SEWERAGE & WATER BOARD OF NEW ORLEANS

PENSION COMMITTEE MEETING
THURSDAY, SEPTEMBER 10, 2020
9:00 AM

September 2020 Pension Attendee Link
Call in #: +1 504-224-8698 United States, New Orleans (Toll)
Conference ID: 430 681 543#

PUBLIC COMMENT WILL BE ACCEPTED VIA EMAIL TO BOARDRELATIONS@SWBNO.ORG. ALL PUBLIC COMMENTS MUST BE RECEIVED PRIOR TO 9:30 AM ON September 10, 2020. COMMENTS WILL BE READ VERBATIM INTO THE RECORD.

Joseph Peychaud, Chair • Councilmember Jay H. Banks
Ralph Johnson• Alejandra Guzman • Dr. Maurice Sholas
• Adam Kay • Christopher Bergeron
• Latressia Matthews • Harold Heller

FINAL AGENDA

1. **ROLL CALL**
2. **PRESENTATION ITEMS**
   - Raymond James Presentation: Environmental, Social and Governance Investing (ESG) Initiative – Update - Octave Francis, III
   - Actuarial Experience Study – January 1, 2014 through December 31, 2018 – Rudd & Wisdom
   - Pension Committee Election-Employee Member Seat – Update – Sonji Skipper
3. **INFORMATION ITEMS**
   - Comparative Performance Analysis Report, July 31, 2020 – Octave Francis, III
   - Capital Market Review, July 2020 – Octave Francis, III
4. **PUBLIC COMMENT**

   Public comments received until 30 minutes after the presentation of the Agenda will be read into the record.
5. **ADJOURNMENT**

This teleconference meeting is being held pursuant to and in accordance with the provisions of Section 4 of Proclamation Number JBE 2020-30, extended by Proclamation 111 JBE 2020, pursuant to Section 3 of Act 302 of 2020.

SEWERAGE AND WATER BOARD
OF NEW ORLEANS

ACTUARIAL EXPERIENCE STUDY

OF THE

EMPLOYEES' RETIREMENT SYSTEM OF THE

SEWERAGE AND WATER BOARD OF NEW ORLEANS

FOR THE PERIOD FROM

JANUARY 1, 2014 THROUGH DECEMBER 31, 2018

Rudd and Wisdom, Inc.

Rudd and Wisdom, Inc.

CONSULTING ACTUARIES

Mitchell L. Bilbe, F.S.A.
Evan L. Dial, F.S.A.
Philip S. Dial, F.S.A.
Charles V. Faerber, F.S.A., A.C.A.S.
Mark R. Fenlaw, F.S.A.
Brandon L. Fuller, F.S.A.
Shannon R. Hatfield, A.S.A.
Christopher S. Johnson, F.S.A.
Oliver B. Kiel, F.S.A.
Dustin J. Kim, A.S.A.
Edward A. Mire, F.S.A.
Rebecca B. Morris, A.S.A.
Amanda L. Murphy, F.S.A.
Michael J. Muth, F.S.A.
Khiem Ngo, F.S.A., A.C.A.S.
Timothy B. Seifert, A.S.A.
Chelsea E. Stewart, A.S.A.
Raymond W. Tilotta
Ronald W. Tobleman, F.S.A.
David G. Wilkes, F.S.A.

February 28, 2020

Pension Committee
Sewerage and Water Board of New Orleans
625 St. Joseph Street
New Orleans, Louisiana 70165

Attention: Ms. Yvette Downs, CFO

Re: Five-Year Actuarial Experience Study

Dear Pension Committee:

Pursuant to the request of the Sewerage and Water Board of New Orleans (SWBNO), we have completed an actuarial experience study of the Employees' Retirement System of the SWBNO (the Pension Plan).

We have reviewed the experience of the participants in this plan during the five-year period from January 1, 2014 through December 31, 2018 in order to review the appropriateness of the current actuarial assumptions for future actuarial valuations and to recommend modified assumptions where appropriate. Because the covered populations in the Pension Plan and the SWBNO Employee Benefit Plan [the Other Post-Employment Benefits (OPEB) Plan] are substantially similar, many of the assumptions recommended herein will also be used in future OPEB Plan valuations.

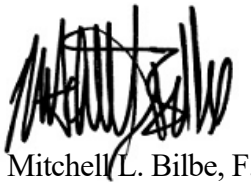
Actuarial valuations are used to determine appropriate levels of funding and to model the costs of retirement plans, but actuarial valuations do not determine the ultimate cost of retirement plans. Instead, the ultimate cost of such a plan is equal to the total benefits and expenses paid by the plan in excess of the investment returns of the plan. Thus, the ultimate cost is independent of the actuarial assumptions used to value the plan. While the underlying actuarial assumptions that are used in an actuarial valuation cannot be relied upon as a measure of a plan's ultimate cost, the valuation and its assumptions are used to determine whether an existing funding policy can reasonably be expected to adequately finance plan benefits over a long period of time. A new funding policy should be recommended for consideration whenever a valuation would indicate that the current policy may be inadequate. The accuracy and usefulness of actuarial valuations are dependent upon the use of actuarial assumptions that will reasonably reflect the plan's future experience as it unfolds over a long period of time.

This report documents our analysis and presents our recommendations for new actuarial assumptions. In addition, this report illustrates the effects of the proposed assumption changes on the plan liabilities and employer contribution amounts shown in the most recent Pension Plan actuarial valuation.

This report also reviews actuarial methods used in the development of the Pension Plan's Funding Policy Contribution and makes recommendations to modify certain methods where appropriate.

We look forward to discussing this report with you.

Sincerely,



Mitchell L. Bilbe, F.S.A.

Christopher S. Johnson, F.S.A.

Brandon L. Fuller, F.S.A.

MLB/CSJ/BLF:ph

Enclosures

cc: Sonji Skipper
Shaval Stewart
Rosita Thomas

ACTUARIAL EXPERIENCE STUDY

OF THE

EMPLOYEES' RETIREMENT SYSTEM OF THE

SEWERAGE AND WATER BOARD OF NEW ORLEANS

FOR THE PERIOD FROM

JANUARY 1, 2014 THROUGH DECEMBER 31, 2018

RUDD AND WISDOM, INC.
AUSTIN, TEXAS

FEBRUARY 2020

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Section I – Certification of Actuarial Experience Study

At the request of the Sewerage and Water Board of New Orleans (SWBNO), we have performed an actuarial experience study of the Employees' Retirement System of the Sewerage and Water Board of New Orleans for the 5-year period ending December 31, 2018. The purpose of this report is to evaluate the appropriateness of the current actuarial assumptions and funding methods and to recommend new assumptions and methods, if appropriate.

We have based the actuarial experience study on current employee, former employee and retiree data as of December 31, 2018 provided by the Sewerage and Water Board of New Orleans and prior valuation information provided by the prior actuary for the five annual valuation dates commencing December 31, 2013 and ending December 31, 2017. We have evaluated the actuarial methods and assumptions described in Section III of this report.

To the best of our knowledge, all employees eligible to participate in the plan and all other individuals who had a remaining vested benefit under the plan as of each of the annual valuation dates have been included in the experience study.

The plan sponsor remains solely responsible for the accuracy and comprehensiveness of the data provided. However, to the best of our knowledge, no material biases exist with respect to any imperfections in the data provided by the above sources. To the extent any imperfections exist in service or compensation records, we have relied on best estimates provided by the employer. We have not audited the data provided, but have reviewed it for reasonableness and consistency relative to previously provided information.

To the best of our knowledge, the actuarial information supplied in this report is complete and accurate. In our opinion the recommended assumptions are reasonably related to the experience of the plan and to reasonable expectations. The assumptions represent a reasonable estimate of anticipated experience of the plans over the long-term future, and their selection complies with the applicable actuarial standards of practice.

We hereby certify that we are members of the American Academy of Actuaries who meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Mitchell L. Bilbe, F.S.A.
Enrolled Actuary Number 17-6302
Member of American Academy of Actuaries

Christopher S. Johnson, F.S.A.
Enrolled Actuary Number 17-7100
Member of American Academy of Actuaries

Brandon L. Fuller, F.S.A.
Enrolled Actuary Number 17-8409
Member of American Academy of Actuaries

Section II – Executive Summary

A. Scope and Purpose

This actuarial experience study has been conducted in order to review the continued appropriateness of assumptions to be used in future actuarial valuations of the Employees' Retirement System of the Sewerage and Water Board of New Orleans (the Pension Plan). Because the covered populations in the Pension Plan and the Sewerage and Water Board of New Orleans Employee Benefit Plan [the Other Post-Employment Benefits (OPEB) Plan] are substantially similar, many of the assumptions recommended herein will also be used in the future OPEB Plan valuations. In addition, this study reviews the Pension Plan's current funding policy and recommends adjustments to certain aspects of the policy.

Actual plan experience over the five-year period from January 1, 2014 to December 31, 2018 has been reviewed in order to evaluate the following assumptions:

Assumption	Purpose
1. Retirement Rates	Estimate incidence of retirement at various retirement age and service eligibilities
2. DROP Participation	Estimate portion of retiring population that will elect to commence DROP Participation and continue employment for one to five years
3. Termination Rates	Estimate timing of employment termination prior to retirement eligibility for both voluntary and involuntary terminations
4. Withdrawal of Employee Contributions	Estimate likelihood of withdrawing employee contribution account balance following a vested termination and thus foregoing future retirement benefits
5. Disability Rates	Estimate incidence of disability at various ages
6. Mortality Rates	Estimate survival rates for purposes of death benefits and for purposes of projecting lifetime(s) over which benefits are paid
7. Credited Service for Unused Leave	Estimate amount of Unused Sick Leave and Unused Annual Leave at retirement for purposes of increased Credited Service for both benefit amounts and retirement eligibility
8. Other Demographic Assumptions	Estimate the assumed spousal age difference and the assumed form of payment that is elected upon retirement
9. Inflation	Estimate price inflation which is a component of the Compensation Increase assumption, the Investment Return assumption and the annual Cost of Living Adjustment assumption
10. Compensation Increases	Estimate future compensation increases for projecting benefit accruals at future decrement dates
11. Investment Return	Estimate long-term rate of return on Pension Plan assets which is used to discount the plan's expected benefit payments

The above assumptions form the basis for actuarial valuations which are used to determine appropriate levels of funding and to model the costs of retirement plans, but it is important to remember that actuarial valuations do not determine the ultimate cost of retirement plans. The ultimate cost of a retirement plan is equal to the total benefits and expenses paid by the plan in

excess of the investment returns of the plan. Thus, the ultimate cost is independent of the actuarial assumptions used to value the plan.

While the underlying actuarial assumptions that are used in an actuarial valuation cannot be relied upon to measure a plan's ultimate cost, the valuation and its assumptions are used to determine whether an existing funding policy can reasonably be expected to adequately finance plan benefits over a long period of time. A new funding policy should be recommended for consideration whenever a valuation would indicate that the current policy may be inadequate. The accuracy and usefulness of actuarial valuations are dependent upon the use of actuarial assumptions that will reasonably reflect the plan's future experience as it unfolds over a long period of time.

Accordingly, we recommend updating several assumptions, and we recommend adjusting certain components of the Pension Plan's funding policy.

B. Recommendations

The table below provides a general description of our recommended changes. Details for each assumption and each funding policy method can be found in Section III and Section IV of this report. We consider the recommended changes to be reasonable and appropriate for the Pension Plan (and OPEB Plan, where applicable) for the long-term future and each recommendation complies with applicable actuarial standards of practice.

Assumption/Funding Policy Method	Recommendation	Additional Details
1. Retirement Rates	Assume gradual rates of retirement based on age and service. Recommended rates are later on average than current assumption.	See Section III.A.
2. DROP Participation	Assume 90% of retirees elect DROP participation prior to age 60 grading down to 30% on and after age 65	See Section III.B.
3. Termination Rates	Assume select and ultimate rates of termination whereby higher rates of termination are assumed in first five years of service for all ages	See Section III.C.
4. Withdrawal of Employee Contributions	Assume higher level of contribution withdrawal for Members who terminate prior to retirement eligibility	See Section III.D.
5. Disability Rates	Assume slightly lower rates of disability	See Section III.E.
6. Mortality Rates	Update to new Pub-2010 tables for General Employees with projection scale per 2019 SOA report	See Section III.F.
7. Credited Service for Unused Leave	Assume 0.5 years of additional Credited Service at retirement for Unused Leave	See Section III.G.
8. Other Demographic Assumptions	Update spouse age difference and assumed form of payment	See Section III.H.
9. Inflation	No change recommended	See Section III.I.
10. Compensation Increases	Assume age graded compensation increases instead of a flat assumption at all ages	See Section III.J.
11. Investment Return	No change recommended	See Section III.K.
12. Actuarial Cost Method (for Pension Plan Funding Policy)	No change recommended to Entry Age Normal actuarial cost method	See Section IV.C.1.
13. Asset Smoothing (for Pension Plan Funding Policy)	Change to 5-year smoothing	See Section IV.C.2.
14. Asset Smoothing (for Pension Plan Funding Policy)	Incorporate a corridor	See Section IV.C.2.
15. Amortization of Unfunded Accrued Liability (for Pension Plan Funding Policy)	Transition from open to closed amortization period and decrease amortization period for future gains/losses, assumption changes and plan amendments	See Section IV.C.3.
16. Actuarially Determined Contribution (for Pension Plan Funding Policy)	Contribute Normal Cost plus Amortization of Unfunded Accrued Liability as a percentage of Earnable Compensation	See Section IV.C.4.

The above assumptions and methods are recommended to the Board of Trustees. However, the decision to adopt any of these recommended changes rests with the Board of Trustees in accordance with Section 3.6(c) of the Rules and Regulations of the Employees' Retirement System of the Sewerage and Water Board of New Orleans.

C. Effect on Actuarial Valuations

If adopted in advance of the December 31, 2019 valuations, the recommended assumptions and funding policy methods will initially be used for the December 31, 2019 accounting actuarial valuations for the Pension and OPEB Plans as well as the January 1, 2020 actuarial funding valuation for the Pension Plan. The effect of the recommended changes is summarized in the table below based on the most recent Pension Plan valuation (i.e., the January 1, 2019 valuation). The effects on the January 1, 2020 funding valuation are expected to be similar in magnitude.

Assumption/ Funding Policy Method	Pension Plan Funding Valuation Results as of January 1, 2019[5]			
	Increase/(Decrease) in Funding Policy Contribution		Increase/(Decrease) in Entry Age Normal Actuarial Accrued Liability	
	$ Millions	% of Earnable Compensation	$ Millions	Funded Ratio
1. Retirement Rates	$ (0.6)	(1.3%)	$ (10.1)	2.2%
2. DROP Participation	0.0	0.0%	0.0	0.0%
3. Termination Rates	0.1	0.3%	0.1	0.0%
4. Withdrawal of Employee Contributions	(0.2)	(0.5%)	(1.1)	0.2%
5. Disability Rates	0.3	0.6%	1.6	(0.4%)
6. Mortality Rates	1.1	2.4%	10.9	(2.3%)
7. Credited Service for Unused Leave	0.2	0.4%	1.1	(0.2%)
8. Other (i.e., spouse age difference, form of payment)	(0.1)	(0.2%)	(0.2)	0.1%
9. Inflation[1]	-	-	-	-
10. Compensation Increases	(0.1)	(0.3%)	(0.6)	0.1%
11. Investment Return[1]	-	-	-	-
12. Subtotal for Assumption Changes	**$ 0.7**	**1.4%**	**$ 1.7**	**(0.3%)**
13. Actuarial Cost Method[1]	-	-	-	-
14. AVA Smoothing Period[2]	0.1	0.3%	N/A	(0.5%)
15. AVA Corridor	0.0	0.0%	N/A	0.0%
16. UAL Amortization Period	0.2	0.4%	N/A	N/A
17. Subtotal for Method Changes	**$ 0.3**	**0.7%**	**N/A**	**(0.5%)**
18. Total	**$ 1.0[3]**	**2.1%[3]**	**$ 1.7[4]**	**(0.8%)**

January 1, 2019 Valuation Results	Pension Plan Funding Valuation Results as of January 1, 2019[5]			
	Funding Policy Contribution		Entry Age Normal Actuarial Accrued Liability	
	$ Millions	% of Earnable Compensation	$ Millions	Funded Ratio
1. Results Prior to Recommended Changes	$ 10.2	21.3%	$ 339.2	71.4%
2. Effect of Recommended Changes [Row 18. in table above]	1.0	2.1%[3]	1.7	(0.8%)
3. Results After Recommended Changes [1. + 2.]	**$ 11.2**	**23.4%[3]**	**$ 340.9**	**70.6%**

1 No changes are recommended for these assumptions or methods.
2 The smoothing period remains at 7 years, but the gains and losses that are smoothed differ from the current method and reduce the January 1, 2019 AVA by $1.7M from $242.2M to $240.5M.
3 **If Board decides to repeal Board Resolution R-248-2014, the Employer Contribution would be reduced by 1% of Earnable Compensation (or $0.5 million) and the resulting Employer Contribution would be 22.4% of Earnable Compensation (or $10.7 million). See Section IV.D. of this report for additional discussion.**
4 The Unfunded Accrued Liability increases by the same $1.7M plus an additional $1.7M for the change in the asset smoothing of gains and losses for a total change in UAL of $3.4M.
5 If adopted in advance of the January 1, 2020 valuation, the new assumptions and methods would first apply to the January 1, 2020 funding valuation. These results are presented as an estimate of the effects on the January 1, 2020 valuation.

The recommended change in the Unfunded Accrued Liability (UAL) amortization method shown in the table above has been illustrated as though the new amortization method was adopted on January 1, 2019 with a transition of the remaining balance of the January 1, 2018 UAL to a shorter amortization period. If this method is adopted, then in actual practice the remaining balance of the January 1, 2019 UAL will be the transition amount that is amortized over a shorter period beginning on January 1, 2020. Based on differences between the January 1, 2018 and January 1, 2019 valuations, we would expect the change in UAL amortization period to have a smaller effect on the January 1, 2020 funding policy contribution than the $0.2M increase shown in the table above (i.e., Row 16 in the table). See Section IV of this report for additional details regarding recommended funding methods and the transition to these new methods. Furthermore, see Section IV.D. of this report for a discussion of other considerations and the next steps for adopting the recommended assumptions and methods.

Section III – Actuarial Assumptions for Actuarial Valuations

A. Retirement

Under the current provisions of the Pension and OPEB Plans, pension participants (i.e., Members) may elect to terminate employment and begin receiving retirement benefits at ages that cover a relatively broad range, provided certain minimum periods of service have been completed. As an alternative to terminating and commencing immediate retirement benefits, Members who meet these age and service eligibility conditions can choose to remain employed and commence accumulating pension benefits in a DROP account for a period of up to 5 years, upon completion of which the member would terminate, receive their DROP account and commence receiving their annuity. (See Section III.B. of this report for additional details regarding DROP benefits.) Members are eligible for retirement benefits (including DROP benefits) and OPEB benefits provided they meet one of the following five eligibility criteria:

Eligibility for Retirement Benefits			
Eligibility Criteria Description	**Age**	**Years of Credited Service**	**Age + Credited Service**
a) Normal Retirement	65	5	n/a
b) Early Retirement	60	5	n/a
c) Service Retirement	n/a	30	n/a
d) Rule of 80 Retirement	n/a	n/a	80 Years
e) Late Retirement	70	n/a	n/a

For Members who meet any of the above retirement eligibility conditions, Unreduced Early Retirement benefits equal to the full amount of the Retirement Allowance under the Pension Plan are available if the Member:

1) is age 62, or
2) has 30 years of Credited Service, or
3) the sum of their age and years of Credited Service is at least 80 years (i.e., Rule of 80)

Reduced Early Retirement benefits are equal to the Retirement Allowance determined at the Early Retirement Date reduced 3% for each year a Member's age at Early Retirement precedes age 62. Reduced Early Retirement benefits are available if the Member is:

1) age 60 with less than 30 years of Credited Service, or
2) age 60 but the sum of age and years of Credited Service is less than 80 years

The current Retirement Rates were used by the prior actuary and to our knowledge were not based on an experience study. Currently for the Pension and OPEB Plan actuarial valuations, it is generally assumed that 100% of Members retire based on the earliest age at which they would be eligible to retire (with reduced benefits, if applicable). See Appendix 1 for a complete description of this current assumption.

The appropriateness of the current assumed retirement rates is tested by calculating the ratios of the number of actual retirements to the number of expected retirements (A/E ratio) based on the currently assumed rates. The A/E ratios in Figure 1 below indicate how different the actual retirement experience was compared to the expected experience. An A/E ratio greater than 100%

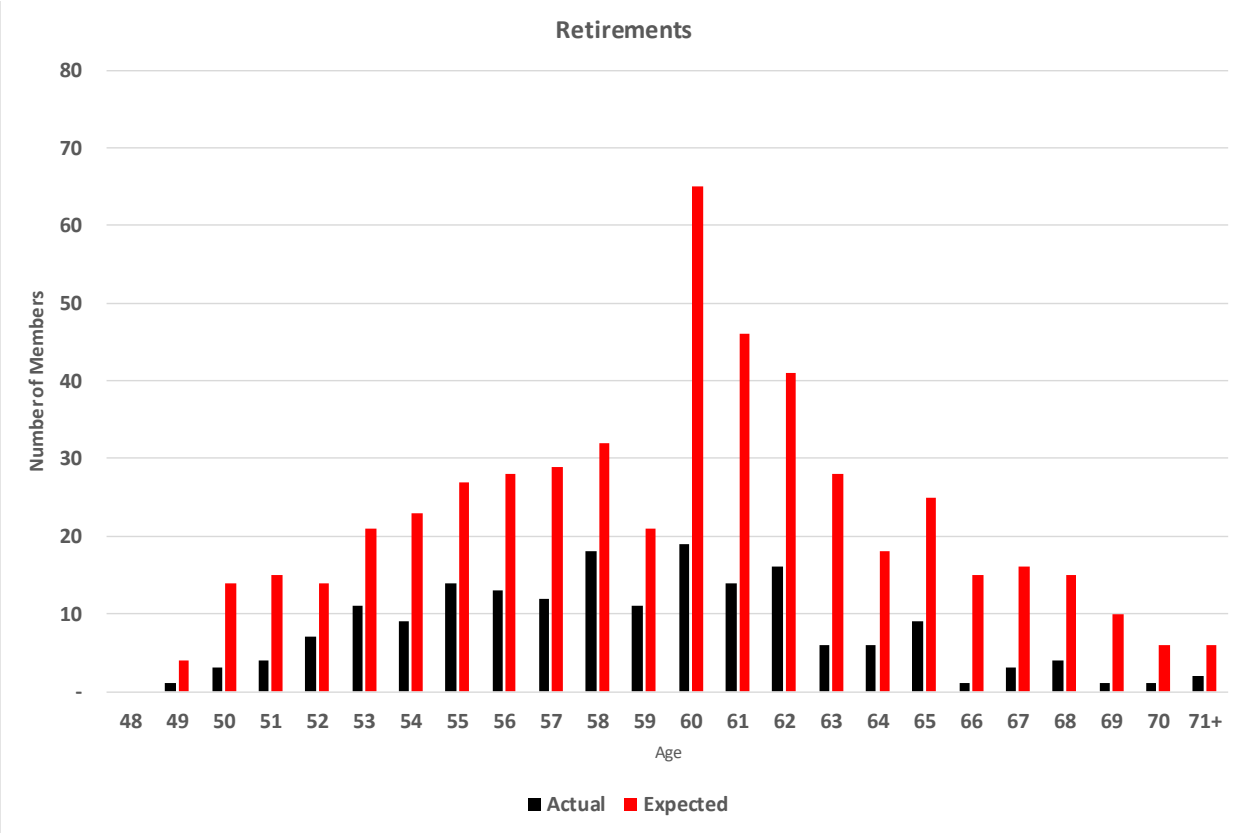
indicates that there were more retirements than expected, while a ratio under 100% means there were fewer retirements than expected according to the current assumption.

Figure 1: Retirement Rate Study (January 2014 – December 2018)

Age Group	Actual Retirements	Expected Retirements - Current Rates	A/E (Actual to Expected Ratio)
45-49	2	4	50%
50-54	34	87	39%
55-59	68	137	50%
60-64	61	198	31%
65-69	18	81	22%
70+	3	12	25%
Total	186	519	36%

This same information is shown for each age in the graph below.

Figure 2: Actual versus Expected Retirements by Age



Observations from Figures 1 and 2:

- At all ages there were fewer actual retirements than were expected during the exposure period.
- After age 62 (i.e., the oldest age for Unreduced Early Retirement) members retired later than was expected during the exposure period.

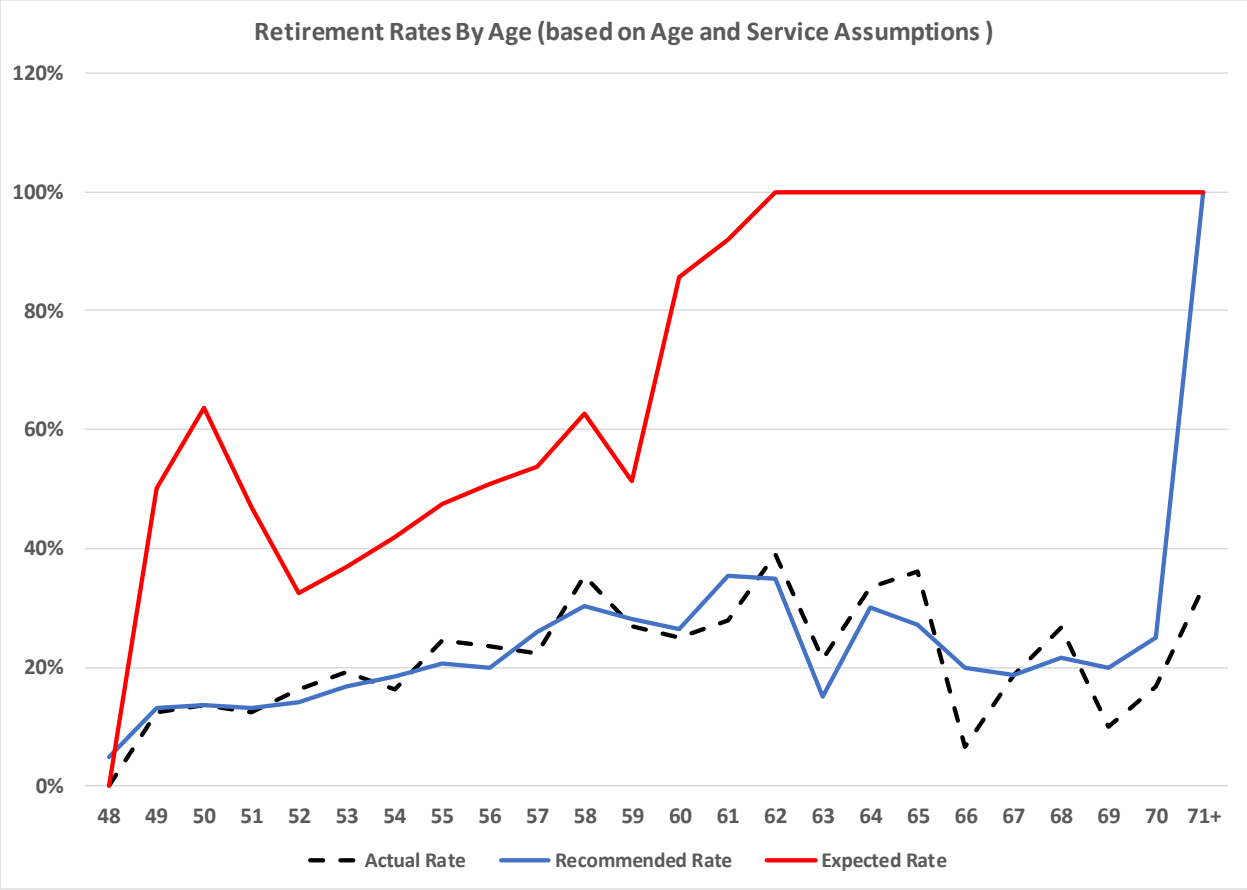
The above figures are a simplified representation of the assumed versus actual retirements based solely on age at retirement. As discussed above, most of the retirement eligibility criteria are based on a combination of age and service.

Thus, the assumed retirement rates should be adjusted to reduce the number of expected retirements at earlier ages to better fit the actual experience of the plan.

We recommend the rates shown in Appendix 1 as the actuarial assumption for retirement rates for future Pension Plan and OPEB Plan actuarial valuations. These rates reflect the various eligibility criteria based on age and service. In general, higher rates are used at the first age/service combination that satisfies a given retirement criteria with reduced rates in the immediately following years. This is consistent with recent plan experience.

Illustrating actual and expected retirements by age and service does not lend itself to a simple graph so we have illustrated the rates by age by summing the retirements across all service amounts which produces an average rate across all service amounts at each age.

Figure 3: Recommended Retirement Rates Relative to Actual and Expected Rates



We tested the fit of the recommended rates using ratios of actual to expected retirements based on these new retirement rates. The new rates produce 185 expected retirements (as compared to the 186 actual retirements shown in the table above) and bring the A/E ratios closer to 100% overall. These rates also reflect the overall pattern of rates based on both age and service.

Figure 4: Number of Retirements – Actual versus Expected based on Current and Recommended Rates

	Number of Retirements	
	Current Rates	Recommended Rates
Actual Number	186	186
Expected Number	519	185
Actual/Expected Ratio	35.8%	100.5%

B. DROP Participation

The Pension Plan offers a Deferred Retirement Option Plan (DROP) in which a Member who is eligible for retirement benefits may elect to participate in the DROP for up to five years. A member who makes this election continues to work for the duration of DROP participation, but during this time their retirement annuity is deposited into a DROP account. The amount of their annuity is determined based upon their Credited Service and earnings history at the start of the DROP period and there are no Cost-of-Living Adjustments (COLAs) during the DROP period. At the end of the DROP period the member retires from employment and receives a one-time payment equal to their DROP account including investment earnings thereon, and then they commence regular bi-weekly annuity payments and are eligible for COLAs thereafter. They also become eligible to commence OPEB benefits at the end of the DROP period.

The current actuarial assumptions do not explicitly address DROP participation. However, for OPEB purposes the current assumptions implicitly assume that 100% of retirees elect to participate in the DROP for a period of five years.

Actual plan experience during 2014 to 2018 shows that 71% of retirees elected the DROP with most of those selecting a five-year participation period. However, the likelihood of a retiree electing the DROP decreased with age as shown in the table below.

Figure 5: DROP Retirement Election Study (January 2014 – December 2018)

	Retirements Between January 2014 and December 2018		
Age at Retirement[1]	Number of Retirements Electing DROP	Total Retirements	Percentage Electing DROP
< 60	90	104	87%
60-64	35	61	57%
65+	7	21	33%
Total	132	186	71%

[1] Age at commencement of DROP participation period.

Based on the experience illustrated above, we recommend the following age-based DROP elections for retiring members. We further recommend that a 5-year DROP participation period be assumed for all Members assumed to elect the DROP.

Figure 6: Recommended DROP Election Assumptions

Age at Retirement[1]	Recommended Assumption for Percentage of Members who Elect a DROP upon Retirement
< 60	90%
60-64	60%
65+	30%

[1] Age at commencement of DROP participation period.

C. Termination

Another important actuarial assumption for the Pension and OPEB Plans is the assumption of termination of employment with SWBNO for reasons other than death, disability or retirement.

Pension Plan Members must become vested in order to be eligible for employer-provided benefits upon their retirement. The Pension Plan vesting schedule is as follows:

Years of Credited Service	Vesting Percent[1]
Less than 5	0%
5 or more	100%

[1] Participants who attain age 65 (i.e., Normal Retirement Age) while employed become 100% vested regardless of years of Credited Service.

Members who terminate prior to becoming 100% vested must receive a distribution of their accumulated contributions within five years of their termination of employment.

The termination assumption uses a schedule of assumed termination rates to recognize that some of the employees will terminate before they are eligible to receive retirement benefits.

Application of the termination rates to the employee population in a Pension Plan valuation allows the actuary to calculate the actuarial present value of the benefit payments which will be made to those employees who will eventually qualify for death, disability or retirement benefits at a later date provided that they are vested at the time of termination and they do not withdraw their employee contribution balances. For purposes of the OPEB Plan, employees who terminate prior to retirement eligibility are not eligible to receive OPEB plan benefits at any future date.

If the assumed termination rates are too low, it will be assumed that more employees will work until retirement eligibility and will qualify for benefits than will actually be the case, and the normal cost and the actuarial liability will be overstated. Conversely, if the assumed termination rates are too high, the normal cost and the actuarial liability will be understated since it will be assumed that fewer employees will qualify for retirement benefits than will actually be the case.

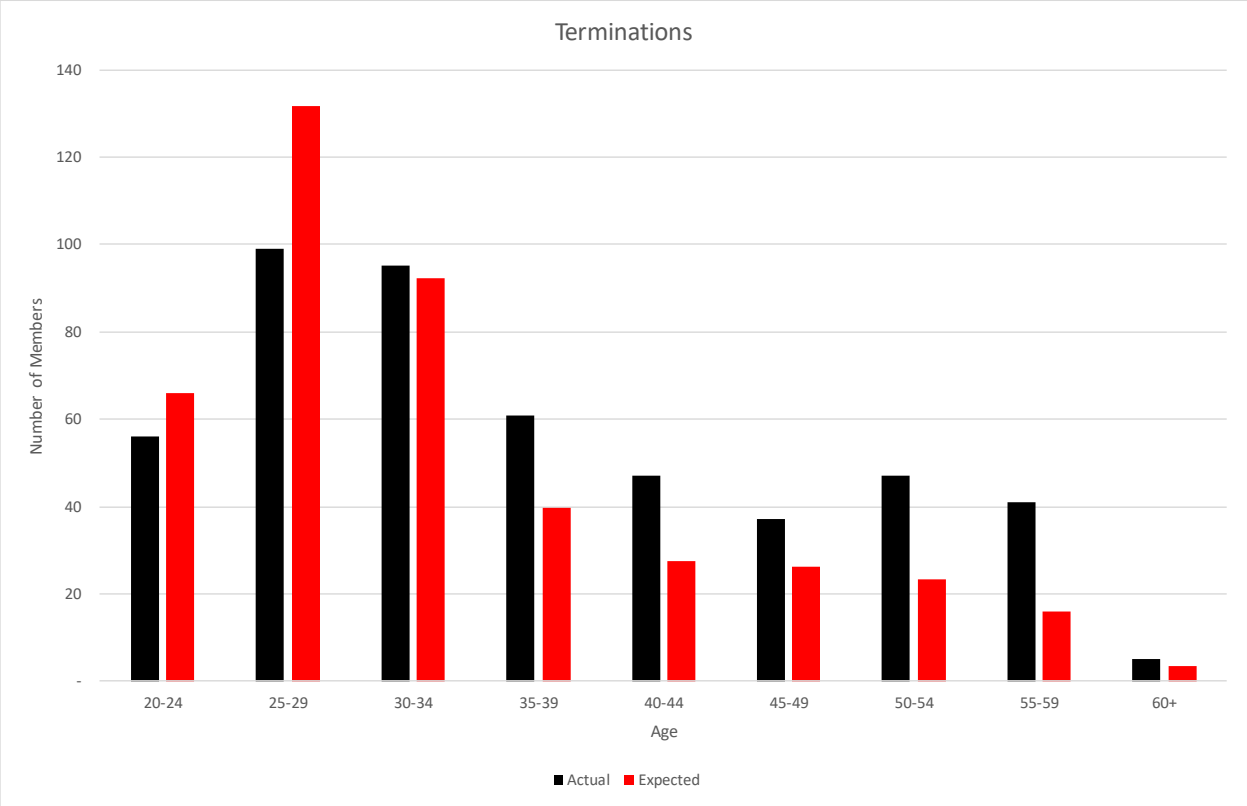
We studied the termination experience among SWBNO employees during the five-year period from January 1, 2014 to December 31, 2018. During this period, 489 employees terminated employment for reasons other than death, disability, or retirement. The appropriateness of the currently assumed termination rates was tested by calculating ratios of the number of actual

terminations to the number of expected terminations (A/E ratio) based on the currently assumed rates. The current assumed termination rates are age-based rates.

Figure 7: Termination Rate Study (January 2014 through December 2018)

Age	Number of Actual Terminations	Number of Expected Terminations (Current Rates)	A/E (Actual to Expected Ratio)
< 20	1	1.06	94%
20-24	56	65.90	85%
25-29	99	131.76	75%
30-34	95	92.15	103%
35-39	61	39.62	154%
40-44	47	27.60	170%
45-49	37	26.08	142%
50-54	47	23.30	202%
55-59	41	15.88	258%
60+	5	3.52	142%
Total	489	426.87	115%

Figure 8: Actual versus Expected Terminations by Age



Observations from Figures 7 and 8:

- There were fewer actual terminations than expected in the five-year age bands below age 30 during the exposure period.

- There were more actual terminations than expected in the five-year age bands above age 29 during the exposure period.

Before establishing recommended termination rates, we further analyzed the termination data to investigate whether or not the termination patterns varied by Credited Service.

The three tables below indicate the "fit" for each age/service group as well as in the aggregate.

Figure 9A: Actual Terminations by Years of Credited Service

	Years of Credited Service						
Age	**<1**	**1-2**	**2-3**	**3-4**	**4-5**	**5+**	**Total**
<20	1.00	-	-	-	-	-	1.00
20-24	23.00	17.00	8.00	6.00	2.00	-	56.00
25-29	25.00	24.00	15.00	16.00	8.00	11.00	99.00
30-34	23.00	18.00	18.00	5.00	6.00	25.00	95.00
35-39	16.00	14.00	7.00	4.00	3.00	17.00	61.00
40-44	9.00	13.00	8.00	4.00	-	13.00	47.00
45-49	4.00	6.00	6.00	2.00	3.00	16.00	37.00
50-54	10.00	12.00	3.00	2.00	6.00	14.00	47.00
55-59	7.00	8.00	6.00	2.00	2.00	16.00	41.00
60+	1.00	2.00	2.00	-	-	-	5.00
Total	119.00	114.00	73.00	41.00	30.00	112.00	489.00

Figure 9B: Expected Terminations by Years of Credited Service based on Current Assumptions

	Years of Credited Service						
Age	**<1**	**1-2**	**2-3**	**3-4**	**4-5**	**5+**	**Total**
<20	0.37	0.69	-	-	-	-	1.06
20-24	22.88	22.68	11.05	5.66	2.25	1.37	65.89
25-29	20.51	29.72	23.40	19.12	12.71	26.29	131.75
30-34	12.53	16.19	11.11	9.48	7.61	35.23	92.15
35-39	6.20	6.61	4.04	3.22	2.56	17.00	39.63
40-44	2.36	3.88	2.27	1.53	1.53	16.03	27.60
45-49	1.60	2.20	1.42	0.94	0.86	19.06	26.08
50-54	1.49	2.30	1.61	1.62	0.89	15.40	23.31
55-59	1.00	1.76	1.36	0.96	0.88	9.92	15.88
60+	0.60	0.88	0.80	0.68	0.56	-	3.52
Total	69.54	86.91	57.06	43.21	29.85	140.30	426.87

Figure 9C: A/E (Ratio of Actual to Expected Terminations) by Years of Credited Service

Age	Years of Credited Service						
	<1	1-2	2-3	3-4	4-5	5+	Total
<20	270%	0%	-	-	-	-	94%
20-24	101%	75%	72%	106%	89%	0%	85%
25-29	122%	81%	64%	84%	63%	42%	75%
30-34	184%	111%	162%	53%	79%	71%	103%
35-39	258%	212%	173%	124%	117%	100%	154%
40-44	381%	335%	353%	261%	0%	81%	170%
45-49	250%	273%	423%	213%	349%	84%	142%
50-54	671%	522%	186%	123%	674%	91%	202%
55-59	700%	455%	441%	208%	227%	161%	258%
60+	167%	227%	250%	0%	0%	0%	142%
Total	171%	131%	128%	95%	101%	80%	115%

Observations from Figure 9C:

- Terminations in the first five years of employment occur at higher rates than terminations occurring after five years of employment.
- The A/E ratios for the first three years of employment are generally too high (i.e., there were more actual terminations than expected).
- The A/E ratios in years three and four are close to 100% on average (i.e., the actual terminations were fairly close to the expected number).
- The A/E ratios in years five and beyond are too low (i.e., there were fewer actual terminations than expected).

Based on the actual termination rates, we developed preliminary recommended rates of termination that would more closely fit the experience of the five-year study period based on age and service. We tested the fit of these preliminary rates using ratios of actual to expected terminations and made additional adjustments to arrive at the recommended rates which bring the ratios closer to 100% and retain a consistent overall pattern of rates.

We recommend the termination rates shown in Appendix 2 for future Pension Plan and OPEB Plan actuarial valuations.

Figures 10A and 10B below illustrate a comparison of the recommended termination rates to the actual termination rates and the current assumed rates.

Figure 10A: **Recommended Termination Rates for Members with less than 5 Years of Credited Service Relative to Actual and Expected Rates**

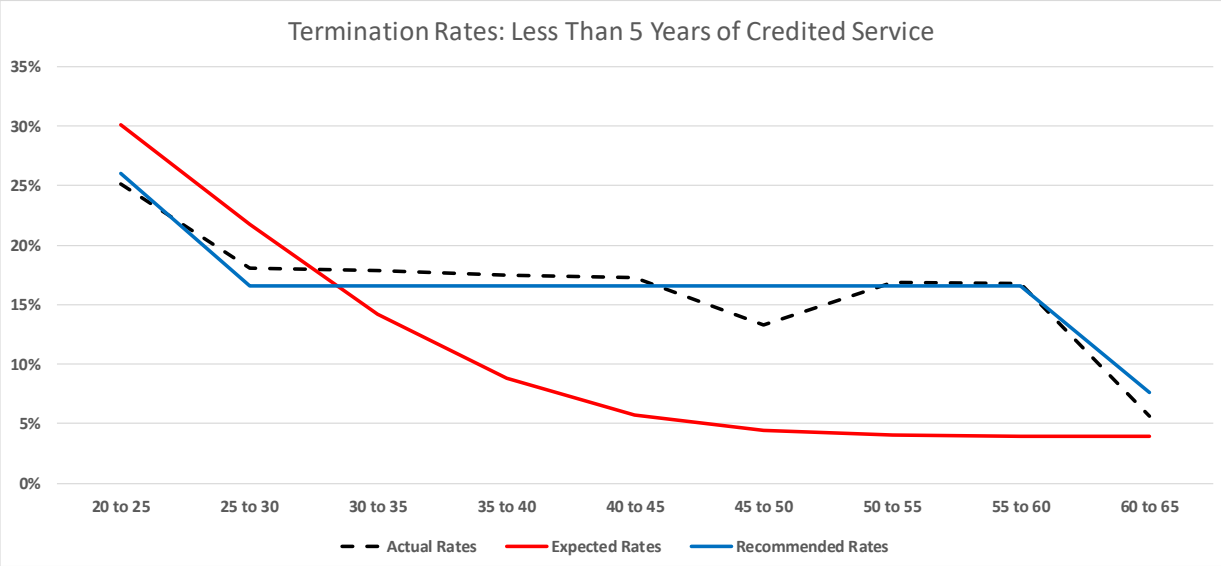
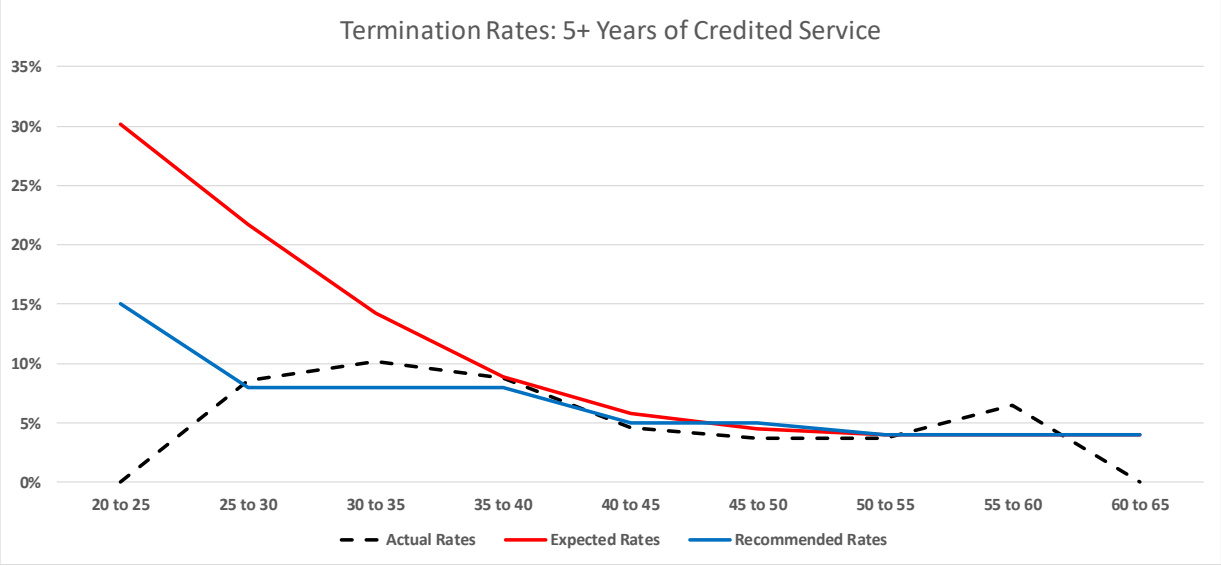


Figure 10B: **Recommended Termination Rates for Members with 5+ Years of Credited Service Relative to Actual and Expected Rates**



The resulting aggregate expected number of terminations is 494 using the recommended assumptions which compares to the actual number of terminations of 489; this would produce an A/E ratio of 99% as shown in Figure 11 below.

Figure 11: Number of Terminations – Actual versus Expected based on Current and Recommended Rates

	Number of Terminations	
	Current Rates	Recommended Rates
Actual Number	489	489
Expected Number	427	494
Actual/Expected Ratio	114.5%	99.0%

D. Withdrawal of Employee Contributions

If a Member terminates employment prior to retirement eligibility with at least five years of Credited Service, then the Member is vested in their Pension Plan benefit. If the employee does not withdraw their employee contribution account balance, then the member is eligible to receive their Retirement Allowance when they reach their retirement eligibility age.

The Withdrawal of Employee Contributions assumption is used to estimate the portion of terminating vested members who will withdraw their account balance and forfeit their rights to future Pension Plan benefits. (Non-vested terminating members must withdraw their accumulated contributions within five years of their termination of employment.)

The current assumption assumes that 20% of terminated vested Members will withdraw their account balances, but actual experience from 2014 to 2018 indicates that 85% withdrew their balances. However, the data we received for withdrawals is somewhat limited, and we are unable to fully analyze withdrawal experience. For example, we do not have sufficient data to review withdrawals based on years of Credited Service at termination. Given the limited available data, we recommend a level of conservatism in setting this assumption. **Accordingly, we recommend that this assumption be updated to assume that 75% of terminated vested Members will withdraw their account balances.**

E. Disability

If a Member incurs a condition which is determined to be a permanent and total disability that prohibits a Member from doing their job (subject to the conditions further enumerated in the Rules and Regulations of the Retirement System) and the Member has at least 10 years of Credited Service at the time of the disability, they shall be entitled to a disability retirement benefit payable immediately upon their disability retirement date.

The five-year experience study allowed us to compare the actual number of disabilities incurred during the study period with the expected number according to the current assumed disability rates, which are a function of age. The comparison of the actual number of disabilities to the expected number of disabilities was 5 to 35.4 for the five years ending December 31, 2018, which produces

an A/E (actual to expected) ratio of 14%, indicating that the current disability rates are somewhat high compared to the actual experience.

Even though the number of actual disabilities was very small compared to the assumed number of disability retirements, disabilities do not typically follow the same more predictable patterns of other decrements like termination rates and retirement rates because they are mostly related to accidents and medical conditions that are shock events. Thus, we do not believe the disability rates should be fully adjusted to reflect the actual experience over this 5-year period due to the small sample size and the nature of this decrement (i.e., we recommend a conservative approach of assigning a low credibility of roughly 20% to actual experience at this point in time). Using the recommended assumptions produces an aggregate expected number of disabilities of 28.3 which compares to the actual number of disability retirements of 5; this would produce an A/E ratio of 18% but it allows room for variations in the number of actual disabilities. We recommend re-evaluating this assumption in five years. If the A/E ratio remains low over the next five years, then we would recommend assigning higher credibility to actual experience and consider reducing the disability rates at that point.

We recommend the disability rates shown in Appendix 3 as the actuarial assumption for disability rates for future Pension Plan and OPEB Plan actuarial valuations.

F. Mortality

The mortality assumption is used to project the expected lifetime for each Member to determine the period over which retirement benefits are expected to be paid as annuities. The current mortality assumption is the 1994 UP Table projected with mortality improvements to 2002 using Scale AA. This table was based on mortality experience for the period 1986 to 1990.

In order for a plan to develop a mortality table based solely on the plan's own experience it must be large enough to have at least 1,000 deaths at each age and gender. The Society of Actuaries' Credibility Educational Resource for Pension Actuaries published a paper called the Application of Credibility Theory to Mortality Assumption in August 2017 which describes a Limited Fluctuation Credibility Theory (LFCT) approach to adjusting a published mortality table by a factor based on a plan's own experience. Per this paper, for plans that have at least 1,082 deaths in aggregate, a custom mortality table can be developed by multiplying the mortality rates in a published table by the ratio of actual to expected deaths. However, during the period from January 2014 to December 2018, the Pension Plan only had 140 deaths of non-disabled annuitants. Accordingly, the Pension Plan is not large enough for its actual mortality experience to be the basis of the mortality assumption.

For a plan of this size, it is standard practice to use a published mortality table that is considered appropriate for a retirement plan. Through the years there have been a number of major mortality studies for the purpose of developing a published mortality table or set of mortality tables. One of the common findings of these studies is that mortality rates in the United States have gradually become lower over extended periods of time, often referred to as improvement in mortality (i.e., people are living longer). Therefore, a newer set of mortality tables is usually considered more appropriate for valuing a pension plan than an older set of tables.

In January of 2019, the Society of Actuaries (SOA) published the Pub-2010 Public Retirement Plans Mortality Tables Report. This report is the result of a comprehensive study of the mortality experience of public pension systems across the United States, where such experience comes from calendar years 2008-2013. The report published mortality tables for three different classes of employees, Teachers, Public Safety and General Employees, as well as tables for Retirees, Disabled Retirees and Contingent Survivors. Each of the Employee tables are subdivided into Above-Median Income, Below-Median Income and a Total Dataset, and furthermore subdivided into amount-weighted tables or headcount-weighted tables, where amount-weighted should be used when the benefits are tied to compensation. Similarly, the Retiree tables are divided into Above and Below Median based on benefit amount. The report indicates that the mortality tables should be projected with an appropriate mortality improvement projection scale.

There was insufficient credible data in this study to develop separate mortality tables by geographic region. However, Section 4.4.6 of the report noted that mortality in the South region was higher than any other region. Furthermore, the U.S. Department of Health and Human Services' Centers for Disease Control (CDC) and Prevention published Volume 68, Number 9 of its "National Vital Statistics Reports" in June 2019 which indicates that death rates in Louisiana are higher than U.S. average death rates.

In order to recognize the higher mortality in the South region, and in particular Louisiana's higher mortality, we have applied the Society of Actuaries' LFCT approach by substituting Louisiana's mortality experience for that of the Pension Plan to derive adjustment factors for these new mortality tables.

Figure 12: U. S. Death Rates published by the CDC in National Vital Statistics Report

Year	Age-Adjusted Mortality Rate				Year-Over-Year Age-Adjusted Mortality Improvement Rate			
	Louisiana		United States		Louisiana		United States	
	Male	Female	Male	Female	Male	Female	Male	Female
1999	1,264.5	846.7	1,067.0	734.0	-	-	-	-
2000	1,233.6	839.2	1,053.8	731.4	-2.44%	-0.89%	-1.24%	-0.35%
2001	1,234.7	847.3	1,035.4	725.6	0.09%	0.97%	-1.75%	-0.79%
2002	1,225.5	843.7	1,030.6	723.6	-0.75%	-0.42%	-0.46%	-0.28%
2003	1,224.6	853.5	1,010.3	715.2	-0.07%	1.16%	-1.97%	-1.16%
2004	1,195.0	830.7	973.3	690.5	-2.42%	-2.67%	-3.66%	-3.45%
2005	1,229.1	865.3	971.9	692.3	2.85%	4.17%	-0.14%	0.26%
2006	1,160.4	803.4	943.5	672.2	-5.59%	-7.15%	-2.92%	-2.90%
2007	1,117.1	790.4	922.9	658.1	-3.73%	-1.62%	-2.18%	-2.10%
2008	1,130.5	800.3	918.8	659.9	1.20%	1.25%	-0.44%	0.27%
2009	1,086.8	763.3	890.9	636.8	-3.87%	-4.62%	-3.04%	-3.50%
2010	1,081.6	760.1	887.1	634.9	-0.48%	-0.42%	-0.43%	-0.30%
2011	1,054.3	750.9	875.3	632.4	-2.52%	-1.21%	-1.33%	-0.39%
2012	1,069.5	759.1	865.1	624.7	1.44%	1.09%	-1.17%	-1.22%
2013	1,065.1	759.0	863.6	623.5	-0.41%	-0.01%	-0.17%	-0.19%
2014	1,060.3	758.1	855.1	616.7	-0.45%	-0.12%	-0.98%	-1.09%
2015	1,046.2	730.7	863.2	624.2	-1.33%	-3.61%	0.95%	1.22%
2016	1,034.6	731.9	861.0	617.5	-1.11%	0.16%	-0.25%	-1.07%
2017	1,052.5	738.0	864.5	619.7	1.73%	0.83%	0.41%	0.36%
Average	1,135.0	793.2	934.4	664.9	-0.99%	-0.73%	-1.15%	-0.93%
Ratio of Louisiana Avg. to U.S. Avg.	121.5%	119.3%	N/A	N/A	**85.9%**	**78.6%**	N/A	N/A
Ratio of Louisiana in 2017 to U.S. in 2017	**121.7%**	**119.1%**	N/A	N/A	N/A	N/A	N/A	N/A

Observations from Figure 12:

- Louisiana's Male and Female mortality rates are approximately 122% and 119% higher, respectively, than their United States counterparts in 2017.
- Louisiana's annual average mortality improvement rates from 1999 to 2017 for Males and Females are approximately 86% and 79%, respectively, of their United States counterparts for the same period.

We recommend replacing the current mortality assumption of UP-94 mortality projected to 2002 with Scale AA with new Pub-2010 mortality tables as follows:

- **Employees – Use the amount-weighted General Employee Table (i.e., PubG-2010) multiplied by 122% for Males and 119% for Females**
- **Healthy Retirees – Use the General Table for Healthy Retirees (i.e., PubG-2010) multiplied by 122% for Males and 119% for Females**
- **Disabled Retirees – Use the General Table for Disabled Retirees (i.e., PubG-2010) multiplied by 122% for Males and 119% for Females**
- **Contingent Survivors – Use the General Table for Contingent Survivors (i.e., PubG-2010) multiplied by 122% for Males and 119% for Females**

Lastly, in conjunction with the recommendation of the Pub-2010 report and the applicable Actuarial Standard of Practice for selecting mortality assumptions, **we recommend using the current standard for mortality improvement projection under Scale MP-2019. However, in recognition of Louisiana's slower rate of mortality improvement than the United States in the aggregate, we recommend adjusting Scale MP-2019 by multiplying the Male factors by 86% and the Female factors by 79%.**

The table below compares the recommended mortality assumption with the current mortality assumption by comparing the remaining years of life expectancy for some representative ages during retirement, both male and female. As you can see from the table, the changes in mortality assumption will result in longer expected payout periods for monthly benefits for both males and females.

Figure 13: Remaining Life Expectancy of a Healthy Retiree

Gender	Age on January 1, 2019	Remaining Years of Life Expectancy		
		UP-94 Projected to 2002 with Scale AA (Current)	PubG-2010[1] Projected with Scale MP-19[2] (Recommended)	Change [(Recommended) - (Current)]
Male	50	30.4	32.7	2.3
	55	25.8	27.9	2.1
	60	21.5	23.4	1.9
	65	17.4	19.0	1.6
	70	13.8	15.0	1.2
Female	50	34.1	35.8	1.7
	55	29.4	30.9	1.5
	60	24.8	26.2	1.4
	65	20.5	21.6	1.1
	70	16.6	17.2	0.6

[1] Male rates multiplied by 122% and female rates multiplied by 119%.
[2] Male rates multiplied by 86% and female rates multiplied by 79%.

The Pension Plan's liability will increase approximately 3.3% as a result of using the recommended mortality tables.

G. Credited Service for Unused Leave

Under the Pension Plan, Credited Service is granted for Unused Leave at the time of retirement for purposes of computing the Retirement Allowance and satisfying eligibility requirements for Retirement benefits, but not for purposes of satisfying Vesting requirements. Unused Leave is granted as follows:

a. Unused Sick Leave: A Member shall receive Credited Service for Unused Sick Leave on a proportional basis where one year of Credited Service is granted for each 250 days of Unused Sick Leave. In applying for a Retirement Allowance, a Member shall be required to use all of his Unused Sick Leave towards meeting the eligibility requirements of the Credited Service component of the Retirement Allowance condition of 80 years based on the sum of age and years of Credited Service.

b. Unused Annual Leave: A Member shall receive Credited Service for Unused Annual Leave subject to a maximum of 111 days of unused leave provided the Member is Vested prior to including this service. Credit is granted on a proportional basis where one year of Credited Service is granted for each 250 days of Unused Annual Leave.

Members retiring during the period of the experience study were granted an average of 131 days of Credited Service for Unused Sick Leave and Unused Annual Leave combined, which converts to 0.524 (i.e., 131 / 250) years of Credited Service.

We recommend that Credited Service be assumed to increase by 0.50 years for Unused Leave at the time a Member is within one year of retirement eligibility. This assumption will accelerate the assumed retirement date for some Members and will also increase the Credited Service used in projecting the Retirement Allowance for all retiring Members.

In addition, a Member may purchase Credited Service in the following situations subject to limitations imposed under the Rules and Regulations of the Retirement System:

a. Military Service;

b. Transfers Between Retirement Systems [pursuant to Louisiana Revised Statutes (La. R.S.) 11:141-43 to the extent it does not conflict with La. R.S. 11:3822];

c. Repayment After Reemployment for former Members, who previously received a distribution of their Accumulated Contributions and become reemployed; and

d. Hurricane Katrina for any Member placed on disaster leave by the Employer beginning October 1, 2005 due to Hurricane Katrina and who returned to work prior to April 1, 2006.

With respect to the purchase of Credited Service that is permitted under the limited circumstances described above (i.e., for Military Service, Transfers, repayment of distributions and Hurricane Katrina leave), SWBNO reports to us information regarding service purchases in the annual actuarial valuation data in the year following their occurrence. We do not expect the purchase of Credited Service to materially affect the results of the actuarial valuations.

Therefore, we recommend that the Credited Service purchases be reflected as they occur rather than make a new assumption to estimate their occurrence for these limited circumstances.

H. Other Demographic Assumptions

The following are additional recommended demographic assumption changes.

1. Spouse Age Difference:

   The spouse age difference is used in the determination of death benefit values and certain payment form options for retired members. Under the current assumptions, spouses are assumed to be the same age as members. Actual spouse dates of births were not available at the time this experience study was prepared. However, **we propose a more common actuarial assumption that female spouses are two years younger than their male counterparts.** This assumption does not materially affect the Retirement Plan results, but we recommend a change nonetheless. We are working with the HR department so that additional spousal age data should be available at the time the next experience study is performed.

2. Form of Payment:

   In addition to the normal form of a straight life annuity (i.e., an annuity paid during the member's life that ceases upon the member's death), Pension Plan Members have several optional joint and survivor forms of actuarially equivalent monthly retirement benefits from which to select. The current assumption is that 100% of Members will elect a straight life annuity at retirement. Figure 14 illustrates the number of Members who elected a straight life annuity or an optional joint and survivor form of annuity based on retirements that occurred between January 2014 and December 2018.

Figure 14: Form of Annuity Election for Retirements (January 2014 to December 2018)

Elected Form of Payment	Number of Retirees	Percent Elected
Straight Life Annuity	146	78.5%
Joint and Survivor*	40	21.5
Total	186	100.0%

* The average Joint and Survivor percentage elected by these members was 39%.

The data provided for purposes of the experience study does not differentiate between members who elected an ERISA Joint and Survivor benefit and those who elected a Joint and Survivor with Pop-Up benefit. Furthermore, the data provided does not indicate if the retirees who elected Straight Life Annuities are married or single. If we assume 85% of retirees are married, then 158 of the 186 members who retired between January 2014 and December 2018 would be assumed to be married. Thus, of the assumed married retirees, 40 out of 158, or 25%, elected a Joint and Survivor option.

We recommend assuming that 75% of the retiring members who are married elect a Straight Life Annuity and the remaining 25% elect an ERISA Joint and Survivor option with a 50% continuation percentage.

I. Inflation

Inflation is a building block component of both the Compensation Increase assumption and the Investment Return assumption. These two economic assumptions should be consistent with each other and contain the same assumed rate of inflation. In addition, the Inflation assumption forms the basis for the annual Cost of Living Adjustment (COLA) assumption and is used to project the Earnable Compensation limit under Internal Revenue Code (IRC) §401(a)(17) and the benefit limitations under IRC §415(b). The most widely recognized measure of inflation is the Consumer Price Index for Urban Consumers (CPI-U). The table below shows the average annual increase in the CPI-U for periods of varying duration.

Figure 15: 55 Year History of the Average Annual Increase in CPI-U from December to December

Period	Number of Years in Period	Geometric Average Annual Increase
1964-2018	55	3.88%
1969-2018	50	3.99%
1974-2018	45	3.83%
1979-2018	40	3.33%
1984-2018	35	2.63%
1989-2018	30	2.48%
1994-2018	25	2.20%
1999-2018	20	2.16%
2004-2018	15	2.09%
2009-2018	10	1.80%

Over the long-term (i.e., 30 to 55 years), the CPI-U has averaged an annual increase of 2.48% to 3.99%. However, in recent past experience (i.e., 10 to 25 years), the CPI-U has averaged an annual increase of 1.80% to 2.20%. Because the Pension Plan valuation projects benefit payments over 70 years into the future, long-term expected trends should be emphasized while giving reasonable weight to recent past experience. **Accordingly, we recommend utilizing an annual inflation assumption of 2.50% which is at the lower end of the long-term range.**

The annual COLA increase is based on the prior year's inflation as measured by CPI-U but not greater than 2.00%. **Because the recommended inflation assumption of 2.50% exceeds 2.00%, we recommend an annual COLA increase assumption of 2.00%.**

The IRC §401(a)(17) and IRC §415(b) limitations will be projected to increase annually at the 2.50% annual inflation assumption.

J. Compensation Increases

When the actuarial cost method for a pension plan requires projection of future retirement benefits that are a function of future earnings, it is necessary to project the current earnings of the individual plan participants for each future year in which they will accrue benefit credits to be financed by the employer. In the actuarial valuation for the Pension Plan, the Entry Age Normal actuarial cost method requires such a projection of future earnings. Salaries are projected through a compensation increase assumption that ideally should reflect the anticipated effect of (1) merit, promotion, and longevity increases and (2) general wage increases, which consist of price inflation increases and increases in excess of price inflation generally referred to as productivity increases.

The current compensation increase assumption consists of a flat annual increase of 5.0%. The prior actuary's valuation reports did not describe the components of this assumption.

The general wage increase assumption is the larger part of each annual increase assumed at most ages. The exceptions are for the first few years of employment at the younger ages. While the actual general wage increase for any year will vary from employer to employer, the average annual general wage increase for the long-term future should be influenced by competitive pressures from other employers in the region. The Merit, Promotion, and Longevity (MPL) component is usually the smaller part of each annual increase assumed. The actual MPL increases will vary from employee to employee; so, the assumed MPL increases are expected averages over a working career for each age.

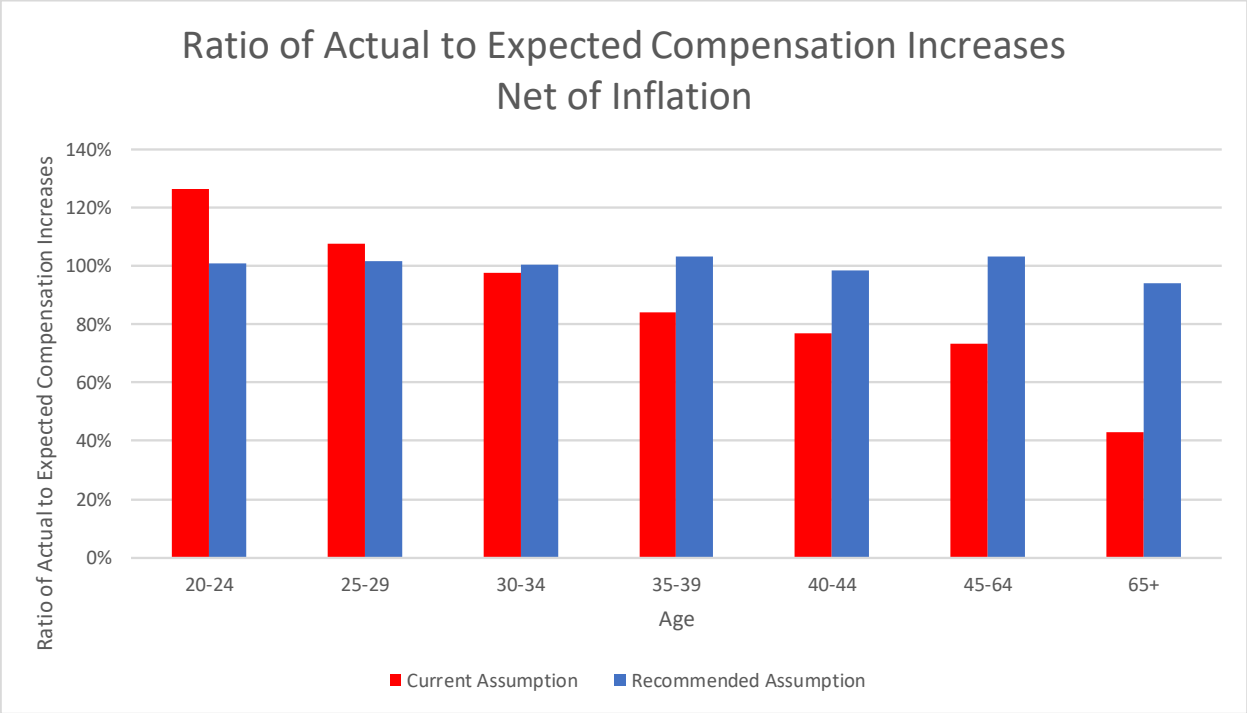
We have not studied the SWBNO salary experience with the purpose of determining actual productivity increases or real increases in earnings separate from MPL increases. Productivity salary increases would be very difficult to isolate among SWBNO participants because we only have data on the total salary increase, if any. Even though we would expect different levels of salary increases over several years, the salary levels of SWBNO employees over the long term must be reasonably competitive with applicable private and public sector businesses and industries that experience productivity gains and pass some part of them to their employees in salary increases.

For this current experience study of salary increases, we included up to 24 annual compensation increases per participant because we were given a 24-year earnings history. Each annual compensation was categorized by age group and the compensation increase rate for each age was determined net of actual inflation. We then compared the actual compensation increase rates for each age group to the current rates in order to see the underlying patterns of compensation increases during that period.

Based on the comparisons to the current assumed rates, we made several adjustments to develop a new compensation increase assumption that we believe to be appropriate for the long-term future. The increases have been determined by age groups based upon the actual experience (net of inflation) demonstrated by the Members. Then those increases were adjusted by assumed inflation to determine the final recommended compensation increase assumption. Since it is important for the inflationary component of the compensation assumption to be consistent with the inflationary component of the investment return assumption, the assumed annual increase in compensation due to price inflation is 2.50%. (See Section III.I. of this report for additional details.)

Figure 16 below shows the ratio of actual earnings net of inflation to expected earnings under both the current assumption and the recommended assumption for all employees in five-year age bands. This ratio is an indicator of the fit of the assumed compensation increases to the actual compensation increases over the exposure period. A ratio of 100% indicates alignment between the assumption and the actual experience.

Figure 16: Ratio of Actual to Expected Earnings Net of Inflation under the Current Assumption and Recommended Assumption for All Employees



Observations from Figure 16:

- Actual compensation increases were higher than expected based on the current assumption in the five-year age bands prior to age 30 during the exposure period.

- Actual compensation increases were lower than expected based on the current assumption in the five-year age bands above age 29 during the exposure period.

- Recommended compensation increases below age 45 yield the approximately same compensation increases that the plan actually experienced during the exposure period.

- Recommended compensation increases from ages 45 to 64 fluctuate around the plan's actual experience but such fluctuations are smoothed across the entire 20-year age band to produce an average that approximates the plan's experience during the exposure period.

We recommend the compensation increase assumption shown in Figure 17 and reproduced in Appendix 4 that was developed from the five-year experience study for future actuarial valuations of the Pension Plan.

Figure 17: Current and Proposed Compensation Increase Assumptions

Age	Current Average Annual Increase	Recommended Average Annual Increase[1]
20 - 24	5.00%	6.25%
25 - 29	5.00	5.75
30 - 34	5.00	5.25
35 - 39	5.00	4.75
40 - 44	5.00	4.75
45 - 49	5.00	4.75
50 - 54	5.00	4.75
55 – 59	5.00	4.75
60 - 64	5.00	4.75
65+	5.00	4.00

[1] Includes 2.50% inflation component.

K. Investment Return

The current investment return assumption established by the employer is 7.00% per year net of investment-related expenses. While we did not establish this assumption, we are obligated to assess its reasonableness for use in the actuarial valuations of the Pension Plan. This section describes our independent analysis used in this assessment.

A building-block method is used to assess the reasonableness of the Investment Return assumption. There are three components to the investment return assumption: (1) the rate of inflation, (2) the real rate of return (net of inflation) and (3) investment-related expenses. Each component represents the annual average rate expected over the long-term future. While this is a theoretical approach, it provides a reasonable basis for the selection and/or analysis of an investment return assumption.

In the building-block method, historical markets are studied and long-term historical relationships between equities and fixed-income are preserved consistent with the widely accepted capital market principle that assets with higher volatility generate a greater return over the long run. The long-term portfolio return is established via a building block approach with proper consideration of diversification and rebalancing. Next, best-estimate ranges of expected future real rates of return (expected returns, net of inflation) are developed for each major asset class. The ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by an asset allocation percentage which is based on the nature and mix of current and expected plan investments. This weighted-return is then increased by expected inflation and reduced by assumed investment expenses.

Per the SWBNO Employees' Retirement System Investment Policy Statement as amended February 20, 2019, the target asset allocation and the associated market index used to develop the expected real return assumption is as follows:

Figure 18: Target Asset Allocation per the SWBNO Employees' Retirement System Investment Policy Statement

Asset Class	Target Allocation	Market Index Used to Develop Expected Real Return of Asset Class
Cash and Cash Equivalents	1.00%	3-month T-Bills
Core-Plus Fixed Income	35.00%	Bloomberg Barclays Capital Aggregate Index[1]
U.S. Large Cap Equity	18.30%	Standard and Poor's 500 Index
U.S. Small/Mid Cap Equities	8.70%	Russell 2500 Index
International Equities	20.00%	MSCI World
Hedge Funds	8.00%	UBS Private Equity
Real Estate/REITs	9.00%	NCREIF Property Index

These indices have the following historical annual real returns (i.e., the return after removing the effect of inflation as measured by CPI-U):

Figure 19: Geometric Average Annual Returns of Market Indices

Geometric Average Annual Real Return[2]								
Period	Number of Years	3-month T-Bills	Bloomberg Barclays Capital Aggregate Index	S&P 500 Index	Russell 2500 Index	MSCI World	UBS Private Equity	NCREIF Property Index
1972-2016	45	1.04%	3.14%	6.15%	-	4.97%	9.93%	-
1987-2016	30	0.96%	3.53%	7.49%	8.06%	4.85%	10.08%	5.00%
1992-2016	25	0.66%	3.21%	6.91%	8.29%	4.54%	10.17%	6.08%
1997-2016	20	0.40%	2.98%	5.64%	7.16%	3.67%	8.47%	7.31%
2002-2016	15	(0.43)%	2.28%	4.78%	6.90%	4.00%	6.08%	6.50%
2007-2016	10	(0.75)%	2.28%	5.26%	5.78%	2.29%	6.27%	4.63%

[1] Another reasonable market index would be the Bloomberg Barclays Long Government/Corporate Index.
[2] Information as summarized and published by the Society of Actuaries.

Based on these historical returns, the following reasonable real return ranges have been developed giving more weight to longer periods of return:

Figure 20: Reasonable Real Investment Return Assumptions for Asset Classes

Reasonable Real Investment Return Assumptions				
Asset Class	**Low**	**Midpoint**	**High**	**Selected Assumption**
Cash and Cash Equivalents	0.00%	0.750%	1.50%	0.50%
Core-Plus Fixed Income[1]	2.25%	2.875%	3.50%	3.50%
U.S. Large Cap Equity	4.75%	6.125%	7.50%	6.75%
U.S. Small/Mid Cap Equity	5.75%	7.000%	8.25%	7.25%
International Equities	2.25%	3.625%	5.00%	4.75%
Hedge Funds	6.00%	8.125%	10.25%	7.75%
Real Estate/REITs	4.50%	5.875%	7.25%	4.75%

The following table illustrates how the target allocation of each asset class is multiplied by the real rate of return for each asset class to determine the total expected real rate of return:

Figure 21: Development of Real Rate of Investment Return Assumption based on Target Allocation

Asset Class	**Investment Policy Statement Target Allocation (A)**	**Selected Real Rate of Investment Return Assumption (B)**	**Target Allocation Real Rate of Investment Return Assumption (A) x (B)**
Cash and Cash Equivalents	1.00%	0.50%	0.005%
Core-Plus Fixed Income	35.00%	3.50%	1.225%
U.S. Large Cap Equities	18.30%	6.75%	1.235%
U.S. Small/Mid Cap Equities	8.70%	7.25%	0.631%
International Equities	20.00%	4.75%	0.950%
Hedge Funds	8.00%	7.75%	0.620%
Real Estate/REITs	9.00%	4.75%	0.428%
Total	100.00%	N/A	5.094%

[1] A reasonable range using the Bloomberg Barclays Long Government/Corporate Index would be 4.50% to 5.25%.

Using the same approach for the Low, Midpoint and High assumption for each asset class and the target allocation percentages of the fund, the following real return range of assumptions and the final assumption have been developed for the expected range of long-term real return of the fund:

Figure 22: Reasonable Total Trust Portfolio Real Investment Return Assumption

Reasonable Total Trust Portfolio Real Investment Assumption Return Assumptions (Before Expenses)[1]				
	Low	**Midpoint**	**High**	**Selected Assumption**
Weighted Return	3.492%	4.647%	5.803%	**5.094%**

The final Investment Return assumption is based upon the building-block method which combines the Inflation assumption with the Real Investment Return assumption offset by assumed investment expenses as shown below:

Figure 23: Final Investment Return Assumption

Development of Final Selected Investment Return Assumption				
	Low	**Midpoint**	**High**	**Selected Assumption**
Real Rate of Investment Return Assumption	3.492%	4.647%	5.803%	**5.094%**
Assumed Inflation	2.500%	2.500%	2.500%	**2.500%**
Assumed Investment Expenses	(0.500)%	(0.500)%	(0.500)%	**(0.500)%**
Investment Return Assumption	5.492%	6.647%	7.803%	**7.094%**
Final Rounded Selected Investment Return Assumption	N/A	N/A	N/A	**7.00%**

Based on our review, we believe that 7.00% is a reasonable Investment Return assumption. Our analysis rounds down the sum of the individual components from 7.094% to 7.00%. Therefore, **we recommend the assumed Investment Return assumption net of investment-related expenses for use in future Pension Plan actuarial valuations remain at 7.00%.** This assumption should not carry with it pressure to meet that assumption by changing the quality of fixed income investments or by increasing the asset allocation of equity investments or real estate or alternative strategies. It should be considered as a long-term annual average, not as a minimum rate for each future year in the establishment of investment policy.

[1] A reasonable total trust portfolio real investment return using Bloomberg Barclays Long/Government Corporate Index in place of the Bloomberg Barclays Capital Aggregate Index would be 4.280% for the Low assumption, 5.347% for the Midpoint assumption and 6.415% for the High assumption.

Section IV – Pension Plan Funding Policy

A. Background

The Funding Policy determines the manner in which plan liabilities and assets are measured for purposes of determining the annual contributions to the Pension Plan. Typically, funding policies require the annual Normal Cost (i.e., the present value of the current year benefit accruals) plus a portion of the Unfunded Actuarial Accrued Liability (UAAL or UAL) (i.e., the excess of Plan Liabilities over Plan Assets) to be funded via an amortization payment.

The Conference of Consulting Actuaries Public Plans Community (CCA PPC) published the Actuarial Funding Policies and Practices for Public Pension Plans in October 2014. This publication is a "white paper" that develops principal elements and parameters of actuarial funding policy for U.S. public pension plans. The guidance offered in the white paper "is not intended to supplant or replace the applicable Actuarial Standards of Practice (ASOPs)" and is "nonbinding and advisory only", but is intended as advice to actuaries and retirement boards in setting funding policy.

The white paper develops a Level Cost Allocation Model (LCAM) that recommends actuarial funding methods for measuring both plan liabilities and plan assets, as well as recommends amortization periods for funding the UAAL. These recommendations are discussed further below.

B. Current Funding Policy

The current Funding Policy uses the following methodologies:

- **Cost Method** - Plan Liabilities are determined using the **Entry Age Normal** actuarial cost method. This method funds each individual's benefits over their career as a level percent of pay.

- **Asset Method** – Plan Assets are valued using a **7-year average** of the market value as of the valuation date and the adjusted market value of assets determined for the six immediately preceding valuation dates. The adjusted market value of assets for a prior valuation date is the market value of assets on that date, increased for contributions included in the plan's asset balance on the current valuation date that were not included in the plan's asset balance on the prior valuation date, increased by assumed investment return at a rate of 7.00%, and reduced for benefits and administrative expenses paid from plan assets during the same period.

- **Amortization Method** – The UAAL is determined as the difference between the Plan Liabilities and Plan Assets and is amortized over a **30-year open period as a level dollar amount**.

- **Actuarially Determined Contribution (ADC)** – Per the employer's funding policy, the ADC is equal to the plan's Normal Cost plus the 30-year amortization amount of the UAAL. In the annual actuarial valuation reports, this amount is determined both as a dollar amount and as a percentage of estimated Earnable Compensation. It is our understanding that prior to 2018 the employer funded the ADC based on the percentage of Earnable

Compensation shown in the annual actuarial valuation reports. To the extent the actual Earnable Compensation was higher than the estimated Earnable Compensation shown in the valuation report, then the employer would fund more than the dollar amount shown in the valuation report. Such additional funding would simply serve to reduce the following year's ADC. Similarly, the opposite effect would occur if the actual Earnable Compensation was less than the estimated Earnable Compensation shown in the valuation report. It is our understanding that in 2018 the employer switched to funding the dollar amount shown in the actuarial valuation report. To the extent that the estimated Earnable Compensation in 2018 was more than the actual Earnable Compensation in 2018, then the employer would have funded more than using the percentage method.

C. Recommended Changes to Funding Policy

1. **Cost Method** – The white paper LCAM recommends using the Entry Age Normal Cost method that the employer is presently using under its funding policy. **We recommend no change to this cost method.**

2. **Asset Method –** The white paper LCAM recommends that deferrals based on total return gain/loss relative to assumed earnings rate be used over a period of 5 or fewer years without a corridor or with a corridor for periods longer than 5 years. **We recommend that the Asset Method keep the 7-year period following the recommended methodology for developing gains/losses under the white paper[1]. However, we recommend adding a corridor of 70% / 130%, such that the Plan Asset value can neither be less than 70% of the market value on the valuation date nor greater than 130% of the market value on the valuation date.** This corridor is conservative because it is 10% smaller than the white paper LCAM maximum recommended corridor of 60% / 140% for a 7-year asset smoothing method.

[1] The white paper LCAM methodology for developing the asset gains and losses differs from the current methodology. Changing this methodology to comport with the LCAM reduces the AVA as of January 1, 2019 by approximately 0.7%.

3. **Amortization Method** – The white paper LCAM generally recommends level percentage of compensation amortization instead of level dollar amortization as shown in the middle column of the table below. In addition, the white paper LCAM recommends a multiple layer amortization by source method. **Our recommended closed amortization periods are shown in the adjacent column below.**

Source of Amortization Layer	White Paper Recommended Closed Amortization Period as Level Percent[1]	Rudd and Wisdom Recommended Closed Amortization Period as Level Dollar
Actuarial Experience Gain/Loss	15 to 20 years	**25 years**
Assumption and Method Changes	20 to 25 years	**25 years**
Plan Amendments	10 to 15 years[2]	**15 years**
Transition to New LCAM Policy	Up to 30 years[3]	**29 years[4]**

[1] The white paper LCAM indicates that "level dollar could be appropriate for sponsors and plans that are particularly averse to future cost increases, e.g., utilities setting rates for current rate payers." Furthermore, the white paper states "level dollar is generally faster amortization than level percent of pay so longer periods may be reasonable."

[2] The white paper recommends that Plan Amendments be amortized over the actual remaining active future service for amendments affecting active members (where 15 years can be used as an approximation) or over actual remaining retiree life expectancy for amendments affecting inactive members (where 10 years can be used as an approximation).

[3] The white paper indicates that transition policies to allow current fixed period amortization layers with periods not to exceed 30 years to continue with new amortization layers subject to recommended guidelines.

[4] Rudd and Wisdom recommends changing from a 30-year open period to a 30-year closed period on the amount at transition. Furthermore, we recommend that the 30-year amortization amount from the January 1, 2019 valuation be carried forward to January 1, 2020 and amortized over the 29 years remaining on that amount.

The multiple layer amortization by source method requires that a new amortization base (or layer) be created each year for Actuarial Experience Gains/Losses. Creating a new amortization layer for each year reduces the volatility of the amortization of the Unfunded Accrued Liability relative to a method that amortizes the entire Unfunded Accrued Liability over a single period, particularly as the closed amortization period becomes shorter. In addition, new amortization layers are created in years in which actuarial assumptions or methods are changed and in years in which plan amendments are enacted.

4. **Actuarially Determined Contribution (ADC) – We recommend that the employer's funding policy be such that the ADC is equal to the plan's Normal Cost plus the amortization of the layers of the UAAL as level dollar amounts based on periods shown in the right-hand column in the table above. Furthermore, we recommend that the amount contributed be based on the ADC**

as shown as a percentage of estimated Earnable Compensation for the calendar year containing the valuation date. This returns the employer contribution to the methodology used prior to 2018 and has the benefit of consistency with the manner in which employee contributions are shown each pay period on the employees' pay stubs. It is also our understanding that it is aligned with the manner in which NOMERS and other State pension plans are administered in Louisiana.

D. Other Considerations and Implementation

1. **Board Resolution R-248-2014** – Board Resolution R-248-2014 requires the Employer Contribution to be determined by assuming employees contribute 5% of Earnable Compensation, rather than the actual amount of 6% of Earnable Compensation, whenever the plan is less than 100% funded. The effect of this Resolution is to increase the Employer's contribution by 1% of Earnable Compensation and accelerate the timeline for fully funding the Plan. (See Item 9. in the table on page V-1 of this report for the mechanics of this calculation.)

   This report has been prepared assuming that this Resolution remains in effect under the recommended funding policy. However, the recommended funding policy calculates an Actuarially Determined Contribution (ADC) that meets the actuarial funding guidelines discussed in this report and is sufficient to fully fund the plan over a reasonable period of time absent this 1% additional amount. Therefore, if the Board desires to adopt the recommended funding policy, it may also wish to consider repealing Board Resolution R-248-2014. If the Board repealed this Resolution, then the ADC developed in the table on page V-1 of this report would decrease by 1% from 23.383% to 22.383% of Earnable Compensation.

   Both approaches increase the employer's ADC relative to the current funding policy. Additionally, under any funding policy, the employer always has the option of contributing an amount in excess of the ADC should the employer desire to accelerate the funding of the plan.

   We are making no recommendation as to the continued application of Board Resolution R-248-2014 or its potential repeal.

2. **Implementation** – Should the Board decide to adopt the recommended assumptions and the recommended funding policy presented in this report, a stand-alone official funding policy document can be drafted that incorporates the funding methods recommended in this report. While the Rules and Regulations do not require an amendment to incorporate the specific elements of the recommended funding policy, a few minor modifications could be made in order to reference the new funding policy. Rudd and Wisdom can prepare the initial drafts of these documents for the Board and its legal counsel's review. The potential next steps are as follows:

   a. The Board adopts the recommended assumptions with or without modification.

   b. The Board adopts the recommended funding policy with or without modification.

c. The Board elects to repeal Board Resolution R-248-2014 or elects no action with respect to this Resolution.

d. Rudd and Wisdom prepares a draft Funding Policy reflecting the Board's decisions on items (b.) and (c.) above and an accompanying draft amendment to the Rules and Regulations to reference the new Funding Policy.

e. Rudd and Wisdom reflects the newly adopted assumptions and funding methods in future actuarial valuations.

Section V – Comparison of Current and Recommended Assumptions and Methods on the January 1, 2019 Actuarial Valuation

	Current Assumptions and Methods		Recommended Assumptions and Methods	
	Amount	**As a % of Payroll**	**Amount**	**As a % of Payroll**
1. **Projected Participant Compensation for Current Plan Year**	$ 47,621,715		$ 47,621,715	
2. **Present Value of Future Benefits**	$ 369,421,738		$374,189,754	
3. **Accrued Liability**	$ 339,153,248		$340,870,210	
4. **Actuarial Value of Assets**	$ 242,203,725		$240,467,270	
5. **Unfunded Accrued Liability (UAL) (Item 3. – Item 4.)**	$ 96,949,523		$100,402,940	
6. **Present Value of Future Normal Costs (Item 2. – Item 3.)**	$ 30,268,490		$ 33,319,544	
7. **Normal Cost**	$ 4,812,453	10.106%	$ 5,308,887	11.148%
8. **Total Funding Policy Annual Actuarially Determined Contribution (ADC)**				
a. Normal Cost[1]	$ 4,964,967		$ 5,477,133	
b. Level Dollar Amortization of UAL	7,572,820 [2]		8,039,169 [3]	
c. Total Annual ADC	$ 12,537,787	26.328%	$ 13,516,302	28.383%
9. **Employee Funding Policy Annual Contribution (Item 1. x 5%)**	$ 2,381,086	5.000%	$ 2,381,086	5.000%[5]
10. **Employer Funding Policy Annual ADC (Item 8.c. – Item 9.)**	$ 10,156,701	21.328%	$ 11,135,216	23.383%[5]

[1] Includes interest assuming monthly contributions at the end of each month.

[2] Calculated using a 30-year amortization period and assuming monthly contributions at the end of each month.

[3] Calculated using the recommended amortization method described in Section IV.C. and assuming monthly contributions at the end of each month. Furthermore, the recommended amortization method has been applied as though the 30-year amortization amount from the January 1, 2018 valuation has been carried forward to January 1, 2019 and amortized over the 29 years remaining on that amount. However, this application of the method is solely for illustrative purposes since the recommended method would not actually begin the transition process until January 1, 2020.

[4] In accordance with Board Resolution R-248-2014, since the plan is not 100% funded, the Employer Contribution is determined assuming employees contribute 5% of Earnable Compensation. Actual employee contributions are 6% of Earnable Compensation.

[5] **If the Board decides to repeal Board Resolution R-248-2014 in conjunction with the adoption of the recommended funding policy, then the amount in Item 9. would increase by 1% from 5% to 6% and the amount in Item 10. would decrease by 1% from 23.383% to 22.383% resulting in an Employer Contribution of $10,658,999 instead of $11,135,216 as shown above. See Section IV.D. of this report for additional details.**

Appendix 1 – Retirement Rates

A. Current Retirement Rates Assumption

Employee Members are assumed to retire at the earliest age at which they would be eligible to retire (with reduced benefits, if applicable) except: (a) if the earliest age of retirement eligibility is prior to age 55 for eligibilities other than the "Rule of 80", the assumed age at retirement is the earliest age plus one year, or (b) if the earliest age of retirement eligibility occurs due to the "Rule of 80" eligibility, the assumed age at retirement is the earliest age plus three years.

B. Recommended Retirement Rates Assumption

Employee Members are assumed to retire in accordance with the annual rates illustrated below.

Attained Age	Retirements per 100 Members (Credited Service)												
	<5	5 - 19	20	21	22	23	24	25	26	27	28	29	30+
45													
46													
47													
48													5
49													15
50													15
51												15	15
52											25	15	15
53										35	25	15	15
54									35	35	15	15	15
55								50	35	35	18	18	18
56							50	50	50	18	18	18	18
57						50	50	20	20	20	20	20	20
58					50	50	30	30	30	30	30	30	30
59				50	50	25	25	25	25	25	25	25	25
60		25	50	50	25	25	25	25	25	25	25	25	25
61		35	50	35	35	35	35	35	35	35	35	35	35
62		35	35	35	35	35	35	35	35	35	35	35	35
63		15	15	15	15	15	15	15	15	15	15	15	15
64		30	30	30	30	30	30	30	30	30	30	30	30
65		40	40	40	40	40	40	40	40	40	40	40	40
66		25	25	25	25	25	25	25	25	25	25	25	25
67		25	25	25	25	25	25	25	25	25	25	25	25
68		25	25	25	25	25	25	25	25	25	25	25	25
69		25	25	25	25	25	25	25	25	25	25	25	25
70		25	25	25	25	25	25	25	25	25	25	25	25
71	100	100	100	100	100	100	100	100	100	100	100	100	100

Appendix 2 – Termination Rates

A. Current Termination Rates Assumption

The active members are assumed to terminate their employment for causes other than death, disability or retirement in accordance with annual rates as illustrated below.

Rate of Decrement Due to Termination Per 100 Members	
Age	**Rate**
20	33.29
25	25.07
30	16.91
35	10.61
40	6.68
45	4.78
50	4.12
≥52	4.00

B. Recommended Termination Rates Assumption

The active members are assumed to terminate their employment for causes other than death, disability or retirement in accordance with annual rates as illustrated below.

Rate of Decrement Due to Termination Per 100 Members						
	Years of Credited Service					
Age	**<1**	**1-2**	**2-3**	**3-4**	**4-5**	**5+**
<25	30	25	25	25	25	15
25-29	25	18	18	11	11	8
30-34	25	18	18	11	11	8
35-39	25	18	18	11	11	8
40-44	25	18	18	11	11	5
45-49	25	18	18	11	11	5
50-54	25	18	18	11	11	4
55-59	25	18	18	11	11	4
60+	10	10	10	4	4	4

Appendix 3 – Disability Rates

A. Current Disability Rates Assumption

Active members are expected to become disabled as defined under the plan in accordance with annual rates as illustrated below.

Annual Disability Retirement Rates Per 100 Members	
Age	**Rate**
20	0.11
30	0.11
40	0.30
50	1.11
55	1.90
60	3.45
65	5.10

B. Recommended Disability Rates Assumption

Active members are expected to become disabled as defined under the plan in accordance with annual rates as illustrated below.

Annual Disability Retirement Rates Per 100 Members	
Age	**Rate**
20	0.088
30	0.088
40	0.240
50	0.888
55	1.520
60	2.760
65	4.080

Appendix 4 – Compensation Increases

A. Current Compensation Increase Assumption

The increase in the levels of participant compensation is assumed to increase at an annual rate of 5.00%.

B. Recommended Compensation Increase Assumption

The increase in the levels of participant compensation is assumed to increase in accordance with annual rates as illustrated below.

Annual Compensation Increases*	
Age	**Rate**
20 - 24	6.25%
25 - 29	5.75
30 - 34	5.25
35 - 39	4.75
40 - 44	4.75
45 - 49	4.75
50 - 54	4.75
55 - 59	4.75
60 - 64	4.75
65+	4.00

* Includes a 2.50% inflation component.

Appendix 5 – Summary of All Other Assumptions and Methods

A. Mortality Rates

1. Current Assumption

The active, vested terminated and retired participants of the plan are expected to exhibit mortality in accordance with the following published mortality tables:

a. Pre-retirement Mortality: 1994 Uninsured Pensioner (UP-94) mortality table, projected to 2002 using Scale AA, gender distinct

b. Post-retirement Mortality: 1994 Uninsured Pensioner (UP-94) mortality table, projected to 2002 using Scale AA, gender distinct

2. Recommended Assumption

a. Pre-retirement Mortality: Amount-weighted General Employee Table (i.e., PubG-2010) multiplied by 122% for Males and 119% for Females projected using Scale MP-2019 mortality improvement rates

b. Post-retirement Mortality:

i. Healthy Retirees: General Table for Healthy Retirees (i.e., PubG-2010) multiplied by 122% for Males and 119% for Females projected using Scale MP-2019 mortality improvement rates

ii. Disabled Retirees: General Table for Disabled Retirees (i.e., PubG-2010) multiplied by 122% for Males and 119% for Females projected using Scale MP-2019 mortality improvement rates

iii. Contingent Survivors: General Table for Contingent Survivors (i.e., PubG-2010) multiplied by 122% for Males and 119% for Females projected using Scale MP-2019 mortality improvement rates

B. DROP Participation

1. Current Assumption

The current Pension Plan actuarial assumptions do not explicitly address DROP participation. However, for OPEB purposes the current assumptions implicitly assume that 100% of retirees elect to participate in the DROP for a period of five years.

2. Recommended Assumption

Active members are assumed to elect to participate in the DROP in accordance with the rates illustrated below.

Age at Retirement[1]	Recommended Assumption for Percentage of Members who Elect a DROP upon Retirement
< 60	90%
60-64	60%
65+	30%

[1] Age at commencement of DROP participation period.

All Members assumed to elect the DROP are also assumed to elect a 5-year DROP participation period.

C. Withdrawal of Employee Contributions

1. Current Assumption

20% of participants terminating with a vested right are assumed to withdraw their accumulated contributions upon termination, while 80% are assumed to retain their vested deferred benefits by leaving contributions on deposit.

2. Recommended Assumption

75% of participants terminating with a vested right are assumed to withdraw their accumulated contributions upon termination, while 25% are assumed to retain their vested deferred benefits by leaving contributions on deposit.

D. Credited Service for Unused Leave

1. Current Assumption

None.

2. Recommended Assumption

Credited Service is assumed to increase by 0.50 years for Unused Leave at the time a Member is within one year of retirement eligibility.

E. Spousal Age Difference

1. Current Assumption

Spouses are assumed to be the same age as the member.

2. Recommended Assumption

Female spouses are assumed to be two years younger than their male counterparts.

F. Form of Payment

1. Current Assumption

100% of members elect a Life Annuity at retirement.

2. Recommended Assumption

75% of the retiring members who are married elect a Life Annuity and the remaining 25% elect an ERISA Joint and Survivor option with a 50% continuation percentage.

G. Inflation

1. Current Assumption

2.50% per annum.

2. Recommended Assumption (No Change)

2.50% per annum.

H. Investment Return

1. Current Assumption

7.00% (net of investment-related expenses) per annum.

2. Recommended Assumption (No Change)

7.00% (net of investment-related expenses) per annum.

I. Actuarial Methods

See Section IV of this report.

Appendix 6 – Comparison of Assumptions with Select Members of LAPERS

LAPERS Member	Valuation Report	Investment Rate of Return, Net of Investment Expenses (Discount Rate)	Inflation	Mortality Assumption for Annuitants	Funded Ratio as of Valuation Date
City of Alexandria Employees' Retirement System	12/31/2018	6.50%	2.40%	RP-2000 Healthy Annuitant Table set forward 1 year for Males and without any set forward for Females and Projected to 2029 using Scale AA	81.6%
City of New Orleans Employees' Retirement System	1/1/2019	7.50%	(Not included in report)	RP-2000 Combined Healthy Mortality Table, set forward 6 years for Males under age 70 and set forward 4 years for Females under age 65, without projection	61.2%
Clerks' of Court Retirement and Relief Fund	6/30/2018	6.75%	2.50%	RP-2000 Healthy Annuitant Table set forward 1 year for Males and without any set forward for Females and Projected to 2030 using Scale AA	79.1%
Employees' Retirement System of the City of Baton Rouge and Parish of East Baton Rouge	1/1/2019	7.25%	2.75%	RP-2000 Combined Healthy Mortality with a Blue Collar Adjustment Projected to 2019 using Scale BB	66.6%
Louisiana State Employees' Retirement System	6/30/2018	7.65%	2.75%	RP-2000 Healthy Mortality for Males and Females and Projected to 2015 using Scale AA	64.7%
Municipal Employees' Retirement System	6/30/2018	7.275%	2.60%	RP-2000 Healthy Annuitant Table set forward 2 years for Males and set forward 1 year for Females and Projected to 2028 using Scale AA	70.6% (Plan A) and 72.5% (Plan B
Parochial Employees' Retirement System	12/31/2018	6.50%	2.40%	Pub-2010 for General Healthy Retirees multiplied by 130% for Males and 125% for Females with Full Generational Projection using Scale MP-2018	96.0% (Plan A) and 99.1% (Plan B)
Teachers' Retirement System of Louisiana	6/30/2019	7.55%	2.50%	RP-2014 White Collar Healthy Annuitant Tables multiplied by 136.6% for Males and multiplied by 118.9% for Females with Full Generational Projection using Scale MP-2017	67.1%

FFC INVESTMENT ADVISORS
of
RAYMOND JAMES®

Comparative Performance Analysis Report

Sewerage and Water Board of New Orleans ERS

July 31, 2020

Pension Committee

Octave J. Francis III, CIMA®, AIF®
Managing Director
Senior Vice President, Investments

909 Poydras Street, Suite 1300
New Orleans, LA 70112
D 504.527.0208
F 504.595.3280

Visit us at www.ffcinvestmentadvisors.com

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Sewerage and Water Board of New Orleans ERS Total Composite

Market Performance

As of July 31, 2020

Name	Description	Jul-20	Last 3 Months	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
US Equity								
Russell 3000	Broad	5.68	13.87	2.00	10.93	11.39	10.89	13.59
S&P 500	Large Cap Core	5.64	12.87	2.38	11.96	12.01	11.49	13.84
S&P 500 Equal Weighted TR	Large Cap Core	4.84	11.51	-6.45	0.57	6.54	7.95	12.38
Russell 1000	Large Cap Core	5.86	13.90	2.88	12.03	12.02	11.31	13.85
Russell 1000 Growth	Large Cap Growth	7.69	19.93	18.26	29.84	20.91	16.84	17.29
Russell 1000 Value	Large Cap Value	3.95	6.80	-12.95	-6.01	2.70	5.36	10.12
Russell 2500	SMid Core	3.98	14.89	-7.51	-1.92	5.08	6.28	11.14
Russell MidCap	Mid Cap Core	5.87	15.36	-3.79	2.04	7.30	7.83	12.21
Russell 2000	Small Cap Core	2.77	13.32	-10.57	-4.59	2.69	5.10	10.07
Russell 2000 Growth	Small Cap Growth	3.44	17.56	0.27	6.00	8.77	7.49	12.58
Russell 2000 Value	Small Cap Value	2.06	8.03	-21.92	-15.91	-3.90	2.24	7.30
International Equity								
MSCI ACWI	Global Equity	5.29	13.38	-1.29	7.20	6.99	7.37	8.87
MSCI World ex USA	International Equity	2.66	10.69	-9.13	-1.72	0.74	2.23	4.78
MSCI EAFE	Developed Equity	2.33	10.42	-9.28	-1.67	0.63	2.10	5.02
MSCI Emerging Markets	Emerging Equity	8.94	17.84	-1.72	6.55	2.84	6.15	3.33
Fixed Income								
91 Day T-Bills	Cash and Cash Equivalents	0.01	0.03	0.41	1.13	1.63	1.13	0.59
BBgBarc US Aggregate TR	Fixed Core	1.49	2.61	7.72	10.12	5.69	4.47	3.87
BBgBarc US Govt/Credit TR	Fixed Core	2.01	3.49	9.36	12.06	6.42	5.01	4.22
BBgBarc US Municipal TR	Fixed Muni	1.68	5.78	3.80	5.36	4.52	4.13	4.26
BBgBarc US High Yield TR	Fixed High Yield	4.69	10.37	0.71	4.14	4.54	5.88	6.80
FTSE WGBI TR	Global Fixed	3.63	4.50	7.86	8.91	4.58	4.34	2.36
FTSE WGBI ex US TR	International Fixed	5.12	6.64	6.21	6.77	3.65	4.29	1.83
Real Estate								
FTSE NAREIT All REIT	Real Estate	3.77	8.43	-11.81	-6.38	3.52	5.89	9.51
NCREIF Property Index	Real Estate	0.00	-0.99	-0.29	2.69	5.44	6.77	9.70
Alternatives								
HFRI Fund of Funds Composite Index	Hedge Funds	2.83	7.28	1.20	3.05	2.86	2.02	3.00
Inflation								
Consumer Price Index	Inflation	0.51	1.06	0.83	0.99	1.91	1.66	1.74

Sewerage and Water Board of New Orleans ERS Total Composite Investment Analysis

Sewerage and Water Board of New Orleans ERS Total Composite

Sewerage and Water Board of New Orleans ERS Total Composite Performance

As of July 31, 2020

	Market Value ($)	% of Portfolio	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Sewerage and Water Board of New Orleans ERS Total Composite	**216,816,199**	**100.00**	**3.52**	**9.85**	**-1.81**	**1.98**	**5.21**	**4.90**	**5.43**	**6.78**	**5.87**	**Jul-02**
Strategic Asset Allocation			*3.63*	*8.71*	*0.54*	*5.96*	*6.49*	*5.83*	*5.66*	*6.79*	*5.83*	*Jul-02*
Equity Composite	**100,496,692**	**46.35**	**4.91**	**13.70**	**0.29**	**9.40**	**--**	**--**	**--**	**--**	**8.12**	**Jan-18**
Equity Balanced Index			*5.05*	*14.64*	*-0.93*	*7.11*	--	--	--	--	*6.52*	*Jan-18*
Earnest Partners	38,084,981	17.57	3.99	16.51	-12.61	-10.77	-3.52	1.09	2.12	--	4.71	Oct-11
MSCI ACWI ex USA			*4.46*	*12.75*	*-7.03*	*0.66*	*1.38*	*3.22*	*3.72*	--	*5.70*	*Oct-11*
iShares S&P 500 Growth ETF	25,062,005	11.56	7.12	18.69	15.97	25.28	18.40	--	--	--	17.35	Mar-16
Russell 1000 Growth			*7.69*	*19.93*	*18.26*	*29.84*	*20.91*	--	--	--	*21.31*	*Mar-16*
NewSouth Capital	24,976,131	11.52	6.42	11.29	-8.51	-2.66	7.51	6.04	8.53	--	11.88	Sep-11
Russell 2500 Value			*3.01*	*9.72*	*-18.81*	*-13.52*	*-1.89*	*2.76*	*4.35*	--	*9.65*	*Sep-11*
Barrow, Hanley, Mewhinney, & Strauss	12,362,123	5.70	3.34	9.65	-14.02	-6.22	--	--	--	--	--	Aug-06
Russell 1000 Value			*3.95*	*6.80*	*-12.95*	*-6.01*	--	--	--	--	--	*Aug-06*
Chicago Equity Partners	11,452	0.01	1.64	8.59	-4.72	2.67	7.80	7.97	9.70	12.40	8.24	Jun-06
Russell 1000			*5.86*	*13.90*	*2.88*	*12.03*	*12.02*	*11.31*	*12.11*	*13.85*	*9.23*	*Jun-06*
Fixed Income Composite	**80,286,776**	**37.03**	**2.20**	**5.54**	**5.55**	**7.98**	**--**	**--**	**--**	**--**	**5.82**	**Jan-18**
Fixed Income Balanced Index			*1.76*	*3.57*	*7.02*	*9.46*	--	--	--	--	*6.15*	*Jan-18*
Pyramis Global Advisors (Fidelity)	80,254,843	37.02	2.20	5.55	5.55	7.99	5.37	4.79	4.63	4.79	5.27	Apr-07
BBgBarc US Universal TR			*1.76*	*3.56*	*7.01*	*9.45*	*5.59*	*4.67*	*4.34*	*4.16*	*4.78*	*Apr-07*
Zazove Associates, LLC (Residual Asset)	31,932	0.01	2.06	0.19	-10.60	-11.60	--	--	--	--	20.01	Jan-18
ICE BofA Convertibles Securities TR			*7.32*	*22.51*	*19.35*	*25.76*	--	--	--	--	*16.35*	*Jan-18*

Sewerage and Water Board of New Orleans ERS Total Composite

Sewerage and Water Board of New Orleans ERS Total Composite Performance

As of July 31, 2020

	Market Value ($)	% of Portfolio	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Real Estate Composite	**17,409,165**	**8.03**	**3.64**	**8.01**	**-10.53**	**-4.57**	**--**	**--**	**--**	**--**	**3.39**	**Jan-18**
Real Estate Balanced Index			*4.04*	*7.13*	*-15.67*	*-11.51*	--	--	--	--	*-0.49*	*Jan-18*
Vanguard Real Estate ETF	17,409,165	8.03	3.64	8.01	-10.53	-4.57	3.20	5.06	6.91	9.13	8.73	May-10
MSCI US REIT			*4.04*	*7.13*	*-15.67*	*-11.51*	*-0.28*	*2.44*	*4.49*	*7.18*	*6.80*	*May-10*
Alternatives Composite	**16,822,528**	**7.76**	**0.01**	**5.81**	**-1.54**	**-0.82**	**--**	**--**	**--**	**--**	**-0.15**	**Jan-18**
Alternatives Balanced Index			*2.83*	*7.28*	*1.20*	*3.05*	--	--	--	--	*2.01*	*Jan-18*
Prisma Capital Partners LP	16,804,237	7.75	0.01	5.81	-1.54	-0.82	1.07	0.35	1.85	2.85	2.59	May-07
HFRI Fund of Funds Composite Index			*2.83*	*7.28*	*1.20*	*3.05*	*2.86*	*2.02*	*2.96*	*3.00*	*1.59*	*May-07*
Equitas Capital Advisors (Residual Asset)	18,291	0.01	0.01	0.02	-0.73	-1.72	--	--	--	--	-1.73	Jan-18
HFRI Fund of Funds Composite Index			*2.83*	*7.28*	*1.20*	*3.05*	--	--	--	--	*2.01*	*Jan-18*
Cash & Equivalents	**1,801,039**	**0.83**										
Cash Account	1,801,039	0.83										

- Strategic Asset Allocation = 27% Russell 3000 / 20% MSCI ACWI ex USA / 35% BBgBarc US Universal TR / 8% HFRI Fund of Funds Composite Index / 9% MSCI US REIT / 1% FTSE T-Bill 1 Month TR
- Equity Balanced Index = Weighted Average of MSCI ACWI ex USA / Russell 2500 / S&P 500 Growth / Russell 1000 / Russell 1000 Value
- Fixed Income Balanced Index = Weighted Average of BBgBarc US Universal TR / ICE BofA All US Convertibles TR
- Real Estate Balanced Index = Weighted Average of MSCI US REIT
- Alternatives Balanced Index = Weighted Average of HFRI Fund of Funds Composite Index

-Performance for all accounts and composites reported gross of fees unless otherwise indicated.

Sewerage and Water Board of New Orleans ERS Total Composite

As of January 31, 2020

Strategic Asset Allocation Policy

12/31/1989-8/31/1994	
CG Broad Bond	75%
S&P 500	25%

9/1/1994-8/31/1997	
CG Broad Bond	55%
Russell 1000 Value	25%
Russell 1000 Growth	11%
Russell 2000 Growth	9%

9/1/1997-2/28/1999	
CG Broad Bond	45%
Russell 1000Value	30%
Russell 1000 Growth	14%
Russell 2000 Growth	11%

3/1/1999-8/31/2000	
CG Broad Bond	45%
Russell 1000Value	30%
S&P 500	14%
Russell 2000 Growth	11%

9/1/2000-8/31/2001	
CG Broad Bond	45%
Russell 1000 Value	30%
Russell 1000 Growth	14%
Russell 2000 Growth	11%

9/1/2001-1/31/2002	
CG Broad Bond	45%
Russell 1000 Value	30%
Russell 1000 Growth	14%
Russell 2000	11%

2/01/2002-2/28/2005	
CG Broad Bond	35%
Russell 1000 Value	30%
Russell 1000 Growth	14%
Russell 2000	11%
ML IG Conv. Bonds	10%

3/1/2005-6/30/2007	
Russell 3000	40.00%
MSCI ACWI exUS	7.75%
CG Broad Bond	25.00%
CG World Govt Bond	10.00%
CSFB Tremont/Hdge	7.25%
90-Day US T-Bill	10.00%

7/1/2007-8/31/2008	
Russell 3000	40.00%
MSCI ACWI exUS	7.75%
CG Broad Bond	25.00%
CG World Govt Bond	10.00%
CSFB Tremont/Hdge	7.25%
DJ Global Index	10.00%

9/01/2008-11/30/2008	
Russell 3000	40.00%
MSCI ACWI exUS	7.75%
CG Broad Bond	25.00%
CG World Govt Bond	10.00%
CSFB Tremont/Hdge	7.25%
DJ Wilshire xUS Resi	5.00%
90 Day US T-Bill	5.00%

12/01/2008-4/30/2009	
Russell 3000	40.00%
MSCI ACWI exUS	7.75%
CG Broad Bond	25.00%
CG World Govt Bond	10.00%
CSFB Tremont/Hdge	7.25%
DJ Wilshire xUS Resi	5.00%
90 Day US T-Bill	5.00%

5/01/2009-9/30/2009	
Russell 3000	30.00%
MSCI ACWI exUS	7.75%
Barclays Agg Bond	25.00%
Barclays Global Tips	10.00%
CSFB Tremont/Hdge	7.25%
90 Day US T-Bill	20.00%

10/01/2009-3/31/2010	
Russell 3000	33.50%
MSCI ACWI exUS	8.50%
Barclays Agg Bond	28.00%
Barclays Global Tips	9.00%
CSFB Tremont/Hdge	8.75%
S&P GSCI	7.25%
DJ Wilshire xUS Resi	1.75%
MSCI REIT	3.25%

4/01/2010-4/30/2014	
Russell 3000	33.50%
MSCI ACWI exUS	8.50%
Barclays Agg Bond	28.00%
Barclays Global Tips	9.00%
CSFB Tremont/Hdge	8.75%
S&P GSCI	7.25%
MSCI REIT	3.25%
FTSE EPRA/Nareit xUS	1.75%

5/01/2014-11/30/2015	
Russell 3000	33.00%
MSCI ACWI exUS	9.00%
Barclays Agg Bond	28.00%
Barclays Global Tips	9.00%
HFRI Fund of Funds	8.75%
S&P GSCI	7.25%
MSCI REIT	3.25%
FTSE EPRA/Nareit xUS	1.75%

12/01/2015-2/28/2016	
Russell 3000	33.00%
MSCI ACWI exUS	9.00%
Barclays Agg Bond	37.00%
HFRI Fund of Funds	8.75%
S&P GSCI	7.25%
MSCI REIT	3.25%
FTSE EPRA/Nareit xUS	1.75%

3/1/2016-4/30/2016	
Russell 3000	33.00%
MSCI ACWI exUS	9.00%
Barclays Aggregate	37.00%
HFRI Fund of Funds	8.75%
MSCI REIT	3.25%
30 Day T-Bill	9.00%

5/1/2016 -8/31/2019	
Russell 3000	40.25%
MSCI ACWI exUS	9.00%
Barclays Universal	37.00%
HFRI Fund of Funds	8.75%
MSCI REIT	3.25%
30 Day T-Bill	1.75%

9/01/2019 - Present	
Russell 3000	27.00%
MSCI ACWI exUS	20.00%
Barclays Universal	35.00%
HFRI Fund of Funds	8.00%
MSCI REIT	9.00%
30 Day T-Bill	1.00%

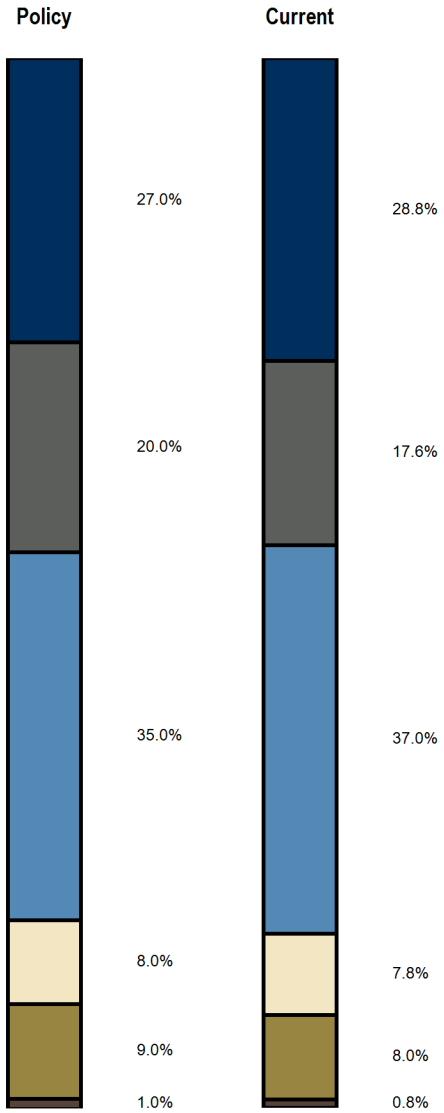
This report has been prepared for informational purposes only.
No guarantee is made that the information is accurate orcomplete.

Historical data from inception through Dec 31, 2008 provided by FIS Group, Inc.
Historical data from January 1, 2009 through March 31, 2018 provided by FFC Capital Management.
Historical data from April 30, 2018 to Present provided by FFC Investment Advisors of Raymond James.

Sewerage and Water Board of New Orleans ERS Total Composite

Sewerage and Water Board of New Orleans ERS Total Composite Allocation

As of July 31, 2020



Allocation vs. Targets and Policy

	Current Balance	Current Allocation	Target	Target Range	Difference*	Within IPS Range?
US Equity	$62,411,711	28.8%	27.0%	15.0% - 35.0%	1.8%	Yes
iShares S&P 500 Growth ETF	$25,062,005	11.6%				
NewSouth Capital	$24,976,131	11.5%				
Barrow, Hanley, Mewhinney, & Strauss	$12,362,123	5.7%				
Chicago Equity Partners	$11,452	0.0%				
Non-US Equity	$38,084,981	17.6%	20.0%	15.0% - 30.0%	-2.4%	Yes
Earnest Partners	$38,084,981	17.6%				
US Fixed Income	$80,286,776	37.0%	35.0%	25.0% - 50.0%	2.0%	Yes
Pyramis Global Advisors (Fidelity)	$80,254,843	37.0%				
Zazove Associates, LLC (Residual Asset)	$31,932	0.0%				
Alternatives	$16,822,528	7.8%	8.0%	5.0% - 12.0%	-0.2%	Yes
Prisma Capital Partners LP	$16,804,237	7.8%				
Equitas Capital Advisors (Residual Asset)	$18,291	0.0%				
Real Estate	$17,409,165	8.0%	9.0%	5.0% - 12.0%	-1.0%	Yes
Vanguard Real Estate ETF	$17,409,165	8.0%				
Cash	$1,801,039	0.8%	1.0%	0.0% - 1.0%	-0.2%	Yes
Cash Account	$1,801,039	0.8%				
Total	**$216,816,199**	**100.0%**	**100.0%**			

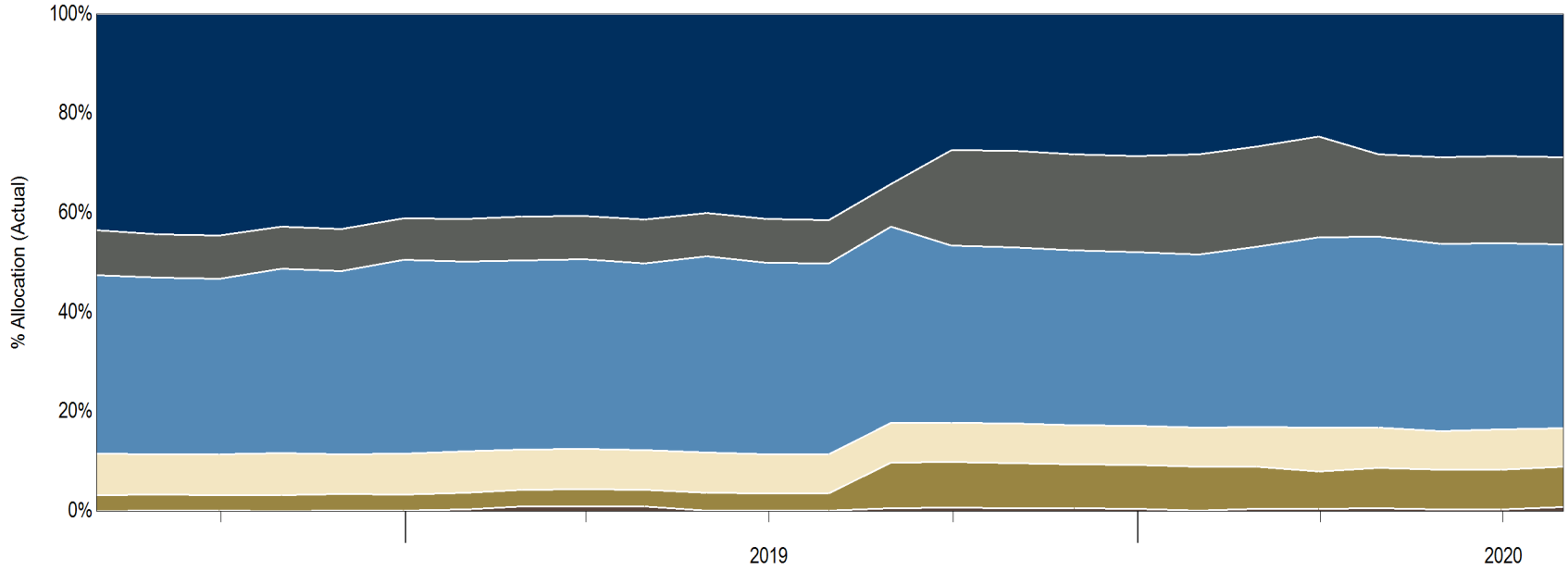
*Difference between Target and Current Allocation

Sewerage and Water Board of New Orleans ERS Total Composite

Sewerage and Water Board of New Orleans ERS Total Composite Allocation History

As of July 31, 2020

Asset Allocation History
2 Years Ending July 31, 2020



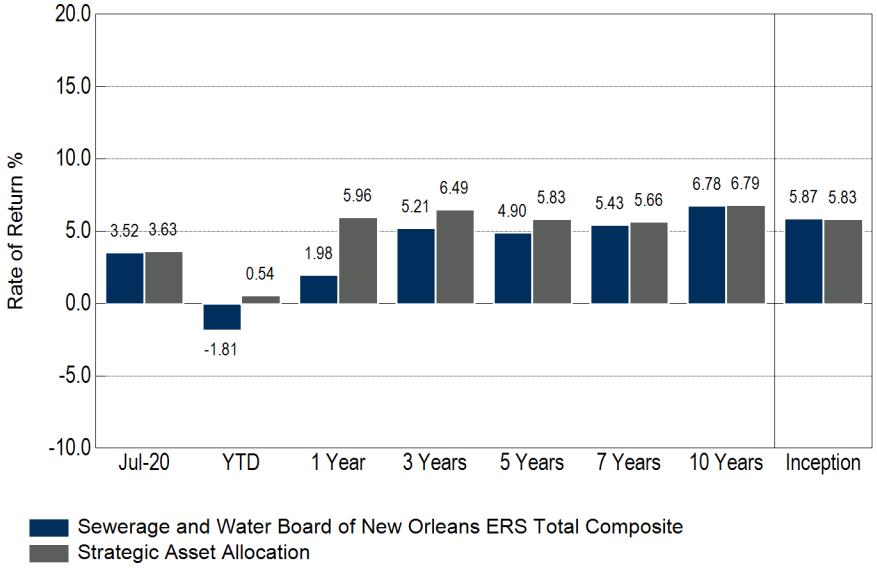
US Equity	41.1	40.6	41.3	27.4	28.6	24.6	28.6	
Non-US Equity	8.3	8.8	8.8	19.2	19.3	20.3	17.5	
US Fixed Income	39.0	38.2	38.5	35.6	34.9	38.3	37.5	
Alternatives	8.3	8.0	7.9	8.0	7.8	8.9	8.0	
Real Estate	3.2	3.5	3.4	9.1	8.8	7.5	8.0	
Cash	0.1	1.0	0.1	0.7	0.5	0.5	0.3	

Sewerage and Water Board of New Orleans ERS Total Composite

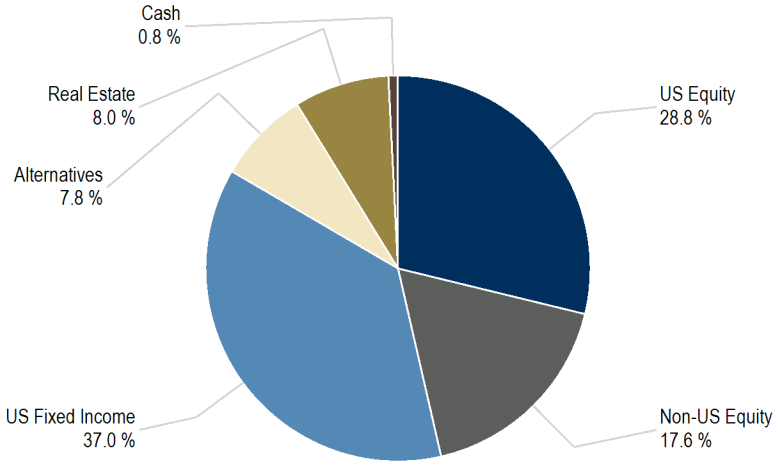
Sewerage and Water Board of New Orleans ERS Total Composite Performance

As of July 31, 2020

Return Summary (%)



Current Allocation



Summary of Cash Flows

	Last Month	Year-To-Date
Beginning Market Value	$209,503,562	$225,441,131
Contributions	$1,136,278	$21,953,673
Withdrawals	-$1,201,771	-$26,220,756
Net Cash Flow	-$65,494	-$4,267,083
Net Investment Change	$7,378,131	-$4,357,848
Ending Market Value	$216,816,199	$216,816,199
Net Change	$7,312,638	-$8,624,932

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Sewerage and Water Board of New Orleans ERS Total Composite

As of July 31, 2020

Asset Allocation by Manager vs. Difference from Target

As Of July 31, 2020

	Total Market Value	% of Portfolio	US Equity	Non-US Equity	US Fixed Income	Alternatives	Real Estate	Cash
US Equity								
iShares S&P 500 Growth ETF	$25,062,005	11.6%	$25,062,005					
NewSouth Capital	$24,976,131	11.5%	$24,976,131					
Barrow, Hanley, Mewhinney, & Strauss	$12,362,123	5.7%	$12,362,123					
Chicago Equity Partners	$11,452	0.0%	$11,452					
Non-US Equity								
Earnest Partners	$38,084,981	17.6%		$38,084,981				
US Fixed Income								
Pyramis Global Advisors (Fidelity)	$80,254,843	37.0%			$80,254,843			
Zazove Associates, LLC (Residual Asset)	$31,932	0.0%			$31,932			
Alternatives								
Prisma Capital Partners LP	$16,804,237	7.8%				$16,804,237		
Equitas Capital Advisors (Residual Asset)	$18,291	0.0%				$18,291		
Real Estate								
Vanguard Real Estate ETF	$17,409,165	8.0%					$17,409,165	
Cash								
Cash Account	$1,801,039	0.8%						$1,801,039
Total	**$216,816,199**	**100.0%**	**$62,411,711**	**$38,084,981**	**$80,286,776**	**$16,822,528**	**$17,409,165**	**$1,801,039**
Percent of Total			28.8%	17.6%	37.0%	7.8%	8.0%	0.8%
Difference from Target (%)			1.8%	-2.4%	2.0%	-0.2%	-1.0%	-0.2%
Difference from Target ($)			$3,871,337	-$5,278,259	$4,401,106	-$522,768	-$2,104,293	-$367,123

Sewerage and Water Board of New Orleans ERS

As of July 31, 2020

Allocation vs. New Targets and Policy

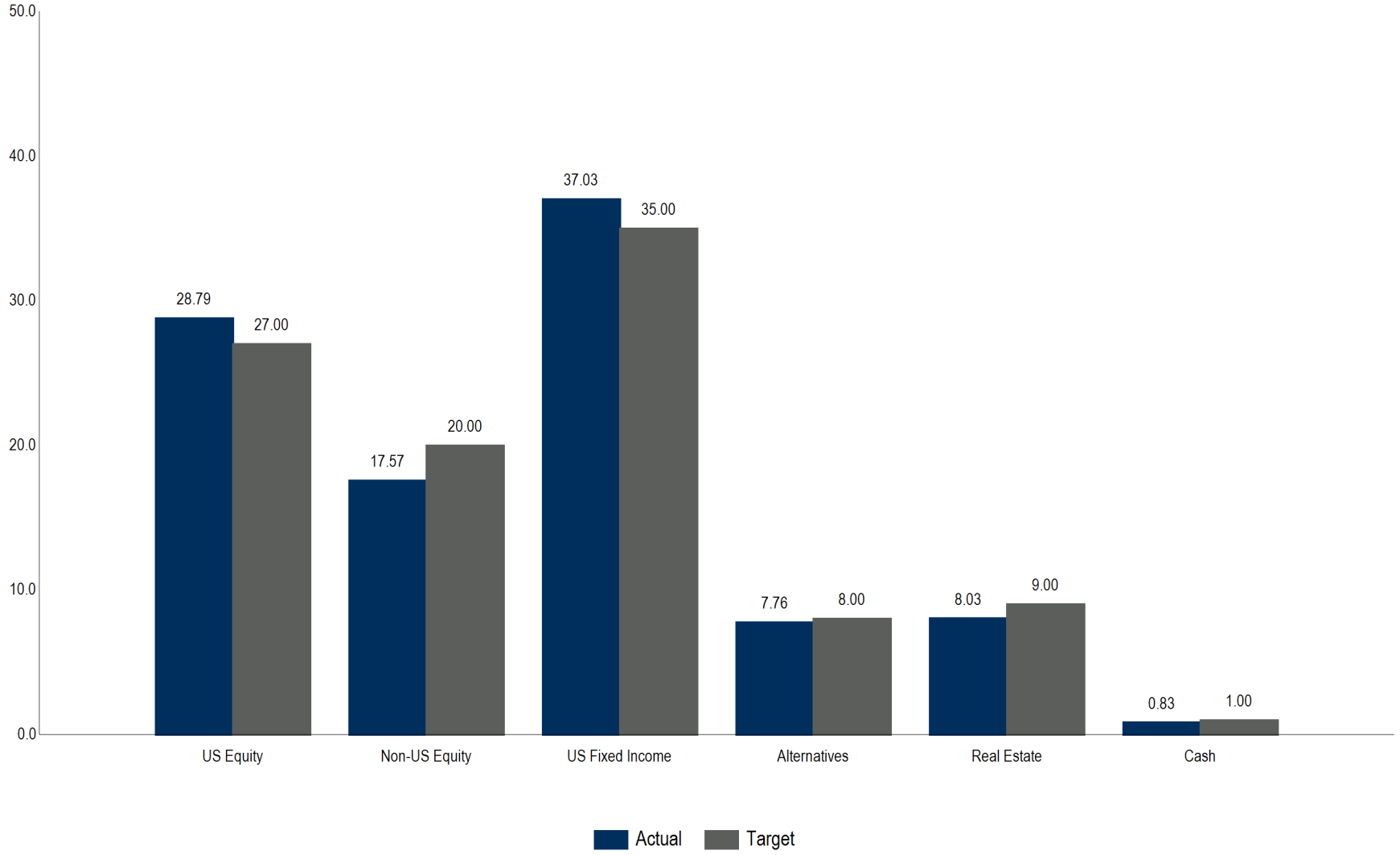
	Current Balance	Current Allocation	Target	Difference*	Target Range	Within IPS Range?
US Equity	$62,411,711	28.8%	27.0%	$3,871,337	15.0% - 35.0%	Yes
Non-US Equity	$38,084,981	17.6%	20.0%	-$5,278,259	15.0% - 30.0%	Yes
US Fixed Income	$80,286,776	37.0%	35.0%	$4,401,106	25.0% - 50.0%	Yes
Alternatives	$16,822,528	7.8%	8.0%	-$522,768	5.0% - 12.0%	Yes
Real Estate	$17,409,165	8.0%	9.0%	-$2,104,293	5.0% - 12.0%	Yes
Cash	$1,801,039	0.8%	1.0%	-$367,123	0.0% - 1.0%	Yes
Total	**$216,816,199**	**100.0%**	**100.0%**			

*Difference between Target and Current Allocation

Sewerage and Water Board of New Orleans ERS

As of July 31, 2020

Actual vs Target Allocation (%)
As of July 31, 2020



IMPORTANT DISCLOSURES

This information is provided for your convenience, but should not be used as a substitute for your account's monthly statements and trade confirmations. Material is provided for informational purposes only and does not constitute a recommendation. It has been gathered in a manner which we believe to be reliable, but accuracy is not guaranteed. It is not intended as tax advice. Past performance does not guarantee future results.

Diversification and strategic asset allocation does not ensure a profit or protect against a loss. No investment strategy can guarantee success. Investments are subject to market risk, including possible loss of principal.

Investing in small and mid-cap stocks are riskier investments which include price volatility, less liquidity and the threat of competition. International investing involves additional risks such as currency fluctuations, differing financial accounting standards and possible political and economic instability. These risks are greater in emerging markets. Alternative investment strategies involve greater risks and are only appropriate for the most sophisticated, knowledgeable and wealthiest of investors. Managed futures involve specific risks that maybe greater than those associated with traditional investments and may be offered only to clients who meet specific suitability requirements, including minimum net worth tests. You should consider the special risks with alternative investments including limited liquidity, tax considerations, incentive fee structures, potentially speculative investment strategies, and different regulatory and reporting requirements. Commodities are generally considered speculative because of the significant potential for investment loss. REITs are financial vehicles that pool investors' capital to purchase or finance real estate. REITs involve risks such as refinancing, economic conditions in the real estate industry, changes in property values and dependency on real estate management.

Alternative investments such as Hedge Funds involve substantial risks that may be greater than those associated with traditional investments and are not suitable for all investors. They may be offered only to clients who meet specific suitability requirements, including minimum-net-worth tests. These risks include, but are not limited to, limited liquidity, tax considerations, incentive fee structures, potentially speculative investment strategies, and different regulatory and reporting requirements. Investors should only invest in hedge funds if they do not require a liquid investment and can bear the risk of substantial losses. There is no assurance that any investment will meet its investment objectives or that substantial losses will be avoided. Investors should carefully review any offering materials or prospectuses prior to investing. A Non marketable security is typically a debt security, that is difficult to buy or sell due to the fact that they are not traded on any normal, major secondary market exchanges. Such securities, if traded in any secondary market, are usually only bought and sold through private transactions or in an over-the-counter (OTC) market. For the holder of a non-marketable security, finding a buyer can be difficult, and some non-marketable securities cannot be resold at all because government regulations prohibit any resale.

Performance: Performance results are annualized for time periods greater than one year and include all cash and cash equivalents, realized and unrealized capital gains and losses, and dividends, interest and income. The investment results depicted herein represent historical performance. As a result of recent market activity, current performance may vary from the figures shown. Please contact your Financial Advisor for up to date performance information.

Indices: Raymond James reserve the right to change the indices at any time. Benchmark indices and blends included in this material are for informational purposes only, are provided solely as a comparison tool and may not reflect the underlying composition and/or investment objective(s) associated with the account(s). In some circumstances, the benchmark index may not be an appropriate benchmark for use with the specific composite portfolio. For instance, an index may not take into consideration certain changes that may have occurred in the portfolio since the inception of the account(s), (e.g., changes from a brokerage to an advisory account or from one advisory program to another, asset class changes, or index changes for individual managers). The volatility of the index used for comparison may be materially different from that of the performance shown. Indices are unmanaged and not available for direct investment. Index returns do not take into account fees or other charges. Such fees and charges would reduce performance. Please see the Benchmark Definitions section of this material for additional information on the indices used for comparison.

Performance Inception Month End: Performance Inception Month End refers to performance calculated from the end of the month in which the accounts became eligible for performance. Calculating performance from the Performance Inception Month End allows for a comparison to be made to appropriate benchmarks. Performance Inception Month End does not necessarily correspond to the account opening date.

Realized/Unrealized Gain/Loss: The gain and loss information is provided for informational purposes only, may not be complete, is not a substitute 1099 form (or any other appropriate tax form), and should not be used for tax planning or preparation. Gain and loss values are estimates and should be independently verified. We are not responsible for any gain and loss information provided by you or another financial institution. You are responsible for ensuring the accuracy of such information.

Projected 12 Month Income: Projected Next 12 Months income includes cash income such as interest and cash dividends, based on current yields and may include income from Raymond James & Associates, Inc. and externally held accounts where data is available. These are projections based on historical data and the actual income may be lower or higher than the projections. Raymond James & Associates, Inc. member New York Stock Exchange/SIPC. Investment advisory services offered through Raymond James & Associates.

Investors should consider the investment objectives, risks, charges and expenses of an investment company carefully before investing. The prospectus contains this and other information and should be read carefully before investing. The prospectus is available from your investment professional.

Index Descriptions

It is not possible to invest directly in an index.

31 Day T-Bills – The average discount rate at which the US government is issuing short term-debt.
BBgBarc Municipal Bond: 1-10 Year Blend - A component of the BBgBarc Capital Municipal Bond Index with municipal bonds in the 1-10 year blend (1-12) maturity range.
BBgBarc 1-5 Government/Credit - BBgBarc 1-5 Year Government/Credit Index: Includes all medium and larger issues of U.S. government, investment-grade corporate, and investment-grade international dollar-denominated bonds that have maturities of between 1 and 5 years and are publicly issued.
BBgBarc 1-5 Year Government - An inclusion of securities within the BBgBarc Government Index that have a maturity range from 1 up to (but not including) 5 years.
BBgBarc 1-5 Year Treasury - The 1-5 year component of the BBgBarc Capital U.S. Treasury Index with securities in the maturity range from 1 year up to (but not including) 5 years.
BBgBarc Credit 1-3 Year - BBgBarc 1-5 Year Credit Index: Includes all medium and larger issues of U.S. government, investment-grade corporate, and investment-grade international dollar denominated bonds that have maturities of between 1 and 3 years and are publicly issued.
BBgBarc U.S. Government/Credit (BCGC) - The Government/Credit component of the U.S. Aggregate. The government portion includes treasuries (public obligations of the U.S. Treasury that have remaining maturities of more than one year) and agencies (publicly issued debt of the U.S. Government agencies, quasi-federal corporations, and corporate or foreign debt guaranteed by the U.S. Government). The credit portion includes publicly issued U.S. corporate and foreign debentures and secured notes that meet specified maturity, liquidity, and quality requirements. Must be a publicly issued, dollar-denominated and non-convertible, U.S. Government or Investment Grade Credit security. Must be rated investment-grade (Baa3/BBB- or higher) by at least two of the following rating agencies: Moody's, S&P, Fitch; regardless of call features, have at least one year to final maturity, and have an outstanding par value amount of at least $250 million.
BBgBarc Intermediate U.S. Government/Credit (BCIGC) - The intermediate component of the BBgBarc Capital Government/Credit Index with securities in the maturity range from 1 up to (but not including) 10 years.
BBgBarc Global Aggregate - The index is designed to be a broad based measure of the global investment-grade, fixed rate, fixed income corporate markets. The major components of this index are the US Aggregate, Pan-European Aggregate, and the Asian-Pacific Aggregate Indices. The index also includes Eurodollar and Euro-Yen corporate bonds, Canadian government, agency and corporate securities.
BBgBarc Global Aggregate Intermediate - The intermediate component of the BBgBarc Global Aggregate index with securities in the maturity range from 1 up to (but not including) 10 years.
BBgBarc U.S. Government: Intermediate - The intermediate component of the BBgBarc Capital U.S. Government Index with securities in the maturity range from 1 up to (but not including) 10 years.
BBgBarc U.S. Government: Long - The long component of the BBgBarc Capital U.S. Government Index with securities in the maturity range from 10 years or more.
BBgBarc LT Muni - A component of the BBgBarc Capital Municipal Bond Index with municipal bonds with a maturity range greater than 20 years.
BBgBarc Municipal Bond Index - A rules-based, market-value weighted index that is engineered for the long-term tax-exempt bond market. Bonds must be rated investment-grade (Baaa3/BBB- or higher) by at least two of the following rating agencies: Moody's, S&P, Fitch. The bonds must be fixed rate, have a dated-date after December 31, 1990, have an outstanding par value of at least $7million, and be issued as part of a transaction of at least $75 million. The four main sectors of the index are: general obligation bonds, revenue bonds, insured bonds (including all insured bonds with a Aaa/AAA rating), and prefunded bonds. Remarketed issues, taxable municipal bonds, floating rate bonds, and derivatives, are excluded from the benchmark.
BBgBarc U.S. Treasury - A component of the U.S. Government Index. Must be publicly issued, dollar-denominated and non-convertible, fixed rate (although it may carry a coupon that steps up or changes according to a predetermined schedule) U.S. Treasury security. Must be rated investment-grade (Baa3/BBB- or higher) by at least two of the following rating agencies: Moody's, S&P, Fitch; regardless of call features, have at least one year to final maturity, and have an outstanding par value amount of at least $250 million.
BBgBarc U.S. Treasury: Intermediate (BCIT) - The intermediate component of the BBgBarc Capital U.S. Treasury Index with securities in the maturity range from 1 year (but not including) 10 years.
BBgBarc U.S. Treasury: Long - The long component of the BBgBarc Capital U.S. Treasury Index with securities in the maturity range from 10 years or more.
BBgBarc U.S. Treasury: U.S. TIPS - Comprised of Inflation-Protection securities issued by the U.S. Treasury. Must be a fixed rate, publicly issued U.S. Treasury Inflation Note that is dollar-denominated and non-convertible. Must be rated investment-grade (Baa3/BBB- or higher) by at least two of the following rating agencies: Moody's, S&P, Fitch; have at least one year to final maturity, and have an outstanding par value amount of at least $250 million.
BBgBarc High Yield Composite BB - A component of the BBgBarc U.S. Corporate High Yield Bond Index with bonds in the BB or better.
FTSE 1-3 Year U.S. Treasury - Component of the FTSE U.S. Treasury that measures total returns for U.S. Treasuries with a maturity between 1-3 years.
FTSE 3 Month U.S. Treasury Bill - This index measures monthly return equivalents of yield averages that are not marked to market. The Three-Month Treasury Bill Indices consist of the last three three-month Treasury bill issues.
FTSE World Government Bond - FTSE World Government Bond Index (WGBI), includes the most significant and liquid government bond markets globally that carry at least an investment grade rating.
FTSE World Government Bond ex US – Similar to the FTSE World Government Bond Index (WGBI), includes the most significant and liquid government bond markets globally that carry at least an investment grade rating but excludes bonds from the United States.

Consumer Price Index - All Urban Consumers (CPI-U) - As an economic indicator, and as the most widely used measure of inflation, the Consumer Price Index (CPI) is an indicator of the effectiveness of government policy, and as a guide in making economic decisions for business executives, labor leaders, and other private citizens. Published on a monthly basis by the U.S. Bureau of Labor Statistics (BLS), the CPI is a measure of the average change in prices over time of goods and services purchased by households. CPI for All Urban Consumers (CPI-U) encompasses approximately 87 percent of the total U.S. population which includes, in addition to wage earner and clerical worker households, groups such as professional, managerial, and technical workers, the self-employed, short-term workers, the unemployed, and retires and others not in the labor force.

Dow Jones UBS Commodity - Provides a diversified representation of commodity markets as an asset class. The index is comprised of exchange-traded futures on physical commodities; representing 19 commodities which are weighted for economic significance and market liquidity. To promote diversification, weighting restrictions are placed on individual commodities and commodity groups.

FTSE NAREIT U.S. Real Estate - All REITs - The index is designed to represent a comprehensive performance of publicly traded REITs which covers the commercial real estate space across the US economy, offering exposure to all investment and property sectors. It is not free float adjusted, and constituents are not required to meet minimum size and liquidity criteria.

HFRI Equity Hedge Fund Index - The index is designed to represent strategies which maintain positions both long and short in primarily equity and equity derivative securities. A wide variety of investment processes can be employed to arrive at an investment decision, including both quantitative and fundamental techniques; strategies can be broadly diversified or narrowly focused on specific sectors and can range broadly in terms of levels of net exposure, leverage employed, holding period, concentrations of market capitalizations and valuation ranges of typical portfolios. Equity Hedge managers would typically maintain at least 50% exposure to, and may in some cases be entirely invested in, equities - both long and short.

HFRI (Hedge Fund Research, Inc.) Fund of Funds Composite Index (1) - The index only contains fund of funds, which invest with multiple managers through funds or managed accounts. It is an equalweighted index, which includes over 650 domestic and offshore funds that have at least $50 Million under management or have been actively trading for at least 12 months. All funds report assets in US Dollar, and Net of All Fees returns which are on a monthly basis.

MSCI ACWI - A free float-adjusted market capitalization index that is designed to measure the equity market performance of both developed and emerging markets. This "All Country World Index" reflects performance across the Americas, Europe & the Middle East, Africa, Asia, and the Pacific.

MSCI EAFE - 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 December 31, 2010 the MSCI EAFE Index consists of 22 developed market country indices: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and the United Kingdom.

MSCI EAFE Value -Net Dividend - 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. Value attribute for index construction is defined using: book value to price ratio, 12-months forward earnings to price ratio, and dividend yield. Net total return indices reinvest dividends after the deduction of withholding taxes, using (for international indices) a tax rate applicable to non-resident institutional investors who do not benefit from double taxation treaties.

MSCI EAFE Growth -Net Dividend - 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. Growth attribute for index construction is defined using: long-term forward earnings per share (EPS) growth rate, short-term forward EPS growth rate, current internal growth rate, long-term historical EPS growth trend, long-term historical sales per share growth trend. Net total return indices reinvest dividends after the deduction of withholding taxes, using (for international indices) a tax rate applicable to non-resident institutional investors who do not benefit from double taxation treaties.

MSCI Emerging Markets - A free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets. As of December 31, 2010, the MSCI Emerging Markets Index consists of the following 21 emerging market country indices: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Morocco, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand, and Turkey.

MSCI World - A free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets. As of December 31, 2010, the MSCI World Index consists of the following 24 developed market country indices: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

NCREIF - The index is a quarterly time series composite total rate of return measure of investment performance of a very large pool of individual commercial real estate properties acquired in the private market for investment purposes only. Information on this index is available at ncreif.com.

Russell 1000 - Based on a combination of their market cap and current index membership, this index is comprised of approximately 1,000 of the largest securities from the Russell 3000. Representing approximately 92% of the Russell 3000, the index is created to provide a full and unbiased indicator of the large cap segment.

Russell 1000 Growth - Measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

Russell 1000 Value - Measures the performance of those Russell 1000 companies with lower price-to-book ratios and lower expected growth values.

Russell 2000 - Based on a combination of their market cap and current index membership, this index is comprised of approximately 2,000 of the smaller securities from the Russell 3000. Representing approximately 8% of the Russell 3000, the index is created to provide a full and unbiased indicator of the small cap segment.

Russell 2000 Growth - Measures the performance of those Russell 2000 companies with higher price-to-book ratios and higher forecasted growth values.

Russell 2000 Value - Measures the performance of those Russell 2000 companies with lower price-to-book ratios and lower expected growth values.

Russell 2500 - Based on a combination of their market cap and current index membership, this index is comprised of approximately 2,500 of the smallest securities from the Russell 3000. Measures the performance of the small to mid-cap (smid) segment of the U.S. equity universe.

Russell 2500 Growth - Measures the performance of those Russell 2500 companies with higher price-to-book ratios and higher forecasted growth values.

Russell 2500 Value - Measures the performance of those Russell 2500 companies with lower price-to-book ratios and lower expected growth values.

Russell 3000 - Representing approximately 98% of the investable U.S. equity market, the Russell 3000 index measures the performance of the largest 3,000 U.S. companies.

Russell 3000 Growth - Measures the performance of the broad growth segment of the U.S. equity universe which includes Russell 3000 companies with higher price-to-book ratios and higher forecasted growth values.

Russell 3000 Value - Measures the performance of the broad growth segment of the U.S. equity universe which includes Russell 3000 companies with lower price-to-book ratios and lower forecasted growth values.

Russell Midcap - A subset of the Russell 1000 index, the Russell Midcap index measures the performance of the mid-cap segment of the U.S. equity universe. Based on a combination of their market cap and current index membership, includes approximately 800 of the smallest securities which represents approximately 27% of the total market capitalization of the Russell 1000 companies. The index is created to provide a full and unbiased indicator of the mid-cap segment.

Russell Midcap Growth - Measures the performance of those Russell Mid-cap companies with higher price-to-book ratios and higher forecasted growth values.

Russell Midcap Value - Measures the performance of those Russell Mid-cap companies with lower price-to-book ratios and lower expected growth values.

Standard & Poor's 400 MidCap - Comprised of 400 domestic stocks that are chosen based upon market capitalization, liquidity and industry representation. The medium size US firms range with a market capitalization between $2 billion to $10 billion, and are between the S&P 500 Index and the S&P Smallcap 600 Index. It is a market-weighted index, which represents approximately 7% of the aggregate market value of US companies.

Standard & Poor's 500 - Representing approximately 75% of the investable US equity market, the S&P 500 measures changes in stock market conditions based on the average performance of 500 widely held common stocks. It is a market-weighted index calculated on a total return basis with dividend reinvested.

Stark 300 Trader - The Stark 300 index tracks the performance of the top-300 futures and forex traders. The index is calculated monthly using an equity-weighted formula to determine performance.

Index Abbreviations

Bloomberg Barclays – Abbreviated as BBgBarc and then a descriptor. For example BBgBarc US Aggregate TR is the Bloomberg Barclays United States Aggregate Total Return.

Statistics and General Definitions

Alpha – Measures how well a portfolio performed versus its benchmark after factoring in the amount of risk (as measured by beta) taken. Technically, alpha is the difference between the excess return of a portfolio and the excess return of the benchmark multiplied by beta. Excess return is simply the actual return minus the return of the risk-free asset, U.S. Treasury Bill. A positive alpha indicates the portfolio has performed better than the benchmark on a risk-adjusted basis.

Allocation Effect – Attributable to the asset allocation of the portfolio.

Annual Standard Deviation – A measure of variability in returns. The annual standard deviation measures the dispersion of annual returns around the average annualized return.

Annualized Return – A statistical technique whereby returns covering periods greater than one year are converted to cover a one year period.

Attribution – Analytical technique used to evaluate the performance of the portfolio relative to a benchmark. Attribution shows where value was added or subtracted as a result of the investment manager's decisions. The four main attribution effects are: Selection or Manager Effect, Allocation Effect, Currency Effect, and Interaction Effect.

Beta – A coefficient measuring a portfolio's relative volatility with respect to its market. Technically, beta is the covariance of a portfolio's return with the benchmark portfolio's return divided by the variance of the benchmark portfolio's return. Thus, a portfolio with a beta greater than 1.00, indicates the portfolio experienced greater volatility than the benchmark, whereas a portfolio with a beta less than 1.00, indicates the portfolio experienced less volatility than the benchmark.

Commitments – Also called Committed Capital. The amount an investor has agreed to contribute towards the funding of a venture capital fund. May be paid at one time or over a longer period.

Consumer Price Index – Measures the change in consumer prices, as determined by a monthly survey of the U.S. Bureau of Labor Statistics. CPI components include housing costs, food, transportation and electricity.

Correlation – Measures the strength of association between two variables. The value ranges between -1 and +1. The strongest linear relationship is indicated by a correlation of -1 or +1. The weakest linear relationship is indicated by a correlation of 0. Positive correlation means if one variable gets bigger, the other variable tends to get bigger. Negative correlation means that if one variable gets bigger, the other variable tends to get smaller.

Currency Effect –The effect that changes in currency exchange rates over time affect excess performance

Downside Capture Ratio – Measures investment manager's performance in down markets relative to a particular benchmark. A down-market is defined as those periods (months or quarters) in which market return is less than 0%.

Duration – A measure of the price sensitivity of a bond or bond portfolio to a change in interest rates.

Information Ratio – Describes the risk / reward trade-off of alpha and tracking error. Because the formula for calculating information ratio is Alpha divided by Tracking Error, the larger the information ratio, the more attractive the portfolio is from an overall risk return profile.

Interaction Effect – The portion that is not accounted for by the Selection/Manager Effect or Allocation effects.

R2 – Also called the coefficient of determination. On the detail page, R2 measures how much of the variation in the investment manager's returns can be explained by movements in the market (benchmark).

Sharpe Ratio – A risk-adjusted measure calculated using standard deviation and excess return to determine reward per unit of risk. The higher the Sharpe ratio, the better the manager's historical risk-adjusted performance.

Selection or Manager Effect – attributable to the invement manager's stock selection decisions

Tracking Error – A measure that describes the volatility of the expected excess return (alpha) achieved through active management. Since excess return can only be achieved through a portfolio that actively differs from the benchmark, the level of tracking error is indicative of how different the portfolio will perform relative to any given benchmark.

Upside Capture Ratio – Measures investment manager's performance in up markets relative to a particular benchmark. An up-market is defined as those periods (months or quarters) in which market return is greater than 0%.

RAYMOND JAMES®

CAPITAL MARKETS REVIEW

July 2020

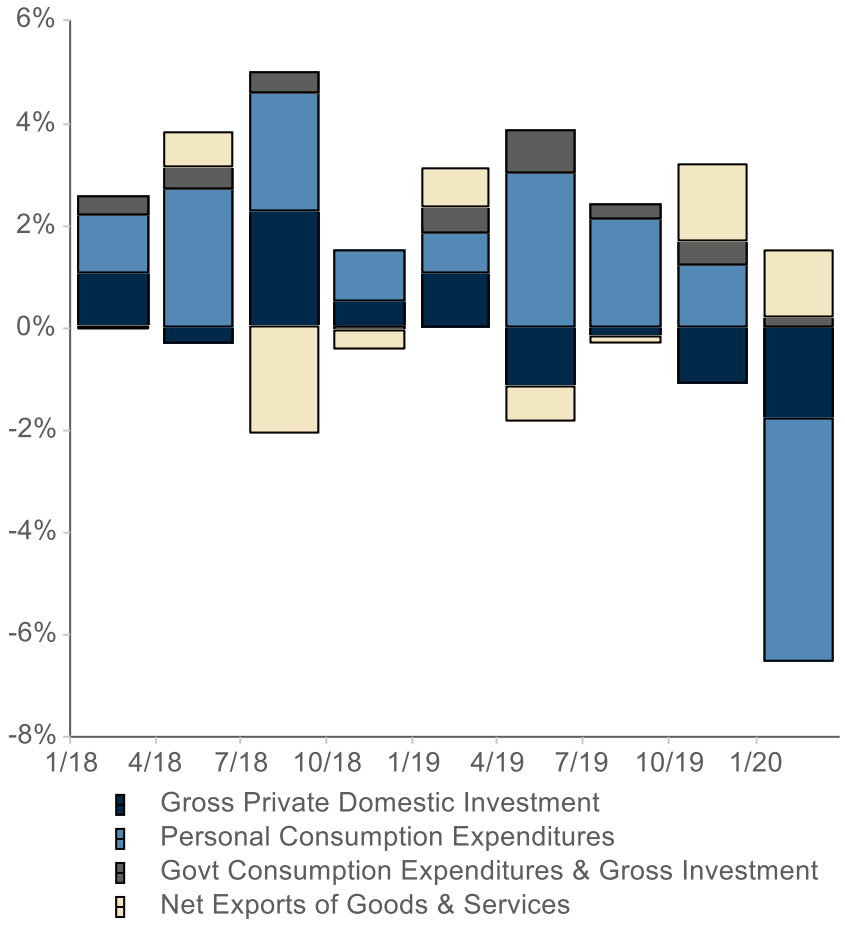
RAYMOND JAMES

REVIEWING THE QUARTER ENDED JUNE 30, 2020

SUMMARY

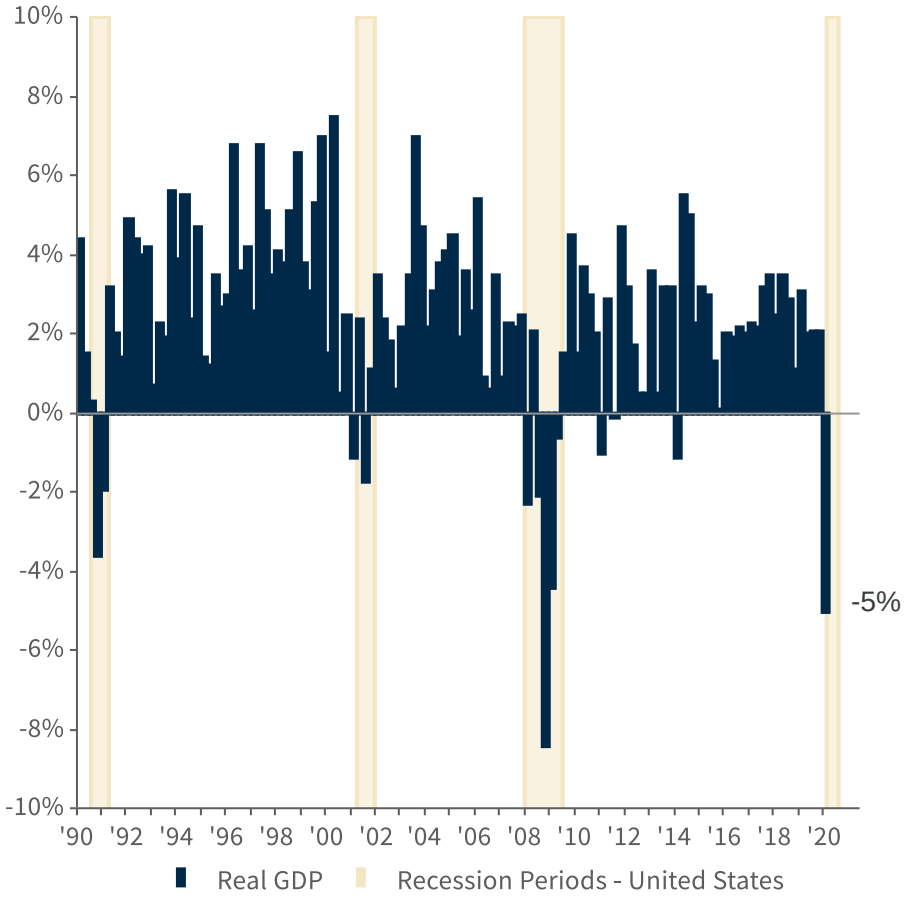
ECONOMIC REVIEW | GROSS DOMESTIC PRODUCT

Contribution to % Change in Real GDP



Source: FactSet, as of 6/30/2020

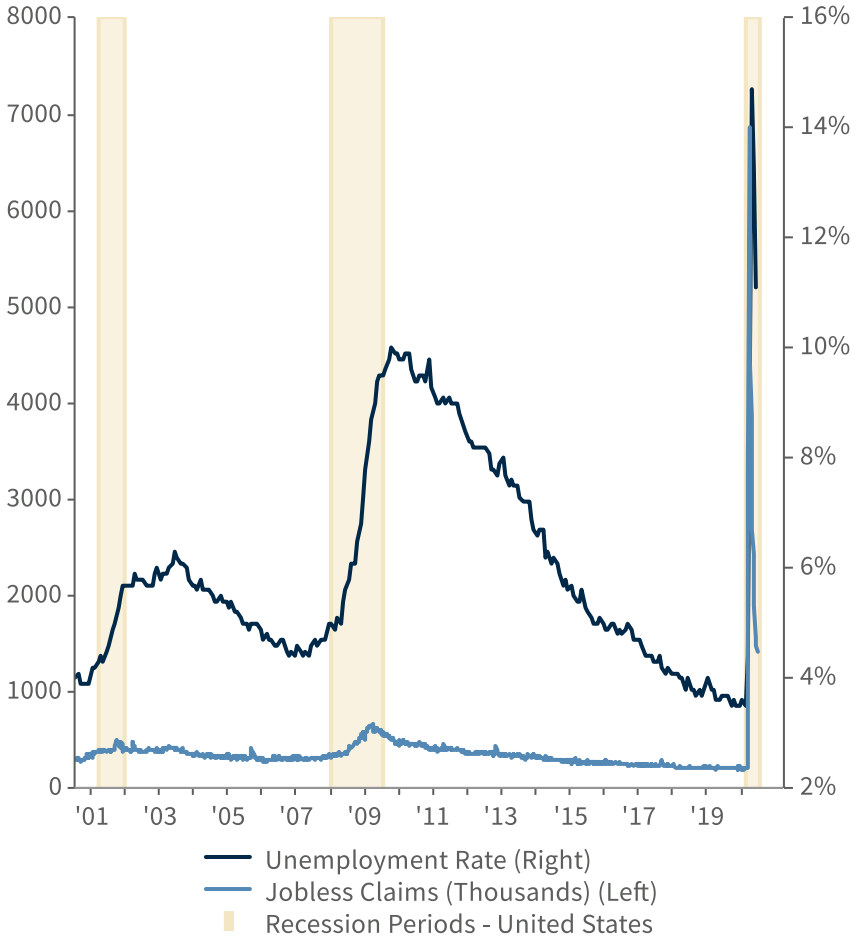
Quarterly Change in Real GDP



Source: FactSet, as of 6/30/2020

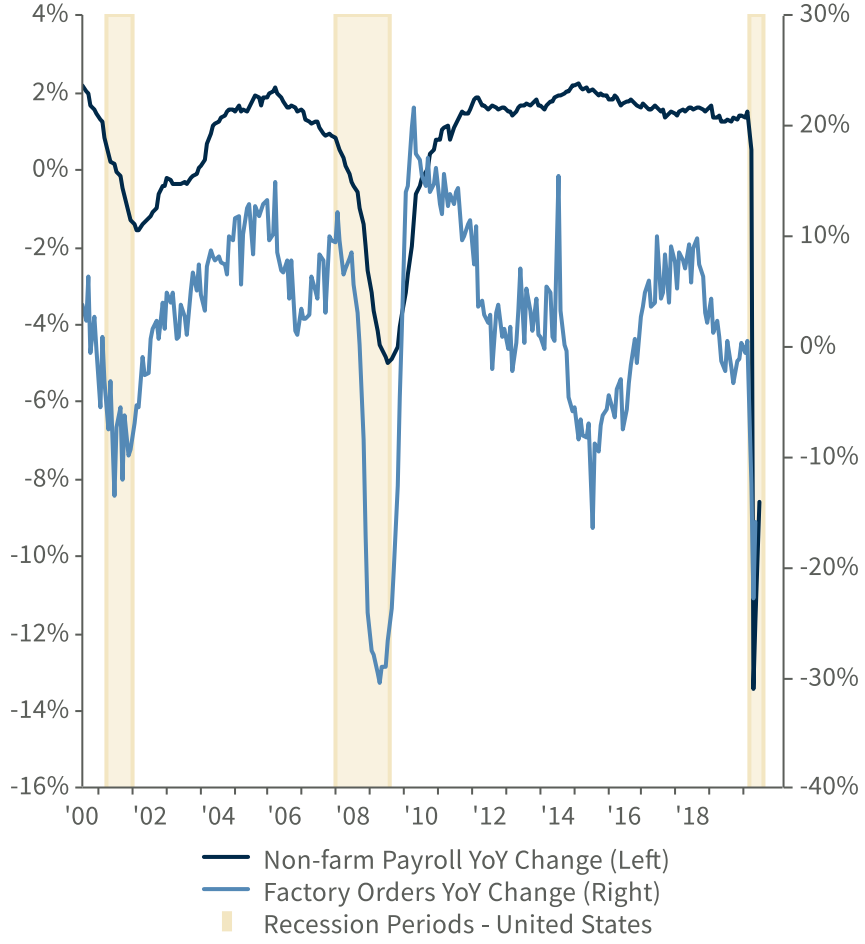
ECONOMIC REVIEW | EMPLOYMENT

Civilian Unemployment Rate



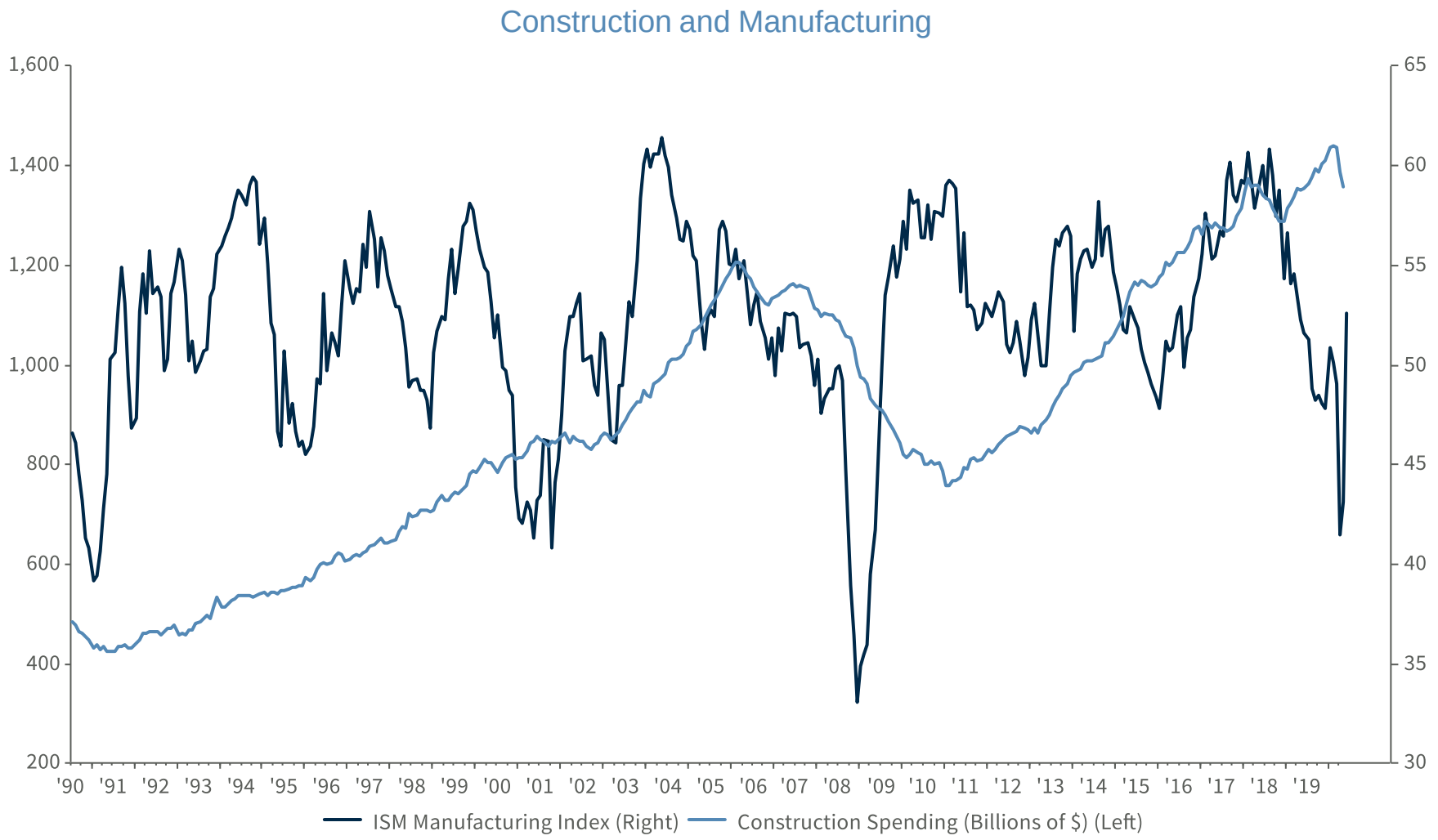
Source: FactSet, as of 7/6/2020

Non-Farm Payroll and Factory Orders



Source: FactSet, as of 7/6/2020

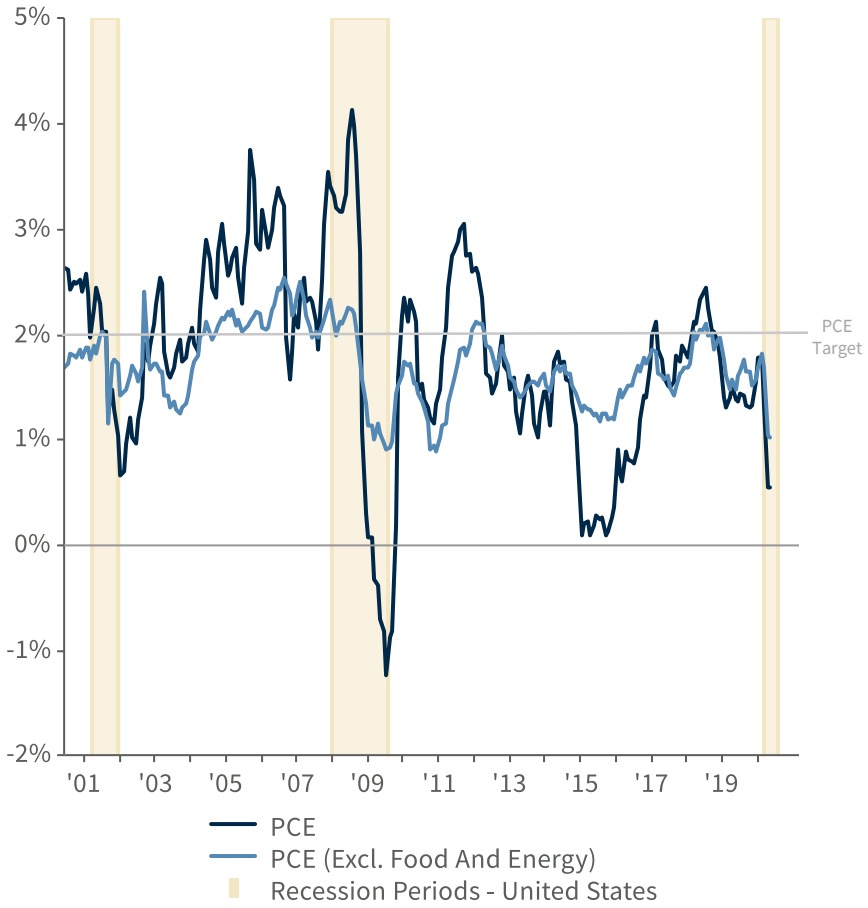
ECONOMIC REVIEW | MAJOR INDUSTRY CONTRIBUTIONS TO JOB GROWTH



Source: FactSet, as of 7/6/2020

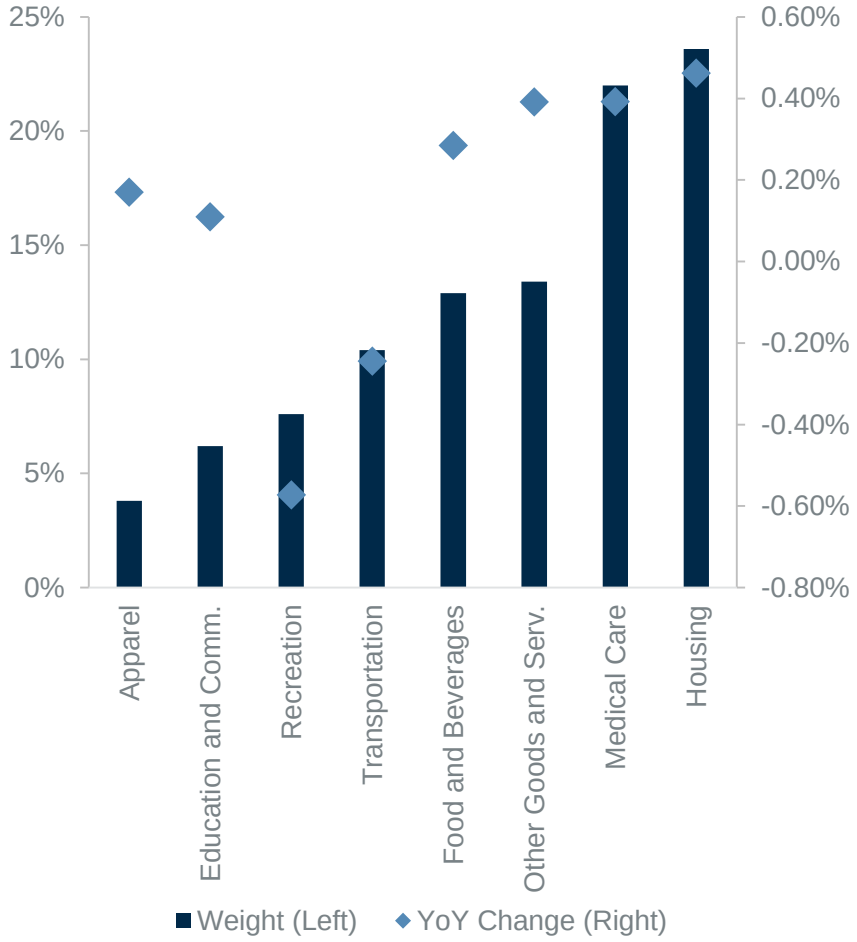
ECONOMIC REVIEW | INFLATION

Personal Consumption Expenditures (PCE) (YoY Change)



Source: FactSet, as of 6/30/2020

Components of PCE



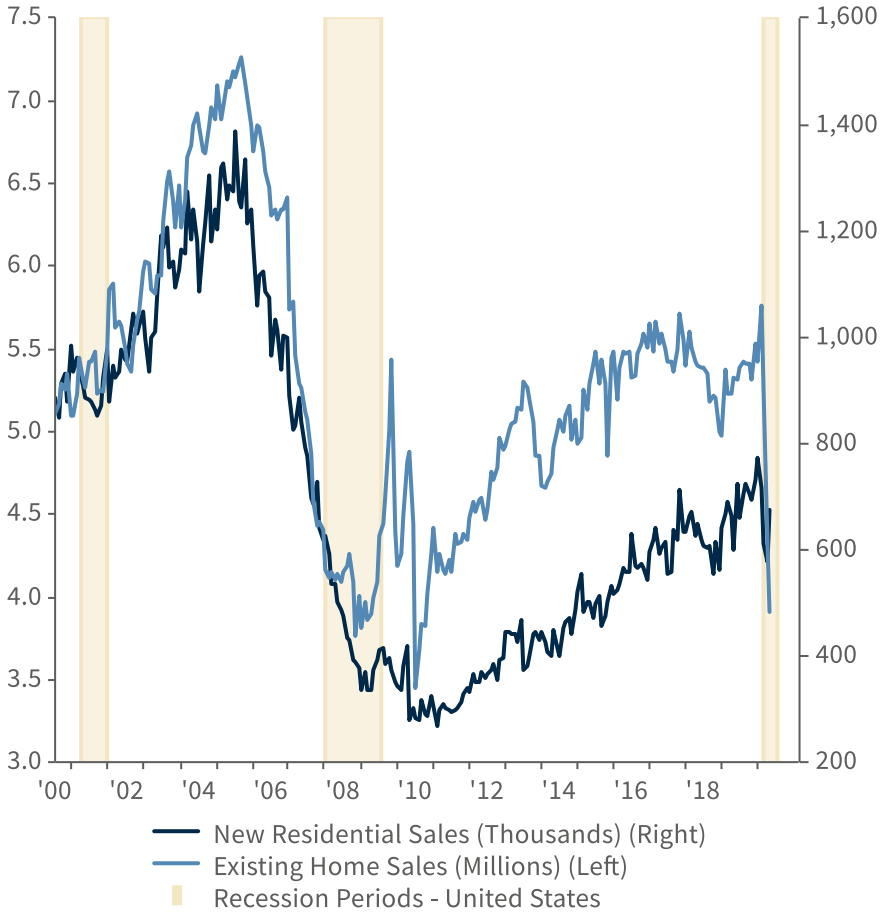
Source: FactSet, as of 6/30/2020

ECONOMIC REVIEW | HOUSING MARKET

National Home Price Index (YoY Change)

Source: FactSet, as of 6/30/2020

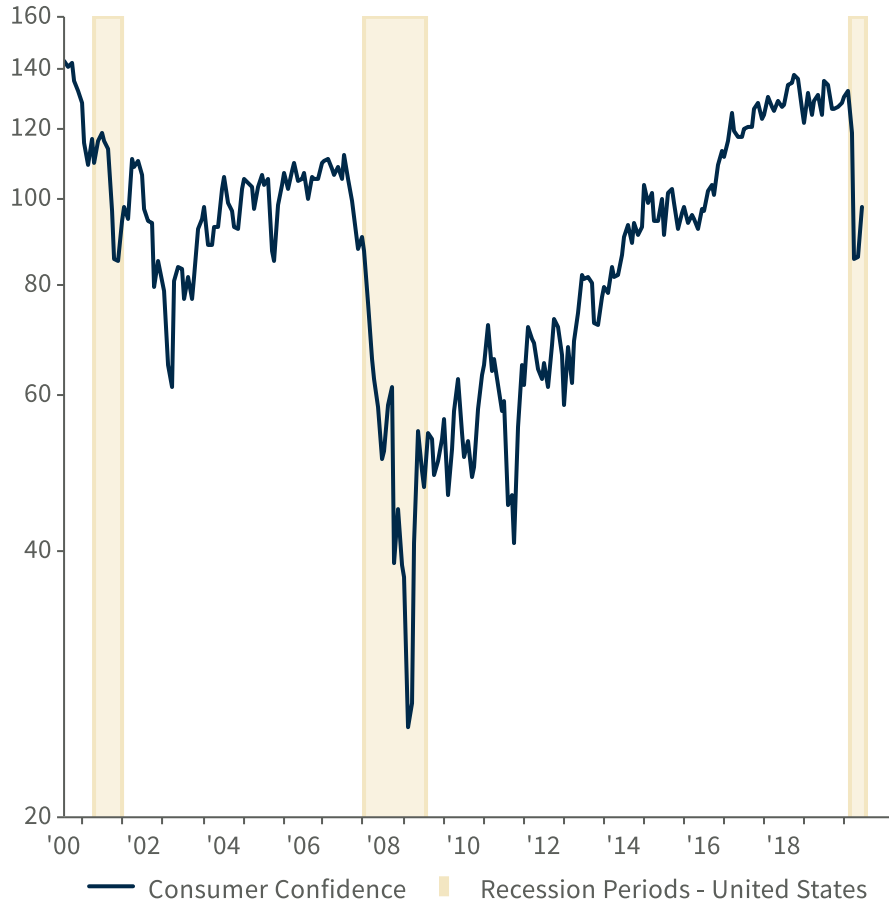
New and Existing Home Sales



Source: FactSet, as of 6/30/2020

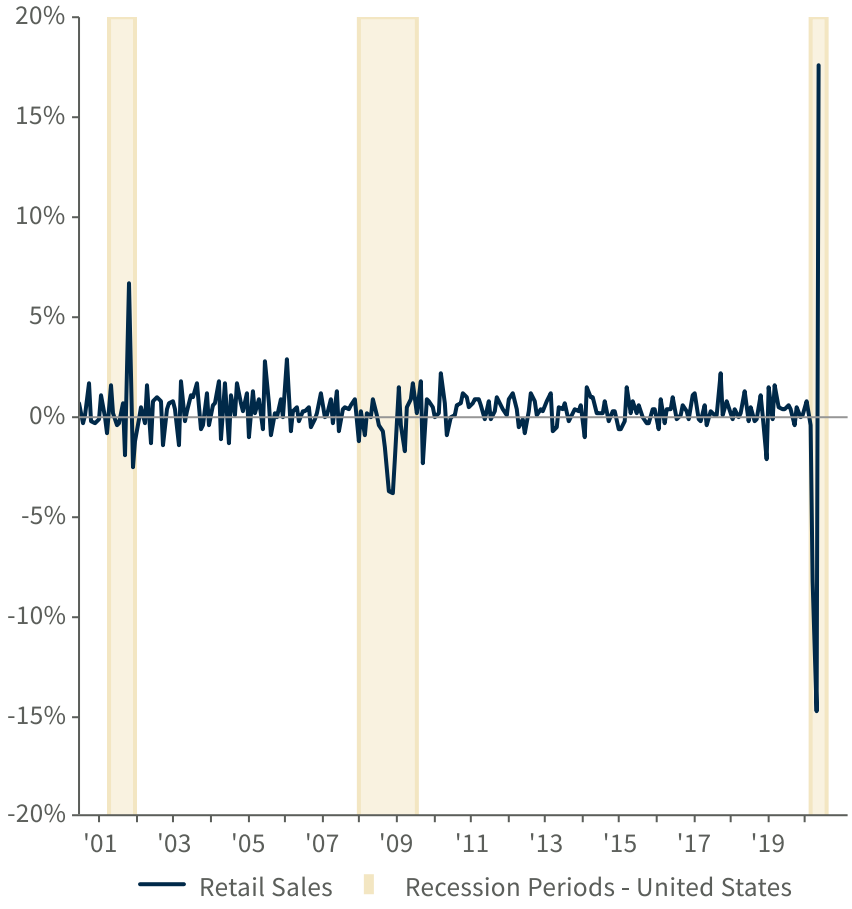
ECONOMIC REVIEW | CONSUMER CONFIDENCE

Consumer Confidence



Source: FactSet, as of 6/30/2020

Retail Sales



Source: FactSet, as of 6/30/2020

CAPITAL MARKETS | BROAD ASSET CLASS RETURNS

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	YTD
Real Estate 40.4%	Fixed Income 7.8%	Non-US Equities 17.0%	US Equities 32.4%	Real Estate 14.3%	US Equities 1.4%	Real Estate 15.3%	Non-US Equities 24.8%	Cash & Cash Alternatives 1.8%	US Equities 31.5%	Fixed Income 6.1%
Commodities 16.7%	Blended Portfolio 2.3%	US Equities 16.0%	Non-US Equities 21.6%	US Equities 13.7%	Fixed Income 0.5%	US Equities 12.0%	US Equities 21.8%	Fixed Income 0.0%	Non-US Equities 23.2%	Cash & Cash Alternatives 0.5%
US Equities 15.1%	US Equities 2.1%	Blended Portfolio 11.4%	Blended Portfolio 17.0%	Blended Portfolio 8.0%	Blended Portfolio 0.5%	Commodities 11.4%	Blended Portfolio 15.0%	Blended Portfolio -4.0%	Blended Portfolio 21.1%	Blended Portfolio -0.6%
Blended Portfolio 10.8%	Cash & Cash Alternatives 0.1%	Fixed Income 4.2%	Cash & Cash Alternatives 0.0%	Fixed Income 6.0%	Cash & Cash Alternatives 0.0%	Blended Portfolio 6.9%	Fixed Income 3.5%	US Equities -4.4%	Real Estate 19.5%	US Equities -3.1%
Non-US Equities 9.4%	Real Estate -2.2%	Real Estate 0.6%	Fixed Income -2.0%	Cash & Cash Alternatives 0.0%	Non-US Equities -2.6%	Non-US Equities 3.3%	Cash & Cash Alternatives 0.8%	Real Estate -7.6%	Fixed Income 8.7%	Non-US Equities -11.2%
Fixed Income 6.5%	Non-US Equities -11.8%	Cash & Cash Alternatives 0.1%	Commodities -9.6%	Non-US Equities -3.9%	Real Estate -24.2%	Fixed Income 2.6%	Commodities 0.7%	Commodities -13.0%	Commodities 5.4%	Commodities -19.7%
Cash & Cash Alternatives 0.1%	Commodities -13.4%	Commodities -1.1%	Real Estate -25.8%	Commodities -17.0%	Commodities -24.7%	Cash & Cash Alternatives 0.3%	Real Estate -0.2%	Non-US Equities -13.6%	Cash & Cash Alternatives 2.2%	Real Estate -22.4%

Blended Portfolio Allocation: 45% US Equity / 15% Non-US Equity / 40% Fixed Income

CAPITAL MARKETS | DOMESTIC EQUITY RETURNS

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	YTD
Mid Growth 30.6%	Large Growth 4.7%	Mid Value 18.5%	Small Growth 42.7%	Large Growth 14.9%	Large Growth 5.5%	Small Value 31.3%	Large Growth 27.4%	Large Growth 0.0%	Large Value 31.9%	Large Growth 7.9%
Small Growth 28.0%	Small Growth 3.6%	Small Value 18.2%	Small Blend 41.3%	Large Blend 13.7%	Small Growth 2.8%	Small Blend 26.6%	Large Blend 21.8%	Small Growth -4.1%	Large Blend 31.5%	Large Blend -3.1%
Mid Blend 26.6%	Large Blend 2.1%	Mid Blend 17.9%	Small Value 40.0%	Large Value 12.4%	Mid Growth 2.0%	Mid Value 26.5%	Mid Growth 19.9%	Large Blend -4.4%	Large Growth 31.1%	Mid Growth -5.2%
Small Blend 26.3%	Small Blend 1.0%	Large Value 17.7%	Mid Value 34.3%	Mid Value 12.1%	Large Blend 1.4%	Small Growth 22.2%	Mid Blend 16.2%	Small Blend -8.5%	Mid Growth 26.3%	Small Growth -11.5%
Small Value 24.7%	Large Value -0.5%	Mid Growth 17.3%	Mid Blend 33.5%	Mid Blend 9.8%	Small Blend -2.0%	Mid Blend 20.7%	Large Value 15.4%	Large Value -9.0%	Mid Blend 26.2%	Mid Blend -12.8%
Mid Value 22.8%	Mid Growth -0.9%	Small Blend 16.3%	Mid Growth 32.8%	Mid Growth 7.6%	Mid Blend -2.2%	Large Value 17.4%	Small Growth 14.8%	Mid Growth -10.3%	Mid Value 26.1%	Large Value -15.5%
Large Value 15.1%	Small Value -1.4%	Large Blend 16.0%	Large Growth 32.8%	Small Value 7.5%	Large Value -3.1%	Mid Growth 14.8%	Small Blend 13.2%	Mid Blend -11.1%	Small Value 24.5%	Small Blend -17.9%
Large Blend 15.1%	Mid Blend -1.7%	Large Growth 14.6%	Large Blend 32.4%	Small Blend 5.8%	Mid Value -6.7%	Large Blend 12.0%	Mid Value 12.3%	Mid Value -11.9%	Small Blend 22.8%	Mid Value -21.0%
Large Growth 15.1%	Mid Value -2.4%	Small Growth 14.6%	Large Value 32.0%	Small Growth 3.9%	Small Value -6.7%	Large Growth 6.9%	Small Value 11.5%	Small Value -12.6%	Small Growth 21.1%	Small Value -24.5%

CAPITAL MARKETS | FIXED INCOME RETURNS

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	YTD
High Yield 15.1%	Long-Term Bond 17.1%	Emerging Market Bond 17.9%	High Yield 7.4%	Long-Term Bond 16.4%	Municipal 3.3%	High Yield 17.1%	Long-Term Bond 12.2%	T-Bill 1.8%	Long-Term Bond 23.4%	Treasury 8.7%
Emerging Market Bond 12.8%	Municipal 10.7%	High Yield 15.8%	Agency 1.0%	Municipal 9.1%	Agency 1.8%	Long-Term Bond 10.2%	Emerging Market Bond 8.2%	Short-Term Bond 1.4%	High Yield 14.3%	Aggregate Bond 6.1%
Long-Term Bond 10.7%	Treasury 9.8%	Long-Term Bond 12.7%	Short-Term Bond 0.3%	Credit 7.5%	MBS 1.5%	Emerging Market Bond 9.9%	Global Bond ex US 8.0%	Municipal 1.3%	Credit 13.8%	Long-Term Bond 5.9%
Credit 8.5%	Credit 8.4%	Credit 9.4%	T-Bill 0.0%	MBS 6.1%	Emerging Market Bond 1.3%	Credit 5.6%	High Yield 7.5%	Agency 1.1%	Emerging Market Bond 13.1%	Credit 4.8%
Global Bond ex US 8.4%	Aggregate Bond 7.8%	Municipal 6.8%	US TIPS -0.9%	Aggregate Bond 6.0%	Treasury 0.8%	Aggregate Bond 2.6%	Credit 6.2%	MBS 1.0%	Aggregate Bond 8.7%	MBS 3.5%
Aggregate Bond 6.5%	Emerging Market Bond 7.0%	Aggregate Bond 4.2%	MBS -1.5%	Treasury 5.1%	Aggregate Bond 0.5%	Agency 2.6%	Municipal 5.4%	Treasury 0.9%	Municipal 7.5%	Short-Term Bond 3.0%
Treasury 5.9%	MBS 6.3%	MBS 2.6%	Credit -2.0%	Emerging Market Bond 4.8%	Short-Term Bond 0.4%	US TIPS 2.5%	Aggregate Bond 3.5%	US TIPS 0.7%	Treasury 6.9%	Municipal 2.1%
MBS 5.4%	Global Bond ex US 6.1%	Treasury 2.0%	Aggregate Bond -2.0%	High Yield 2.5%	T-Bill 0.0%	Global Bond ex US 2.2%	Agency 2.9%	Aggregate Bond 0.0%	MBS 6.4%	US TIPS 1.1%
US TIPS 2.7%	High Yield 5.0%	US TIPS 1.7%	Municipal -2.6%	Agency 1.0%	US TIPS -0.4%	MBS 1.7%	MBS 2.5%	Global Bond ex US -0.3%	US TIPS 4.5%	Agency 1.0%
Municipal 2.4%	US TIPS 2.6%	Agency 1.0%	Treasury -2.7%	Short-Term Bond 0.7%	Credit -0.8%	Treasury 1.0%	Treasury 2.3%	High Yield -2.1%	Global Bond ex US 4.5%	Global Bond ex US 0.9%
Short-Term Bond 2.4%	Short-Term Bond 1.5%	Short-Term Bond 0.3%	Emerging Market Bond -4.1%	T-Bill 0.0%	Global Bond ex US -3.6%	Short-Term Bond 0.6%	T-Bill 0.8%	Credit -2.1%	Short-Term Bond 3.3%	T-Bill 0.5%
Agency 1.0%	Agency 1.0%	T-Bill 0.1%	Long-Term Bond -6.6%	US TIPS -1.4%	High Yield -4.5%	T-Bill 0.3%	US TIPS 0.4%	Emerging Market Bond -2.5%	T-Bill 2.2%	Emerging Market Bond -0.4%
T-Bill 0.1%	T-Bill 0.1%	Global Bond ex US -0.6%	Global Bond ex US -7.1%	Global Bond ex US -3.5%	Long-Term Bond -4.6%	Municipal 0.2%	Short-Term Bond 0.3%	Long-Term Bond -6.8%	Agency 1.0%	High Yield -3.8%

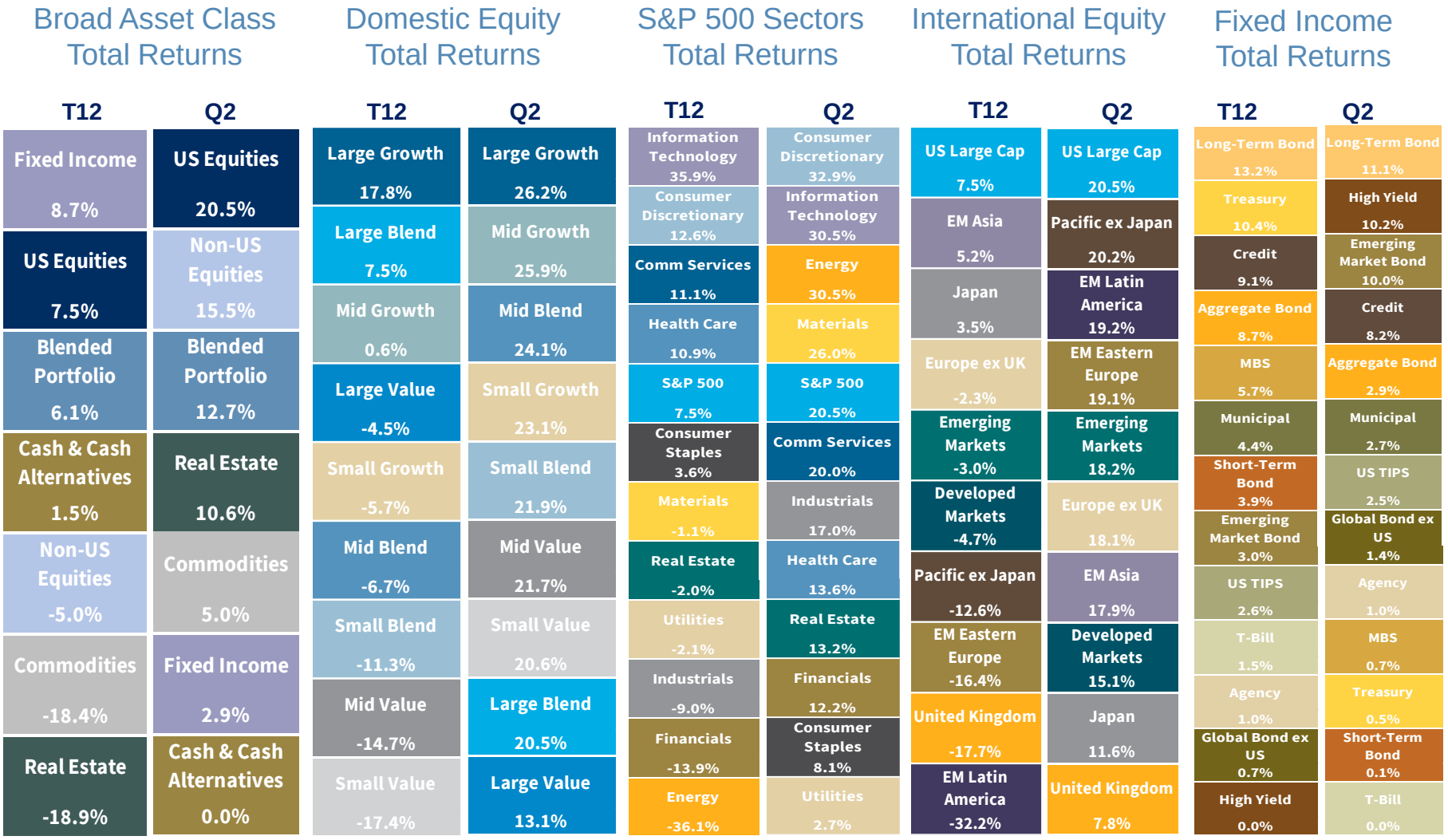
CAPITAL MARKETS | INTERNATIONAL EQUITY RETURNS

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	YTD
EM Asia 19.4%	US Large Cap 2.1%	Pacific ex Japan 24.7%	US Large Cap 32.4%	US Large Cap 13.7%	Japan 9.9%	EM Eastern Europe 38.8%	EM Asia 43.3%	EM Eastern Europe -3.4%	EM Eastern Europe 31.0%	US Large Cap -3.1%
Emerging Markets 19.2%	United Kingdom -2.5%	EM Asia 21.2%	Europe ex UK 28.7%	EM Asia 5.3%	US Large Cap 1.4%	EM Latin America 31.5%	Emerging Markets 37.8%	US Large Cap -4.4%	US Large Cap 25.7%	EM Asia -3.4%
Pacific ex Japan 17.1%	Developed Markets -11.7%	Europe ex UK 22.5%	Japan 27.3%	Pacific ex Japan -0.3%	Europe ex UK 0.1%	US Large Cap 12.0%	Europe ex UK 27.8%	EM Latin America -6.2%	EM Latin America 10.5%	Japan -6.9%
EM Eastern Europe 16.3%	Pacific ex Japan -12.7%	EM Eastern Europe 18.7%	Developed Markets 23.3%	Emerging Markets -1.8%	Developed Markets -0.4%	Emerging Markets 11.6%	Pacific ex Japan 26.0%	Pacific ex Japan -10.2%	Europe ex UK 7.7%	Europe ex UK -8.6%
Japan 15.6%	Japan -14.2%	Emerging Markets 18.6%	United Kingdom 20.7%	Japan -3.7%	EM Eastern Europe -4.0%	Pacific ex Japan 8.0%	Developed Markets 25.6%	Japan -12.6%	Pacific ex Japan 6.4%	Emerging Markets -9.7%
US Large Cap 15.1%	Europe ex UK -14.5%	Developed Markets 17.9%	Pacific ex Japan 5.6%	Developed Markets -4.5%	United Kingdom -7.5%	EM Asia 6.5%	Japan 24.4%	Developed Markets -13.4%	Developed Markets 6.3%	Developed Markets -11.1%
EM Latin America 14.9%	EM Asia -17.2%	US Large Cap 16.0%	EM Asia 2.3%	United Kingdom -5.4%	Pacific ex Japan -8.4%	Japan 2.7%	EM Latin America 24.2%	United Kingdom -14.1%	Japan 5.0%	Pacific ex Japan -12.9%
United Kingdom 8.8%	Emerging Markets -18.2%	United Kingdom 15.3%	EM Eastern Europe 1.4%	Europe ex UK -5.8%	EM Asia -9.5%	Developed Markets 1.5%	United Kingdom 22.4%	Emerging Markets -14.2%	United Kingdom 4.1%	United Kingdom -23.2%
Developed Markets 8.2%	EM Latin America -19.1%	EM Latin America 8.9%	Emerging Markets -2.3%	EM Latin America -12.0%	Emerging Markets -14.6%	Europe ex UK 0.3%	US Large Cap 21.8%	Europe ex UK -14.4%	Emerging Markets 2.0%	EM Eastern Europe -24.5%
Europe ex UK 2.4%	EM Eastern Europe -21.3%	Japan 8.4%	EM Latin America -13.2%	EM Eastern Europe -37.1%	EM Latin America -30.8%	United Kingdom 0.0%	EM Eastern Europe 18.1%	EM Asia -15.2%	EM Asia 1.5%	EM Latin America -35.1%

CAPITAL MARKETS | S&P EQUITY SECTOR RETURNS

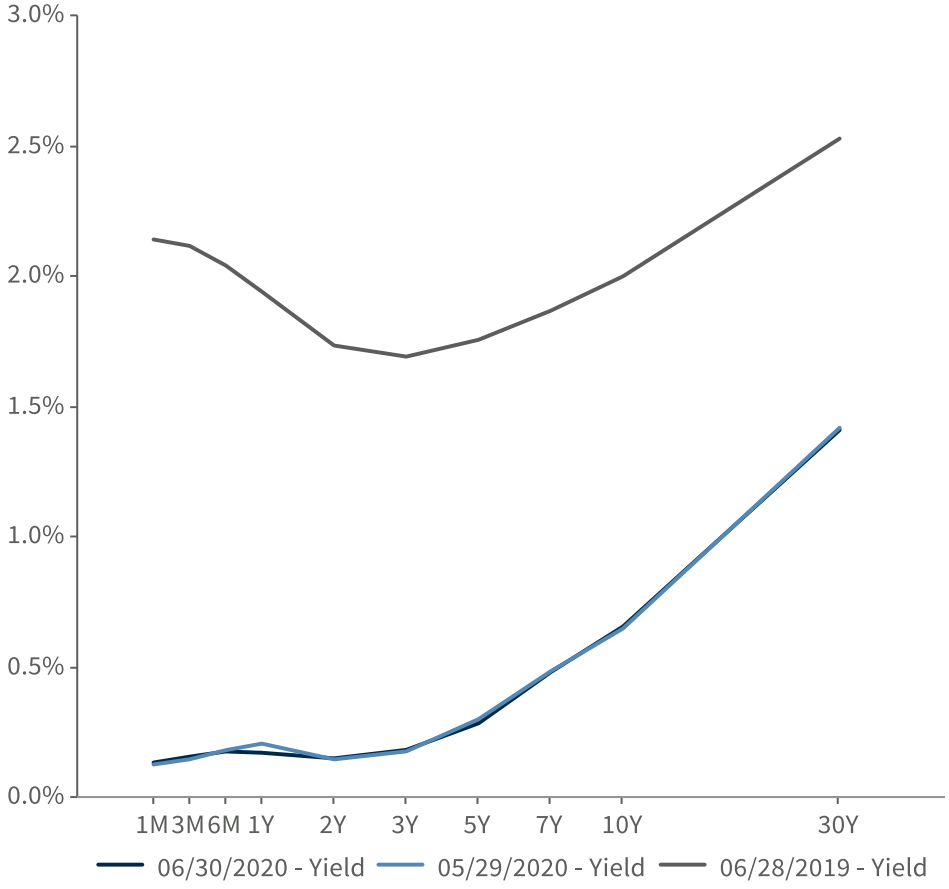
2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	YTD
Real Estate 32.3%	Utilities 20.0%	Financials 28.8%	Consumer Discretionary 43.1%	Real Estate 30.2%	Consumer Discretionary 10.1%	Energy 27.4%	Information Technology 38.8%	Health Care 6.5%	Information Technology 50.3%	Information Technology 15.0%
Consumer Discretionary 27.7%	Consumer Staples 14.0%	Consumer Discretionary 23.9%	Health Care 41.5%	Utilities 29.0%	Health Care 6.9%	Comm Services 23.5%	Materials 23.8%	Utilities 4.1%	Comm Services 32.7%	Consumer Discretionary 7.2%
Industrials 26.7%	Health Care 12.7%	Real Estate 19.7%	Industrials 40.7%	Health Care 25.3%	Consumer Staples 6.6%	Financials 22.8%	Consumer Discretionary 23.0%	Consumer Discretionary 0.8%	Financials 32.1%	Comm Services -0.3%
Materials 22.2%	Real Estate 11.4%	Comm Services 18.3%	Financials 35.6%	Information Technology 20.1%	Information Technology 5.9%	Industrials 18.9%	Financials 22.2%	Information Technology -0.3%	S&P 500 31.5%	Health Care -0.8%
Energy 20.5%	Comm Services 6.3%	Health Care 17.9%	S&P 500 32.4%	Consumer Staples 16.0%	Real Estate 4.7%	Materials 16.7%	Health Care 22.1%	Real Estate -2.2%	Industrials 29.4%	S&P 500 -3.1%
Comm Services 19.0%	Consumer Discretionary 6.1%	S&P 500 16.0%	Information Technology 28.4%	Financials 15.2%	Comm Services 3.4%	Utilities 16.3%	S&P 500 21.8%	S&P 500 -4.4%	Real Estate 29.0%	Consumer Staples -5.7%
S&P 500 15.1%	Energy 4.7%	Industrials 15.3%	Consumer Staples 26.1%	S&P 500 13.7%	S&P 500 1.4%	Information Technology 13.8%	Industrials 21.0%	Consumer Staples -8.4%	Consumer Discretionary 27.9%	Materials -6.9%
Consumer Staples 14.1%	Information Technology 2.4%	Materials 15.0%	Materials 25.6%	Industrials 9.8%	Financials -1.5%	S&P 500 12.0%	Consumer Staples 13.5%	Comm Services -12.5%	Consumer Staples 27.6%	Real Estate -8.5%
Financials 12.1%	S&P 500 2.1%	Information Technology 14.8%	Energy 25.1%	Consumer Discretionary 9.7%	Industrials -2.5%	Consumer Discretionary 6.0%	Utilities 12.1%	Financials -13.0%	Utilities 26.3%	Utilities -11.1%
Information Technology 10.2%	Industrials -0.6%	Consumer Staples 10.8%	Utilities 13.2%	Materials 6.9%	Utilities -4.8%	Consumer Staples 5.4%	Real Estate 10.8%	Industrials -13.3%	Materials 24.6%	Industrials -14.6%
Utilities 5.5%	Materials -9.8%	Energy 4.6%	Comm Services 11.5%	Comm Services 3.0%	Materials -8.4%	Real Estate 3.4%	Energy -1.0%	Materials -14.7%	Health Care 20.8%	Financials -23.6%
Health Care 2.9%	Financials -17.1%	Utilities 1.3%	Real Estate 1.6%	Energy -7.8%	Energy -21.1%	Health Care -2.7%	Comm Services -1.3%	Energy -18.1%	Energy 11.8%	Energy -35.3%

CAPITAL MARKETS | TRAILING 12 MONTH AND Q2 RETURNS



CAPITAL MARKETS | US TREASURYS

US Yield Curve

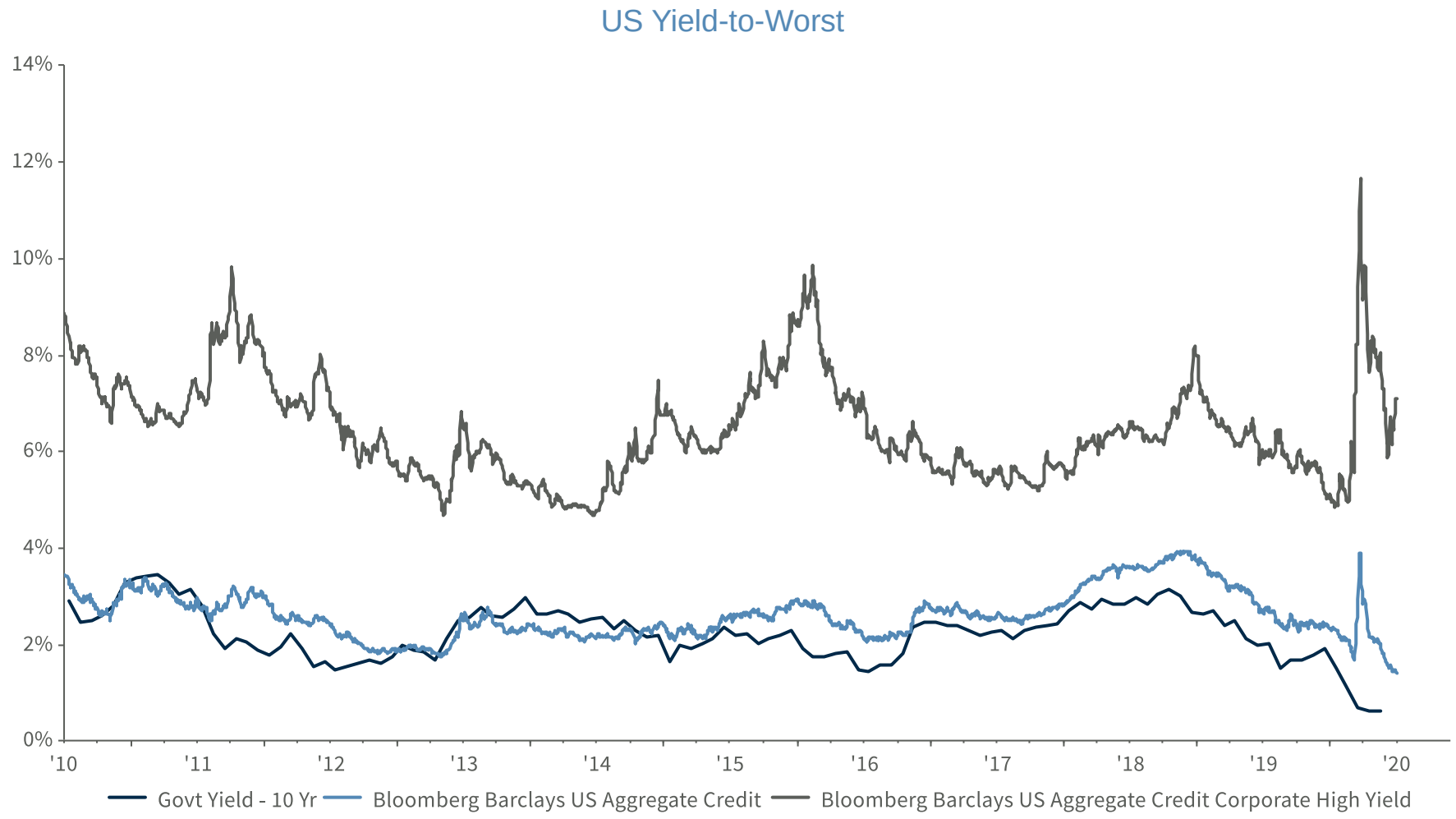


Source: FactSet, as of 6/30/2020

US 10-Year / US 2-Year Yield Curve

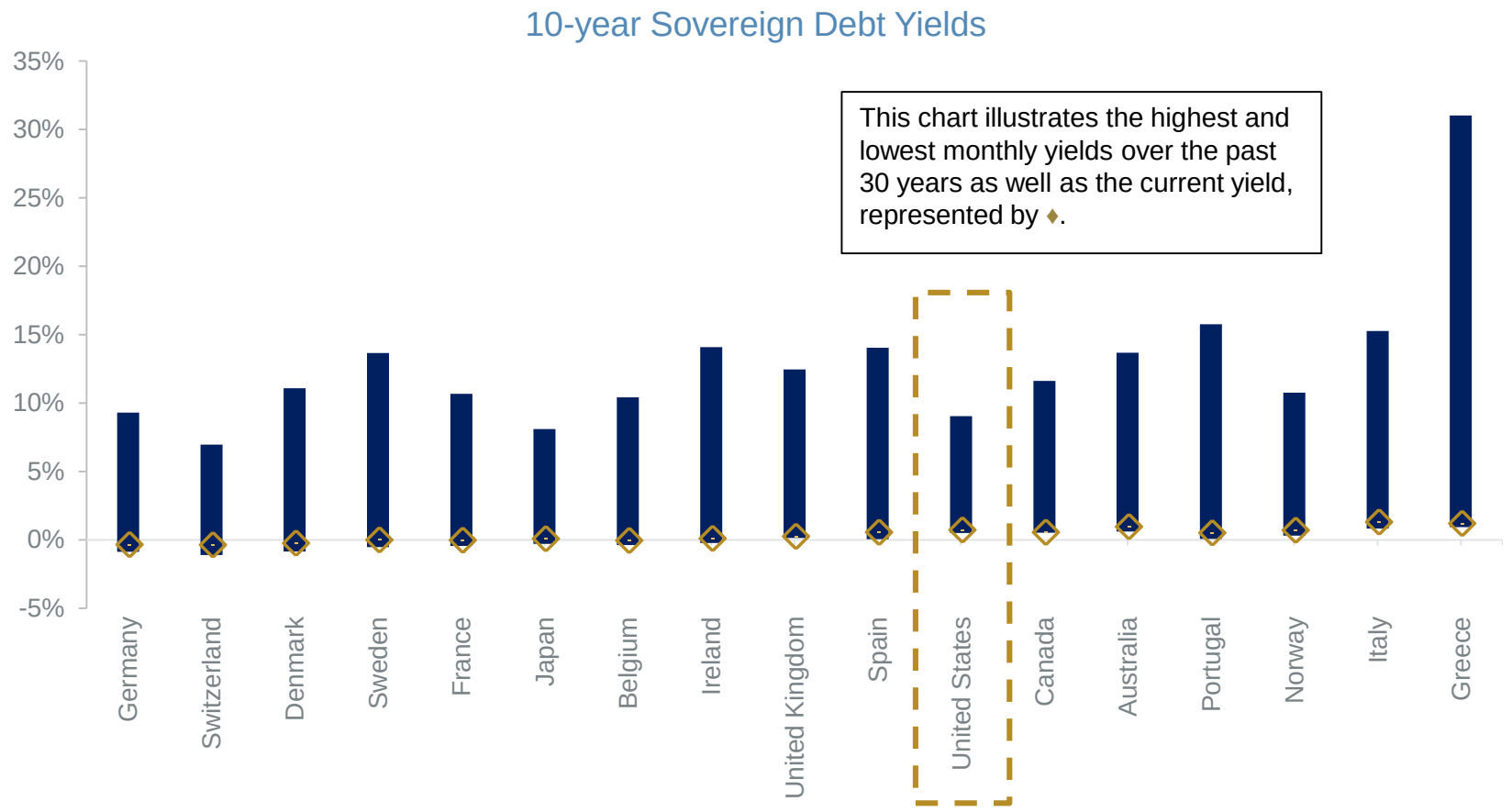
Source: FactSet, as of 6/30/2020

CAPITAL MARKETS | FIXED INCOME YIELDS



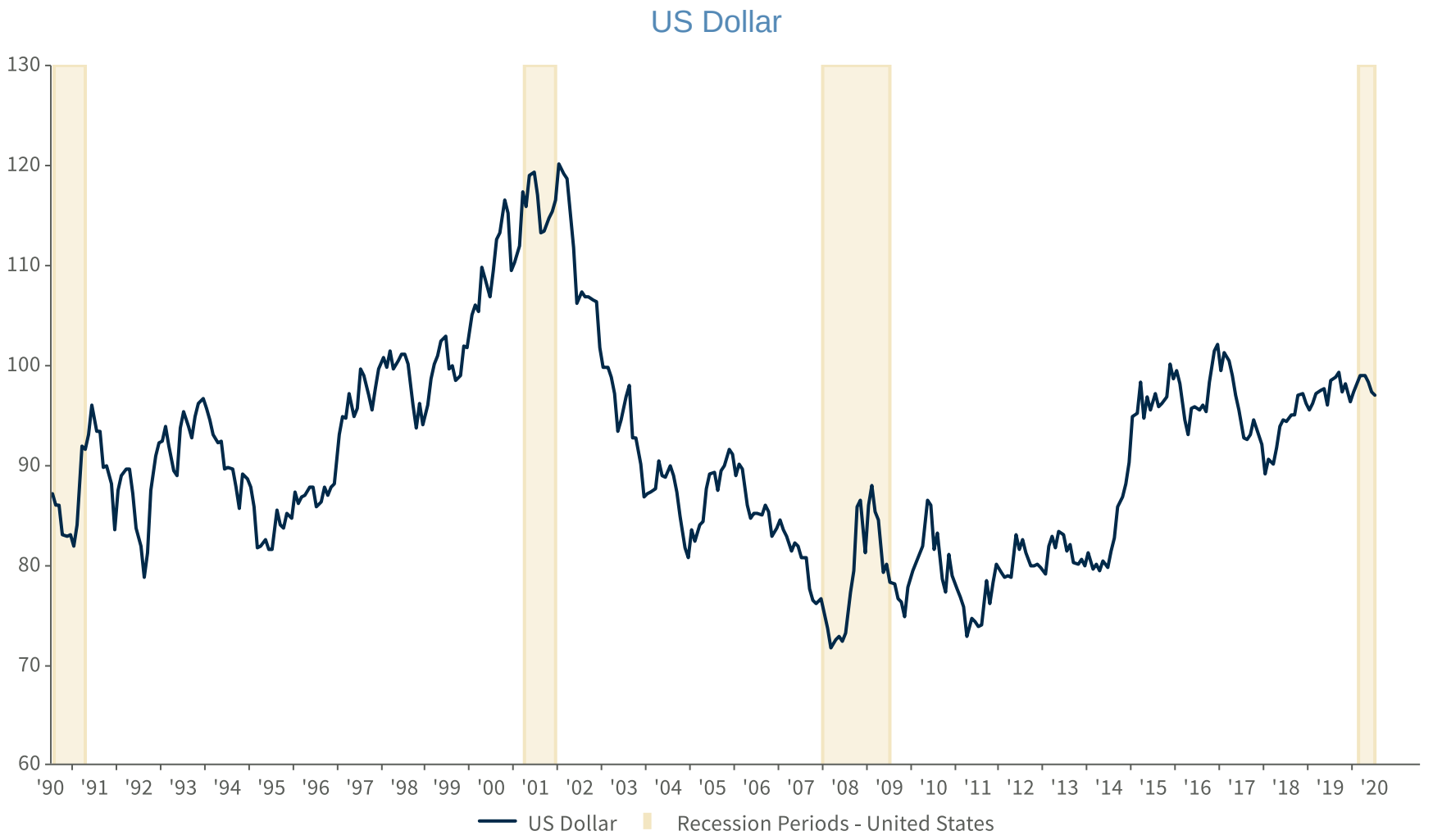
Source: FactSet, as of 6/30/2020

CAPITAL MARKETS | GLOBAL SOVEREIGN DEBT YIELDS



Source: FactSet, as of 7/2/2020

CAPITAL MARKETS | FOREIGN EXCHANGE RATES



Source: FactSet, as of 6/30/2020

CAPITAL MARKETS | COMMODITY PRICES

WTI Price

Source: FactSet, as of 6/30/2020

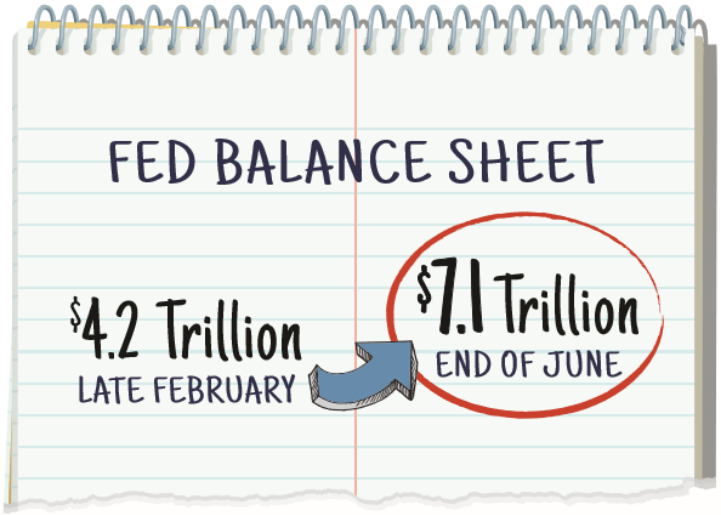
Gold Price

Source: FactSet, as of 6/30/2020

QUARTERLY TOPICS | ECONOMIC OUTLOOK

"Federal support has played a key role in countering the economic effects of the pandemic. Increased spending on healthcare was critical in treating the infected. 'Recovery rebate' checks and expanded unemployment insurance benefits helped to shore up household income. Lending to small businesses kept many firms operating. Federal aid to the states offset strains in state and local government budgets."

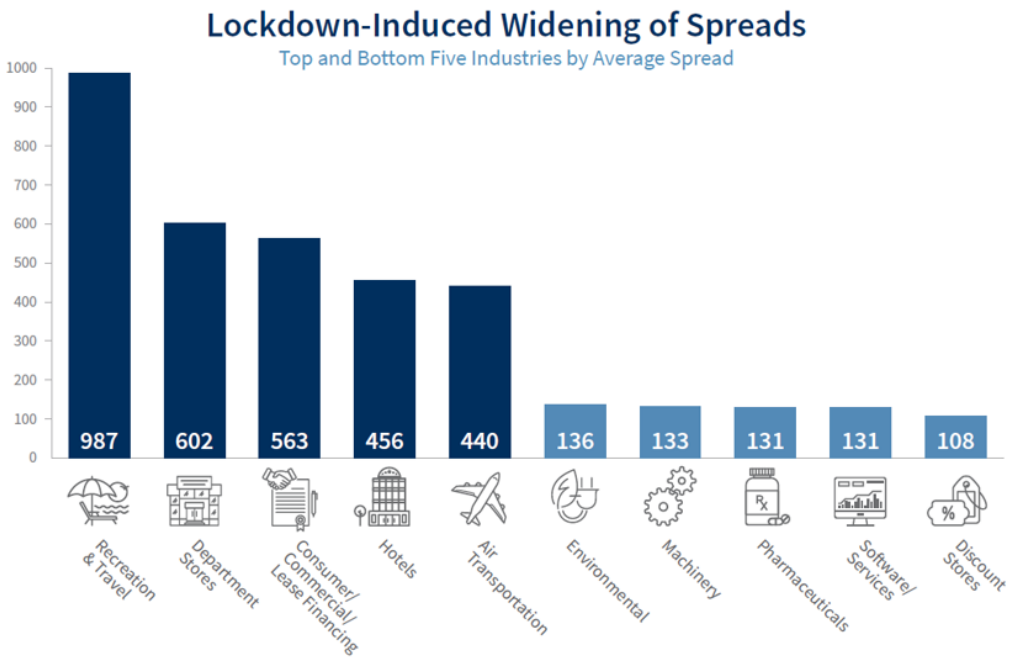
-**Scott J. Brown, PhD**
Chief Economist



"For full theme articles, ask for a copy of the July 2020 Investment Strategy Quarterly."

Source: Investment Strategy Quarterly July 2020

QUARTERLY TOPICS | FIXED INCOME UPDATE



"Healing markets won't bail out individual companies. The Fed's liquidity measures can help otherwise healthy companies survive a credit crunch, but they can't shore up solvency issues. Bond market investors must not conflate market risk with issuer specific risks."

-James C. Camp
Managing Director, Strategic Income, Eagle Asset Management*

Source: Investment Strategy Quarterly July 2020

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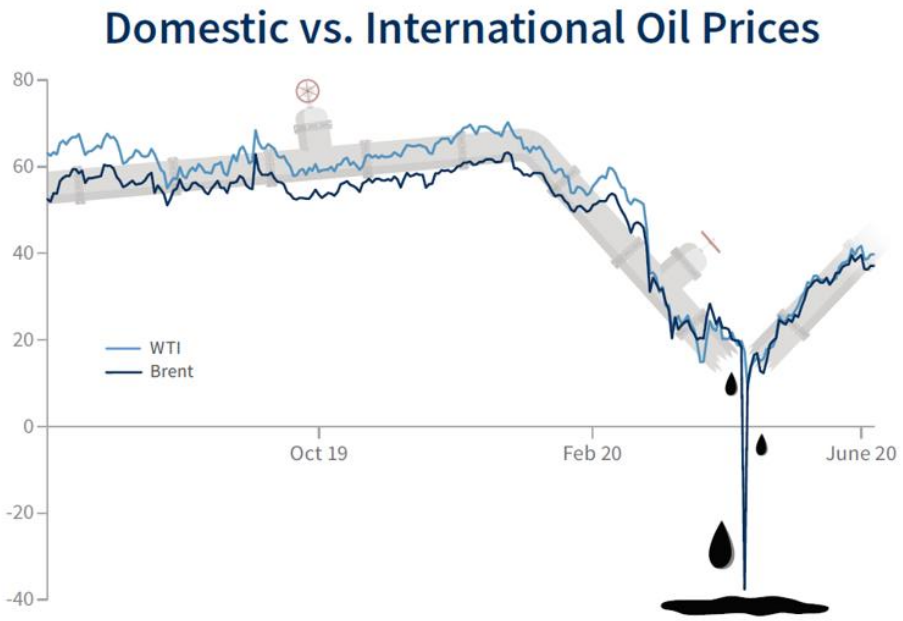
* An affiliate of Raymond James & Associates, Inc., and Raymond James Financial Services, Inc.

QUARTERLY TOPICS | OIL MARKETS



"WTI, the price most US investors see, is not always indicative of global oil market fundamentals."

-**Pavel Molchanov**
Director, Energy Analyst, Equity Research

Source: Investment Strategy Quarterly July 2020

"For full theme articles, ask for a copy of the July 2020 Investment Strategy Quarterly."

QUARTERLY TOPICS | FRAGILE TRUCE ON THE BRINK

5
Actions and regulations by federal agencies to limit China's access to US technology/software

4
US government actions to increase pressure on China's human rights record

3
US government actions to scrutinize China's access to US capital markets

2
Major bills in Congress to assign damages to China for the spread of COVID-19

1
US Election

"The spread of COVID-19 and the associated economic disruption shifted the dynamics of the relationship between the US and China in a major way."

-Ed Mills
Managing Director, Washington Policy Analyst, Equity Research

"For full theme articles, ask for a copy of the July 2020 Investment Strategy Quarterly."

Source: Investment Strategy Quarterly July 2020

QUARTERLY TOPICS | EQUITIES LOOK THROUGH UNCERTAINTIES

"While volatility is bound to happen in the months ahead due to vast uncertainty surrounding the virus, geopolitical tensions, and the election, we believe the positives outweigh the potential negatives."

-**J. Michael Gibbs**, Managing Director, Equity Portfolio & Technical Strategy
&
Joey Madere, CFA, Senior Portfolio Analyst, Equity Portfolio & Technical Strategy

Source: Investment Strategy Quarterly July 2020

"For full theme articles, ask for a copy of the July 2020 Investment Strategy Quarterly."

ASSET CLASS	BENCHMARK
Cash & Cash Alternatives	Bloomberg Barclays US Treasury - Bills (1-3 M)
Fixed Income	Bloomberg Barclays US Aggregate
US Equities	S&P 500 (TR)
World Equities	MSCI World ex USA
Commodities	Bloomberg Commodity Index
Real Estate	FTSE EPRA/NAREIT United States
Materials	S&P 500 (TR) / Materials - SEC
Industrials	S&P 500 (TR) / Industrials - SEC
Comm Services	S&P 500 (TR) / Communication Services -SEC
Utilities	S&P 500 (TR) / Utilities - SEC
Consumer Discretionary	S&P 500 (TR) / Consumer Discretionary - SEC
Consumer Staples	S&P 500 (TR) / Consumer Staples - SEC
Health Care	S&P 500 (TR) / Health Care - SEC
Information Technology	S&P 500 (TR) / Information Technology - SEC
Energy	S&P 500 (TR) / Energy - SEC
Financials	S&P 500 (TR) / Financials - SEC
Real Estate	S&P 500 (TR) / Real Estate - IG
S&P 500	S&P 500 (TR)
Large Value	S&P 500 Value
Large Blend	S&P 500
Large Growth	S&P 500 Growth
Mid Value	S&P Mid Cap 400 Value
Mid Blend	S&P Mid Cap 400
Mid Growth	S&P Mid Cap 400 Growth
Small Value	S&P Small Cap 600 Value

ASSET CLASS	BENCHMARK
Small Blend	S&P Small Cap 600
Small Growth	S&P Small Cap 600 Growth
US Large Cap	S&P 500
EM Eastern Europe	MSCI EM Eastern Europe
Europe ex UK	MSCI Europe ex UK
Developed Markets	MSCI EAFE
United Kingdom	MSCI United Kingdom
Japan	MSCI Japan
EM Latin America	MSCI EM Latin America
Emerging Markets	MSCI EM (Emerging Markets)
EM Asia	MSCI EM Asia
Pacific ex Japan	MSCI Pacific ex JP
Long-Term Bond	Bloomberg Barclays US Aggregate Credit - Long
High Yield	Bloomberg Barclays US High Yield - Corporate
Aggregate Bond	Bloomberg Barclays US Aggregate
Credit	Bloomberg Barclays US Aggregate Credit
Emerging Market Bond	Bloomberg Barclays Emerging Markets USD Aggregate
Treasury	Bloomberg Barclays US Aggregate Government - Treasury
Municipal	Bloomberg Barclays Municipal Bond
Agency	Bloomberg Barclays US Agency CMBS
MBS	Bloomberg Barclays MBS 1000
Global Bond ex US	Bloomberg Barclays Global G6 (G7 x US)
US TIPS	Bloomberg Barclays US TIPS (1-3 Y)
Short-Term Bond	Bloomberg Barclays US Treasury Bellwethers (2 Y)
T-Bill	Bloomberg Barclays US Treasury - Bills (1-3 M)

DISCLOSURES

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INTERNATIONAL INVESTING | International investing involves additional risks such as currency fluctuations, differing financial accounting standards, and possible political and economic instability. These risks are greater in emerging markets.

SECTORS | Sector investments are companies engaged in business related to a specific economic sector and are presented herein for illustrative purposes only and should not be considered as the sole basis for an investment decision. Sectors are subject to fierce competition and their products and services may be subject to rapid obsolescence. There are additional risks associated with investing in an individual sector, including limited diversification.

OIL | Investing in oil involves special risks, including the potential adverse effects of state and federal regulation and may not be suitable for all investors.

CURRENCIES | Currencies investing are generally considered speculative because of the significant potential for investment loss. Their markets are likely to be volatile and there may be sharp price fluctuations even during periods when prices overall are rising.

GOLD | Gold is subject to the special risks associated with investing in precious metals, including but not limited to: price may be subject to wide fluctuation; the market is relatively limited; the sources are concentrated in countries that have the potential for instability; and the market is unregulated.

FIXED INCOME | Fixed-income securities (or "bonds") are exposed to various risks including but not limited to credit (risk of default of principal and interest payments), market and liquidity, interest rate, reinvestment, legislative (changes to the tax code), and call risks. There is an inverse relationship between interest rate movements and fixed income prices. Generally, when interest rates rise, fixed income prices fall and when interest rates fall, fixed income prices generally rise.

US TREASURIES | US Treasury securities are guaranteed by the US government and, if held to maturity, generally offer a fixed rate of return and guaranteed principal value.

DOMESTIC EQUITY DEFINITION

S&P 500 | The **S&P 500 Total Return Index:** The index is widely regarded as the best single gauge of large-cap U.S. equities. There is over USD 7.8 trillion benchmarked to the index, with index assets comprising approximately USD 2.2 trillion of this total. The index includes 500 leading companies and captures approximately 80% coverage of available market capitalization.

LARGE GROWTH | **S&P 500 Growth Total Return Index:** This index represents a segment of the S&P 500 Index with a greater-than-average growth orientation.

LARGE VALUE | **S&P 500 Value Total Return Index:** This index represents a segment of the S&P 500 Index with a less-than-average growth orientation.

SMALL GROWTH | **S&P Small Cap 600 Growth Total Return Index:** This index represents a segment of the S&P 600 Index with a greater-than-average growth orientation.

SMALL BLEND | **S&P Small Cap 600 Total Return Index:** The index measures the investment return of small-capitalization stocks in the United States.

SMALL VALUE | **S&P Small Cap 600 Value Total Return Index:** This index represents a segment of the S&P 600 Index with a less-than-average growth orientation.

MID VALUE | **S&P 400 Value Total Return Index:** This index represents a segment of the S&P 400 Index with a less-than-average growth orientation.

MID VALUE | **S&P Small Cap 400 Value Total Return Index:** This index represents a segment of the S&P 400 Index with a less-than-average growth orientation.

MID BLEND | **S&P Small Cap 400 Total Return Index:** The index measures the investment return of mid-capitalization stocks in the United States.

FIXED INCOME DEFINITION

AGGREGATE BOND | **Bloomberg Barclays US Agg Bond Total Return Index:** The index is a measure of the investment grade, fixed-rate, taxable bond market of roughly 6,000 SEC-registered securities with intermediate maturities averaging approximately 10 years. The index includes bonds from the Treasury, Government-Related, Corporate, MBS, ABS, and CMBS sectors.

MUNICIPAL | **Bloomberg Barclays Municipal Total Return Index:** The index is a measure of the long-term tax-exempt bond market with securities of investment grade (rated at least Baa by Moody's Investors Service and BBB by Standard and Poor's). This index has four main sectors: state and local general obligation bonds, revenue bonds, insured bonds, and prerefunded bonds.

INTERNATIONAL EQUITY DEFINITION

EMERGING MARKETS EASTERN EUROPE | **MSCI EM Eastern Europe Net Return Index:** The index captures large- and mid-cap representation across four Emerging Markets (EM) countries in Eastern Europe. With 50 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

BLOOMBERG BARCLAYS CAPITAL AGGREGATE BOND TOTAL RETURN INDEX | This index represents securities that are SEC-registered, taxable, and dollar denominated. The index covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities. The index is designed to minimize concentration in any one commodity or sector. It currently has 22 commodity futures in seven sectors. No one commodity can compose less than 2% or more than 15% of the index, and no sector can represent more than 33% of the index (as of the annual weightings of the components).

EMERGING MARKETS ASIA | **MSCI EM Asia Net Return Index:** The index captures large- and mid-cap representation across eight Emerging Markets countries. With 554 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

EMERGING MARKETS LATIN AMERICA | **MSCI EM Latin America Net Return Index:** The index captures large- and mid-cap representation across five Emerging Markets (EM) countries in Latin America. With 116 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

EMERGING MARKETS | **MSCI Emerging Markets Net Return Index:** This index consists of 23 countries representing 10% of world market capitalization. The index is available for a number of regions, market segments/sizes and covers approximately 85% of the free float-adjusted market capitalization in each of the 23 countries.

PACIFIC EX-JAPAN | **MSCI Pacific Ex Japan Net Return Index:** The index captures large- and mid-cap representation across four of 5 Developed Markets (DM) countries in the Pacific region (excluding Japan). With 150 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

JAPAN | **MSCI Japan Net Return Index:** The index is designed to measure the performance of the large and mid cap segments of the Japanese market. With 319 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in Japan.

FOREIGN DEVELOPED MARKETS | **MSCI EAFE Net Return Index:** This index is designed to represent the performance of large and mid-cap securities across 21 developed markets, including countries in Europe, Australasia and the Far East, excluding the U.S. and Canada. The index is available for a number of regions, market segments/sizes and covers approximately 85% of the free float-adjusted market capitalization in each of the 21 countries.

EUROPE EX UK | **MSCI Europe Ex UK Net Return Index:** The index captures large and mid cap representation across 14 Developed Markets (DM) countries in Europe. With 337 constituents, the index covers approximately 85% of the free float-adjusted market capitalization across European Developed Markets excluding the UK.

MSCI EAFE | The **MSCI EAFE** (Europe, Australasia, and Far East) is a free float-adjusted market capitalization index that is designed to measure developed market equity performance, excluding the United States & Canada. The EAFE consists of the country indices of 22 developed nations.

WORLD EQUITIES | The MSCI World ex USA Index captures large and mid cap representation across 22 of 23 Developed Markets (DM) countries*-- excluding the United States. With 1,003 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

COMMODITY DEFINITIONS

US DOLLAR INDEX | The US dollar index (USDX) is a measure of the value of the US dollar relative to the value of a basket of currencies of the majority of the US's most significant trading partners. This index is similar to other trade-weighted indexes, which also use the exchange rates from the same major currencies.

DATA SOURCE:

FactSet

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INTERNATIONAL HEADQUARTERS: THE RAYMOND JAMES FINANCIAL CENTER

880 CARILLON PARKWAY // ST. PETERSBURG, FL 33716 // 800.248.8863

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