



# *Investment Section*

Report by Investment Consultant

Letter from TCRS Chief Investment Officer

Statutory Investment Authority

Investment Performance Review

Asset Allocation

Largest Holdings

Investment Summary

Schedules of Investment Fees and Commissions





October 25, 2017

Attn: Mr. Jamie Wayman, Director  
 Tennessee Consolidated Retirement System  
 Andrew Jackson Building  
 Nashville, TN 37243-0230

Re: 2017 CAFR Performance Letter

**Dear Jamie:**

For the year ended June 30, 2017, TCRS earned a return of 11.42%, beating its policy index (11.38%) and its as-allocated index (11.15%). Strong absolute returns in International Equity (20.84%), U.S. Equity (18.10%) and Private Equity (16.34%) were most additive to the portfolio for the fiscal year, whereas, U.S. Fixed Income (-0.77%) and Inflation Hedge (-0.69%) were detractors from returns. TCRS met or exceeded all of its benchmarks at the asset class level except for Private Equity.


During a fiscal year where equity returns were especially strong and risk was rewarded across markets, TCRS' generally conservative positioning and long duration bias in fixed income impacted its near-term peer rankings. The Plan remained above median in its peer group (InvestorForce's Public DB > \$1 billion) for the three-year period ended June.

As of June 30, 2017, the System's asset allocation and one-year respective returns were:

Asset Class	% of Assets	One Year Return
Domestic Equity	33.1%	18.10%
Canada Index Fund	2.0%	12.69%
International Developed Market	14.8%	20.93%
International Emerging Market	4.5%	20.79%
Domestic Fixed Income	25.5%	-0.77%
Inflation-Indexed Fixed Income	3.2%	-0.69%
Real Estate	7.7%	8.91%
Private Equity	3.9%	16.34%
Strategic Lending	4.3%	11.32%
Cash and Cash Equivalents	0.9%	0.74%
<b>Total</b>	<b>100.0%</b>	<b>11.42%</b>

A coordinated uptick in global economic and earnings growth amid low market volatility were central themes during the 2017 fiscal year. For the first time in the recovery, GDP growth rose across regions, especially in the Eurozone and emerging markets. The Fed continued to normalize rates, raising the federal funds rate by 25 bps in December, March, and June. After the election, U.S. equities rallied to end the calendar year, particularly in small cap stocks.

Verus continues to anticipate modest equity returns globally and the potential for increased market volatility as monetary policies shift. TCRS' well-funded, cost-effective Plan incorporates sensible diversification in order to weather a variety of market environments.

Best Regards,  
  
 Margaret S. Jadallah  
 Managing Director



DAVID H. LILLARD, JR.  
STATE TREASURER

STATE OF TENNESSEE

MARYJO PRICE  
CHIEF OPERATING OFFICER

MICHAEL BRAKEBILL  
CHIEF INVESTMENT OFFICER



JAMIE WAYMAN  
DIRECTOR OF TCRS

TREASURY DEPARTMENT  
STATE CAPITOL  
NASHVILLE, TENNESSEE 37243-0225

November 7, 2017

I am pleased to present the Investment Section of the TCRS Comprehensive Annual Financial Report for the fiscal year ended June 30, 2017.

The Tennessee Retiree Group Trust (TRGT) was established in 2015 and contained \$47.0 billion in assets as of June 30, 2017. Assets for the TCRS are comingled in the TGRT for investment purposes and TCRS represents \$46.8 billion, or 99.75%, of the TGRT.

TGRT assets are invested to preserve principal value, to achieve a superior rate of return within acceptable risk levels and to provide the liquidity necessary to pay beneficiaries in a timely manner. The portfolio is diversified among domestic and international stocks and bonds, real estate, private equity and short term securities. A diversified portfolio is used to manage risk and to minimize significant exposure to unpredictable events. Staff consults with the TGRT general investment consultant periodically to determine the optimal, long-term mix of assets to best meet the plan's investment objectives. The investment performance for TCRS was computed using a market value based, time-weighted rate of return and is based on it being a sub-component of the TGRT.

The 2017 fiscal year was a good year for investors and the TGRT gained 11.42% for the fiscal year with an annualized gain of 8.70% for the trailing five-year period. The one-year and the five-year returns each exceeded the actuarial required return and the portfolio was still managed in a manner to protect capital in an adverse environment.

The experienced investment staff of the Tennessee Treasury is committed to providing superior investment returns in a financially-sound manner with the highest ethical and professional standards. With the leadership of our Board, our Treasurer and our dedicated staff, this goal will be met.

Sincerely,

Michael Brakebill  
Chief Investment Officer



### ***Statutory Investment Authority***

The investment authority for the Board of Trustees of TCRS is set out in *Tennessee Code Annotated*, Section 8-37-104. Pursuant to this authority and the investment terms, conditions and limitations outlined therein, the Board of Trustees approves the TCRS' investment policy. The Board approved TCRS' revised and restated investment policy on November 18, 2016.

The Tennessee Retiree Group Trust (TRGT) was established in 2015 by a statutory enactment of the Tennessee General Assembly. The provisions of the TRGT are codified in *Tennessee Code Annotated* (TCA) Title 8, Chapters 34-37. Pursuant to this statute the Tennessee Consolidated Retirement System (TCRS) and its Board of Trustees with the State Treasurer (Treasurer) as custodian, authorized by TCA 8-37-104 adopted this group trust for the purpose of pooling funds of TCRS with other assets in the custody of the Treasurer, solely for investment purposes. The Custodian shall be responsible for the managing and directing the investment of the Group Trust Funds in accordance with the investment policies of the TCRS.

TCRS' primary investment objective, as set by the Board, is to establish a stable, diversified investment portfolio that, in the long-term, will meet or exceed the assumed actuarial rate of return, as adopted by the Board, in order to provide sufficient liquidity to pay beneficiaries in a timely manner.

TCRS' policies and the strategies implemented by the Treasury Investment Division staff serve to benefit plan members in several ways. The emphasis on a conservative asset allocation and high quality securities helps to ensure the soundness of the system and the ability to provide the needed funds upon a member's retirement.

Funds in the retirement system are actively managed, primarily by the Treasury Investment Division, through a diversified portfolio of high-quality domestic and international bonds, domestic and international stocks, real estate, private equity, and short-term instruments. From time to time, pursuant to *Tennessee Code Annotated*, Section 8-37-114, the Treasury Investment Division engages outside investment managers to manage a limited number

of asset classes or subclasses. In those instances, the Investment Division endeavors to use emerging investment managers to the greatest extent feasible within the bounds of financial and fiduciary prudence, as prescribed under *Tennessee Code Annotated*, Section 8-37-113. During fiscal year 2016-2017, no assets were under the control of emerging investment managers.

To assist in the fiduciary responsibility for managing the TRGT portfolio during fiscal year 2017, Verus served as the general investment consultant for TRGT. The Townsend Group served as the real estate investment consultant and Torrey Cove served as the private equity consultant.

State Street Bank and Trust Company was the master bank custodian for TRGT, providing safekeeping and accounting services for the investment portfolio during fiscal year 2017.

### ***Cost of Investment Operation***

The cost to operate the investment program for TRGT is about thirteen basis points (0.13%). This cost includes the cost of personnel, operational cost, master bank custodian cost, record keeping, and external manager fees. Commission costs for publicly listed securities and management fees for private equity investments are capitalized, meaning commission costs and management fees are not included in the expenses, but are recorded in the value of the assets. Recent peer comparisons of investment management fees and expenses indicate the investment program is managed very cost effectively.

### ***Performance Measurement***

Verus provided performance measurement for the TRGT, which had a total return of 11.42% during the fiscal year. Public equities led the performance for the year. International Developed and Emerging equities gained 20.93% and 20.79% respectively, while U.S. and Canadian stocks gained 18.10% and 12.69%. Private equity, Real Estate and Strategic Lending all had strong results with returns of 16.34%, 8.91% and 11.32%. Rising interest rates retarded returns for fixed income assets and the Domestic Fixed Income portfolio lost -0.77% and the Treasury Inflation Protected (TIPs) portfolio lost -0.69%.



**TRGT INVESTMENT PERFORMANCE REVIEW**

*Periods Ending June 30, 2017*

	<b>Annualized Returns</b>		
	<b>Current Year</b>	<b>3-Year</b>	<b>5-Year</b>
Pension Plan Portfolio	11.42%	5.78%	8.70%
Policy Index (1)	11.38%	5.88%	8.80%
As-Allocated Index	11.15%	5.73%	8.47%
Domestic Equity	18.10%	8.43%	13.95%
S & P 1500 Index	18.09%	9.51%	14.68%
Canadian Equity	12.69%	-2.50%	4.27%
S & P TSX 60 Index	12.38%	-2.58%	4.19%
Domestic Fixed Income	-0.77%	4.08%	3.80%
Citigroup LPF Index	-1.62%	3.94%	3.11%
Inflation Hedge Bonds	-0.69%	0.81%	0.31%
Citigroup TIPS Index	-0.74%	0.71%	0.26%
International Equity	20.84%	2.70%	9.00%
International Equity Custom Index	20.84%	1.34%	7.68%
Real Estate	8.91%	11.47%	11.05%
NCREIF Index	7.27%	10.58%	10.69%
Private Equity	16.34%	15.23%	15.85%
S & P 500 + 3%	20.17%	13.37%	16.31%
Strategic Lending Portfolio	11.32%	4.48%	
SL Benchmark	10.07%	4.01%	

**Verus**

Ranking of TCRS Portfolio	<u>Percentile Rankings</u>	<u>Risk Adjusted Basis</u>
	Last three years	34
Last five years	62	48

*The percentile ranking is the position of the TRGT portfolio as compared with other public funds with one being the best and 100 being the worst. The investment performance for TRGT was computed using a market, time weighted rate of return by an independent consultant.*

(1) Effective 1/1/17, Policy Index is 31% S&P 1500/ 2% S&P TSX 60/ 13% MSCI EAFE IMI net/ 4% MSCI Emerging Markets net/ 25% Citigroup LPF/ 10% NCREIF 1Q Lag/ 7% S&P 500 + 3% 1Q Lag/ / 7% Strategic Lending/ 1% 91 Day T-Bill.



## TRGT ASSET ALLOCATION

As of June 30, 2017

Expressed in Thousands

Asset Class	Fair Value	Percentage
Domestic Equity	\$ 14,966,170,611	32.4%
Domestic Fixed Income	13,923,680,831	30.1%
International Equity	7,326,968,005	15.8%
International Fixed Income	37,283,215	0.1%
Short-Term Securities	2,212,182,238	4.8%
Real Estate	4,049,446,383	8.8%
Private Equities & Strategic Lending	3,722,663,960	8.0%
Totals	<u>\$ 46,238,395,243</u>	<u>100.0%</u>

This table describes the asset allocation of the entire TRGT investment portfolio. TCRS is comingled with the TRGT portfolio and owns 99.75% of net asset value in TRGT.

*This schedule classifies Canadian investments as domestic securities, convertible bonds as fixed income securities and preferred stock as fixed income securities. For investment purposes, convertible bonds and preferred stock are considered equity securities. Accordingly, the asset allocation percentages in this schedule will vary from the investment consultant's asset allocation percentages.*

**TRGT LARGEST STOCK HOLDINGS***As of June 30, 2017**by Fair Value*

Shares	Security Name	Fair Value
3,841,233	APPLE INC	\$ 553,214,377
424,885	ALPHABET INC CL C	390,292,017
4,312,148	MICROSOFT CORP	297,236,362
1,825,591	FACEBOOK INC A	275,627,729
270,189	AMAZON.COM INC	261,542,952
2,749,502	JPMORGAN CHASE + CO	251,304,483
1,652,058	JOHNSON + JOHNSON	218,550,753
7,241,308	BANK OF AMERICA CORP	175,674,132
1,429,686	PHILIP MORRIS INTERNATIONAL	167,916,621
2,052,886	EXXON MOBIL CORP	165,729,487

**TRGT LARGEST BOND HOLDINGS***As of June 30, 2016**by Fair Value*

Par Value	Security Name	Yield	Maturity	Moody's Rating	Fair Value
\$ 287,721,533	United States Treasury Note	2.30%	11/15/2026	Aaa	\$ 295,040,000
250,658,116	United States Treasury Note	2.85%	2/15/2046	Aaa	268,836,000
216,957,575	United States Treasury Note	2.85%	8/15/2046	Aaa	245,975,000
185,069,179	United States Treasury Note	0.29%	1/15/2023	Aaa	186,806,857
156,844,455	United States Treasury Index Linked Note	2.29%	8/15/2026	Aaa	167,650,000
149,821,500	United States Treasury Note	1.00%	8/14/2017	Aaa	150,000,000
141,997,145	FED HOME LN DISCOUNT NT	2.84%	5/15/2045	NR	137,590,000
130,315,688	United States Treasury Note	2.27%	2/15/2026	Aaa	137,135,000
140,617,984	United States Treasury Note	2.84%	11/15/2045	Aaa	136,300,000
130,961,321	United States Treasury Note	2.25%	11/15/2025	Aaa	130,946,000

*A complete portfolio listing is available upon request.*

**Key to Ratings:** All ratings presented are from Moody's Investors Service with the exception of some of the government agency securities. Moody's does not rate these securities. Standard & Poor's does provide rating for the securities (AAA is Standard & Poor's highest rating.) Government Securities are not rated per se' but are considered the best quality securities.

Moody's rates securities as follows:

Aaa	Best Quality
Aa	High Quality
A	Upper Medium Quality
Baa	Medium Quality
NR	Not Rated





**TRGT INVESTMENT SUMMARY**

June 30, 2017

	Domestic		International		Total	
	Fair Value	%		%	Fair Value	%
<b>Fixed Income</b>						
Government Bonds	\$ 5,308,429,838	11.34%	0	0.00%	\$ 5,308,429,838	11.34%
Corporate Bonds	3,753,109,962	8.02%	0	0.00%	3,753,109,962	8.02%
Municipal/Provincial Bonds	124,409,319	0.27%	0	0.00%	124,409,319	0.27%
<b>Total Bonds</b>	<b>9,185,949,119</b>	<b>19.63%</b>	<b>0</b>	<b>0.00%</b>	<b>9,185,949,119</b>	<b>19.63%</b>
Corporate Asset Backed	479,670,359	1.02%	0	0.00%	479,670,359	1.02%
Commercial Mortgage Backed	297,444,710	0.64%	0	0.00%	297,444,710	0.64%
Government Agencies	413,912,880	0.88%	0	0.00%	413,912,880	0.88%
Government Mortgage Backed Securities	3,473,524,768	7.42%	0	0.00%	3,473,524,768	7.42%
Government Asset Backed	46,242,995	0.10%	0	0.00%	46,242,995	0.10%
Preferred Stock	26,936,000	0.06%	37,283,215	0.08%	64,219,215	0.14%
<b>Total Fixed Income</b>	<b>13,923,680,831</b>	<b>29.75%</b>	<b>37,283,215</b>	<b>0.08%</b>	<b>13,960,964,046</b>	<b>29.83%</b>
<b>Common Stock</b>						
Consumer Discretionary	1,873,603,362	4.01%	941,110,436	2.02%	2,814,713,798	6.03%
Consumer Staples	1,193,611,031	2.56%	679,931,238	1.46%	1,873,542,269	4.02%
Energy	828,280,614	1.77%	422,099,832	0.90%	1,250,380,446	2.67%
Financials	2,303,124,292	4.92%	1,399,434,888	2.99%	3,702,559,180	7.91%
Healthcare	2,150,209,962	4.59%	766,621,546	1.64%	2,916,831,508	6.23%
Industrials	1,797,733,670	3.84%	1,237,281,844	2.64%	3,035,015,514	6.48%
Information Technology	3,507,280,163	7.49%	661,599,239	1.41%	4,168,879,402	8.90%
Materials	486,987,542	1.04%	581,500,029	1.24%	1,068,487,571	2.28%
Private Placements	0	0.00%	6,876,853	0.01%	6,876,853	0.01%
Rights/Warrants	0	0.00%	671,537	0.00%	671,537	0.00%
Telecommunication Services	264,434,495	0.56%	290,330,012	0.62%	554,764,507	1.18%
Utilities	498,419,385	1.06%	187,734,692	0.40%	686,154,077	1.46%
Depository Receipts	32,377,526	0.07%	46,658,131	0.10%	79,035,657	0.17%
REITS	30,108,569	0.06%	105,117,728	0.22%	135,226,297	0.28%
<b>Total Common Stock</b>	<b>14,966,170,611</b>	<b>31.97%</b>	<b>7,326,968,005</b>	<b>15.65%</b>	<b>22,293,138,616</b>	<b>47.62%</b>

(continued)





## INVESTMENT SUMMARY (CONTINUED)



### TRGT INVESTMENT SUMMARY (CONTINUED)

June 30, 2017

	Domestic		International		Total	
	Fair Value	%	Fair Value	%	Fair Value	%
Short-term investments						
Commercial Paper	267,433,121	0.57%	0	0.00%	267,433,121	0.57%
Pooled Funds and Mutual Funds	2,515,579,025	5.37%	0	0.00%	2,515,579,025	5.37%
Total Short Term Investments	2,783,012,146	5.94%	0	0.00%	2,783,012,146	5.94%
Real Estate	3,992,869,546	8.53%	56,576,837	0.12%	4,049,446,383	8.65%
Private Equities & Strategic Lending	3,574,278,038	7.64%	148,385,922	0.32%	3,722,663,960	7.96%
Total Investments	39,240,011,172	83.83%	7,569,213,979	16.17%	46,809,225,151	100.00%
Derivatives & Options	393,045		0		393,045	
Short Term Investments Classified as Cash Equivalents	(570,829,908)		0		(570,829,908)	
Total Investments of the Tennessee Retiree Group Trust	\$ 38,669,574,309		\$ 7,569,213,979		\$ 46,238,788,288	

*Note: TCRS owns 99.75% of the net asset value of the Tennessee Retiree Group Trust.*



**TRGT Schedule of Fees**

	<b>Average Assets Under Management</b>	<b>Fees</b>
<b>Asset Management</b>		
External Investment Manager Fees	\$ 7.1 Billion	\$ 26,401,405
Real Estate Asset Management	2.8 Billion	14,849,568
Private Equities & Strategic Lending Asset Management	3.7 Billion	<u>0</u>
Total Asset Management		<u>\$ 41,250,973</u>
<b>Other Investment Services Fees</b>		
Custodian Bank	\$ 46.3 Billion	\$ 2,028,471
General Investment Consultant	46.3 Billion	550,000
Real Estate Investment Consultant	3.5 Billion	238,703
Private Equities & Strategic Lending Investment Consultant	3.7 Billion	<u>800,003</u>
Total Investment Services Fees		<u>\$ 3,617,177</u>

(continued)



**SCHEDULES OF INVESTMENT FEES AND COMMISSIONS  
FOR THE YEAR ENDED JUNE 30, 2017 (CONTINUED)**



**TRGT Schedules of Commissions**

**Domestic Exchange Traded Shares**

<b>Broker Name</b>	<b>DOMESTIC</b>		
	<b>Number of Shares Traded</b>	<b>Total Commissions</b>	<b>Commission per Share</b>
Instinet, LLC	54,888,932	\$ 1,095,876	0.0400
Capis	6,500,584	260,023	0.0400
Raymond James	11,313,414	226,268	0.0200
RBC Capital Markets Corporation	10,977,277	219,546	0.0200
Evercore Group LLC	9,449,139	188,983	0.0200
Wells Fargo	9,203,449	184,069	0.0200
Sanford C. Bernstein & Company, Inc.	6,458,821	129,176	0.0200
Barclays Capital	6,098,090	121,962	0.0200
UBS Securities LLC	5,436,178	108,724	0.0200
OTHER BROKERS*	28,276,600	636,376	0.0225
<b>Totals</b>	<b><u>148,602,484</u></b>	<b><u>\$ 3,171,003</u></b>	

**Program Trades where total commission cost includes trading commission, liquidity fees, and market impact fees.**

<b>Broker Name</b>	<b>DOMESTIC</b>		
	<b>Number of Shares Traded</b>	<b>Total Commissions</b>	<b>Commission per Share</b>
Barclays Capital	34,629,320	\$ 538,522	0.0156
Morgan Stanley & Company, Inc.	66,855,624	442,491	0.0066
UBS Securities LLC	50,001,753	376,473	0.0075
Goldman Sachs Group, Inc.	46,788,907	350,919	0.0075
Capis	15,534,306	310,686	0.0200
Evercore Group LLC	34,417,923	258,139	0.0075
Bank of America Merrill Lynch	31,631,482	237,237	0.0075
Wells Fargo	29,022,595	217,670	0.0075
Deutsche Bank Securities, Inc.	26,388,136	210,545	0.0080
RBC Capital Markets Corporation	31,895,676	189,412	0.0059
JP Morgan Chase & Company	17,593,812	131,95	0.0075
Cowen Inc.	16,298,549	122,240	0.0075
OTHER BROKERS*	25,582,253	237,469	0.0093
<b>Totals</b>	<b><u>426,640,336</u></b>	<b><u>\$ 3,623,757</u></b>	

\*LESS THAN \$100,000 TOTAL COMMISSION PER BROKERAGE FIRM

*(continued)*



SCHEDULES OF INVESTMENT FEES AND COMMISSIONS  
FOR THE YEAR ENDED JUNE 30, 2017 (CONTINUED)



**International Exchange Traded Shares**

<b>Broker Name</b>	<b>INTERNATIONAL</b>		
	<b>Number of Shares Traded</b>	<b>Total Commissions</b>	<b>Commission per Share</b>
UBS Securities LLC	189,373,290	\$ 913,810	0.0048
Bank of America Merrill Lynch	37,056,888	360,440	0.0097
Goldman Sachs Group, Inc.	35,849,031	359,571	0.0100
Credit Suisse	30,775,954	314,004	0.0102
Morgan Stanley & Company, Inc.	36,396,775	307,424	0.0084
JP Morgan Chase & Company	55,447,937	290,280	0.0052
Citigroup Global Markets, Inc.	44,886,779	263,009	0.0059
Barclays Capital	18,769,460	210,478	0.0112
BNP Paribas	11,596,109	210,308	0.0181
Instinet, LLC	58,925,746	197,792	0.0034
SMBC NIKKO Securities America, Inc.	8,519,035	181,754	0.0213
Mizuho International PLC	7,680,289	175,679	0.0229
CLSA Ltd.	24,572,221	174,090	0.0071
Jefferies and Company, Inc.	20,770,820	174,000	0.0084
Deutsche Bank Securities, Inc.	18,852,212	172,415	0.0091
RBC Capital Markets Corporation	4,062,896	135,600	0.0334
Daiwa Securities Group Inc.	17,286,190	112,393	0.0065
Investment Technology Group	33,004,965	111,774	0.0034
Macquarie Group Limited	13,031,493	100,319	0.0077
OTHER BROKERS*	124,010,916	1,075,855	0.0087
<b>TOTALS</b>	<b>790,869,006</b>	<b>\$ 5,840,996</b>	

Shares for international stocks are based on the actual foreign shares traded while the commission is expressed in U.S. dollars. Therefore, commissions per share between domestic and international are not comparable.

\*LESS THAN \$100,000 TOTAL COMMISSION PER BROKERAGE FIRM