93
Alpha 3 Yr	1.78
Beta 3 Yr	1.12
R-Squared 3 Yr	81.34
Upside Capture Ratio 3 Yr	131.86
Downside Capture Ratio 3 Yr	89.24
Standard Index Category Index	BBgBarc US Agg Bond TR USD BBgBarc US Agg Bond TR USD

### **Performance** 03-31-2019 Investment Style Fixed-Income 77 77 80 83 92 95 79 72 79 72 Bond % 100k 80k Growth of \$10,000 60k Western Asset Core Plus Bond IS 18.374 Category Average 14,902 Standard Index 15.248 Performance Quartile (within category) 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 03-19 History 10.13 10.78 11.10 11.67 11.19 11.64 11.43 11.42 11.83 11.20 11.57 NAV/Price 8.66 -9.76 26.11 12.10 6.65 8.57 -0.98 7.74 1.32 4.72 6.99 -1.47 4.25 Total Return % 5.56 20.18 -1.19 4.35 1.04 1.78 0.77 2.07 -1.48 1.31 +/- Standard Index -15.00 20.18 5.56 -1.19 4.35 1.04 1.78 0.77 2.07 3.44 -1.48 1.31 +/- Category Index 3 38 26 29 14 85 % Rank Cat 1123 1164 1195 1165 1079 1038 1042 985 986 1019 1087 No. of Funds in Cat

# Asset Allocation -100 -50 0 50 100

**Composition** 12-31-2018

	Portfolio	Bmark
	Net %	Net %
Cash	-1.48	3.05
US Stocks	0.00	0.00
Non-US Stocks	0.00	0.00
Bonds	100.29	96.55
Other/Not Clsfd	1.19	0.40
Total	100.00	100.00

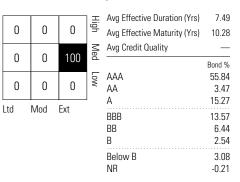
	Stocks %	Rel Std Index
Cyclical	_	_
Basic Materials	_	_
Consumer Cyclical	_	_
Financial Services	_	_
Real Estate	_	_
✓ Sensitive	_	_
Communication Services	_	_
Energy	_	_
Industrials	_	_
Technology	_	_
→ Defensive	_	_
Consumer Defensive	_	_
Healthcare	_	_
Utilities	_	_

Sector Weightings 12-31-2018





### Fixed-Income Investment Style Actual %



Performance rankings are based on each fund's total returns relative to other funds in its Morningstar Category for each period. The performance data represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate, thus an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than the return data quoted. For performance data current to the most recent month-end, visit http://advisor.morningstar.com/familyinfo.asp. The "Overall Morningstar Rating" is based on risk-adjusted returns, derived from a weighted average of the three, five and ten-year (if applicable) Morningstar metrics. An investment in the fund is not insured or guaranteed by the FDIC or any other government agency.

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### See Important Information and Disclosures at the end of this Report

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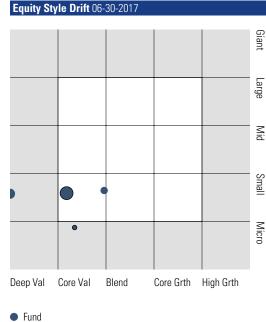
# Western Asset Core Plus Bond IS (USD)



- Fund
- Intermediate-Term Bond

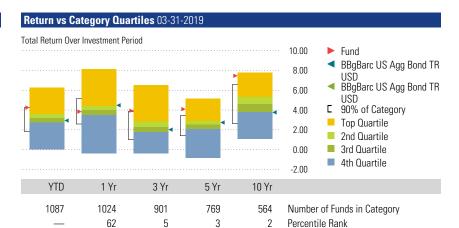
### **Benchmarks**

- S&P 500 TR USD
- ▲ BBgBarc US Agg Bond TR USD
- ▲ MSCI EAFE NR USD
- ▲ USTREAS T-Bill Auction Ave 3 Mon



Earliest Portfolios

Latest Portfolios



4.09

2.74

2.74

5.15

2.51

-0.83

-1.53

1.53

3.77

7.80

4.59

<b>Top 10 Holdings</b> 12-31-2018	
Holding Name	% Net
	Assets
Ir Swap 1d-FedI01 31 Bps	11.03
Ir Swap 3m-Libor-Bba	-11.01
Federal National Mortgage Association 4.5%	2.99
United States Treasury Bonds 3%	2.64
United States Treasury Bonds 2.88%	2.25
Government National Mortgage Association 4.5%	2.11
United States Treasury Bonds 3.75%	1.97
Government National Mortgage Association 5%	1.63

3.83

4.48

4.48

8.11

4.00

-0.36

3.93

2.03

2.03

6.52

2.28

-0.36

### Investment Strategy 03-31-2019

Category High Return

Category Low Return

Category Median Return

The investment seeks to maximize total return, consistent with prudent investment management and liquidity needs.

Western Asset Core Plus Bond IS

BBgBarc US Agg Bond TR USD

BBgBarc US Agg Bond TR USD

The fund invests in a portfolio of fixed income securities of various maturities and, under normal market conditions, will invest at least 80% of its net assets in debt and fixed income securities. Although the fund may invest in securities of any maturity, it will normally maintain a dollar-weighted average effective duration within 30% of the average duration of the domestic bond market as a whole as estimated by the fund's subadvisers. The fund may invest up to 20% of its total assets in non-U.S. dollar denominated securities.

The performance data quoted represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate; thus an investor's shares, when sold or redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than return data quoted herein. For performance data current to the most recent month-end, please visit http://advisor.morningstar.com/familyinfo.asp.

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Fx Fut Mexican Peso Fut Mar19

Fx Fut Mexican Peso Fut Mar19

4.25

2.94

2.94

6.26

3.17

0.00

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# Disclosure

The Defined Contribution Plan Status Report is supplemental sales literature, and therefore must be preceded or accompanied by the fund's current prospectus or an equivalent statement. Please read this information carefully. In all cases, this disclosure statement should accompany the Defined Contribution Plan Status Report. Morningstar is not itself a FINRA-member firm. All data presented is based on the most recent information available to Morningstar as of the release date and may or may not be an accurate reflection of current data for securities included in the fund's portfolio. There is no assurance that the data will remain the same.

The information and data in the presentation may be deemed reliable; however, their accuracy and completeness is not guaranteed by UBS Financial Services Inc and providing you with this information is not to be considered a solicitation on our part with respect to the purchase or sale of any securities, investments, strategies or products that may be mentioned. In addition, the information and data used are subject to change without notice.

Morningstar and its employees are not affiliated with UBS Financial Services Inc. or its affiliates.

Unless otherwise specified, the definition of "funds" used throughout this Disclosure Statement includes closed-end funds, exchange-traded funds, grantor trusts, index mutual funds, open-ended mutual funds, and unit investment trusts. It does not include exchange-traded notes or exchange-traded commodities.

Prior to 2016, Morningstar's methodology evaluated open-end mutual funds and exchange-traded funds as separate groups. Each group contained a subset of the current investments included in our current comparative analysis. In this report, historical data presented on a calendar-year basis and trailing periods ending at the most-recent month-end reflect the updated methodology. Following this change, we expect some movement in the UBS Fund Score. For example, some mutual funds could score a little worse than ETFs after the category merge. Alerts that were set using UBS MF (or US ETF) category

returns/ranking could be triggered.

Risk measures (such as alpha, beta, r-squared, standard deviation, mean, or Sharpe ratio) are calculated for securities or portfolios that have at least a three-year history.

Most Morningstar rankings do not include any adjustment for one-time sales charges, or loads. Morningstar does publish load-adjusted returns, and ranks such returns within a Morningstar Category in certain reports. The total returns for ETFs and fund share classes without one-time loads are equal to Morningstar's calculation of load-adjusted returns. Share classes that are subject to one-time loads relating to advice or sales commissions have their returns adjusted as part of the load-adjusted return calculation to reflect those loads

### **Comparison of Fund Types**

Funds, including closed-end funds, exchange-traded funds (ETFs), money market funds, open-end funds, and unit investment trusts (UITs), have many similarities, but also many important differences. In general, publically-offered funds are investment companies registered with the Securities and Exchange Commission under the Investment Company Act of 1940, as amended. Funds pool money from their investors and manage it according to an investment strategy or objective, which can vary greatly from fund to fund. Funds have the ability to offer diversification and professional management, but also involve risk, including the loss of principal.

A closed-end fund is an investment company, which typically makes one public offering of a fixed number of shares. Thereafter, shares are traded on a secondary market. As a result, the secondary market price may be higher or lower than the closed-end fund's net asset value (NAV). If these shares trade at a price above their NAV, they are said to be trading at a premium. Conversely, if they are trading at a price below their NAV, they are said to be trading at a discount. A closed-end mutual fund's expense ratio is an annual fee charged to a shareholder. It includes operating expenses and management fees, but does not take into account any brokerage costs. Closed-end funds may also have 12b-1 fees. Income distributions and capital gains of the closed-end fund are subject to income tax, if held in a taxable account.

An ETF is an investment company that typically has an investment objective of striving to achieve a similar return as a particular market index. The ETF will invest in either all or a representative sample of the securities included in the index it is seeking to imitate. Like closed-end funds, an ETF can be traded on a secondary market and thus have a market price that may be higher or lower than its net asset value. If these shares trade at a price above their NAV, they are said to be trading at a premium. Conversely, if they are trading at a price below their NAV, they are said to be trading at a discount. ETFs are not actively managed, so their value may be affected by a general decline in the U.S. market segments relating to their underlying indexes. Similarly, an imperfect match between an ETF's holdings and those of its underlying index may cause its performance to vary from that of its underlying index. The expense ratio of an ETF is an annual fee charged to a shareholder. It includes operating expenses and management fees, but does not take into account any brokerage costs. ETFs do not have 12b-1 fees or sales loads. Capital gains from funds held in a taxable account are subject to income tax. In many, but not all cases, ETFs are generally considered to be more tax-efficient when compared to similarly invested mutual funds

Holding company depository receipts (HOLDRs) are similar to ETFs, but they focus on narrow industry groups. HOLDRs initially own 20 stocks, which are unmanaged, and can become more concentrated due to mergers, or the disparate performance of their holdings. HOLDRs can only be bought in 100-share increments. Investors may exchange shares of a HOLDR for its underlying stocks at any time.

A money-market fund is an investment company that invests in commercial paper, banker's acceptances, repurchase agreements, government securities, certificates of deposit and other highly liquid securities, and pays money market rates of interest. Money markets are not FDIC-insured, may lose money, and are not guaranteed by a bank or other financial institution. Although the money market seeks to preserve a stable per share value (i.e. \$1.00 per share), it is possible to lose money by investment in the fund.

An open-end fund is an investment company that issues shares on a continuous basis. Shares can be purchased from the open-end mutual

# Disclosure

fund itself, or through an intermediary, but cannot be traded on a secondary market, such as the New York Stock Exchange. Investors pay the open-end mutual fund's current net asset value plus any initial sales loads. Net asset value is calculated daily, at the close of business. Open-end mutual fund shares can be redeemed, or sold back to the fund or intermediary, at their current net asset value minus any deferred sales loads or redemption fees. The expense ratio for an open-end mutual fund is an annual fee charged to a shareholder. It includes operating expenses and management fees, but does not take into account any brokerage costs. Open-end funds may also have 12b-1 fees. Income distributions and capital gains of the open-end fund are subject to income tax. if held in a taxable account.

### **Mutual Fund Performance Information**

Additional information regarding each fund analyzed is presented in the Fact Sheets included with this analysis. Note that the information contained in this analysis was obtained from a variety of sources and UBS has not verified the accuracy of this information.

Mutual Funds are sold by prospectus and you should carefully consider important information on the fund's investment objectives, risk, charges and expenses. Please read the prospectus and offering documents carefully before you invest. Your Financial Advisor can provide a copy of the prospectus. For current month-end returns:

http://advisor.morningstar.com/familyinfo.asp.

A unit investment trust (UIT) is an investment company organized under a trust agreement between a sponsor and trustee. UITs typically purchase a fixed portfolio of securities and then sell units in the trust to investors. The major difference between a UIT and a mutual fund is that a mutual fund is actively managed, while a UIT is not. On a periodic basis, UITs usually distribute to the unit holder their pro rata share of the trust's net investment income and net realized capital gains, if any. If the trust is one that invests only in tax-free securities, then the income from the trust is also tax-free. UITs generally make one public offering of a fixed number of units. However, in some cases, the sponsor will maintain a secondary market that allows existing unit holders to sell their units and for new investors to buy units. A one-time initial sales

charge is deducted from an investment made into the trust. UIT investors may also pay creation and development fees, organization costs, and/or trustee and operation expenses. UIT units may be redeemed by the sponsor at their net asset value minus a deferred sales charge, and sold to other investors. UITs have set termination dates, at which point the underlying securities are sold and the sales proceeds are paid to the investor. Typically, a UIT investment is rolled over into successive trusts as part of a long-term strategy. A rollover fee may be charged for the exercise of rollover purchases. There are tax consequences associated with rolling over an investment from one trust to the next.

### **Comparison of Other Security Types**

A bond is a debt security. When an investor purchases a bond, the purchase amount is lent to a government, municipality, corporation or other entity known as an issuer. The issuer promises to pay a specified rate of interest during the life of the bond and repay the face value of the bond when it matures. U.S Treasuries can be purchased directly from the Treasury or through a brokerage firm. Most other newly issued bonds are offered through an underwriter. Older bonds are traded throughout the day on the secondary market and can be purchased through a brokerage firm, who will charge transaction fees and commission for the purchase or sale. Price evaluations are provided by Interactive Data Corporation (IDC).

A commingled pool or collective investment trust (CIT) is a product where assets from several accounts are pooled and managed together. This strategy reduces management and administrative costs. Typically a collection of participants with the same strategy is pooled together.

Insurance group separate accounts (IGSA) are unregistered group annuities, primarily used in 401(k) qualified, but also 403(b) and 457 retirement plans. They are segregated (usually pooled) investment portfolios, separate from the general investment portfolios established by life insurance companies. These products are regulated by state insurance boards, but not the SEC.

A separate account is a professionally managed portfolio of individual securities. Generally, it is an investment consulting relationship in which a client's money is placed with one or more money managers, and

all administrative and management fees, along with commissions, are wrapped into one comprehensive fee, often paid quarterly.

A stock is an ownership interest in a company. When an investor purchases a stock, they become a business owner, and the value of their ownership stake will rise and fall according to the underlying business. Stockholders are entitled to the profits, if any, generated by the company after everyone else — employees, vendors, lenders — get paid. Companies usually pay out their profits to investors in the form of dividends, or they reinvest the money back into the business. Stocks trade on exchanges throughout the day, through a brokerage firm who will charge a commission for the purchase or sale of shares. Income distributions and capital gains of the stock are subject to income tax upon their sale, if held in a taxable account.

Variable annuities are tax-deferred investments structured to convert a sum of money into a series of payments over time. Variable annuity policies have limitations and are not viewed as short-term liquid investments. An insurance company's fulfillment of a commitment to pay a minimum death benefit, a schedule of payments, a fixed investment account guaranteed by the insurance company, or another form of quarantee depends on the claims-paying ability of the issuing insurance company. Any such guarantee does not affect or apply to the investment return or principal value of the separate account and its subaccount. The financial ratings quoted for an insurance company do not apply to the separate account and its subaccount. The insurance company offering a variable life contract will charge several fees to investors, including annual contract charges that compensate the insurance company for the cost of maintaining and administering the variable life contract, mortality and expense risk (M&E Risk) charges based on a percentage of a subaccount's assets to cover costs associated with mortality and expense risk, and administration fees that are based on a percentage of a subaccount's assets to cover the costs involved in offering and administering the subaccount. A variable life investor will also be charged a front-end load by the insurance company on their initial contribution, ongoing fees related to the management of the fund, and surrender charges if the investor makes a withdrawal prior to a specified time. If the variable annuity subaccount is invested in a money-market fund, the money market fund is not FDIC-insured, may lose money, and is

# Disclosure

not guaranteed by a bank or other financial institution.

### **Performance**

The performance data given represents past performance and should not be considered indicative of future results. Principal value and investment return will fluctuate, so that an investor's shares, when sold, may be worth more or less than the original investment. Fund portfolio statistics change over time. Funds are not FDIC-insured, may lose value, and are not guaranteed by a bank or other financial institution.

Morningstar calculates after-tax returns using the highest applicable federal marginal income tax rate plus the Medicare surcharge. As of 2016, this rate is 39.6% plus 0.9% Medicare surcharge, or 40.5%, this has been unchanged since 2013. This rate changes periodically in accordance with changes in federal law.

### **Pre-Inception Returns**

The analysis in this report may be based, in part, on adjusted historical returns for periods prior to the inception of the share class of the fund shown in this report ("Report Share Class"). If pre-inception returns are shown, a performance stream consisting of the Report Share Class and older share class(es) is created. Morningstar adjusts pre-inception returns downward to reflect higher expenses in the Report Share Class, we do not hypothetically adjust returns upwards for lower expenses. For more information regarding calculation of pre-inception returns please see the Morningstar Extended Performance Methodology.

When pre-inception data is presented in the report, the header at the top of the report will indicate this. In addition, the preinception data included in the report will appear in italics.

While the inclusion of pre-inception data provides valuable insight into the probable long-term behavior of newer share classes of a fund, investors should be aware that an adjusted historical return can only provide an approximation of that behavior. For example, the fee structures of a retail share class will vary from that of an institutional share class, as retail shares tend to have higher operating expenses and sales charges. These adjusted historical returns are not actual returns. The underlying investments in the share classes used to calculate the

pre-performance string will likely vary from the underlying investments held in the fund after inception. Calculation methodologies utilized by Morningstar may differ from those applied by other entities, including the fund itself.

The information contained in this report is from the most recent information available to Morningstar as of the release date, and may or may not be an accurate reflection of the current composition of the securities included in the plan. There is no assurance that the weightings, composition and ratios will remain the same.

### **Benchmark Returns**

Benchmark performance is based on market total returns for market indices and NAV total returns for category averages. NAV total return reflects performance without adjusting for sales charges or the effects of taxation, but is adjusted to reflect all actual ongoing security expenses (management, administrative, 12b-1 fees and other costs taken out of fund assets), and assumes reinvestment of dividends and capital gains. A fund's portfolio may differ significantly from the securities in the benchmark.

Returns for custom benchmarks are calculated by applying user-supplied weightings to each benchmark's returns every month. Trailing returns are calculated by geometrically linking these weighted-average monthly returns. Custom benchmark returns thus assume monthly rebalancing.

### 12b1 Expense %

Current 12b-1 is the maximum annual charge deducted from fund assets to pay for distribution and marketing costs. This information is taken directly from the fund's prospectus.

### **ALERTS**

The Alerts displayed in this report are being provided to assist retirement plan fiduciaries in evaluating the investment options offered under a defined contribution retirement plan. A number of different factors should be considered when choosing to add, remove or maintain a retirement plan investment options.

### General

The Alerts section identifies alerts that you and your financial advisor set to help identify changes and/or potential problems in securities. The Alerts section is intended to be for client reporting purposes on implemented strategies or for advisor use only. It is not intended for use as supplemental sales literature. Morningstar is not itself a FINRA member firm.

The content of this section is driven by measurement criteria that were selected by you and your advisor.

Alerts may be set on performance, risk, ratings, composition, and other characteristics. Alerts may be set on an absolute basis, where a measure is compared against a set value, or on a relative basis, where a security value is compared with the value of a benchmark or category.

Triggering of alerts is based on comparisons of data points that are available to Morningstar, Inc., applying mechanical checking mechanisms. Although best efforts are made by Morningstar, Inc. to maintain accurate and complete data and functional mechanical processes, there are no guarantees with regard to either.

You and your financial advisor determined the criteria for setting alerts. There is no guarantee that the alerts set are appropriate. Setting alerts does not provide or guarantee protection against losses, market risk, or any other factors impacting securities. The presence of triggered alerts does not necessarily indicate weaknesses or problems with the securities, and is not necessarily a cause for action or changes in the implemented securities. The absence of triggered alerts also does not necessarily indicate security strength. Alerts are checked on a schedule (daily, weekly, monthly) selected by the advisor. The checking schedule set may be insufficient to trigger a current alert even if an alert criterion is met currently.

Any performance data given in the report represents past performance and should not be considered indicative of future results. Principal value and investment return will fluctuate, so that an investor's shares, when redeemed, may be worth more or less than the original investment. Most securities covered in this report are not FDIC-insured, may lose value and are not guaranteed by a bank or other financial institution.

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### **Alert Terminology**

Security Alert: An alert rule that is based on characteristics of a single security, e.g. a mutual fund. Note that it is possible to set one alert rule to multiple securities at a time.

Status: The status of an alert will be either "triggered" or "not triggered." A status of "triggered" means that the criteria set in the alert is currently met. A status of "not triggered" means that conditions set in the alert were not met when last checked.

Initial Trigger Date: This represents the first date on which the alert was checked and for which alert conditions were met. Note that it is possible that conditions for triggering the alert were met prior to the first check.

Initial Trigger Value: This represents the measure that caused an alert's conditions to first be met. For example, if an alert is set to trigger when one-year trailing return is less than 2%, and one year trailing return is 1.9% when checked, 1.9 will appear as the trigger value.

Current Trigger Value: This represents the measure that causes an alert's conditions to continue to be met when most recently checked.

Current Comparison Value: This represents the value that is being compared to determine if the alert is triggered. For example, if an alert is set to trigger when one-year trailing return is less than 2.0%, a value of 2 will appear as the Comparison Value. If the alert is set to trigger when one-year trailing performance for a security is less than one-year performance for a benchmark, the comparison value will show theperformance of the benchmark.

Current Comparison Subject: This represents the entity against which the security or aggregate is compared. For example, if an alert is set to trigger if one-year return is less than the return of a benchmark, the benchmark name will be shown as the comparison subject.

Security Name: When a security alert is triggered, the name of any impacted security will be listed.

Frequency: Alerts may be set on monthly, weekly, and daily frequencies.

Monthly alerts compare data based on the last business day of the month and continue monthly. Weekly alerts compare data based on the last business day of the week and continue weekly. Daily alerts compare data based on the previous business day and continue daily.

### Alpha

Alpha is a measure of the difference between a security or portfolio's actual returns and its expected performance, given its level of risk (as measured by beta.) Alpha is often seen as a measure of the value added or subtracted by a portfolio manager.

### **Asset Allocation**

Asset Allocation reflects asset class weightings of the portfolio. The "Other" category includes security types that are not neatly classified in the other asset classes, such as convertible bonds and preferred stocks, or cannot be classified by Morningstar as a result of missing data. Morningstar may display asset allocation data in several ways, including tables or pie charts. In addition, Morningstar may compare the asset class breakdown of the fund against its three-year average, category average, and/or index proxy.

Asset allocations shown in tables may include a breakdown among the long, short, and net (long positions net of short) positions. These statistics summarize what the fund's managers are buying and how they are positioning the fund's portfolio. When short positions are captured in these portfolio statistics, investors get a more robust description of the fund's exposure and risk. Long positions involve buying the security outright and selling it later, with the hope the security's price rises over time. Short positions are taken with the hope of benefitting from anticipated price declines. The investor borrows the security from another investor, sells it and receives cash, and then is obligated to buy it back at some point in the future. If the price falls after the short sale, the investor will have sold high and can buy low to close the short position and lock in a profit. However, if the price of the security increases after the short sale, the investor will experience a loss buying it at a higher price than the sale price.

Most fund portfolios hold fairly conventional securities, such as long

positions in equities and bonds. Morningstar may generate a colored pie chart for these portfolios. Other portfolios use other investment strategies or securities, such as short positions or derivatives, in an attempt to reduce transaction costs, enhance returns, or reduce risk. Some of these securities and strategies behave like conventional securities, while other have unique return and risk characteristics. Portfolios that incorporate investment strategies resulting in short positions or portfolio with relatively exotic derivative positions often report data to Morningstar that does not meet the parameters of the calculation underlying a pie chart's generation. Because of the nature of how these securities are reported to Morningstar, we may not always get complete portfolio information to report asset allocation. Morningstar, at its discretion, may determine if unidentified characteristics of fund holdings are material. Asset allocation and other breakdowns may be rescaled accordingly so that percentages total to 100 percent. (Morningstar used discretion to determine if unidentified characteristics of fund holdings are material, pie charts and other breakdowns may rescale identified characteristics to 100% for more intuitive presentation.)

Note that all other portfolio statistics presented in this report are based on the long (or long rescaled) holdings of the fund only.

### **Average Effective Duration**

Duration is a time measure of a bond's interest-rate sensitivity. Average effective duration is a weighted average of the duration of the fixed-income securities within a portfolio.

### **Average Effective Maturity**

Average Effective Maturity is a weighted average of the maturities of all bonds in a portfolio.

### **Best Fit Index**

Alpha, beta, and R-squared statistics are presented for a broad market index and a "best fit" index. The Best Fit Index identified in this report was determined by Morningstar by calculating R-squared for the fund against approximately 100 indexes tracked by Morningstar. The index representing the highest R-squared is identified as the best fit index. The best fit index may not be the fund's benchmark, nor does it

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necessarily contain the types of securities that may be held by the fund or portfolio.

### Beta

Beta is a measure of a security or portfolio's sensitivity to market movements (proxied using an index.) A beta of greater than 1 indicates more volatility than the market, and a beta of less than 1 indicates less volatility than the market.

### **Capture Ratios**

Capture Ratios compare the fund's results to their peer group index in periods of both positive and negative returns. The Downside Capture Ratio uses the annualized cumulative returns for both the fund and the S&P 500 for all the guarters when the S&P500 had negative returns.

Dividing the fund's return during the down quarters by the S&P 500's return during the same quarters provides the downside capture ratio. The Upside Capture Ratio uses the annualized cumulative returns for both the fund and the S&P 500 for all quarters when the S&P 500 had positive returns. Dividing the fund's return during the positive quarters by the S&P 500's return during the same quarters provides the upside capture ratio.

### **Composition By Fund**

The pie chart displays the funds' exposure by their respective percentage allocation. The corresponding table provides the fund name, ticker, plan percentage, and amount (\$) of funds in the plan. If your plan has more than 26 funds only the top 26 based on their percentage of plan assets will be listed.

### **Concentration Ratio**

The concentration ratio depicts how much of the plan's aggregate investment options are within the top 10 stock holdings.

### **Correlation Matrix Graph**

The Correlation Matrix is based on the correlation coefficient calculated for the monthly returns of each investment showing in the report against the other investments in the report. The correlation coefficient is a number between -1.0 and 1.0.

If there is a perfect positive linear relationship between the returns of investments, the correlation will be 1.0. A correlation close to 1.0 means that two investments perform similarly—when one investment is performing above its average return, the other performs above its average return. The opposite is also true—when one investment performs below its average return, the other also performs below its average.

A correlation coefficient of 0.0 means that there is no linear relationship between the returns of two investments. Securities with a correlation coefficient at or near 0 indicate a pattern of returns between two securities that are unrelated

If there is a perfect negative linear relationship between two investments the correlation coefficient is -1.0. If there is a perfectly negative relationship between two investments, when one investment performs above its average return, the other performs below its average, and vice versa.

Correlation between securities is a helpful measure because it indicates the extent to which securities may serve to improve diversification within a portfolio. Portfolios containing securities with low correlation of returns produce portfolio risk that is lower than the average risk of the individual securities. The lower the correlation between securities, the greater the impact in lowering portfolio risk. Securities with correlations equal to 1.0 indicate a pattern of returns that do not contribute to beneficial diversification in a portfolio and do not lower overall portfolio risk when the securities are combined in a portfolio. Securities with correlations equal to 0.0 or close to 0.0 indicate a pattern of returns that serve to improve diversification effects in a portfolio. Securities with correlations equal to -1.0 or close to -1.0 indicate a pattern of returns that serve to strongly improve diversification effects in a portfolio, notably, lower overall portfolio risk. Note that it is very unusual to have investments with extremely strong negative correlation patterns. Most securities have a correlation above 0.

Note that return patterns between securities may change over time. The correlation coefficient between two investments over one period may differ from that of another period.

Further, note that while combining securities with correlation coefficients less than 1.0 in a portfolio can reduce risk, risk cannot be completely eliminated with diversification. There is no guarantee that any particular mix of securities will eliminate risk, reduce your current exposure to risk, or manage your exposure to risk in a way that is tolerable for you.

### **Deferred Load %**

The back-end sales charge or deferred load is imposed when an investor redeems shares of a fund. The percentage of the load charged generally declines the longer the fund's shares are held by the investor. This charge, coupled with 12b-1 fees, commonly serves as an alternative to a traditional front-end load.

### **Expense Ratio %**

Prospectus Gross Expense Ratio is the maximum expense ratio which a fund may charge as detailed in the prospectus. The purpose of this data point is to identify the maximum exposure an investor has to fund expenses. The Prospectus Gross Expense Ratio may not equal the actual expenses paid.

Prospectus Net Expense Ratio reflects actual expenses paid by the fund as well as any voluntary waivers, reductions from brokerage service arrangements and any other expense offset arrangements.

### **Expense Ratio Quartile Rank**

The expense ratio quartile rank of a holding is calculated by dividing the expense ratio of the holding by the expense ratio of its Morningstar Category. The graph, ranging from Q1 (best/lowest) to Q4 (worse/highest), displays the number of funds that fall into each of the resulting quartiles.

### **Expense/Return Graph**

Cost measures for mutual funds use Prospectus Net Expense Ratio. For VAs, total insurance expense is included in the Prospectus ratio. For CITs, CEs, and ETFs, Net Operating Expense Ratio is used. The expense/return graph is used to capture each security's return and expense performance relative to its category peers. It's important to understand the context in which returns and expenses are experienced.

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For example, slightly higher than category median expenses may be acceptable if the option provides much higher than category average returns. The desirable quadrant of the expense/return graph is the upper left, where options have demonstrated lower expenses and higher returns than their category peers. The 3 Yr Relative Return measures the fund's 3 year performance relative to the median of its Morningstar Category. The Median Relative Expense measures the security's Net Expense relative to the median of its Morningstar Category.

### Front-end Load %

The initial sales charge or front-end load is a deduction made from each investment in the fund and is generally based on the amount of the investment

### IMPORTANT INFORMATION ON FUND SCORING

The fund scores illustrated in this report are derived from a UBS proprietary process using a number of different standards and criteria to measure a fund's overall performance, risk and history. UBS does not make any representation regarding the effectiveness of this process, and makes no guarantee regarding the funds earning strong scores from this process. These scores are being provided to assist retirement plan fiduciaries in evaluating the investment options offered under a defined contribution retirement plan. These scores do not constitute fiduciary advice or judgment, and should not be used in place of the retirement plan fiduciaries' prudent review of the investment options. The fund scores are only one element for consideration when evaluating the appropriateness of such investment options. This process does not factor other considerations that affect future performance, such as whether a manager's investing style is recently out of favor. For this reason, many investment options that receive low scores may outperform peers. A number of different factors should be considered when choosing to add, remove or maintain a retirement plan investment option.

### The Fund Scoring Process

The following is a description of the proprietary process we use to arrive at the fund score. The process is comprised of ten individual scoring measures (as further discussed below under "More Detail on Individual Scoring Measures") and one Overall Fund Score. The formula in each

individual category calculates a percentile ranking relative to the funds in their respective Morningstar peer group. The percentile rank is then assigned a numerical value as indicated the chart below.

### **Transforming Percentile Ranks to Fund Scores**

When transforming a percentile rank into a fund score for any given measure, or overall score, the following rules will be followed:

91st percentile or greater - 5

Between 71st and 90th Percentile - 4

Between 31st and 70th percentile - 3

Between 11th and 30th percentile - 2

Less than 11th percentile - 1

Note: A score of 5 represents the best possible score - and a 1 represents the worst. If a security is missing any measure among the 10, no overall score will be calculated.

### **Overall Score**

The Overall score is derived from the final percentage rankings for each measure, weighting them at the percentages noted below:

Criteria 1 - Information Ratio vs. Category Benchmark: 7.143%

Criteria 2 - Information Ratio vs. Category Average: 7.143%

Criteria 3 - Sharpe Ratio: 14.286%

Criteria 4 - Batting Average vs. Category Benchmark: 7.143%

Criteria 5 - Batting Average vs. Category Average: 7.143%

Criteria 6 - Performance vs. Peers: 14.286%

Criteria 7 - Capture Ratios vs. Category Benchmark: 7.143%

Criteria 8 - Capture Ratios vs. Category Average: 7.143%

Criteria 9 - Manager Tenure: 14.286%

Criteria 10 - Expense Ratio: 14.286%

### **Rolling Periods**

All metrics, with the exception of batting average, manager tenure, and expense ratio, are for 36-month periods, rolled monthly. The first period begins 96 months before the most recent month-end and ends 60 months before the most recent month end. For periods of less than 96 months, the score will be calculated based on the data available, provided there is a minimum of 36 months.

For rolling period scores, each period's score is calculated and then

transformed into a percentile. The percentiles for all periods are averaged and then transformed into a final percentile used to assign the scores 1-5. as noted above.

### More Detail on Individual Scoring Measures

1.) Modified Information Ratio Versus Category Benchmark--Has the fund demonstrated value added over the category benchmark for available rolling three year rolling periods ending over the last five years? [7.143% of the overall score]

This measure looks at excess returns over the category benchmark for all available rolling 36-month periods going back monthly, ending over the last 5 years.

The Information Ratio is an investment's active premium (its annualized geometric return minus the benchmark's annualized geometric return) divided by its tracking error. This calculation of the information ratio uses excess returns over the benchmark for 36 months ending with the most recent month.

2.) Modified Information Ratio Versus Category Average--Has the fund demonstrated value added over the category average for available rolling three year periods ending over the last five years? [7.143% of the overall score]

This measure looks at excess returns over the category average for available rolling 36-month periods going back monthly, ending over the last five years.

The Information Ratio is an investment's active premium (its annualized geometric return minus the benchmark's annualized geometric return) divided by its tracking error. This calculation of the information ratio uses excess returns over the category average for each 36-month period evaluated.

3.) Modified Sharpe Ratio- Did the fund perform well against a relevant peer universe for the rolling three year monthly periods ended over the last five years in terms of Sharpe ratios? [14.286% of the overall score]

# Disclosure

The Sharpe Ratio is calculated by using standard deviation and excess return to determine reward per unit of risk. The higher the Sharpe Ratio, the better the portfolio's historical risk-adjusted performance. The Sharpe Ratios are calculated for all rolling periods available (e.g. all 36-month periods ending in the past five years). Each fund's rolling period Sharpe ratios are averaged. Within each category, the average rolling Sharpe ratios for included funds is ranked.

4.) Batting Average Versus Category Benchmark- Did the fund perform well versus its category benchmark over the most recent eight years? [7.143% of the overall score]

The batting average versus category benchmark is the average number of times, expressed in percentage, that the fund's returns beat the category benchmark over the past 96 months. (For periods of less than 96 months, the score will be calculated based on the data available, provided there is a minimum of 36 months.) For example, if the fund has a better record than the category benchmark in 66 out of the last 96 months, the batting average for this period would be 0.6875 (66/96).

Using all monthly returns available over the last eight years (96 months), the fund's batting average is calculated compared to the category benchmark. All batting averages are ranked within the category.

5.) Batting Average Versus Category Average- Did the fund perform well versus its category average over the most recent eight years? [7.143% of the overall score]

The batting average versus category average is the average number of times the fund's returns beat the category average over the past 96 months. (For periods of less than 96 months, the score will be calculated based on the data available, provided there is a minimum of 36 months.) For example, if the fund has a better record than the category average in 66 out of the last 96 months, the batting average for this period was 0.6875 (66/96).

Using all monthly returns available over the last eight years (96 months), the fund's batting average is calculated compared to the category benchmark. All batting averages are ranked within the category.

5.) Batting Average Versus Category Average- Did the fund perform well versus its category average over the most recent eight years? [7.143% of the overall score]

The batting average versus category average is the average number of times the fund's returns beat the category average over the past 96 months. (For periods of less than 96 months, the score will be calculated based on the data available, provided there is a minimum of 36 months.) For example, if the fund has a better record than the category average in 66 out of the last 96 months, the batting average for this period was 0.6875 (66/96).

Using all monthly return data available over the last eight years (96 months), the fund's batting average is calculated compared to the category average. All batting averages are ranked within the category.

6.) Performance vs. Peers--Did the fund perform well against a relevant peer universe for the available three year rolling periods ended over the last five years? [14.286% of the overall score]

For the available 36-month rolling periods ending in the most recent 5 years, the fund's average return is calculated. All funds in the category are ranked, and the fund's score is assigned based on its percentile rank.

7.) Capture Ratios Vs. Category Benchmark- Has the fund achieved an acceptable up-side to down-side performance capture ratio relative to its category benchmark? [7.143% of the overall score] This metric evaluates a fund's capture ratios, which reflect the percentage of the market's performance that the fund participated in over time, including up and down markets.

The upside capture ratio is the compound return of the portfolio for all periods in which the benchmark was up, divided by the compound return of the benchmark during the same periods.

The downside capture ratio is the compound return of the portfolio for all periods in which the benchmark was down, divided by the compound return of the benchmark during the same periods.

Capture ratios are usually expressed as a percent, so if a portfolio's compound return during positive markets was 21% and the benchmark's return was 20%, the upside capture ratio would be 105 (21/20). A good upside capture ratio is greater than 100 and a good downside capture ratio is less than 100. Because it is difficult to devise a strategy that will outperform in both up and down markets, an investment fund may choose to focus on one side, e.g., create an aggressive or defensive portfolio. This metric awards its best value to funds that perform well in both up and down markets.

Capture ratios are calculated as follows: All rolling periods' capture ratios are averaged for the fund. The percentile rankings are calculated for each score (Upside and Downside). The score for each fund is then applied from the average of these two percentiles.

8.) Capture Ratios Vs Category Average- Has the fund achieved an acceptable up-side to down-side performance capture ratio relative to its category average? [7.143% of the overall score]

This metric evaluates a fund's capture ratios, which reflect the percentage of the market's performance in which the fund participated over time, including up and down markets.

The upside capture ratio is the compound return of the portfolio for all periods in which the benchmark was up, divided by the compound return of the benchmark during the same periods.

The downside capture ratio is the compound return of the portfolio for all periods in which the benchmark was down, divided by the compound return of the benchmark during the same periods.

Capture ratios are usually expressed as a percent, so if a portfolio's compound return during positive markets was 21% and the benchmark's return was 20%, the upside capture ratio would be 105 (21/20). A good upside capture ratio is greater than 100 and a good downside capture ratio is less than 100. Because it is difficult to devise a strategy that will outperform in both up and down markets, an investment fund may choose to focus on one side, e.g., create an aggressive or defensive portfolio. This metric awards its best value to funds that perform well in

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both up and down markets.

All rolling periods' capture ratios are averaged for the fund. The percentile rankings for each score (Upside and Downside) are calculated. The score for each fund is then applied from the average of these two percentiles.

- 9.) Manager Tenure—Percent rank of the average tenure of the portfolio management among those funds in its peer group. It is assumed that a longer tenure is more desirable than a shorter tenure. [14.286% of the overall score]
- 10.) Expense ratio relative to peer group- The percent rank of a fund's operating expense among those funds in its peer group with the same load structure. It is assumed that a lower expense ratio is more desirable than a higher expense ratio. [14.286% of the overall score]

Note: Net prospectus expense ratios are used for open-end mutual funds, operating expense ratios are used for closed-end funds, exchange-traded funds, and CITs, and prospectus net expense ratio plus total insurance expense are used for variable annuity subaccounts.

### **Pre-Inception Returns**

Monthly returns for the security, category, category benchmark, and a risk-free rate proxy are required to perform most of the calculations. When actual return is lacking for a mutual fund or variable annuity subaccount, pre-inception return will be applied. The US 3-month Treasury bill return will be used for the risk-free rate.

For ETFs and closed-end funds, NAV return will be applied, rather than market return, in all calculations.

### Notes

In the Fund Scoring report, a "Note" column is included next to each investment option (security) analyzed and will be populated as follows:

### **Null Value**

A null value (dash) will be populated in the "note" column if the score is calculated for a fund.

### Value of "A"

If a fund has less than 36 months of consecutive, recent monthly return history, only Expense Ratio and Manager Tenure will be scored. No overall score will be generated and a value of "A" will be populated in the Note column.

### Value of "B"

If a fund has at least 36 but less than 96 months of consecutive, recent monthly return, the measurement values and scores will be calculated. A value of "B" will be populated in the Note column.

### Value of "C"

If a category average or category benchmark has less than the number of included return available for the fund (i.e., any month's return applied in calculating scores for the fund is unavailable for the category average or category benchmark), measurement values and scores will be calculated for the fund. A value of "C" will be populated in the Note column of the table.

### Value of "D"

If a fund has less than \$25MM in total assets, no scores will be calculated and a value of "D" will be populated in the Note column.

### **Geometric Average Market Capitalization**

Geometric Average Market Capitalization is a measure of the size of the companies in which a portfolio invests.

### **Holding Portfolio Date**

The Portfolio Date is the date that the fund's portfolio was last updated. When making comparisons among funds, it is an important date to keep in mind. Although Morningstar tries to ensure timely information, Morningstar does not always receive current information from fund companies. By law, funds need only report this information two times during the calendar year, and they have two months after the report date to actually release the shareholder report and portfolio. Therefore, it is possible that a fund's portfolio could be up to eight months old at the time of publication.

### Information Ratio

Information ratio is a risk-adjusted performance measure. It is similar in structure to the Sharpe Ratio as a ratio of excess return per unit of risk. In the Sharpe Ratio, excess return and risk are measured relative to a risk-free rate. In comparison, the Information Ratio measures excess return and risk relative to a specific benchmark index.

The numerator for the Information Ratio is the difference between the annualized returns of the fund and the annualized returns of the benchmark. The denominator is the fund's annualized tracking error, which is the standard deviation of the fund's monthly excess returns over the benchmark returns.

Information Ratio is especially helpful for evaluating active managers. Index funds will typically have an Information Ratio close to zero, because these funds achieve very little excess return over the benchmark. In contrast, active managers deviate from the benchmark in an attempt to add value. The Information Ratio measures how much the fund outperformed the benchmark per unit of additional risk taken.

### **Investment Fees and Expenses**

Please note that all data in the Fees and Expenses section are entered by your financial advisor. This section of the report itemizes costs at a plan level and investment level based on information entered by the advisor

### **Investment Strategy**

The investment strategy displayed in this report summarizes the fund's plan of investing assets among various investments/securities. These plans take into consideration such factors as goals, what kinds of companies they look for, what market cap range they invest in, where they are located and how much will they pay. Morningstar pulls this information directly from the fund's prospectus.

### Management Fees %

The management fee includes the management and administrative fees listed in the Management Fees section of a fund's prospectus. Typically, these fees represent the costs shareholders paid for management and administrative services over the fund's prior fiscal year.

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### **Maximum Redemption Fee %**

The Maximum Redemption Fee is the maximum amount a fund may charge if redeemed in a specific time period after the fund's purchase (for example, 30, 180, or 365 days).

### Mean

Mean is the annualized geometric return for the period shown.

### Morningstar Analyst Rating™

The Morningstar Analyst Rating™ is not a credit or risk rating. It is a subjective evaluation performed by Morningstar's manager research group, which consists of various Morningstar, Inc. subsidiaries ("Manager Research Group"). In the United States, that subsidiary is Morningstar Research Services LLC, which is registered with and governed by the U.S. Securities and Exchange Commission. The Manager Research Group evaluates funds based on five key pillars, which are process, performance, people, parent, and price. The Manager Research Group uses this five pillar evaluation to determine how they believe funds are likely to perform relative to a benchmark, or in the case of exchange-traded funds and index mutual funds, a relevant peer group, over the long term on a risk-adjusted basis. They consider quantitative and qualitative factors in their research, and the weight of each pillar may vary. The Analyst Rating scale is Gold, Silver, Bronze. Neutral, and Negative. A Morningstar Analyst Rating of Gold, Silver, or Bronze reflects the Manager Research Group's conviction in a fund's prospects for outperformance. Analyst Ratings ultimately reflect the Manager Research Group's overall assessment, are overseen by an Analyst Rating Committee, and are continuously monitored and reevaluated at least every 14 months. For more detailed information about Morningstar's Analyst Rating, including its methodology, please go to global.morningstar.com/managerdisclosures/.

The Morningstar Analyst Rating (i) should not be used as the sole basis in evaluating a fund, (ii) involves unknown risks and uncertainties which may cause the Manager Research Group's expectations not to occur or to differ significantly from what they expected, and (iii) should not be considered an offer or solicitation to buy or sell the fund.

### **Morningstar Category**

Morningstar Category is assigned by placing funds into peer groups based on their underlying holdings. The underlying securities in each portfolio are the primary factor in our analysis as the investment objective and investment strategy stated in a fund's prospectus may not be sufficiently detailed for our proprietary classification methodology. Funds are placed in a category based on their portfolio statistics and compositions over the past three years. Analysis of performance and other indicative facts are also considered. If the fund is new and has no portfolio history. Morningstar estimates where it will fall before giving it a permanent category assignment. Categories may be changed based on recent changes to the portfolio.

### Morningstar Ownership Zone

The Morningstar Ownership Zone provides a graphic representation of the size and investment style of long stocks in fund's portfolio. The Ownership Zone is derived by plotting each stock in the portfolio within the Morningstar Style BoxTM. The Ownership Zone is the shaded area that represents 75% of the assets in the portfolio and indicates the level of concentration in the holdings. The "centroid" in the middle of the Ownership Zone represents the weighted average of all the holdings. The Ownership Zone helps investors differentiate between portfolios that may otherwise look similar. Investors can also use the Ownership Zone to construct diversified portfolios and model how multiple funds complement one another in a portfolio.

### **Morningstar Pillar Ratings**

Morningstar Pillar Ratings are subjective evaluations of funds performed by manager research analysts of Morningstar. Morningstar evaluates funds based on five key pillars, which are process, performance, people, parent, and price. Morningstar's analysts assign each pillar a rating of Positive, Neutral, or Negative. Morningstar Pillar Scores are then used to help determine the fund's Morningstar Analyst Rating.

The Morningstar Pillar Rating should not be used as the sole basis in evaluating a fund. Morningstar Pillar Ratings involve unknown risks and uncertainties which may cause Morningstar's expectations not to occur or to differ significantly from what we expected.

### **Morningstar Rank**

Morningstar Rank is the total return percentile rank within each Morningstar Category. The highest (or most favorable) percentile rank is zero and the lowest (or least favorable) percentile rank is 100. Historical percentile ranks are based on a snapshot of a fund at the time of calculation

### Morningstar Rating™

The Morningstar Rating™ for funds, or "star rating", is calculated for managed products (including mutual funds, variable annuity and variable life subaccounts, exchange-traded funds, closed-end funds, and separate accounts) with at least a three-year history. Exchange-traded funds and open-ended mutual funds are considered a single population for comparative purposes. It is calculated based on a Morningstar Risk-Adjusted Return measure that accounts for variation in a managed product's monthly excess performance, placing more emphasis on downward variations and rewarding consistent performance. The top 10% of products in each product category receive 5 stars, the next 22.5% receive 4 stars, the next 35% receive 3 stars, the next 22.5% receive 2 stars, and the bottom 10% receive 1 star. The Overall Morningstar Rating for a managed product is derived from a weighted average of the performance figures associated with its three-, five-, and 10-year (if applicable) Morningstar Rating metrics. The weights are: 100% three-year rating for 36-59 months of total returns, 60% five-year rating/40% three-year rating for 60-119 months of total returns, and 50% 10-year rating/30% five-year rating/20% three-year rating for 120 or more months of total returns. While the 10-year overall star rating formula seems to give the most weight to the 10-year period, the most recent three-year period actually has the greatest impact because it is included in all three rating periods.

The subaccounts of unregistered variable annuities, as well as those of registered group variable annuities that are solely available for use in qualified plans, are rated based on their position within the bell curve of the open-end/ETF fund peer group (a.k.a. category), rather than the variable annuity subaccount peer group. These ratings are calculated by using an overlay of the open-end/ETF fund peer group break points and therefore do not contribute to the category average or number of funds within the subaccount peer group.

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The Morningstar Rating for separate accounts is based on the same methodology that Morningstar uses to rate other investments, such as open- end mutual funds, closed-end mutual funds, and variable annuity subaccounts. There are some differences between the separate account rating methodology and the rating methodologies for other investments because of the unique way that separate account managers calculate and report investment performance. All separate account performance data is reported to Morningstar as a "composite" of similarly managed portfolios. Morningstar rates separate accounts based on total returns that have not been adjusted for investment management fees. Morningstar does not tax-adjust the returns of separate accounts that invest in municipal bonds. The Morningstar Rating for separate accounts is based on quarter-end performance data. It will be recalculated quarterly, because many managers do not provide monthly returns until the end of each quarter.

Please note that some Morningstar proprietary calculations, including the Morningstar Rating, may be calculated based on adjusted historical returns (pre- inception returns). If the extended performance rating is in effect, the "stars" are represented as unshaded stars.

### **Morningstar Return**

The Morningstar Return rates a fund's performance relative to other managed products in its Morningstar Category. It is an assessment of a product's excess return over a risk-free rate (the return of the 90-day Treasury Bill) in comparison with the products in its Morningstar category. In each Morningstar category, the top 10% of products earn a High Morningstar Return (High), the next 22.5% Above Average (+Avg), the middle 35% Average (Avg), the next 22.5% Below Average (-Ave), and the bottom 10% Low (Low). Morningstar Return is measured for up to three time periods (three, five, and 10 years). These separate measures are then weighted and averaged to produce an overall measure for the product. Products with less than three years of performance history are not rated.

### **Morningstar Risk**

Morningstar Risk evaluates a fund's downside volatility relative to that of other products in its Morningstar Category. It is an assessment of the variations in monthly returns, with an emphasis on downside variations,

in comparison with the products in its Morningstar category. In each Morningstar category, the 10% of products with the lowest measured risk are described as Low Risk (Low), the next 22.5% Below Average (Avg), the middle 35% Average (Avg), the next 22.5% Above Average (+Avg), and the top 10% High (High). Morningstar Risk is measured for up to three time periods (three, five, and 10 years). These separate measures are then weighted and averaged to produce an overall measure for the product. Products with less than three years of performance history are not rated.

### Morningstar Style Box™

The Morningstar Style  $Box^{TM}$  reveals a fund's investment strategy as of the date noted on this report.

For equity funds, the vertical axis shows the market capitalization of the long stocks owned, and the horizontal axis shows the investment style (value, blend, or growth.) A darkened square in the style box indicates the weighted average style of the portfolio.

For fixed-income funds, the vertical axis shows the credit quality of the long bonds owned and the horizontal axis shows interest-rate sensitivity as measured by a bond's effective duration. Morningstar seeks credit rating information from fund companies on a periodic basis (for example, quarterly). In compiling credit rating information, Morningstar accepts credit ratings reported by fund companies that have been issued by all Nationally Recognized Statistical Rating Organizations. For a list of all NRSROs, please visit http://www.sec.gov/divisions/marketreg/ ratingagency.htm. Additionally, Morningstar accepts foreign credit ratings from widely recognized or registered rating agencies. If two rating organizations/ agencies have rated a security, fund companies are to report the lower rating; if three or more organizations/agencies have rated a security, fund companies are to report the median rating; and in cases where there are more than two organization/agency ratings and a median rating does not exist, fund companies are to use the lower of the two middle ratings.

Please Note: Morningstar, Inc. is not an NRSRO nor does it issue a credit rating on the fund. NRSRO or rating agency ratings can change from time to time.

For credit quality, Morningstar combines the credit rating information provided by the fund companies with an average default rate calculation to come up with a weighted-average credit quality. The weightedaverage credit quality is currently a letter that roughly corresponds to the scale used by a leading NRSRO. Bond funds are assigned a style box placement of "low," "medium," or "high" based on their average credit quality. Funds with a "low" credit quality are those whose weightedaverage credit quality is determined to be less than "BBB-"; "medium" are those less than "AA-", but greater or equal to "BBB-"; and "high" are those with a weighted-average credit quality of "AA-" or higher. When classifying a bond portfolio, Morningstar first maps the NRSRO credit ratings of the underlying holdings to their respective default rates (as determined by Morningstar's analysis of actual historical default rates). Morningstar then averages these default rates to determine the average default rate for the entire bond fund. Finally, Morningstar maps this average default rate to its corresponding credit rating along a convex curve.

For interest-rate sensitivity, Morningstar obtains from fund companies the average effective duration. Generally, Morningstar classifies a fixed-income fund's interest-rate sensitivity based on the effective duration of the Morningstar Core Bond Index, which is currently three years. The classification of Limited will be assigned to those funds whose average effective duration is between 25% to 75% of MCBI's average effective duration; funds whose average effective duration is between 75% to 125% of the MCBI will be classified as Moderate; and those that are at 125% or greater of the average effective duration of the MCBI will be classified as Extensive.

For municipal-bond funds, Morningstar also obtains from fund companies the average effective duration. In these cases, static breakpoints are used. These breakpoints are as follows: (i) Limited: 4.5 years or less; (ii) Moderate: more than 4.5 years but less than 7 years; and (iii) Extensive: more than 7 years. In addition, for non-U.S. taxable and non-U.S. domiciled fixed-income funds, static duration breakpoints are used: (i) Limited: less than or equal to 3.5 years; (ii) Moderate: more than 3.5 years but less than or equal to 6 years; (iii) Extensive: more than 6 years.

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See Important Information and Disclosures at the end of this Report

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Interest-rate sensitivity for non-U.S. domiciled funds (excluding funds in convertible categories) may be measured with modified duration when effective duration is not available.

### **Net Expense Relative to Category Median**

This ratio shows how an individual fund compares to the median of all funds within its Morningstar Category. The category median is always set to equal 0.0. For example, a Large Blend fund with a Relative Expense Ratio weighting of 0.5 has 50% more expense than its median peer. The Net Expense Relative to Category Median is calculated by dividing the fund's Expense Ratio by the Category Net Expense Ratio median, then subtracting 1.

### P/B Ratio TTM

The Price/Book Ratio (or P/B Ratio) for a fund is the weighted average of the P/B Ratio of the stocks in its portfolio. Book value is the total assets of a company, less total liabilities. The P/B ratio of a company is calculated by dividing the market price of its outstanding stock by the company's book value, and then adjusting for the number of shares outstanding. Stocks with negative book values are excluded from this calculation. It shows approximately how much an investor is paying for a company's assets based on historical valuations.

### P/C Ratio TTM

The Price/Cash Flow Ratio (or P/C Ratio) for a fund is the weighted average of the P/C Ratio of the stocks in its portfolio. The P/C Ratio of a stock represents the amount an investor is willing to pay for a dollar generated from a company's operations. It shows the ability of a company to generate cash and acts as a gauge of liquidity and solvency.

### P/E Ratio TTM

The Price/Earnings Ratio (or P/E Ratio) for a fund is the weighted average of the P/E Ratios of the stocks in its portfolio. The P/E Ratio of a stock is the stock's current price divided by the company's trailing 12month earnings per share. A high P/E Ratio usually indicates the market will pay more to obtain the company's earnings because it believes in the company's abilities to increase their earnings. A low P/E Ratio indicates the market has less confidence that the company's earnings will increase, however value investors may believe such stocks have an

overlooked or undervalued potential for appreciation.

### Percentage of Investments

The Percentage of Investments column indicates the percentage of net assets that any given security (either as an individual holding or as an underlying stock makes up as an overall position of the plan's investment options.

### **Percentile Rank in Category**

Percentile Rank is a standardized way of ranking items within a peer group, in this case, funds within the same Morningstar Category. The observation with the largest numerical value is ranked zero the observation with the smallest numerical value is ranked 100. The remaining observations are placed equal distance from one another on the rating scale. Note that lower percentile ranks are generally more favorable for returns (high returns), while higher percentile ranks are generally more favorable for risk measures (low risk).

### Performance Quartile

Performance Quartile reflects a fund's Morningstar Rank.

### Plan Growth of 10,000

This graph shows how an investment of \$10,000 invested in the plan would have grown over time based on historical monthly returns and compares it with that of a benchmark index. The total returns are not adjusted to reflect sales charges or the effects of taxation but are adjusted to reflect actual ongoing fund expenses, and they assume reinvestment of dividends and capital gains. If adjusted, effects of sales charges and taxation would reduce the performance quoted. The growth of \$10,000 begins at the earliest common inception date of each investment option within the trailing ten years.

The benchmark index in the Growth of 10,000 graph is an unmanaged portfolio of specified securities and cannot be invested in directly. The benchmark index does not reflect any initial or ongoing expenses. A fund's portfolio may differ significantly from the securities in the benchmark index. The index is chosen by Morningstar.

Plan Trailing Total Returns reflect the weighted average of the underlying holdings' non-standardized returns during the same periods. The plan-level performance is calculated by applying the holding weightings supplied by the user to an individual holding's monthly returns. When monthly returns are unavailable for a holding (i.e. due to it not being in existence during the historical period being reported), the remaining portfolio holdings are re-weighted to maintain consistent proportions. Inception dates are listed in the Standardized and Tax Adjusted Returns Disclosure Statement. Trailing returns are calculated by geometrically linking these weighted-average monthly returns. The plan-level returns thus assume monthly rebalancing. Returns for individual holdings are simple time-weighted trailing returns. Neither portfolio returns nor holding returns are adjusted for loads or taxes. If they were, the returns shown would be reduced. The returns stated assume the reinvestment of dividends and capital gains. Mutual fund returns include all ongoing fund expenses. VA/VL returns reflect subaccount level fund expenses, including M&E expenses, administration fees, and actual ongoing fund-level expenses. Benchmark returns may or may not be adjusted to reflect ongoing expenses such as sales charges. An investment's portfolio may differ significantly from the securities in the benchmark. Returns for custom benchmarks are calculated by applying user-supplied weighting to each benchmark's return every month. Trailing returns are calculated by geometrically linking these weighted-average monthly returns. Custom benchmark returns thus assume monthly rebalancing.

### **Potential Capital Gains Exposure**

Potential Capital Gains Exposure is an estimate of the percent of a fund's assets that represent gains. It measures how much the fund's assets have appreciated, and it can be an indicator of possible future capital gains distributions. A positive potential capital gains exposure value means that the fund's holdings have generally increased in value while a negative value means that the fund has reported losses on its hook

### **Quarterly Returns**

Quarterly Return is calculated applying the same methodology as Total Return except it represents return through each quarter-end.

### **Plan Trailing Total Returns**

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### **R-Squared**

R-squared is the percentage of a security or portfolio's return movements that are explained by movements in its benchmark index, showing the degree of correlation between the security or portfolio and the benchmark. This figure is helpful in assessing how likely it is that beta and alpha are statistically significant. A value of 1 indicates perfect correlation between the security or portfolio and its benchmark. The lower the R-squared value, the lower the correlation.

### **Regional Exposure**

The regional exposure is a display of the portfolio's assets invested in the regions shown on the report.

### **Return vs. Category Quartiles Graph**

This graph shows how the total return of a single investment matches up to the returns of its category each year for up to the past 10 years.

### **Relative Return**

Relative Return is a ratio that shows how an individual fund compares to the average return of all funds in its Morningstar Category. The category average is always set to equal 0.00. For example, a Large Blend fund with a Relative Return of 0.5 has 50 more return than its average peer. The relative return is calculated by dividing the difference between the fund's return and the category average return by the absolute value of the category average return.

### **Risk/Reward Scatterplot**

The risk/reward scatterplot graph plots the return and risk (measured by standard deviation) for a selection of securities and a benchmark index for the trailing period identified in the report. The table beneath the graph identifies the specific risk and return plot points for the graphed securities and the benchmark index.

The returns noted for a security reflect any sales charges that were applied in the illustration over the time period selected, but do not reflect impacts of taxation. If impacts of taxation were reflected, the returns would be lower than those indicated in the report.

The return plotted in the graph is mean geometric return. Standard

deviation is a statistical measure of the volatility of the security's or portfolio's returns in relation to the mean return. The larger the standard deviation, the greater the volatility of return in relation to the mean return.

### **Sector Delta**

The sector delta is an equilateral triangle that depicts a fund's super sector allocation, relative to a benchmark. The sector delta is divided into four parts of equal area representing the diversified, defensive, sensitive, and cyclical classifications of a fund's portfolio and is used to represent a fund's allocation at a single point in time or over a historical period.

### **Sector Weightings**

Super Sectors represent Morningstar's broadest classification of equity sectors by assigning the 11 equity sectors into three classifications. The Cyclical Super Sector includes industries significantly impacted by economic shifts, and the stocks included in these sectors generally have betas greater than 1. The Defensive Super Sector generally includes industries that are relatively immune to economic cycles, and the stocks in these industries generally have betas less than 1. The Sensitive Super Sector includes industries that ebb and flow with the overall economy, but not severely so. Stocks in the Sensitive Super Sector generally have betas that are close to 1.

### **Security Types**

The following security types may be represented herein: bond (BD), closed-end fund (CE), collective investment trust (CIT), exchange-traded fund (ETF), holding company depository receipt (HOLDR), insurance group separate account (IGSA), index (IDX), money market mutual fund (MM), open-end mutual fund (MF), separate account (SA), stock (ST), and variable annuity/life (VA/L).

### **Share Change**

Shares Change represents the number of shares of a stock bought or sold by a fund since the previously reported portfolio of the fund.

### **Sharpe Ratio**

Sharpe Ratio uses standard deviation and excess return (a measure of a

security or portfolio's return in excess of the U.S. Treasury three-month Treasury Bill) to determine the reward per unit of risk. The higher the Sharpe Ratio, the better the portfolio's historical risk-adjusted performance. It can be used to compare two portfolios directly on how much excess return each portfolio achieved for a certain level of risk.

### **Sortino Ratio**

Sortino Ratio is similar to the Sharpe ratio, except that it uses downside risk (downside deviation). Since upside volatility is not necessarily undesirable, the Sortino ratio is sometimes preferable to a Sharpe ratio. It measures the annualized rate of return for a given level of downside risk

### **Standard Deviation**

Standard deviation is a statistical measure of the volatility of the security or portfolio's returns. The larger the standard deviation, the greater the volatility of return.

### Standardized Returns

Standardized Return applies the methodology described in the Standardized Returns page of this report. Standardized Return is calculated through the most recent calendar-quarter end for one-year, five-year, 10-year, and/or since-inception periods, and it demonstrates the impact of sales charges (if applicable) and ongoing fund expenses. Standardized Return reflects the return an investor may have experience if the security was purchased at the beginning of the period and sold at the end, incurring transaction charges.

### Style Drift

The Equity Style Drift graph visually depicts a historical view of the holdings in a fund's portfolio and where they have fallen in the Morningstar Style Box™. A larger circle within the graph denotes a more recent portfolio. All circles represent a distinct month-end date where a maximum of 12 circles are available for fund companies that submit monthly portfolios and a maximum of 4 circles are available for fund companies that submit quarterly portfolios.

### Stock Intersection

The stock intersection report reviews the top 25 stock holdings across

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the plan's investment option offerings. It identifies (both at the plan level and the fund level)the overall weightings of a particular security. While this report only displays the top 25 holdings, your plan portfolio may hold substantially more. For purposes of this report, all investment option offerings in the plan are considered on an equally weighted basis, regardless of the actual amount of plan assets invested in each fund.

This report is being provided to help plan fiduciaries evaluate overlap and diversification within the plan's investment option offerings and not intended to be a promotion, offer or recommendation by UBS Financial Services Inc. or Morningstar to purchase or liquidate any security listed. While the plan does not own the securities held by an open-end fund, closed-end fund, group annuity separate account or similar investment, the holdings are relevant in reviewing the overall asset allocation and diversification.

### **Style Count**

Style count is a derivation of the Morningstar Style Box that reveals a plan's investment strategy. For equity holdings, the vertical axis shows the market capitalization of the stocks owned and the horizontal axis shows investment style (value, blend, or growth). For fixed-income holdings, the vertical axis shows the average credit quality of the bonds owned and the horizontal axis shows interest rate sensitivity as measured by a bond's duration (limited, moderate, or extended). The boxes contain the count of funds in the plan for which the weighted average of holdings falls in that box.

### **Style Orientation**

Style orientation is a graph that visually depicts a historical view of the holdings in the portfolio and where they have fallen in the Morningstar Style Box. A larger circle within the graph denotes a more recent portfolio. All circles represent a distinct month-end date where a maximum of 12 circles are available for companies that submit monthly portfolios and a maximum of 4 circles are available for companies that submit quarterly portfolios.

### **Total Return**

Total Return, or "Non Load-Adjusted Return", reflects performance without adjusting for sales charges (if applicable) or the effects of

taxation, but it is adjusted to reflect all actual ongoing security expenses and assumes reinvestment of dividends and capital gains. It is the return an investor would have experienced if the fund was held throughout the period. If adjusted for sales charges and the effects of taxation, the performance quoted would be significantly reduced.

Total Return +/- indicates how a fund has performed relative to its peers (as measure by its Standard Index and/or Morningstar Category Index) over the time periods shown.

### **Trailing Returns**

Standardized Return applies the methodology described in the Standardized Returns page of this report. Standardized Return is calculated through the most recent calendar-quarter end for one-year, five-year, 10-year, and/or since-inception periods, and it demonstrates the impact of sales charges (if applicable) and ongoing fund expenses. Standardized Return reflects the return an investor may have experienced if the fund was purchased at the beginning of the period and sold at the end, incurring transaction charges.

Load-Adjusted Monthly Return is calculated applying the same methodology as Standardized Return, except that it represents return through month-end. As with Standardized Return, it reflects the impact of sales charges and ongoing fund expenses, but not taxation. If adjusted for the effects of taxation, the performance quoted would be significantly different.

Trailing Return +/- indicates how a fund has performed relative to its peers (as measure by its Standard Index and/or Morningstar Category Index) over the time periods shown.

### **Trevnor Ratio**

Treynor Ratio is a risk-adjusted measure of return based on systematic risk. It is the annualized monthly excess return of the strategy divided by the beta of the strategy's excess returns relative to the strategy's benchmark. It is similar to the Sharpe ratio with the difference being that it uses beta as the measurement of volatility (rather than standard deviation). In using beta, the Treynor ratio assumes a portfolio is fully diversified and all unsystematic risk has been eliminated. Investors

should look for a higher Treynor number, especially relative to a strategy's benchmark, indicating a higher level of return per unit of risk.

### **UBS Fund Eligibility**

Investment options that are not available through UBS, as well as investment options recently removed from the UBS fund eligibility list are specifically noted on the "Performance" page. These investment options are included at your request and such inclusion does not constitute an endorsement that the Plan continue to hold these investment options. Please speak with your financial advisor for additional information.

### **World Regions**

Broad breakdown of a portfolio's geographical exposure, by region and by market maturity. Only non-cash equity assets are evaluated in determining the exposures. "Not Available" indicates the percentage of the equity portion of the portfolio for which Morningstar is unable to assess region or origin.

## **Investment Risks**

Some of the general risk considerations associated with the investment options included in this report are described below. The descriptions are not meant to be a complete list of all investment risks. For more complete information regarding fees, expenses, risks and restrictions associated with these investments please review the offering documents and marketing materials. Investors should consult their tax advisor about their specific tax situation before investing in any securities. In addition, clients should familiarize themselves with the particular market risks and the other risks associated with the specific investment. **All investments contain risk and may lose value.** 

International/Emerging Market Equities: Investing in international securities involve special additional risks. These risks include, but are not limited to, currency risk, political risk, and risk associated with varying accounting standards. Investing in emerging markets may accentuate these risks.

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Sector Strategies: Portfolios that invest exclusively in one sector or industry involve additional risks. The lack of industry diversification subjects the investor to increased industry-specific risks.

Non-Diversified Strategies: Portfolios that invest a significant percentage of assets in a single issuer involve additional risks, including share price fluctuations, because of the increased concentration of investments.

Small Cap Equities: Portfolios that invest in stocks of small companies involve additional risks. Smaller companies typically have a higher risk of failure, and are not as well established as larger blue-chip companies Historically, smallercompany stocks have experienced a greater degree of market volatility that the overall market average.

Mid Cap Equities: Portfolios that invest in companies with market capitalization below \$10 billion involve additional risks. The securities of these companies may be more volatile and less liquid than the securities of larger companies.

High-Yield Bonds: Portfolios that invest in lower-rated debt securities (commonly referred as junk bonds) involve additional risks because of the lower credit quality of the securities in the portfolio. The investor should be aware of the possible higher level of volatility, and increased risk of default.

Tax-Free Municipal Bonds: The investor should note that the income from taxfree municipal bond funds may be subject to state and local taxation and the Alternative Minimum Tax.

Bonds: Bonds are subject to interest rate risk. As the prevailing level of bond interest rates rise, the value of bonds already held in a portfolio decline. Portfolios that hold bonds are subject to declines and increases in value due to general changes in interest rates.

HOLDRs: The investor should note that these are narrow industryfocused products that, if the industry is hit by hard times, will lack diversification and possible loss of investment would be likely. These securities can trade at adiscount to market price, ownership is of a fractional share interest, the underlying investments may not be representative of the particular industry, the HOLDR might be delisted from the AMEX if the number of underlying companies drops below nine, and the investor may experience trading halts.

Hedge Funds: The investor should note that hedge fund investing involves specialized risks that are dependent upon the type of strategies undertaken by the manager. This can include distressed or event-driven strategies, long/short strategies, using arbitrage (exploiting price inefficiencies), international investing, and use of leverage, options and/or derivatives. Although the goal of hedge fund managers may be to reduce volatility and produce positive absolute return under a variety of market conditions, hedge funds may involve a high degree of risk and are suitable only for investors of substantial financial means who could bear the entire loss of their investment.

Bank Loan/Senior Debt: Bank loans and senior loans are impacted by the risks associated with fixed income in general, including interest rate risk and default risk. They are often non-investment grade; therefore, the risk of default is high. These securities are also relatively illiquid. Managed products that invest in bank loans/senior debt are often highly leveraged, producing a high risk of return volatility.

Exchange Traded Notes (ETNs): ETNs are unsecured debt obligations. Any repayment of notes are subject to the issuer's ability to repay its obligations. ETNs do not typically pay interest.

Leveraged ETFs: Levered investments are designed to meet multiples of the return performance of the index they track and seek to meet their fund objectives on a daily basis (or other time period stated within the Fund objective). The leverage/gearing ratio is the amount of excess return that a levered investment is designed to achieve in comparison to its index performance (i.e. 200%, 300%, -200%, or -300% or 2X, 3X. -2X, -3X). Compounding has the ability to affect the performance of the fund to be either greater or less than the index performance multiplied by the multiple stated within the funds objective over a stated time period.

Short Positions: When a short position moves in an unfavorable way, the losses are theoretically unlimited. The broker may demand more

collateral and a manager might have to close out a short position at an inopportune time to limit further losses.

Long-Short: Due to the strategies used by long-short funds, which may include but are not limited to leverage, short selling, short-term trading, and investing in derivatives, these funds may have greater risk, volatility, and expenses than those focusing on traditional investment strategies.

Liquidity Risk: Closed-end fund, ETF, and HOLDR trading may be halted due to market conditions, impacting an investor's ability to sell a fund.

Market Price Risk: The market price of ETFs, HOLDRs, and closed-end funds traded on the secondary market is subject to the forces of supply and demand and thus independent of the NAV. This can result in the market price trading at a premium or discount to the NAV which will affect an investor's value.

Market Risk: The market prices of ETF's and HOLDRs can fluctuate as a result of several factors, such as security-specific factors or general investor sentiment. Therefore, investors should be aware of the prospect of market fluctuations and the impact it may have on the market price.

Target-Date Funds: Target-date funds typically invest in other mutual funds and are designed for investors who are planning to retire during the target date year. The fund's target date is the approximate date of when investors expect to begin withdrawing their money. Target-date fund's investment objective/strategy typically becomes more conservative over time primarily by reducing its allocation to equity mutual funds and increasing its allocations in fixed-income mutual funds. An investor's principal value in a target-date fund is not quaranteed at anytime, including at the fund's target date.

High double- and triple-digit returns were the result of extremely favorable market conditions, which may not continue to be the case. High returns for short time periods must not be a major factor when making investment decisions.

The information and data presented may be deemed reliable; however, their accuracy and completeness is not guaranteed by UBS Financial

# Disclosure

Services Inc.

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As a firm providing wealth management services to clients, we offer both investment advisory and brokerage services. These services are separate and distinct, differ in material ways and are governed by different laws and separate contracts. For more information on the distinctions between our brokerage and investment advisory services, please speak with your Financial Advisor or visit our website at ubs.com/workingwithus.©UBS 2016. All rights reserved. UBS Financial Services Inc. is a subsidiary of UBS AG. Member FINBA/SIPC.

# **Benchmark Disclosure**

The past performance of an index is not a guarantee of future results. Each index reflects an unmanaged universe of securities without any deduction for advisory fees or other expenses that would reduce actual returns. An actual investment in the securities included in the index would require an investor to incur transaction costs, which would lower the performance results. Indices are not actively managed and investors cannot invest directly in the indices.

### **BBgBarc US Agg Bond TR USD**

This index is composed of the BarCap Government/Credit Index, the Mortgage-

Backed Securities Index, and the Asset-Backed Securities Index. The returns we

publish for the index are total returns, which includes the daily

reinvestment of dividends. The constituents displayed for this index are from the following proxy: iShares Core US Aggregate Bond ETF.

### **MSCI EAFE NR USD**

This Europe, Australasia, and Far East index is a market-capitalization-weighted index of 21 non-U.S., industrialized country indexes.

This disclosure applies to all MSCI indices: Certain information included herein is derived by Morningstar in part from MSCI's Index Constituents (the "Index Data"). However, MSCI has not reviewed any information contained herein and does not endorse or express any opinion such information or analysis. MSCI does not make any express or implied warranties, representations or guarantees concerning the Index Data or any information or data derived therefrom, and in no event will MSCI have any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) relating to any use of this information.

### **S&P 500 TR USD**

A market capitalization-weighted index composed of the 500 most widely held stocks whose assets and/or revenues are based in the US; it's often used as a proxy for the U.S. stock market. TR (Total Return) indexes include daily reinvestment of dividends. The constituents displayed for this index are from the following proxy: iShares Core S&P 500 ETF.

### **USTREAS T-Bill Auction Ave 3 Mon**

Three-month T-bills are government-backed, short-term investments considered to be risk-free and as good as cash because the maturity is only three months. Morningstar collects yields on the T-bill on a weekly basis from the Wall Street Journal.

# Risk and Return Benchmark Disclosure

Investment Name MPT Index

American Funds 2010 Trgt Date Retire Morningstar Lifetime Mod 2010 TR USD American Funds 2015 Trgt Date Retire Morningstar Lifetime Mod 2015 TR American Funds 2020 Trot Date Retire Morningstar Lifetime Mod 2020 TR American Funds 2025 Trgt Date Retire Morningstar Lifetime Mod 2025 TR American Funds 2030 Trot Date Retire Morningstar Lifetime Mod 2030 TR Morningstar Lifetime Mod 2035 TR American Funds 2035 Trgt Date Retire American Funds 2040 Trgt Date Retire Morningstar Lifetime Mod 2040 TR USD American Funds 2045 Trgt Date Retire Morningstar Lifetime Mod 2045 TR USD American Funds 2050 Trgt Date Retire Morningstar Lifetime Mod 2050 TR American Funds 2055 Trot Date Retire Morningstar Lifetime Mod 2055 TR American Funds 2060 Trot Date Retire Morningstar Lifetime Mod 2060 TR American Funds Europacific Growth R6 MSCI ACWI Ex USA Growth NR American Funds New Perspective R6 MSCI ACWI NR USD American Funds Washington Mutual R6 Russell 1000 TR USD ClearBridge Small Cap I Russell 2000 Growth TR USD Harbor Mid Cap Growth Retirement Russell Mid Cap Growth TR USD JHancock Fundamental Large Cap Core Russell 1000 TR USD Nuveen Real Estate Securities R6 S&P United States RFIT TR USD Oakmark International Institutional MSCI ACWI Ex USA NR USD PGIM High Yield R6 ICE BofAML US High Yield TR USD T. Rowe Price Growth Stock I Russell 1000 Growth TR USD Russell 1000 TR USD Vanguard 500 Index Admiral Vanguard Treasury Money Market ICE BofAML USD 3M Dep OR CM Investor

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