

# COMPREHENSIVE ANNUAL FINANCIAL REPORT

*For the Fiscal Year Ended June 30, 2019*

**Teachers' Retirement System  
of the State of Illinois**

**a component unit of the State of Illinois**

# FISCAL YEAR 2019 HIGHLIGHTS

As of June 30, 2019

|                                  |         |
|----------------------------------|---------|
| Active contributing members      | 163,027 |
| Inactive noncontributing members | 136,178 |
| Benefit recipients*              | 124,299 |
| Total membership                 | 423,504 |

## Investment return

|   |      |
|---|------|
| Total fund investment return, net of fees | 5.2% |
|---|------|

## Actuarial information

|  |                   |
|--|-------------------|
| Actuarial accrued liability (AAL)                      | \$131,456,968,953 |
| Less actuarial value of assets (AVA)                   | 53,391,192,733    |
| Unfunded actuarial accrued liability, AVA basis (UAAL) | \$78,065,776,220  |
| Funded ratio (AVA/AAL)                                 | 40.6%             |
| Less fair value of assets (FVA)                        | 53,262,789,267    |
| Unfunded actuarial accrued liability, FVA basis (UAAL) | \$78,194,179,586  |
| Funded ratio (FVA/AAL)                                 | 40.5%             |

## GASB Statement No. 67 disclosure

|                                   |                   |
|-----------------------------------|-------------------|
| Total pension liability (TPL)     | \$134,370,954,628 |
| Less fiduciary net position (FNP) | 53,262,789,367    |
| Net pension liability (NPL)       | \$81,108,165,261  |
| FNP as a percentage of TPL        | 39.6%             |

## Income

|                                 |                 |
|---------------------------------|-----------------|
| Member contributions            | \$963,972,120   |
| Employer contributions          | 88,514,781      |
| State of Illinois contributions | 4,466,020,692   |
| Total investment income         | 2,617,831,332   |
| Total income                    | \$8,136,338,925 |

## Expenses

|                         |                 |
|-------------------------|-----------------|
| Benefits paid           | \$6,745,544,182 |
| Refunds paid            | 73,216,390      |
| Administrative expenses | 24,335,680      |
| Total expenses          | \$6,843,096,252 |

\* Benefit recipients includes retiree, disability and survivor benefit recipients.

# PREFACE

## COMPREHENSIVE ANNUAL FINANCIAL REPORT FOR THE FISCAL YEAR ENDED JUNE 30, 2019

This report was prepared by the TRS Accounting, Investments, Research and Communications Departments.

### MILLENIA LAKES

Orlando, FL  
Built between 2001 and 2007  
Acquired in 2018

### TEACHERS' RETIREMENT SYSTEM OF THE STATE OF ILLINOIS

a component unit of the State of Illinois

2815 West Washington | P.O. Box 19253 | Springfield, Illinois 62794-9253

<https://www.trsil.org>

*"In order to assist System participants in achieving their financial security objectives, the TRS Board shall adopt a long-term plan by which the assets of the System will be maintained and enhanced through prudent investments."*

- TRS Board of Trustees, April 7, 2000

The images that accompany the data in this report are examples of real estate investments owned by TRS on behalf of our 423,504 members. In all, TRS has \$7.35 billion invested in real estate all over the world, or 14 percent of the overall \$52.8 billion TRS investment portfolio. As the commentary explains, TRS manages a highly diversified portfolio comprised of four general categories in order to protect assets. In other words, not all eggs are in one basket.

In managing investments for members, TRS strives to:

- Protect the value of members' money through a long-term strategy that mitigates any losses in value which result from sharp fluctuations in the economy or investment markets.
- Maximize revenue while keeping the risk inherent in all investments below the average risk factors accepted by other comparable public pension systems across the United States.
- Stress a long-term view of investment results rather than emphasize short-term gains or losses. TRS is a perpetual entity and understands that its relationships with members last decades. Steady, positive returns over decades are important to people with a long-term stake in TRS.

This report includes a detailed look at the four general types of investments administered by TRS:

#### **EQUITIES: \$26.68 BILLION**

This asset class is broken down into three components – “public” equities (U.S. and international stocks) traded in markets around the world; “private” equity, (financial stakes in private companies that do not sell shares in a public market) and shares in certain types of real estate investments.

#### **INCOME: \$13.97 BILLION**

This asset class is composed primarily of investments in domestic and international credit instruments, as well as short-term investments that are designed to make sure that TRS can access cash, if needed.

#### **REAL ASSETS: \$6.53 BILLION**

This asset class is composed of most types of real estate investments as well as commitments to opportunities designed to protect TRS from inflationary pressures in the economy. The System has invested in all types of properties - office buildings, hotels, apartment complexes, retail and industrial.

#### **DIVERSIFYING STRATEGIES: \$5.47 BILLION**

This investment strategy includes “hedge funds” and other “absolute return” investments. These allocations are designed to provide steady, positive returns regardless of the state of the world economy. These investments seek to provide stability and asset protection when other investment strategies might suffer.



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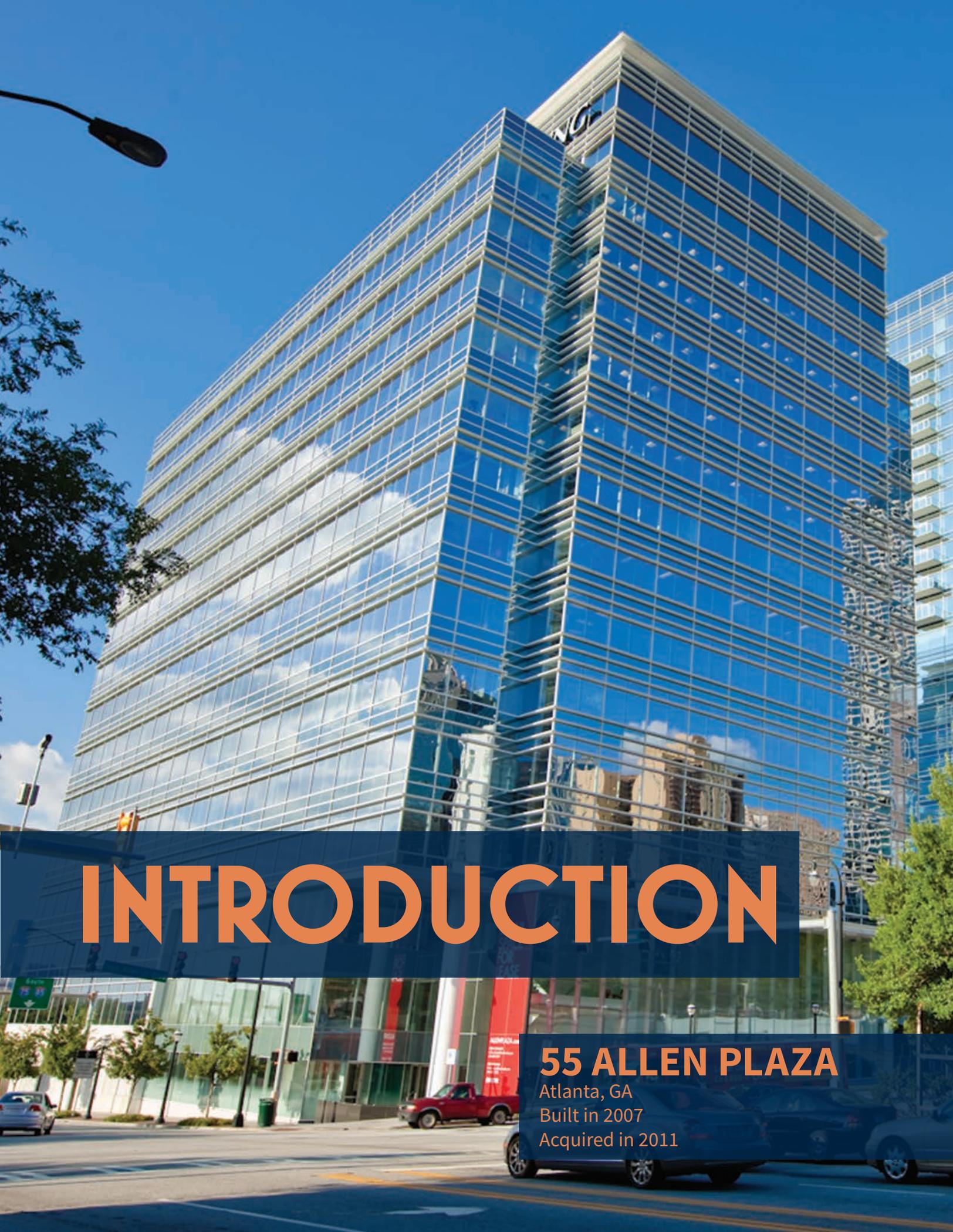
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# INTRODUCTION

## 55 ALLEN PLAZA

Atlanta, GA

Built in 2007

Acquired in 2011





Public Pension Coordinating Council

***Recognition Award for Administration  
2019***

Presented to

**Teachers' Retirement System of the State of Illinois**

In recognition of meeting professional standards for  
plan administration as  
set forth in the Public Pension Standards.

*Presented by the Public Pension Coordinating Council, a confederation of*

National Association of State Retirement Administrators (NASRA)  
National Conference on Public Employee Retirement Systems (NCPERS)  
National Council on Teacher Retirement (NCTR)

A handwritten signature in cursive script that reads "Alan H. Winkle".

Alan H. Winkle  
Program Administrator



## TEACHERS' RETIREMENT SYSTEM OF THE STATE OF ILLINOIS

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Richard W. Ingram, Executive Director

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## LETTER OF TRANSMITTAL

Dec. 13, 2019

To the TRS Board of Trustees and TRS Members:

We are pleased to present the *Comprehensive Annual Financial Report* (CAFR) for the Teachers' Retirement System of the State of Illinois (TRS) for the fiscal year ended June 30, 2019. This report details the on-going work of the System's trustees and staff to fulfill our mission and keep the retirement promises made by the State of Illinois to educators in its public schools.

Concluding its 80th year of operation in FY19, TRS successfully distributed \$6.7 billion in retirement, survivor and disability benefits to 124,299 members. However, the System continues to be buffeted by funding and policy uncertainties within state government that raise the possibility of future insolvency.

TRS ended FY19 with a funded ratio of 40.6 percent, which is one of the lowest in the nation for a retirement system its size. The System had an actuarial value of assets of \$53 billion and a long-term benefit obligation of \$131 billion, which creates an unfunded liability of \$78 billion.

The unfunded liability carried by TRS overshadows the decisions trustees and staff make regularly on investments and future operations. For example, a top priority in a low-funded retirement system is the management of liquidity to ensure that all benefits can be paid.

More importantly, a low-funded ratio leaves TRS with no monetary safety cushion in the event of a slowdown in the investment markets or world economy. It would not take much of a downturn to significantly challenge TRS to meet its obligations over the long term.

For several years, TRS staff has repeatedly raised the alarm about the System's precarious financial situation, how that may affect TRS members and what needs to be done by state government to prevent insolvency. While the unfunded liability was caused by decades of insufficient funding from state government, there is little agreement on the best way to retire the unfunded liability and ensure benefit payments into the distant future.

Since 1939, Illinois officials have never, in any year, appropriated enough money to "fully fund" the pension promises to be paid by TRS, as determined by the System's actuaries. This annual underfunding of TRS and the state's other public pension systems is, sadly, codified in state law.

The statutory formula used to develop state government's annual contribution to its pension systems artificially lowers the state's cost of funding pensions. In FY19, the state contribution to TRS calculated by the formula was \$4.47 billion. Using actuarial calculations that are standard across the country, Illinois' contribution to TRS in FY19 should have been \$7.37 billion.

As a result of the unfunded liability created primarily by the state's consistent underfunding, 77 percent of the FY19 state contribution to TRS was dedicated to paying off a portion of the unfunded liability and not the actual cost of

benefits. If pensions had been properly funded over the last 80 years, the FY19 state appropriation for TRS would have been \$1.03 billion and the System's future would be more secure.

Historically, TRS has relied on the belief that the state will stick to the 24-year-old statutory funding plan for TRS and the other public pension systems. This law requires state government to allocate enough money annually to eliminate most of the systems' unfunded liabilities over time. This plan mathematically brings TRS to a 90 percent funding ratio in 2045.

However, hope is not a reliable strategy and the risk of not realizing the funding schedule is real. The circumstances in Illinois, where pension contributions in FY19 represented 24 percent of the state's General Funds budget, may not be sustainable over time as other priorities and services vie for limited state resources. At the same time, observers should keep in mind that changes in the composition of the General Fund complicate the pension contribution discussion. This is because as new state funds are created and appropriated and as a tax revenue distribution process is modified, it is very difficult to assess the impact on limited state resources when analyzing only the state's General Funds.

Because of the unfunded liability, there are dual concerns among decision-makers – that too much of the state budget is dedicated to public pensions and fears that TRS is so far in debt it will be unable to pay all pensions in the future. A disclosure the state included regularly in bond offering documents acknowledges that there is “no assurance” that the state can meet all future pension contributions.

In addition to the failings of the statutory pension funding formula, state officials continue to propose changes to state law that would further erode the annual contribution to TRS. The executive and legislative branches also continue to enact programs designed to reduce the long-term benefit obligation of TRS and the other systems. Unfortunately, these well-intentioned efforts, at most, would trim only a fraction of the debt owed by all systems, currently \$134 billion.

Upon taking office in 2019, **Gov. JB Pritzker** announced a comprehensive, five-point plan to begin dealing with the various financial problems plaguing Illinois' public pension systems. The elements of the Pritzker Plan were:

- Dedicating a total of \$200 million per year in future state budgets to the public pension systems in addition to the statutorily required pension contributions. This commitment, however, is dependent on voter approval in 2020 of a change in the Illinois Constitution that allows for the conversion of the current “flat rate” income tax to a “graduated rate” tax.
- Selling \$2 billion in Pension Obligation Bonds during FY20 and using the proceeds over three years to augment the state's pension contribution.
- Creating a task force to study the feasibility of “transferring” the value or revenue potential of existing state assets to TRS and the other pension systems, a move designed to enhance the total assets and funded status of the systems.
- Creating a task force to study the consolidation of 649 local police and firefighter pension systems. The panel recommended consolidating the systems' investment functions into two statewide authorities. The local systems would continue to administer benefits. The proposal's goal is to increase investment earnings and reduce administrative costs.
- Extending the operational life of two optional “accelerated pension benefit” programs for members from 2021 to 2024. The two initiatives are designed to reduce the state's total pension obligation and improve the systems' financial conditions.

- Restructuring the current pension funding law that is designed to bring the funded ratio of TRS and the other state systems to 90 percent by 2045. The governor's proposal would have extended the target date to 2052. One consequence of extending the target date was a reduction in the state's annual contribution to the five state systems by about \$1.1 billion.

Gov. Pritzker cancelled the restructuring in May because state revenues unexpectedly exceeded forecasts by \$1.5 billion. The governor decided to use the surprise windfall to pay the full statutory pension contribution, negating the need for the restructuring. However, the governor has said restructuring the state's pension debt payments is still an option that may be considered in the future.

In the years ahead, we look forward to working with the new administration and legislative leaders to develop a sustainable solution to our chronic underfunding. Our members and many stakeholders deserve a serious effort to secure the future of TRS.

The future of teacher pensions in Illinois will be determined over the next few years by how strongly state officials, our members, stakeholders and the public support real solutions required to reverse the erosion of the System's finances.

## **PROFILE OF TRS**

TRS was established by the State of Illinois on July 1, 1939 to provide retirement, disability and death benefits to teachers employed by Illinois public elementary and secondary schools outside the city of Chicago. A 13-member board of trustees governs TRS. The board includes the state superintendent of education, six representatives of the public who are appointed by the governor, four members of TRS who are elected by active teachers and two retired members who are elected by annuitants. The TRS Board of Trustees appoints the executive director, who is responsible for the effective administration of TRS.

The annual budget for TRS administrative expenses is prepared by staff and approved by the TRS Board of Trustees. The TRS annual operating budget request is prepared in conjunction with a review of the long-range strategic plan.

## **FINANCIAL INFORMATION**

Our staff issues a CAFR within six months of the close of each fiscal year. The report contains financial statements presented in conformity with generally accepted accounting principles (GAAP) applied within guidelines established by the Governmental Accounting Standards Board (GASB).

A system of internal controls helps us monitor and safeguard assets and promote efficient operations. Each year TRS's financial statements are audited by a professional accounting firm that serves as a special assistant auditor employed by the Illinois Auditor General. In addition, an annual compliance attestation examination is performed to review compliance with applicable statutes and codes. The Independent Auditor's Report on TRS's financial statements is included on pages 18 and 19 in the Financial Section of this report. TRS received an unmodified auditor opinion on the fair presentation of its financial statements.

TRS is required by law to publish a CAFR annually with information about the System's financial condition, investment methods, performance and actuarial conclusions that determine financial needs as well as statistical information about members, school districts, revenues and benefits. TRS management and staff are responsible for the accuracy of this report and for ensuring that all material disclosures have been made. TRS recognizes that the limitations of internal controls must be considered. These controls are designed to provide reasonable assurance regarding the safekeeping of assets, the reliability of financial records, the appropriate

segregation of duties and the use of sound accounting and financial practices. The concept of reasonable assurance recognizes that the cost of a control should not exceed the benefits likely to be derived and that the valuation of costs and benefits requires estimates and judgments by management. The objective of internal controls at TRS is a reasonable, not absolute, assurance that the System's financial statements are free of material misstatements. Three internal auditors are employed to continually review and determine that all laws, rules, policies and procedures are followed.

Generally accepted accounting principles require that management provide a narrative introduction, overview and analysis to accompany the financial statements in the form of a Management's Discussion and Analysis (MD&A). This letter of transmittal is designed to complement and should be read in conjunction with the MD&A, which can be found immediately following the report of the independent auditors.

## REVENUES AND EXPENSES

The three sources of TRS funding are member contributions, investment income and employer contributions through state appropriations and payments by employers. TRS expenses include payments of benefits, refunds and administrative expenses. Negative amounts are shown in parentheses ( ) throughout this report.

### Revenues (\$ millions)

| Source                  | 2019                  | 2018                  | Increase/(Decrease)     |                |
|-------------------------|-----------------------|-----------------------|-------------------------|----------------|
|                         |                       |                       | Amount                  | % Change       |
| Member contributions    | \$964                 | \$938                 | \$26                    | 2.8%           |
| State of Illinois       | 4,466                 | 4,095                 | 371                     | 9.1            |
| Employer contributions  | 88                    | 85                    | 3                       | 4.6            |
| Total investment income | 2,618                 | 4,049                 | (1,431)                 | (35.4)         |
| <b>Total</b>            | <b><u>\$8,136</u></b> | <b><u>\$9,167</u></b> | <b><u>(\$1,031)</u></b> | <b>(11.2%)</b> |

### Expenses (\$ millions)

|                          | 2019                  | 2018                  | Increase/(Decrease) |             |
|--------------------------|-----------------------|-----------------------|---------------------|-------------|
|                          |                       |                       | Amount              | % Change    |
| Benefits payments        | \$6,746               | \$6,459               | \$287               | 4.4%        |
| Refunds                  | 73                    | 93                    | (20)                | (21.2)      |
| Administrative/<br>other | 24                    | 21                    | 3                   | 12.9        |
| <b>Total</b>             | <b><u>\$6,843</u></b> | <b><u>\$6,573</u></b> | <b><u>\$270</u></b> | <b>4.1%</b> |

The TRS Board of Trustees and staff remain vigilant in our efforts to improve the retirement system's funded status for current and future members. We continue to invest prudently and in a disciplined manner for the benefit of our membership and for the long-term success of the retirement system. The TRS board and staff believe the overall investment strategy remains sound and appropriate for our circumstances.

## INVESTMENTS

The TRS investment portfolio returned 5.2 percent, net of fees, for the fiscal year ended June 30, 2019. Total investment assets increased approximately \$0.8 billion during the year.

The TRS trust fund is invested under the authority of the Illinois Pension Code and follows the "prudent person rule," which requires investments to be managed solely in the interest of fund participants and beneficiaries. The TRS Investment Policy guides TRS's investments. Investment principles include preserving the long-term principal of the trust fund, maximizing total return within prudent risk parameters and acting in the exclusive interest of TRS members.

The Investment Section of this report contains a summary of the portfolio and investment activities. Pages 83 to 87 provide specific details regarding fees and commissions and a list of investment professionals who provided services to TRS.

## FUNDING

During the year ended June 30, 2019, the funded ratio based on the actuarial value of assets of the Teachers' Retirement System decreased to 40.6 percent from its June 30, 2018 level of 40.7 percent. The actuarial value of assets at year end was \$53.4 billion and the actuarial accrued liability was \$131.5 billion. Under the smoothing methodology required by Public Act 96-0043, differences between actual and expected investment earnings are recognized prospectively over a five-year period.

The Actuarial Section of this report contains the actuary's letter and further information on funding.

## MAJOR INITIATIVES AND ACCOMPLISHMENTS

### SERVICE TO MEMBERS

TRS completed its fourth consecutive year as a client of CEM Benchmarking, Inc. of Toronto, Canada, an international consulting firm. CEM provides public pension systems with comparative statistics to help plan leaders determine how well their systems are performing in several areas compared to peers.

TRS operational costs remain \$3 below the peer average while service scores are improving more than our peers. The TRS call center handled 31 percent more calls than comparable public pension systems. Call wait times have declined and staff productivity remains higher than our peer average. TRS fulfilled requests for approximately 53,000 written pension estimates, which turned out to be 195 percent more than the median number of estimates completed by similar pension systems.

### IMPLEMENTING A VOLUNTARY DEFINED CONTRIBUTION RETIREMENT PLAN

TRS is moving forward in the development of a voluntary defined contribution (DC) savings plan for active Tier 1 and Tier 2 members – the TRS Supplemental Savings Plan. A state law enacted in 2018 requires TRS to create a “DC” plan “as soon as practicable.” TRS plans to launch the program during FY21.

The optional DC plan will co-exist with the current TRS defined benefit pension plan and provide a supplementary retirement savings vehicle for interested members.

Participating members will make contributions to the DC plan. Employers also will be allowed to make contributions on behalf of members. TRS is required under the law to offer DC participants a menu of investment options.

### “ACCELERATED” PENSION PAYMENT PROGRAMS

During the second half of FY19, TRS implemented a new state law and began offering all retiring Tier 1 members an accelerated pension benefit payment equal to a portion of their future pension benefit.

As of June 30, 2019, 36 members out of 3,580 retiring Tier 1 members had accepted the Accelerated Annual Increase (AAI) Program payment. By the end of 2019 retirement season, 558 were in line to be paid about \$82 million.

In order to receive the accelerated payment, a retiring Tier 1 member must accept an irrevocable reduction in the automatic annual increase that will apply to the remainder of his/her TRS pension. The AAI Program will be available until June 30, 2024.

Members who choose to accept the program will:

- **Renounce their rights to the current Tier 1 Automatic Annual Increase (AAI)** – a 3 percent annual increase in their pension benefits that is always calculated from the amount of their current pensions.
- **Accept a new AAI** – an annual 1.5 percent increase in their pensions that always will be calculated from the amount of their original pensions and begins later.

- **Receive a lump-sum “accelerated pension benefit payment”** that equals 70 percent of the monetary difference between the estimated current lifetime value of the 3 percent Tier 1 AAI and the estimated current lifetime value of the 1.5 percent delayed Tier 1 AAI.

TRS also worked to implement an Accelerated Pension Benefit (APB) Program that requires the System to offer all eligible inactive members a chance for a one-time, irrevocable lump sum equal to 60 percent of the present value of the member’s anticipated lifetime pension benefits. Members accepting the APB Program give up any future claim to a TRS benefit. This buyout program will be available until June 30, 2024 or until bond proceeds are depleted.

The program began early in FY20. TRS contacted 14,598 eligible inactive members and offered them an opportunity to participate. To be eligible, an inactive member must have “accrued sufficient service credit to be eligible to receive a retirement annuity.” An inactive Tier 1 member must have at least five years of TRS service and an inactive Tier 2 member must have at least 10 years of service.

Importantly, both accelerated pension benefit payment programs are funded exclusively by the proceeds of a state government bond sale and not TRS assets. During FY19, the Governor’s Office sold \$300 million in bonds to fund the payments and is planning a second bond sale for FY20.

## **COMMITMENT TO DIVERSITY**

TRS continues to strengthen its existing commitment to diversity within the management of its \$52.8 billion investment portfolio. The TRS Board of Trustees is committed to continually improving access to the investment program for qualified firms owned by minorities, women and those with disabilities.

During FY19, 22.5 percent of the overall TRS investment portfolio was overseen by 32 minority and women business enterprise (WMBE) investment managers, with assets totaling \$11.7 billion. That is a 14 percent increase in assets under management over the last 12 months.

The participation goal for the fiscal year was 19 percent and TRS exceeded its goal for assets under WMBE management by \$1.8 billion.

## **DIGITAL RECORD CONVERSION**

The goal of this multi-year initiative is to convert the System’s records from paper to a digital format in order to improve the security of the data and make the records easier to access.

Member records were selected as the first data for conversion. At the end of FY19, more than 99 percent of the member record back-file conversion was complete. The member record conversion will be completed during the second quarter of FY20.

## **DEVELOPMENT OF NEW PENSION ADMINISTRATION SYSTEM**

Work is continuing toward building the new TRS pension administration system, Gemini. The first phase of the Gemini project involves building a reporting system for the 990 active employers to report member service and earnings on a pay-period basis. An Employer Portal has been created and is still in the development phase. This portal will allow employers to submit data to TRS and remit their contribution payments. It will also include increased employer self-service functions compared to our current Employer Web Access. These functions will include, but not be limited to:

- Sending payments and receiving invoices
- Maintaining current payroll schedules, sick leave and flexible benefit plan information

- Managing contacts and their portal access
- Making adjustments to service and/or earnings to previously reported data

Employers will be able to submit member data using one of two options: upload a file that meets the TRS payroll file layout requirements or copy data from a previous payroll and manually make necessary member changes. With both options, data submitted will run through an extensive list of validations to ensure that data received is verified upon receipt.

## AWARDS

### CERTIFICATE OF ACHIEVEMENT FOR EXCELLENCE IN FINANCIAL REPORTING

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to TRS for its *Comprehensive Annual Financial Report* for the fiscal year ended June 30, 2018. This was the 30th consecutive year that the System has achieved this prestigious award. In order to be awarded a Certificate of Achievement, a government or government entity must publish an easily readable and efficiently organized *Comprehensive Annual Financial Report*. This report must satisfy both generally accepted accounting principles and applicable legal requirements. A Certificate of Achievement is valid for a period of one year only. We believe that our current *Comprehensive Annual Financial Report* continues to meet the Certificate of Achievement Program's requirements and we are submitting it to the GFOA to determine its eligibility for another certificate.

### PUBLIC PENSION COORDINATING COUNCIL (PPCC), RECOGNITION AWARD FOR ADMINISTRATION

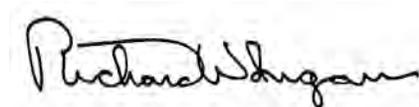
TRS received the Recognition Award for Administration in 2019 for meeting professional standards of plan administration as set forth in the Public Pension Standards of the PPCC. The award is presented by the PPCC, a confederation of the National Association of State Retirement Administrators (NASRA), the National Conference on Public Employee Retirement Systems (NCPERS) and the National Council on Teacher Retirement (NCTR).

## ACKNOWLEDGMENTS

Information for this report was gathered by TRS staff under the leadership of the TRS Board of Trustees and the executive director and it is the responsibility of TRS management. It is intended to provide complete and reliable information as a basis for making management decisions, to determine our compliance with legal provisions and as a means of determining responsible stewardship of the assets contributed by members, their employers and the State of Illinois.

This report is made available to members of the General Assembly, participating employers and to other interested persons by request. The participating employers of TRS form a link between TRS and its members. Their cooperation contributes significantly to our success. We hope all recipients of this report find it informative and useful. This report is also available to the general public on our website, <https://www.trsil.org>.

We would like to take this opportunity to express our gratitude to staff, professional consultants and others who have worked so diligently to ensure TRS's successful operation.



Richard Ingram  
Executive Director



Jana Bergschneider, CPA  
Chief Financial Officer

# TRS BOARD OF TRUSTEES

AS OF DECEMBER 1, 2019



**Dr. Carmen I. Ayala**  
President  
Superintendent of  
Education  
Downers Grove



**Mark Bailey**  
Vice President  
Elected  
Palos Park



**Norma Bellcoff**  
Appointed  
Edwardsville



**Devon Bruce**  
Appointed  
Lake Forest



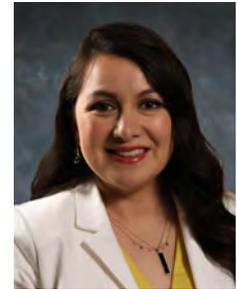
**Marsha Byas**  
Elected  
Marion



**Andrew Hirshman**  
Elected  
Oak Park



**Matthew Hunt**  
Appointed  
Frankfort



**Maureen Mena**  
Appointed  
Bolingbrook



**David Miller**  
Appointed  
Lynwood



**Laura P. Pearl**  
Appointed  
Glenview



**Fred Peronto**  
Elected  
Elmhurst



**Larry Pfeiffer**  
Elected  
Carlinville



**Doug Strand**  
Elected  
East Moline

# TRS ORGANIZATION

## EXECUTIVE CABINET

AS OF DECEMBER 1, 2019



**Dick Ingram**  
Executive Director



**Jeff Bennett**  
Director of  
Operations



**Jana Bergschneider, CPA**  
Chief Financial  
Officer



**Marcilene Dutton, JD**  
Chief Legal Counsel



**Gina Larkin**  
Chief Human  
Resources Officer



**Carlton Lenoir, JD**  
Chief Benefits  
Officer



**Stan Rupnik, CFA**  
Chief Investment  
Officer



**Jay Singh**  
Chief Information  
Officer



**Stacy Smith, CPA, CIDA**  
Director of Internal  
Audit and Risk

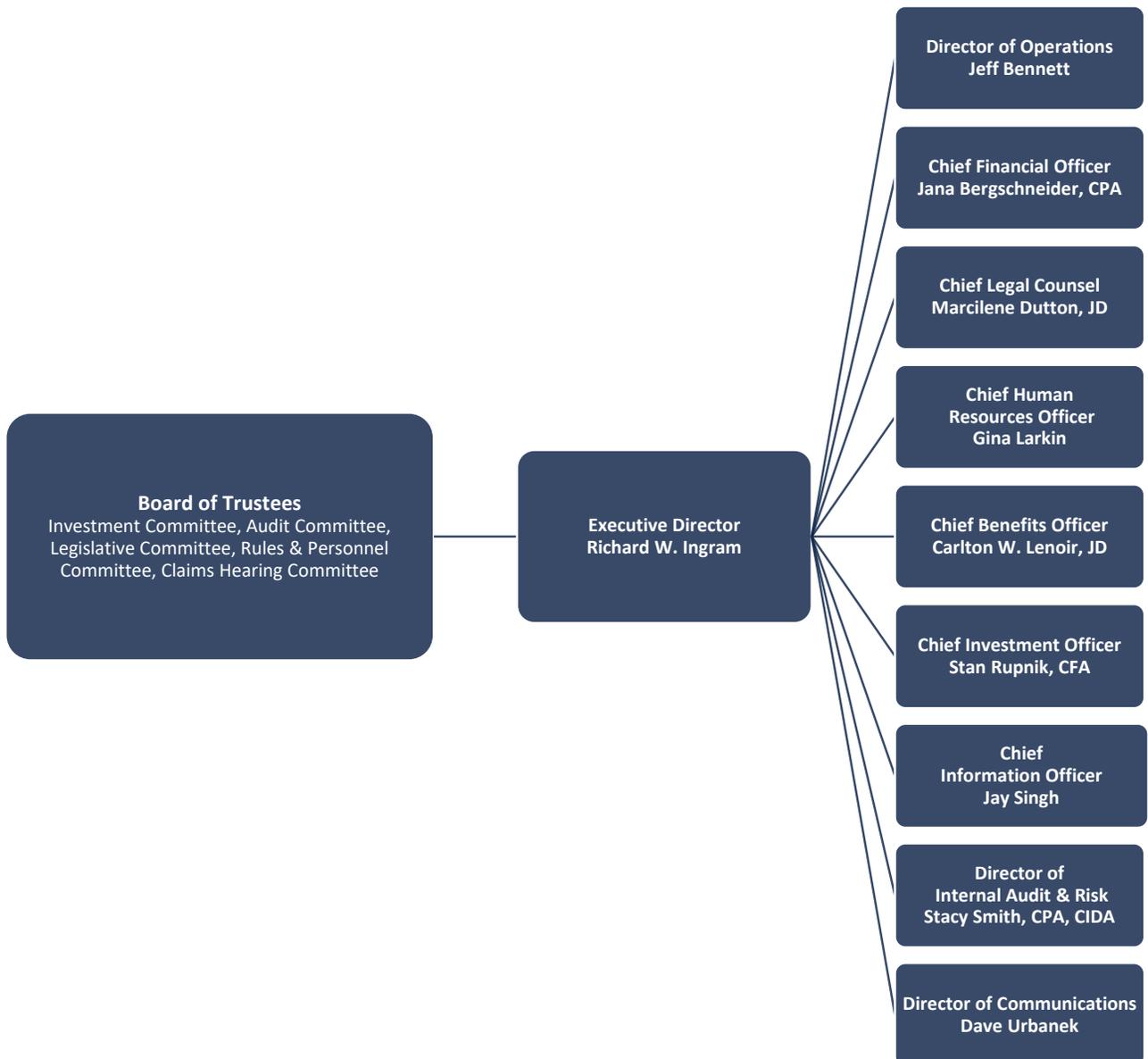


**Dave Urbanek**  
Director of  
Communications

## TRS MISSION STATEMENT

TRS will continually deliver the retirement security promised to our members by maintaining the highest and most efficient level of service and by living our values:

- Put the best interests of others first
- Diversity
- Teamwork
- Continuous improvement



## CONSULTING AND PROFESSIONAL SERVICES

### ACTUARY

The Segal Company Midwest, Inc.

### EXTERNAL AUDITORS

*(Special assistants to the Office of the Auditor General)*

BKD, L.L.P.

### LEGAL SERVICES

DLA Piper, L.L.P.

Holland & Knight, L.L.P.

Howard & Howard Attorneys, P.L.L.C.

Kopec White & Spooner

Loewenstein & Smith, P.C.

Reinhart Boerner Van Deuren

Whitt Law, L.L.C.

### LEGISLATIVE CONSULTING

Leinenweber Baroni & Daffada Consulting, L.L.C.

### INFORMATION TECHNOLOGY

Advanced Design Management Group, L.L.C.

Agile Progress, L.L.C.

Apex Systems

Blu Age Corporation

Catapult Systems, L.L.C.

Converge One, Inc.

Decker Innovations, Inc.

HSO North America, L.L.C.

Illuminative Strategies, Inc.

Levi Ray & Shoup, Inc.

Linea Solutions, Inc.

ProCircular, Inc.

Promet Solutions Corporation

Provaliant Retirement, L.L.C.

Sentinel Technologies, Inc.

### OPERATIONS

CEM Benchmarking, Inc.

Darlington & Company, Inc.

Darlington Partners, Ltd.

Higher Logic, L.L.C.

Jasculca Terman Strategic Communications

Levi Ray & Shoup, Inc.

Management Association

SABA Software

Segal Waters Public Sector

### INTERNAL AUDIT

Investment Training & Consulting Institute, Inc.

### MASTER TRUSTEE

State Street Bank and Trust Company

### SECURITIES LENDING AGENT

Citibank, N.A.

### INVESTMENT CONSULTANTS

Aksia, L.L.C. *(Diversifying strategies and private debt)*

Albourne America, L.L.C. *(Diversifying strategies through Nov. 2018)*

Stepstone Group Real Estate, L.P. *(Real estate)*

RVK, Inc. *(General investment)*

TorreyCove Capital Partners, L.L.C. *(Private equity)*

### CO-INVESTMENT ADVISORS

Stout Risius Ross, Inc. *(Private equity)*

TorreyCove Capital Partners, L.L.C. *(Private equity)*

### SECONDARY MARKET ADVISORS

Park Hill Group, L.L.C.



# FINANCIAL

## 121 WEST TRADE

Charlotte, NC

Built in 1990

Acquired in 2015

## Independent Auditor's Report

Honorable Frank J. Mautino  
Auditor General  
State of Illinois  
and  
The Board of Trustees  
Teachers' Retirement System of Illinois

### Report on the Financial Statements

As Special Assistant Auditors for the Auditor General, we have audited the accompanying Statement of Fiduciary Net Position of the Teachers' Retirement System of the State of Illinois (System), a component unit of the State of Illinois, as of June 30, 2019, and the Statement of Changes in Fiduciary Net Position for the year then ended, and the related notes to the financial statements, which collectively comprise the System's basic financial statements as listed in the table of contents.

#### *Management's Responsibility for the Financial Statements*

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

#### *Auditor's Responsibility*

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the System's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the System's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

#### *Opinion*

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of the System as of June 30, 2019, and the changes in fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

#### *Emphasis of Matter*

The actuarially determined net pension liability, calculated as required by GASB Statements No. 67, is dependent on several assumptions including the assumption that future required contributions from all sources are made based on statutory requirements in existence as of the date of this report. These assumptions are discussed in Note A.6 of the financial statements. Our opinion is not modified with respect to this matter.

## *Other Matters*

### Required Supplementary Information

Accounting principles generally accepted in the United States of America require that management's discussion and analysis, the schedule of changes in the net pension liability, the schedule of net pension liability, the schedule of contributions from employers and other contributing entities, the schedule of investment returns, and notes to required supplementary information as listed in the table of contents be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

### Other Information

Our audit for the year ended June 30, 2019 was conducted for the purpose of forming an opinion on the System's basic financial statements.

The other supplementary information in the financial section and the accompanying preface, introduction, investments, actuarial, and statistical sections, as listed in the table of contents, are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The other supplementary information in the financial section, as listed in the table of contents, has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the other supplementary information in the financial section, as listed in the table of contents, is fairly stated, in all material respects, in relation to the basic financial statements as a whole for the year ended June 30, 2019.

We have also previously audited, in accordance with auditing standards generally accepted in the United States of America, the System's basic financial statements as of and for the year ended June 30, 2018 (not presented herein) and have issued our report thereon dated December 13, 2018 which contained an unmodified opinion on those financial statements. The other supplementary information in the financial section, as listed in the table of contents, for the year ended June 30, 2018 is presented for purposes of additional analysis and is not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the June 30, 2018 financial statements. The other supplementary information in the financial section, as listed in the table of contents, have been subjected to the auditing procedures applied in the audit of the June 30, 2018 basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare those financial statements or to those financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the other supplementary information in the financial section, as listed in the table of contents, is fairly stated in all material respects in relation to the basic financial statements as a whole for the year ended June 30, 2018.

The preface, introduction, investments, actuarial and statistical sections, as listed in the table of contents, have not been subjected to the auditing procedures applied in the audit of the basic financial statements, and accordingly, we do not express an opinion or provide any assurance on them.

*BKD, LLP*

Decatur, Illinois  
December 13, 2019

## MANAGEMENT'S DISCUSSION AND ANALYSIS

This discussion and analysis of the Teachers' Retirement System of the State of Illinois provides an overview of financial activities for the fiscal year ended June 30, 2019. Please read it in conjunction with the Letter of Transmittal in the Introduction Section on page 6 and the Financial Statements and related notes that follow this discussion.

### FINANCIAL HIGHLIGHTS

- The net position of TRS at June 30, 2019 was \$53.3 billion.
- During FY19, the net position of TRS increased \$1.3 billion.
- Contributions from members, employers and the State of Illinois were \$5.5 billion, an increase of \$401 million or 7.8 percent for FY19.
- Total net investment income was \$2.6 billion, compared to \$4.0 billion in FY18, a decrease of \$1.4 billion.
- Benefits and refunds paid to members and annuitants were \$6.8 billion, an increase of \$267 million or 4.1 percent.
- The actuarial accrued liability was \$131.5 billion at June 30, 2019.
- The unfunded actuarial accrued liability was \$78.1 billion at June 30, 2019. The funded ratio was 40.6 percent at June 30, 2019. The unfunded liability and funded ratio are calculated using a smoothed value of assets, as required under Public Act 96-0043.
- The total pension liability was \$134.4 billion at June 30, 2019.
- The net pension liability was \$81.1 billion at June 30, 2019. The plan fiduciary net position, as a percentage of total pension liability, was 39.6 percent.

The Financial Statements contained in this section of the *Comprehensive Annual Financial Report* consist of:

**Statement of Fiduciary Net Position.** This statement reports the pension trust fund's net position which represents the difference between the financial statement elements comprised of assets and liabilities. It is the balance sheet for the pension system and reflects the financial position of the Teachers' Retirement System as of June 30, 2019.

**Statement of Changes in Fiduciary Net Position.** This statement details transactions that occurred during the fiscal year. It is the income statement of TRS and reflects the additions and deductions to net position recorded throughout the fiscal year. This statement supports the change in the value of net position reported on the Statement of Fiduciary Net Position.

**Notes to the Financial Statements.** The notes are an integral part of the financial statements and include additional information not readily evident in the statements themselves.

**Required Supplementary Information and Other Supplementary Information.** The required supplementary information and other supplementary information following the notes to the financial statements provide historical and additional detailed information considered useful in evaluating the pension system's financial condition.

The following are condensed comparative financial statements of the TRS pension trust fund.

## CONDENSED COMPARATIVE STATEMENTS OF FIDUCIARY NET POSITION AS OF JUNE 30

|   | 2019                           | Percentage<br>Change | 2018                           |
|---|--------------------------------|----------------------|--------------------------------|
| Cash  | \$27,358,430                   | (14.6%)              | \$32,034,294                   |
| Receivables and prepaid expenses            | 7,164,874,414                  | 22.3                 | 5,856,758,011                  |
| Investments                                 | 52,825,807,531                 | 1.4                  | 52,070,945,762                 |
| Invested securities lending collateral      | 2,540,713,046                  | 9.3                  | 2,323,876,849                  |
| Capital assets                              | <u>2,856,794</u>               | 0.2                  | <u>2,851,122</u>               |
| <b>Total assets</b>                         | <b>62,561,610,215</b>          | <b>3.8</b>           | <b>60,286,466,038</b>          |
| <b>Total liabilities</b>                    | <b><u>9,298,820,848</u></b>    | <b>11.8</b>          | <b><u>8,316,919,344</u></b>    |
| <b>Net position restricted for pensions</b> | <b><u>\$53,262,789,367</u></b> | <b>2.5%</b>          | <b><u>\$51,969,546,694</u></b> |

## CONDENSED COMPARATIVE STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION FOR THE YEARS ENDED JUNE 30

|   | 2019                           | Percentage<br>Change | 2018                           |
|---|--------------------------------|----------------------|--------------------------------|
| Contributions   | \$5,518,507,593                | 7.8%                 | \$5,117,795,720                |
| Net investment income   | <u>2,617,831,332</u>           | (35.4)               | <u>4,049,271,728</u>           |
| Total additions   | <u>8,136,338,925</u>           | (11.2)               | <u>9,167,067,448</u>           |
| Benefits and refunds  | 6,818,760,572                  | 4.1                  | 6,551,634,376                  |
| Administrative expenses                                       | <u>24,335,680</u>              | 12.9                 | <u>21,550,896</u>              |
| Total deductions  | <u>6,843,096,252</u>           | 4.1                  | <u>6,573,185,272</u>           |
| Net increase in net position                                  | 1,293,242,673                  | (50.1)               | 2,593,882,176                  |
| Net position restricted for pensions -<br>beginning of year   | <u>51,969,546,694</u>          | 5.3                  | <u>49,375,664,518</u>          |
| <b>Net position restricted for pensions -<br/>end of year</b> | <b><u>\$53,262,789,367</u></b> | <b>2.5%</b>          | <b><u>\$51,969,546,694</u></b> |

## FINANCIAL ANALYSIS

TRS was created to provide retirement, survivor and disability benefits to qualified members. Increases or decreases in the plan's net position serve as useful indicators of TRS's financial position. The net position available to pay benefits was \$53.3 billion at June 30, 2019.

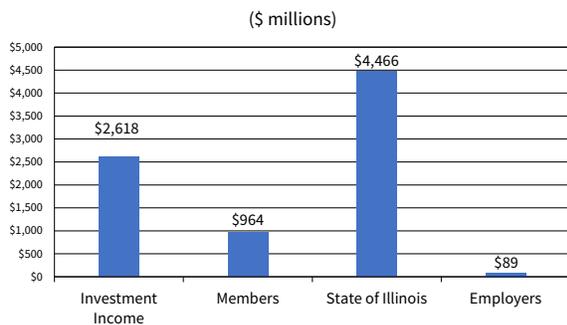
## CONTRIBUTIONS

Contributions increased \$401 million during FY19. During FY19, contributions from the State of Illinois increased \$371 million and employer contributions from school districts increased \$3.9 million.

Public Act 100-0023 requires that the impact on state contributions due to changes in actuarial assumptions be phased in over five years on a retroactive basis. Its effect was to lower the increases in both the FY18 and FY19 state contributions that would have otherwise occurred.

State funding law provides for a 50-year funding plan that includes a 15-year phase-in period and a goal of 90 percent funding in the year 2045.

### Revenues by Type for the Year Ended June 30, 2019



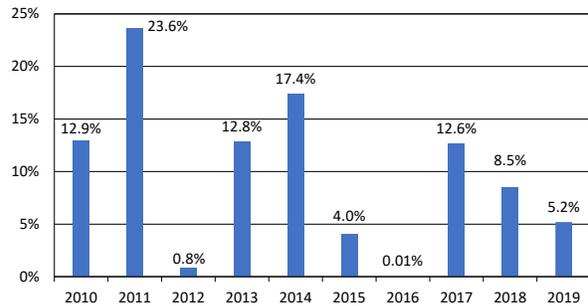
## INVESTMENTS

The TRS trust fund is invested according to law under the "prudent person rule" requiring investments to be managed solely in the interest of fund participants and beneficiaries. Principles guiding the investment of funds include preserving the long-term principal of the trust fund and maximizing total return within prudent risk parameters.

The TRS investment portfolio returned 5.2 percent, net of fees, for the fiscal year ended June 30, 2019.

Total TRS investment assets increased approximately \$0.8 billion during the year.

### Annual Rate of Return (net of investment expenses)

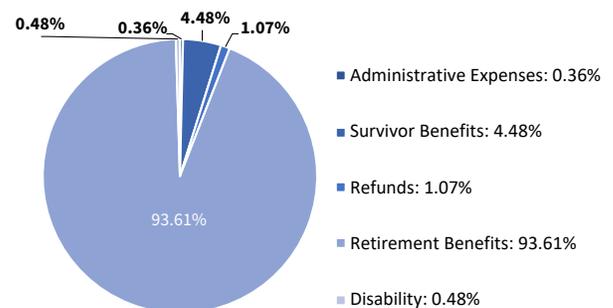


## BENEFITS AND REFUNDS

Retirement, survivor and disability benefit payments increased \$287 million during FY19. Benefit payments increased to \$6.7 billion with 124,299 recipients in FY19. The overall increase in benefit payments is due to an increase in retirement and survivor benefits as well as the number of retirees. Retirement benefits were higher as a result of annual increases in retirement benefits and an increase in the number of retirees from 110,043 as of June 30, 2018 to 111,598 as of June 30, 2019.

Refunds of contributions decreased \$20 million in FY19. The decrease during FY19 was due to most eligible members withdrawing Early Retirement Option refunds in FY17 and FY18. FY19 also had fewer contribution withdrawals.

### Deductions by Type for the Year Ended June 30, 2019



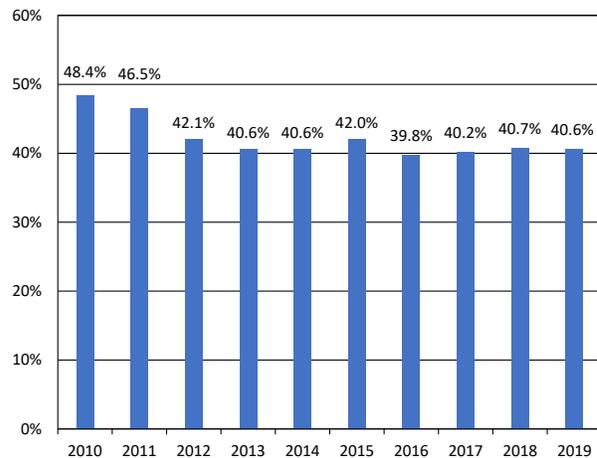
## ACTUARIAL

For statutory funding and financial reporting, an actuarial valuation is performed annually and measures the total liability for all benefits earned to date. The actuarial accrued liability is a present value estimate of all benefits earned to date but not yet paid. The actuarial accrued liability based on statutory funding requirements increased \$4.5 billion in FY19 to \$131.5 billion at June 30, 2019. The actuarial unfunded liability is the present value of accrued benefits payable that are not covered by the actuarial value of assets as of the valuation date. The actuarial unfunded liability based on the actuarial value of assets increased \$2.8 billion during FY19 to \$78.1 billion at June 30, 2019. The funded ratio reflects the percentage of the actuarial accrued liability covered by the actuarial value of assets. The funded ratio decreased from 40.7 percent on June 30, 2018 to 40.6 percent on June 30, 2019.

The actuarial unfunded liability and funded ratio are based on the actuarial value of assets. Public Act 96-0043 requires the five state retirement systems to smooth actuarial gains and losses on investments over a five-year period.

When the funded ratio was based on the fair value of assets, the reported funded ratio was impacted immediately by changes in market conditions. State funding requirements based on fair value assets also were impacted immediately and therefore were more volatile. Using the actuarial value of assets results in more stable reported funded ratios and state funding requirements over time.

## Funded Ratio Based on Actuarial Value of Assets



*The funded ratio in this chart is the ratio of actuarial assets to the actuarial liability. An increase in this ratio indicates an improvement in TRS's ability to meet future benefit obligations.*

During FY14, TRS implemented GASB Statement No. 67, "Financial Reporting for Pension Plans." As a result of implementing the new statement, TRS is required to disclose the net pension liability and total pension liability in the Financial Statement Notes and Required Supplementary Information in accordance with criteria which differs from criteria used to disclose the actuarial accrued liability and actuarial unfunded liability. The total pension liability is \$134.4 billion at June 30, 2019, while the net pension liability is \$81.1 billion at June 30, 2019.

## LEGISLATIVE

During FY19, **Gov. JB Pritzker** and the General Assembly made a number of changes to the Illinois Pension Code that will impact the continuing operations of Teachers' Retirement System.

### **ADDITIONAL EMPLOYER CONTRIBUTIONS TRIGGERED BY RAISES FOR MEMBERS CLOSE TO RETIREMENT**

For the second year in a row, the General Assembly altered a state law that greatly influences the salary increases that many school districts grant active teachers who are within four years of retirement, as well as the annual contribution employers pay to TRS.

The law in question sets a "threshold" on salary increases for TRS members if the raise would factor into the member's initial pension calculation. Typically, these raises are within a member's last four years of teaching. If a member's salary increase exceeds the threshold, the law requires the school district to pay the lifetime actuarial cost of the portion of that member's pension created by the part of the raise above the threshold. Some of these payments total several thousand dollars.

Between 2005 and 2018, the threshold on salary increases affected by the law was 6 percent. In 2018, the legislature reduced the threshold to 3 percent.

But in the spring of 2019, after a negative backlash from TRS members, lawmakers increased the threshold back to 6 percent. The 3 percent level was never implemented. TRS spent a considerable amount of time and money in the last year to reconfigure processes to administer the 3 percent threshold.

The salary increase threshold law is designed to discourage large salary increases to TRS members close to retirement that serve to boost or "spike" their initial pensions. Without the law, the long-term cost of these pension boosts would be paid by the state, not by local school districts that approved the salary increase.

### **SETTING A \$40,000 MINIMUM WAGE FOR ILLINOIS TEACHERS**

A new minimum salary for teachers across the state is designed to help alleviate the on-going shortage of teachers (Public Act 101-0443). The salary schedule will be phased in over the next four years.

In the 2020-21 school year, the minimum wage for teachers is \$32,076. In the 2021-22 year, the minimum will be \$34,576. It will increase to \$37,076 in the 2022-23 school year and finally top out at \$40,000 in the 2023-24 school year.

### **EXTENDING "RETURN-TO-WORK" RULES TO COMBAT ILLINOIS' TEACHER SHORTAGE**

To help alleviate the classroom teacher shortage problem in Illinois, a law (Public Act 101-0049) that allows retired TRS members to teach for a full school year in districts declared to be "Subject Shortage Areas" has been extended until 2021. Under the law, which was set to expire in 2019, retired educators who resume teaching in these designated districts are not subject to "return-to-work" restrictions imposed on other retirees.

### **EXTENDING THE AVAILABILITY OF MEMBER "ACCELERATED BENEFIT PAYMENT" PROGRAMS**

The time period for the two "accelerated benefit payment" programs available to TRS members – one for retiring Tier 1 members and one for all inactive members – will be extended to the end of FY24 (Public Act 101-0010). Originally, the programs were set to automatically expire at the end of FY21.

### **EXTENDING STATE HEALTH INSURANCE COVERAGE TO MEMBERS WHO TAKE AN ACCELERATED PENSION BENEFIT**

A new law (Public Act 101-0242) clarifies that if an inactive TRS member accepts an "accelerated pension benefit" and gives up their eligibility for a future retirement benefit, that member can still participate in state-administered health insurance programs if they meet all eligibility requirements.



# SKYWATER AT TOWN LAKE

Tempe, AZ

Built in 2015

Acquired in 2015

**FINANCIAL STATEMENTS**  
**TEACHERS' RETIREMENT SYSTEM OF THE STATE OF ILLINOIS**  
**STATEMENT OF FIDUCIARY NET POSITION**  
**JUNE 30, 2019**

|  | June 30, 2019           |
|--|-------------------------|
| <b>Assets</b>  |                         |
| Cash   | \$27,358,430            |
| Receivables and prepaid expenses:                      |                         |
| Member contributions                                   | 55,256,930              |
| Employer contributions                                 | 8,215,327               |
| State of Illinois                                      | 558,757,463             |
| Investment income                                      | 344,551,118             |
| Pending investment sales                               | 6,195,921,852           |
| Prepaid expenses                                       | 2,171,724               |
| Total receivables and prepaid expenses                 | 7,164,874,414           |
| Investments, at fair value:                            |                         |
| Fixed income   | 13,725,761,411          |
| Public equities  | 17,823,681,423          |
| Alternative investments                                | 19,635,394,819          |
| Derivatives  | (55,888,377)            |
| Short-term investments                                 | 1,601,845,805           |
| Foreign currency                                       | 95,012,450              |
| Total investments                                      | 52,825,807,531          |
| Invested securities lending collateral:                |                         |
| Securities lending collateral                          | 2,485,824,046           |
| Securities lending collateral with the State Treasurer | 54,889,000              |
| Total invested securities lending collateral           | 2,540,713,046           |
| Capital assets, net of accumulated depreciation        | 2,856,794               |
| <b>Total assets</b>                                    | <b>62,561,610,215</b>   |
| <b>Liabilities</b>                                     |                         |
| Benefits and refunds payable                           | 6,844,767               |
| Administrative and investment expenses payable         | 44,756,293              |
| Pending investment purchases                           | 6,706,535,186           |
| Securities lending collateral                          | 2,540,684,602           |
| <b>Total liabilities</b>                               | <b>9,298,820,848</b>    |
| <b>Net position restricted for pensions</b>            | <b>\$53,262,789,367</b> |

See accompanying Notes to Financial Statements.

**TEACHERS' RETIREMENT SYSTEM OF THE STATE OF ILLINOIS  
STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
FOR THE YEAR ENDED JUNE 30, 2019**

|   | June 30, 2019           |
|---|-------------------------|
| <b>Additions</b>                            |                         |
| Contributions:                              |                         |
| Members                                     | \$963,972,120           |
| State of Illinois                           | 4,466,020,692           |
| Employers                                   |                         |
| Early retirement                            | 32,449                  |
| Federal funds                               | 18,472,267              |
| 2.2 benefit formula                         | 62,744,266              |
| Excess employer costs                       | 7,265,799               |
| <b>Total contributions</b>                  | <u>5,518,507,593</u>    |
| Investment income:                          |                         |
| Net increase in fair value of investments   | 1,491,025,634           |
| Alternatives income                         | 975,251,437             |
| Interest and dividends                      | 924,617,550             |
| Other investment income                     | 35,183,396              |
| Securities lending income                   | 11,541,157              |
| Less investment expenses:                   |                         |
| Alternatives expense                        | (470,341,524)           |
| Direct investment expense                   | (348,753,860)           |
| Securities lending management fees          | (692,458)               |
| Net investment increase                     | <u>2,617,831,332</u>    |
| <b>Total additions</b>                      | <u>8,136,338,925</u>    |
| <b>Deductions</b>                           |                         |
| Retirement benefits                         | 6,405,907,842           |
| Survivor benefits                           | 306,502,713             |
| Disability benefits                         | 33,133,627              |
| Refunds                                     | 73,216,390              |
| Administrative expenses                     | 24,335,680              |
| <b>Total deductions</b>                     | <u>6,843,096,252</u>    |
| Net increase in net position                | 1,293,242,673           |
| <b>Net position restricted for pensions</b> |                         |
| Beginning of year                           | <u>51,969,546,694</u>   |
| <b>End of year</b>                          | <u>\$53,262,789,367</u> |

See accompanying Notes to Financial Statements.

# NOTES TO FINANCIAL STATEMENTS

## A. PLAN DESCRIPTION

### 1. REPORTING ENTITY

The Teachers' Retirement System of the State of Illinois (TRS) is the administrator of a cost-sharing, multiple-employer defined benefit public employee retirement system (PERS). Membership is mandatory for all full-time, part-time and substitute public school personnel employed outside of Chicago in positions requiring licensure. Persons employed at certain state agencies and certain non-government entities also are members. Established by the State of Illinois, TRS is governed by the Illinois Pension Code (40 ILCS 5/16). TRS is a component unit of the State of Illinois and is included in the State's financial statements as a pension trust fund.

TRS uses criteria established by the Governmental Accounting Standards Board (GASB) to determine whether other entities should be included within its financial reporting entity. Based on the criteria, TRS includes no other entities in these financial statements.

### 2. EMPLOYERS

Members of TRS are employed by school districts, special districts, certain state agencies and certain non-governmental entities. Each employer remits member contributions to TRS.

Employers are responsible for employer contributions for:

- Teachers paid from federal funds.
- The 2.2 formula increase.
- Salary increases in excess of 6 percent. When a member retires, the employer is required to pay TRS contributions equal to the actuarial value of a pension benefit that results from any salary increase over 6 percent that is used in a retiring member's final average salary calculation. Several permanent exemptions are in effect for excess salary increases.
- Sick leave days received in excess of the normal annual allotment and applied to service credit for members in their final four years prior to retirement.

- Any portion of a member's salary that is greater than the governor's statutory salary.

In addition, the State of Illinois is a nonemployer contributing entity that provides employer contributions on behalf of the System's employers. For information about employer contributions made by the State of Illinois, see "Schedule of Contributions from Employers and Other Contributing Entities" within the Required Supplementary Information (RSI) section of this report.

The state's statutory contribution requirements are described in the Actuarial Section under "Actuarial Standards and Illinois State Pension Funding."

### Number of Employers (as of June 30)

|                        | 2019       |
|------------------------|------------|
| Local school districts | 851        |
| Special districts      | 127        |
| State agencies         | 12         |
| <b>Total</b>           | <b>990</b> |

### 3. MEMBERS

#### TRS Membership (as of June 30)

|                            | 2019           |
|----------------------------|----------------|
| Retirees and beneficiaries | 124,299        |
| Inactive members           | 136,178        |
| Active members             | 163,027        |
| <b>Total</b>               | <b>423,504</b> |

### 4. BOARD OF TRUSTEES

TRS is governed by a 13-member board of trustees. Trustees include the state superintendent of education, six trustees appointed by the governor, four trustees elected by contributing TRS members and two trustees elected by TRS annuitants.

The president of the TRS Board of Trustees, by law, is the Illinois superintendent of education. The board elects its vice president from among its members. The board appoints an executive director who also serves as the secretary of the board. The executive director is responsible for daily operations at TRS.

## 5. BENEFIT PROVISIONS

Governed by the Illinois Pension Code (40 ILCS 5/16), which is subject to amendment by the Illinois General Assembly and approval by the governor, TRS provides retirement, death and disability benefits. Membership is mandatory for all full-time, part-time and substitute public school personnel who are licensed and employed in Illinois outside the city of Chicago.

Public Act 96-0889, which was signed into law in the spring of 2010, added a new section to the Pension Code that applies different benefits to anyone who first contributes to TRS on or after Jan. 1, 2011 and does not have any previous service credit with one of the reciprocal retirement systems in Illinois. Members who first participate on or after that date are members of Tier 2.

The act does not apply to anyone who made contributions to TRS prior to Jan. 1, 2011. They remain participants of Tier 1.

Tier 3 was created in July 2017. It is a hybrid retirement plan with both defined benefit and defined contribution plan components.

### TIER 1 BENEFITS

A member qualifies for an age retirement annuity after meeting one of the following requirements: age 62 with five years of service credit; age 60 with 10 years; or age 55 with 20 years. If a member retires between the ages of 55 and 60 with fewer than 35 years of service, the annuity will be reduced at the rate of 0.50 percent for each month the member is under age 60. A member with fewer than five years of creditable service and service on or after July 1, 1947, is entitled to a single-sum benefit payable at age 65.

A retirement benefit is determined by the average of the four highest consecutive years of creditable earnings within the last 10 years of creditable service and the percentage of average salary to which the member is entitled. Most members retire under a formula that provides 2.2 percent of final average salary up to a maximum of 75 percent

with 34 years of service. The 2.2 percent formula became effective July 1, 1998 but service earned before that date can be upgraded to the 2.2 formula with a member contribution. The cost of the upgrade can be reduced if members upgrade and continue teaching after 1998. A graduated formula applies to service earned before 1998 and provides a maximum benefit of 75 percent of average salary with 38 years of service.

Tier 1 members who contributed to TRS before July 1, 2005 receive a money purchase (actuarial) benefit if it provides a higher benefit than the 2.2 or graduated formulas. The 75 percent cap does not apply to the money purchase benefit.

All Tier 1 retirees receive an annual 3 percent increase in the current retirement benefit beginning Jan. 1 following the attainment of age 61 or on Jan. 1 following the member's first anniversary in retirement, whichever is later.

Disability and death benefits are provided.

If a member leaves covered employment, TRS will refund a member's retirement contributions upon request. The refund consists of actual contributions, excluding the 1 percent death benefit contribution.

Effective July 1, 2017, Tier 1 members contribute 9.0 percent of their creditable earnings to TRS and an additional contribution to a retiree health insurance program that is not administered by TRS.

### TIER 2 BENEFITS

Differences with Tier 1 include raising the minimum eligibility to draw a retirement benefit to age 67 with 10 years of service. A discounted annuity can be paid at age 62 with 10 years of service. The Tier 2 law caps creditable earnings and contributions used for retirement purposes at a level that is lower than the Social Security wage base. Tier 2 annual increases will be the lesser of 3 percent or ½ percent of the rate of inflation of the original benefit beginning Jan. 1 following attainment of age 67 or on Jan. 1 following the member's first anniversary in retirement, whichever is later.

The 2.2 retirement formula also applies to Tier 2 but the final average salary is based on the highest consecutive eight years of creditable service rather than the highest consecutive four years of salary. The single-sum benefit also is payable at age 65 to Tier 2 members with fewer than five years of service. The money purchase (actuarial) benefit is not available to Tier 2 members.

Disability and refund provisions for Tier 2 are identical to those that apply to Tier 1. Death benefits are payable under a formula that is different from Tier 1.

Effective July 1, 2017, Tier 2 members contribute 9.0 percent of their creditable earnings to TRS and an additional contribution to a retiree health insurance program that is not administered by TRS.

### **TIER 3 BENEFITS**

Enacted in July of 2017, the Tier 3 benefit is designed to be a hybrid retirement plan with two parts – a defined benefit (DB) pension and a defined contribution (DC) savings plan.

Under the law, Tier 3 members would make payroll contributions to their DB pensions that are based on the full cost of this part of the benefit, but no more than 6.2 percent of salary. In addition, Tier 3 members would contribute a minimum of 4 percent of their pay to the DC portion of the plan.

At retirement, TRS members would receive a pension and be able to access funds from their DC savings account as they see fit.

However, an implementation date for Tier 3 has not been set. As written, the current language of the Tier 3 statute inadvertently conflicts with other provisions of the Illinois Pension Code. Until these differences are corrected by the legislative and executive branches, Tier 3 cannot be implemented.

## **6. ACTUARIAL MEASUREMENTS**

The Schedule of Changes in the Net Pension Liability, Schedule of the Net Pension Liability and the Schedule of Contributions from Employers and Other Contributing Entities may be found in

the Required Supplementary Information. Other schedules pertaining to the System's funded status are in the Actuarial section.

Member, employer and state contributions are statutorily defined by the Illinois Pension Code (40 ILCS 5/16), which is subject to amendment by the Illinois General Assembly with approval by the governor. Since July 1, 1995, state appropriations have been made through a continuing appropriation.

Member contributions are allocated as follows: 7.5 percent for retirement; 0.5 percent for post-retirement increases; and 1 percent for death benefits.

Employer contributions are made by or on behalf of employers from several sources. The State of Illinois provides the largest source of contributions through state appropriations from the Common School Fund. Employers also make contributions for the 2.2 benefit formula and for teachers who are paid from federal funds. Additionally, employers contribute their portion of any excess salary increase or sick leave costs due and the total employer normal cost on salaries exceeding the governor's salary.

State funding law provides for a 50-year funding plan that includes a 15-year phase-in period.

Public Act 96-0043, which was effective July 15, 2009, requires TRS to use a five-year smoothing method for asset valuation beginning on June 30, 2009. State contribution requirements were first affected by this change in FY11.

Public Act 100-0023, which was effective July 6, 2017, requires the impact on state contributions due to changes in actuarial assumptions to be phased in over five years. State contribution requirements were first affected by this change in FY18. The FY18 requirement was recertified in January 2018 due to the new law.

Administrative expenses are budgeted and approved by the TRS Board of Trustees. Funding for these expenses is included in the employer

contribution, as determined by the annual actuarial valuation.

### PENSION LIABILITY

The actuarial assumptions included in the June 30, 2019 actuarial valuation were used to calculate the June 30, 2019 total pension liability. The investment return assumption of 7.0 percent is unchanged in the 2019 actuarial valuation.

The investment return assumption for the 2019 actuarial valuation is based on the 2017 asset allocation conducted by the TRS investment consultant and additional analysis conducted by the actuary in 2018 and 2019.

Assumptions used to calculate the June 30, 2019 total pension liability were nearly identical to those used in the June 30, 2018 calculation, as discussed later in this section.

As of June 30, 2019, the assumption for future investment returns was 7.0 percent, a rate unchanged from June 30, 2018. The TRS actuary used the following assumed rates of returns by asset class, excluding 2.50 percent for the assumed rate of inflation as well as investment expenses.

#### Expected Arithmetic Real Returns Over 20 Years

| Asset Class                      | Allocation | Return |
|----------------------------------|------------|--------|
| U.S. equities large cap          | 15.0%      | 6.3%   |
| U.S. equities small/mid cap      | 2.0        | 7.7    |
| International equities developed | 13.6       | 7.0    |
| Emerging market equities         | 3.4        | 9.5    |
| U.S. bonds core                  | 8.0        | 2.2    |
| U.S. bonds high yield            | 4.2        | 4.0    |
| International debt developed     | 2.2        | 1.1    |
| Emerging international debt      | 2.6        | 4.4    |
| Real estate                      | 16.0       | 5.2    |
| Real return                      | 4.0        | 1.8    |
| Absolute return                  | 14.0       | 4.1    |
| Private equity                   | 15.0       | 9.7    |

If the plan's assets are not sufficient to cover all benefit payments to current plan members, GASB Statement No. 67 requires the discount rate to be

different from the assumed rate of return. Instead, the discount rate would be a blended rate, which includes the long-term expected rate of return and a municipal bond rate (the Bond Buyer's 20-Bond GO Index) as of the end of the current fiscal year. Based on the following projections, the System can use the long-term expected rate of return as the discount rate for the year ended June 30, 2019, as it did for the prior year.

TRS, with the assistance of the System's actuary, projected that the plan's fiduciary net position will provide for all benefit payments to current plan members. Projected contributions assume that all statutorily required contributions are made through FY21 including projected contributions from members, employers and the State of Illinois (nonemployer contributing entity). Projected state contributions reflect the changes enacted in Public Acts 100-0023, 100-0340, 100-0587 and 101-0010. However, the projections do not include any assumptions about the utilization of Tier 3 under PA 100-0023.

Estimated contributions from employers and the State of Illinois, of which the majority of the contributions (approximately 98 percent) are provided by the State of Illinois, are projected to be \$4.8 billion in FY20, \$5.1 billion in FY21 and grow to \$10.9 billion by FY45 based on present statutory requirements for current members. Tier 1's liability is partially funded by Tier 2 because the Tier 2 contributions are higher than the cost of Tier 2 benefits. Due to this subsidy, contributions from future members in excess of the service cost are also included in the determination of the discount rate.

The actuarial cost method required for financial reporting purposes is the entry age normal method. For TRS, total pension liability (TPL) is developed and rolled forward to the valuation date based on member census data one year prior. TPL is projected to the June 30, 2019 measurement date based on census data as of June 30, 2018. Assets, referred to as plan fiduciary net position, are measured at fair value.

## Net Pension Liability

|  | June 30, 2019           |
|--|-------------------------|
| Total pension liability  | \$134,370,954,628       |
| Plan fiduciary net position  | 53,262,789,367          |
| Net pension liability  | <u>\$81,108,165,261</u> |
| Plan fiduciary net position as a percentage of the total pension liability | 39.6%                   |

## Sensitivity of the Net Pension Liability to Changes in the Discount Rate

|                       | 1% Decrease      | Current          | 1% Increase      |
|-----------------------|------------------|------------------|------------------|
| Discount rate         | 6.0%             | 7.0%             | 8.0%             |
| Net pension liability | \$99,066,519,428 | \$81,108,165,261 | \$63,228,760,783 |

Most of the actuarial assumptions used in the June 30, 2019 actuarial valuation are based on the actuarial experience analysis dated September 2018 that covered the period July 1, 2014 through June 30, 2017. The 2019 actuarial valuation slightly reduced the utilization assumption for the automatic annual increase buyout provision and extended the assumed buyout period to June 30, 2022 in connection with the expectation that the funds available for the buyouts are limited to \$650 million. The investment return assumption of 7.0 percent did not change from the June 30, 2018 actuarial valuation.

## Actuarial Assumptions Used for Financial Reporting Disclosure

| Actuarial Valuation Date       | June 30, 2019  |
|--------------------------------|--|
| <b>Census Date:</b>            | June 30, 2018 with total pension liability projected to June 30, 2019  |
| <b>Actuarial Cost Method:</b>  | For financial reporting purposes Entry age normal  |
| <b>Asset Valuation Method:</b> | For financial reporting purposes Fair value as of valuation date   |
| <b>Actuarial Assumptions:</b>  |  |
| Investment rate of return      | 7.0% adopted effective June 30, 2016   |
| Real rate of investment return | 4.5%   |
| Projected salary increases     | 9.50% with 1 year of service to 4.0% with 20 or more years of service. Includes inflation and real wage growth (productivity) assumptions. |
| Group size growth rate         | 0%   |
| Assumed inflation rate         | 2.5%   |
| Post-retirement increase       | Tier 1: 3%, compounded;<br>Tier 2: 1.25%, not compounded   |
| <b>Mortality table:</b>        | RP - 2014 with future mortality improvements on a fully generational basis using projection table MP-2017.                                 |

## **B. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

### **1. BASIS OF ACCOUNTING**

The financial transactions of TRS are recorded using the economic resources measurement focus and the accrual basis of accounting. Member and employer contributions are recognized as revenues when due pursuant to statutory or contractual requirements. Benefits and refunds are recognized as expenses when they are due and payable in accordance with the terms of the plan.

### **2. USE OF ESTIMATES**

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements as well as the reported amounts of additions to and deductions from net position during the reporting period. Actual results could differ from these estimates. TRS uses an actuary to determine the total pension liability for the defined benefit plan and to determine the actuarially-required contribution.

### **3. RISKS AND UNCERTAINTIES**

TRS investments are diversified and include various investment securities. Investment securities are exposed to a variety of risk including credit, market and interest rate risk. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that value changes will occur in the near-term and such changes could materially affect the amounts reported in the Statement of Fiduciary Net Position.

### **4. NEW ACCOUNTING PRONOUNCEMENTS**

TRS was not required to implement any new accounting pronouncements in FY19.

### **5. METHOD USED TO VALUE INVESTMENTS**

TRS reports investments at fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Fair value for publicly traded real return funds, equities, foreign currency and exchange traded derivatives is determined by using the closing price listed on national securities exchanges as of June 30. Fair value for most of fixed income securities and over-the-counter derivatives is determined primarily by using quoted market prices provided by independent pricing services. Short-term investments are generally reported at amortized cost, which approximates fair value. Appraisals are used to determine fair value on directly-owned real estate investments. Fair value for private equity investments, absolute return funds, non-publicly traded real return funds and partnership interests in real estate funds is determined by TRS staff and the general partners or investment managers in accordance with the provisions in the individual agreements. These agreements also require that an independent audit be performed on an annual basis.

### **6. CAPITAL ASSETS**

Equipment is stated on the basis of historical cost. Depreciation is computed using the straight-line method based upon the estimated useful lives of the assets. Capital assets activity for the year ended June 30, 2019 was as follows:

|   | Beginning Balance         | Additions/ Transfers In | Disposals/ Transfers Out | Ending Balance            |
|---|---------------------------|-------------------------|--------------------------|---------------------------|
| <b>Capital Assets, not depreciated:</b>                                 |                           |                         |                          |                           |
| Land  | \$235,534                 | \$ -                    | \$ -                     | \$235,534                 |
| Mineral Lease Rights  | 2,643                     | -                       | -                        | 2,643                     |
|   | <u>238,177</u>            | <u>-</u>                | <u>-</u>                 | <u>238,177</u>            |
| <b>Capital Assets, depreciated:</b>                                     |                           |                         |                          |                           |
| Office building   | 8,462,484                 | 221,973                 | -                        | 8,684,457                 |
| Site improvements   | 1,127,708                 | -                       | -                        | 1,127,708                 |
| Equipment and furniture   | 2,849,869                 | 304,947                 | 106,593                  | 3,048,223                 |
| Purchased Software  | 310,045                   | -                       | -                        | 310,045                   |
| Internally Generated Software (IGS)                                     | 2,125,522                 | 356,885                 | -                        | 2,482,407                 |
|   | <u>14,875,628</u>         | <u>883,805</u>          | <u>106,593</u>           | <u>15,652,840</u>         |
| Less accumulated depreciation:  |                           |                         |                          |                           |
| Office building   | 7,144,767                 | 352,691                 | -                        | 7,497,458                 |
| Site improvements   | 818,706                   | 70,988                  | -                        | 889,694                   |
| Equipment and furniture   | 2,469,872                 | 203,502                 | 106,178                  | 2,567,196                 |
| Purchased Software  | 310,045                   | -                       | -                        | 310,045                   |
| Internally Generated Software (IGS)                                     | 1,521,293                 | 248,537                 | -                        | 1,769,830                 |
|   | <u>12,264,683</u>         | <u>875,718</u>          | <u>106,178</u>           | <u>13,034,223</u>         |
| <b>Total Net Capital Assets</b>   | <b><u>\$2,849,122</u></b> | <b><u>\$8,087</u></b>   | <b><u>\$415</u></b>      | <b><u>\$2,856,794</u></b> |
| Office building and site improvements (\$25,000 or greater capitalized) |                           |                         | 10-40 years              |                           |
| Equipment and furniture (\$5,000 or greater capitalized)                |                           |                         | 3-10 years               |                           |
| Software (\$25,000 or greater capitalized)                              |                           |                         | 3-5 years                |                           |

## 7. COMPENSATED ABSENCES

When employment is terminated, TRS employees are entitled to receive compensation for all accrued unused vacation time and one-half of all unused sick leave earned through Dec. 31, 1997. (Lump-sum payments for sick leave earned prior to Jan. 1, 1984, are subject to a maximum of 60 days or 420 hours.) Sick time earned after Dec. 31, 1997 is not compensable at termination.

At June 30, 2019, the System had a liability of \$1,977,395 for compensated absences. The liability is included in administrative and investment expenses payable on the Statement of Fiduciary Net Position. For non-investment staff, the

increase or decrease in liability is reflected in the financial statements as administrative expense. For investment staff, the increase or decrease is reflected as investment expense. Compensated absences payable for the year ended June 30, 2019 was as follows:

|  | Beginning Balance | Additions   | Reductions  | Ending Balance |
|--|-------------------|-------------|-------------|----------------|
| Compensated absences payable                           | \$2,050,178       | \$1,026,164 | \$1,098,947 | \$1,977,395    |
| The estimated amount due within one year is: \$116,700 |                   |             |             |                |

## 8. RECEIVABLES

Receivables consist primarily of 1) member and employer contributions owed and yet to be remitted by the employing districts, 2) interest, dividends, real estate and private equity income owed to TRS, 3) appropriations not yet received from the State of Illinois as of June 30 and 4) pending investment sales.

TRS assesses penalties for late payment of contributions and may collect any unpaid amounts from the employing districts by filing a claim with the appropriate regional superintendent of education or the Office of the Comptroller against future state aid payments to the employer. TRS considers these amounts to be fully collectible.

## 9. RISK MANAGEMENT

TRS, as a component unit of the State of Illinois, provides for risks of loss associated with workers' compensation and general liability through the State's self-insurance program. TRS obtains commercial insurance for fidelity, surety and property. No material commercial insurance claims have been filed in the last three fiscal years.

## C. CASH

Custodial credit risk for deposits is the risk that, in the event of a bank failure, TRS's deposits may not be returned. TRS has a formal policy to address custodial credit risk. The policy is designed to minimize custodial credit risk through proper due diligence of custody financial institutions and investment advisors; segregate safekeeping of TRS assets; establish investment guidelines and work to have all investments held in

custodial accounts through an agent, in the name of custodian's nominee, in a corporate depository or federal book entry account system. For those investment assets held outside of the custodian, TRS will follow the applicable regulatory rules.

The non-investment bank balance and carrying amount of TRS's deposits was \$27,984,061 and \$27,358,430, respectively, at June 30, 2019. All of the bank balance was on deposit with the State Treasurer at June 30, 2019. State Treasurer deposits are in an internal investment pool collateralized at a third-party custodial bank and are not subject to custodial credit risk.

Certain investments of TRS with maturities of 90 days or less would be considered cash equivalents; these consist of bank-sponsored, short-term investment funds, commercial paper and certificates of deposit. For financial statement presentation and investment purposes, TRS reports its cash equivalents as short-term investments in the Statement of Fiduciary Net Position. Included in the reported balances is the State Street Global Advisors Short-Term Investment Fund (STIF) with a value of \$1,414,878,655 at June 30, 2019. The STIF fund has an average credit quality rating of A1P1 and a weighted average maturity of 42.0 days.

For purposes of this disclosure, foreign currency held by investment managers is considered a deposit. However, for financial statement presentation and investment purposes, TRS considers foreign currency an investment asset. Uncollateralized foreign currency subject to custodial credit risk was \$95,012,450 at June 30, 2019.

## D. INVESTMENTS

### 1. INVESTMENT POLICIES

Through the TRS Board of Trustees, as authorized in the Illinois Pension Code, TRS serves as fiduciary for the members' trust funds and is responsible for investment of those funds by authority of the "prudent person rule." This rule establishes a standard for all fiduciaries by specifying fiduciary responsibility with regard to the members' trust funds.

## LONG-TERM ASSET ALLOCATION

The TRS Board of Trustees has the responsibility of establishing and maintaining broad policies and objectives for all aspects of the System's operations, including the allocation of invested assets. Plan assets are managed on a total return basis with a long-term objective of achieving and maintaining a fully-funded status for the benefits provided through the pension plan. The following table summarizes the board-adopted, long-term allocation targets in effect as of June 30, 2019.

| Long-term Asset Allocation Policy Mix |                    |
|---------------------------------------|--------------------|
| Equity investments                    | 54%                |
| Real assets                           | 15                 |
| Diversifying strategies               | 14                 |
| Income investments                    | 17                 |
| <b>Total</b>                          | <b><u>100%</u></b> |

## 2. INVESTMENT RISK

### CUSTODIAL CREDIT RISK

Custodial credit risk for investments is the risk that, in the event of a financial institution failure, TRS would not be able to recover the value of the investments in the possession of an outside party. The TRS investment policy adopted by the TRS Board of Trustees includes a formal process to address custodial credit risk. This policy requires the custodian to provide safekeeping of the System's assets in segregated accounts and to have the assets registered in TRS's name, custodian's nominee name or in a corporate depository or federal book entry system.

### CONCENTRATION OF CREDIT RISK

Concentration of credit risk is the risk of loss that may be attributed to the magnitude of an investment in any one issuer. Investment parameters established in the Investment Management Agreements with external managers restrict holdings to no more than 5 percent of a single issuer within an account. The TRS portfolio has no investments in any one issuer that comprise 5 percent or more of the System's total investments or fiduciary net position.

## CREDIT RISK

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations to TRS. Credit risk exposure is dictated by each investment manager's agreement. Each portfolio is managed in accordance with investment guidelines that are specific as to permissible credit quality ranges, exposure levels within individual security quality rating tiers and/or the average credit quality of the overall portfolio. Most guidelines allow managers to hold bonds rated Caa2 or better. However, in circumstances where position downgrades occur, investment managers have been given permission to hold securities below this rating due to circumstances such as a higher peer group rating from another nationally-recognized statistical rating organization, the investment manager's internal ratings or other mitigating factors.

As of June 30, 2019, TRS held the following fixed income investments with respective Moody's quality ratings or equivalent rating. Obligations of the U.S. government or obligations explicitly guaranteed by the U.S. government are not considered to have credit risk.

| Quality Rating  | Corporate Debt Securities | Asset-Backed Securities | Foreign Debt Securities | U.S. Agency Obligations | U.S. Government Backed |                     | Commingled Funds       | Total                   |
|---|---------------------------|-------------------------|-------------------------|-------------------------|------------------------|---------------------|------------------------|-------------------------|
|   |                           |                         |                         |                         | Mortgages              | Municipals          |                        |                         |
| Aaa   | \$539,800,416             | \$294,081,167           | \$88,226,736            | \$119,472,014           | \$599,118,460          | \$2,941,824         | \$ -                   | \$1,643,640,617         |
| Aa1   | 22,813,781                | 4,112,317               | 17,393,145              | -                       | -                      | 24,933,843          | -                      | 69,253,086              |
| Aa2   | 120,884,130               | 3,521,358               | 261,605,569             | -                       | -                      | 10,904,233          | 69,076,528             | 465,991,818             |
| Aa3   | 60,497,650                | -                       | 83,339,501              | -                       | -                      | 13,993,504          | -                      | 157,830,655             |
| A1  | 192,406,120               | 421,728                 | 164,317,350             | -                       | -                      | 5,440,695           | 434,714,090            | 797,299,983             |
| A2  | 474,718,027               | 3,911,353               | 74,825,832              | -                       | -                      | 16,950,142          | -                      | 570,405,354             |
| A3  | 518,032,458               | 3,970,446               | 259,517,654             | -                       | -                      | 1,231,746           | 19,007,511             | 801,759,815             |
| Baa1  | 245,867,666               | -                       | 145,989,311             | -                       | -                      | 11,122,501          | -                      | 402,979,478             |
| Baa2  | 451,067,906               | 691,863                 | 557,047,523             | -                       | -                      | 851,252             | 304,692,744            | 1,314,351,288           |
| Baa3  | 454,797,438               | 1,305,353               | 461,905,620             | -                       | -                      | 1,452,787           | 87,853,977             | 1,007,315,175           |
| Ba1   | 104,130,478               | 894,119                 | 88,021,594              | -                       | -                      | 3,199,187           | -                      | 196,245,378             |
| Ba2   | 48,974,536                | -                       | 313,478,558             | -                       | -                      | -                   | -                      | 362,453,094             |
| Ba3   | 157,294,722               | 883,761                 | 145,229,187             | -                       | -                      | -                   | 414,998,639            | 718,406,309             |
| B1  | 103,494,079               | 200,305                 | 154,470,413             | -                       | -                      | -                   | 446,040,310            | 704,205,107             |
| B2  | 90,184,667                | -                       | 392,645,713             | -                       | -                      | -                   | 106,207,901            | 589,038,281             |
| B3  | 52,556,642                | -                       | 191,186,835             | -                       | -                      | -                   | 573,580,088            | 817,323,565             |
| Caa1  | 27,541,202                | -                       | 54,356,765              | -                       | -                      | -                   | -                      | 81,897,967              |
| Caa2  | 6,291,872                 | 405,372                 | 242,650                 | -                       | -                      | -                   | -                      | 6,939,894               |
| Caa3  | 4,611,908                 | -                       | 627,369                 | -                       | -                      | -                   | -                      | 5,239,277               |
| Ca  | 1,016,072                 | 2,177,829               | 2,399,589               | -                       | -                      | -                   | 2,467,611              | 8,061,101               |
| C   | 4,616,669                 | 67,269                  | 3,407,287               | -                       | -                      | -                   | -                      | 8,091,225               |
| Not available   | -                         | -                       | -                       | -                       | -                      | -                   | 1,506,324,273          | 1,506,324,273           |
| Not rated   | 19,066,451                | 9,046,104               | 21,332,742              | -                       | -                      | -                   | -                      | 49,445,297              |
| Withdrawn   | 3,521,784                 | -                       | 1,708,946               | -                       | -                      | -                   | -                      | 5,230,730               |
| <b>Total credit risk, bonds, corporate notes and government obligations</b> | <b>3,704,186,674</b>      | <b>325,690,344</b>      | <b>3,483,275,889</b>    | <b>119,472,014</b>      | <b>599,118,460</b>     | <b>93,021,714</b>   | <b>3,964,963,672</b>   | <b>12,289,728,767</b>   |
| U.S. Treasuries   |                           |                         |                         |                         |                        |                     |                        | 1,436,032,644           |
| <b>Total bonds, corporate notes &amp; government obligations</b>            | <b>\$3,704,186,674</b>    | <b>\$325,690,344</b>    | <b>\$3,483,275,889</b>  | <b>\$119,472,014</b>    | <b>\$599,118,460</b>   | <b>\$93,021,714</b> | <b>\$3,964,963,672</b> | <b>\$13,725,761,411</b> |

## INTEREST RATE RISK

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. TRS's fixed income investments are managed in accordance with operational guidelines that are specific as to the degree of interest rate risk that can be taken. TRS manages the interest rate risk within the portfolio using various methods including effective duration, option adjusted duration, average maturity and segmented time distribution, which reflect the total fair value of investments maturing during a given time period.

The segmented time distribution of the various investment types of TRS debt securities as of June 30, 2019 is as follows:

| Type   | 2019<br>Fair Value             | Maturity in Years           |                               |                               |                             |                               | Other*                        |
|--|--------------------------------|-----------------------------|-------------------------------|-------------------------------|-----------------------------|-------------------------------|-------------------------------|
|  |                                | Less Than<br>1 year         | 1 to<br>5 years               | 5 to<br>10 years              | 10 to<br>20 years           | More Than<br>20 years         |                               |
| U.S. treasuries/agencies   | \$1,555,504,658                | \$264,493,946               | \$504,420,005                 | \$523,237,521                 | \$58,427,498                | \$204,925,688                 | \$ -                          |
| U.S. government-backed mortgages   | 599,118,460                    | 767,662                     | 8,111,543                     | 10,676,293                    | 46,820,280                  | 532,742,682                   | -                             |
| Municipals   | 93,021,714                     | 277,005                     | 4,872,344                     | 10,577,853                    | 33,115,944                  | 44,178,568                    | -                             |
| Asset-backed securities  | 325,690,344                    | 1,217,377                   | 224,372,765                   | 47,140,829                    | 34,705,065                  | 18,254,308                    | -                             |
| Commingled funds (U.S. & international)**  | 3,964,963,672                  | -                           | 1,906,753,078                 | 880,169,985                   | -                           | -                             | 1,178,040,609                 |
| Corporate debt securities  | 3,704,186,674                  | 286,555,895                 | 1,750,867,097                 | 936,117,957                   | 306,951,870                 | 423,693,855                   | -                             |
| Foreign debt/corporate obligations   | 3,483,275,889                  | 262,049,505                 | 1,177,698,845                 | 1,265,932,468                 | 351,308,599                 | 426,286,472                   | -                             |
| <b>Total bonds, corporate notes and government obligations</b>   | <b>13,725,761,411</b>          | <b>815,361,390</b>          | <b>5,577,095,677</b>          | <b>3,673,852,906</b>          | <b>831,329,256</b>          | <b>1,650,081,573</b>          | <b>1,178,040,609</b>          |
| Derivatives  | (55,888,377)                   | 980,267                     | (2,227,657)                   | (25,564,242)                  | (1,467,339)                 | (27,609,406)                  | -                             |
| <b>Total bonds, corporate notes, government obligations, securities lending collateral and derivatives</b> | <b><u>\$13,669,873,034</u></b> | <b><u>\$816,341,657</u></b> | <b><u>\$5,574,868,020</u></b> | <b><u>\$3,648,288,664</u></b> | <b><u>\$829,861,917</u></b> | <b><u>\$1,622,472,167</u></b> | <b><u>\$1,178,040,609</u></b> |

\* Maturity date is not available or applicable.

\*\* Weighted average maturity figures were used if available to plot the commingled funds within the schedule.

## FOREIGN CURRENCY RISK

Foreign currency risk is the risk that changes in exchange rates will adversely impact the fair value of an investment. TRS's currency risk exposure, or exchange rate risk, is primarily derived from its holdings in foreign currency-denominated equity, fixed income and derivative investments as well as foreign currency. According to TRS's Investment Policy and investment manager agreements, international equity and global fixed income managers, at their discretion, may or may not hedge the portfolio's foreign currency exposures with currency forward contracts or options, depending upon their views on a specific country or foreign currency relative to the U.S. dollar.

TRS's exposure to foreign currency risk in U.S. dollars as of June 30, 2019 is as follows:

| Currency   | Foreign Currency    | Equities                | Fixed Income            | Derivatives           | Total                   |
|--|---------------------|-------------------------|-------------------------|-----------------------|-------------------------|
| Argentine Peso   | \$4,270,341         | \$ -                    | \$65,073,482            | \$ -                  | \$69,343,823            |
| Australian Dollar  | 3,612,880           | 382,233,590             | 25,582,311              | -                     | 411,428,781             |
| Bangladeshi Taka   | -                   | 1,420,115               | -                       | -                     | 1,420,115               |
| Brazilian Real   | 826,462             | 205,896,311             | 176,221,354             | (502,358)             | 382,441,769             |
| British Pound  | 13,786,536          | 950,982,799             | 103,716,435             | (3,153,529)           | 1,065,332,241           |
| Canadian Dollar  | 6,476,947           | 522,738,007             | 13,980,101              | -                     | 543,195,055             |
| Chilean Peso   | 445,054             | 12,708,029              | 8,306,968               | 9                     | 21,460,060              |
| Chinese Yuan   | 7,833,457           | -                       | -                       | 154,169               | 7,987,626               |
| Chinese Yuan Renminbi  | (3,666,114)         | 106,281,952             | -                       | 62,722                | 102,678,560             |
| Columbia Peso  | 604,163             | 1,115,172               | 57,205,286              | 132,201               | 59,056,822              |
| Czech Koruna   | 6,271               | 1,855,709               | 2,980,023               | 28,836                | 4,870,839               |
| Danish Krone   | 38,932              | 111,528,157             | 31,400,796              | -                     | 142,967,885             |
| Dominican Peso   | -                   | -                       | 5,771,197               | -                     | 5,771,197               |
| Egyptian Pound   | 264,866             | 5,012,479               | 28,867,837              | -                     | 34,145,182              |
| Emirati Dirham   | 16,309              | 12,074,595              | -                       | -                     | 12,090,904              |
| Euro   | 18,084,221          | 1,932,799,996           | 163,390,164             | (1,092,400)           | 2,113,181,981           |
| Ghana Cedi   | 551,138             | -                       | 28,171,612              | -                     | 28,722,750              |
| Hong Kong Dollar   | 5,242,542           | 738,419,970             | -                       | 645,581               | 744,308,093             |
| Hungarian Forint   | 349,295             | 20,075,221              | 5,396,650               | -                     | 25,821,166              |
| Indian Rupee   | 1,271,990           | 189,784,370             | 104,595,757             | -                     | 295,652,117             |
| Indonesian Rupiah  | 715,589             | 59,200,665              | 160,797,647             | -                     | 220,713,901             |
| Israeli Shekel   | 550,680             | 47,968,016              | -                       | 196,378               | 48,715,074              |
| Japanese Yen   | 20,025,902          | 1,405,022,864           | 27,855,269              | (3,303,487)           | 1,449,600,548           |
| Malaysian Ringgit  | 686,770             | 27,640,961              | 20,242,350              | -                     | 48,570,081              |
| Mexican Peso   | 240,605             | 78,554,463              | 167,489,654             | 416,161               | 246,700,883             |
| Moroccan Dirham  | 517                 | -                       | -                       | -                     | 517                     |
| New Taiwan Dollar  | 768,420             | 263,936,795             | -                       | -                     | 264,705,215             |
| New Zealand Dollar   | 730,024             | 7,565,181               | 5,924,024               | (101,217)             | 14,118,012              |
| Nigerian Naira   | (1,378)             | -                       | 13,249,213              | -                     | 13,247,835              |
| Norwegian Krone  | 493,446             | 51,931,318              | -                       | -                     | 52,424,764              |
| Pakistani Rupee  | 11,227              | 151,906                 | -                       | -                     | 163,133                 |
| Peruvian Sol   | 156,209             | 23,572                  | 41,389,592              | -                     | 41,569,373              |
| Philippine Peso  | 175,793             | 13,181,649              | 7,757,961               | -                     | 21,115,403              |
| Polish Zloty   | 118,013             | 19,208,163              | 28,489,441              | (105,105)             | 47,710,512              |
| Qatari Riyal   | 23,028              | 3,572,010               | -                       | -                     | 3,595,038               |
| Romanian Leu   | 105,744             | -                       | 14,198,756              | -                     | 14,304,500              |
| Russian Ruble  | 136,473             | 29,942,105              | 65,682,534              | -                     | 95,761,112              |
| Singapore Dollar   | 826,536             | 90,547,310              | -                       | (33,091)              | 91,340,755              |
| South African Rand   | 693,156             | 96,434,165              | 57,740,513              | 185,045               | 155,052,879             |
| South Korean Won   | 2,946,360           | 333,671,616             | 77,772,202              | 980,002               | 415,370,180             |
| Swedish Krona  | 1,037,287           | 159,513,291             | 6,875,007               | -                     | 167,425,585             |
| Swiss Franc  | 3,047,727           | 472,049,347             | -                       | -                     | 475,097,074             |
| Thailand Baht  | 784,904             | 68,239,653              | 21,120,549              | -                     | 90,145,106              |
| Turkish Lira   | 613,270             | 30,917,474              | 12,246,879              | (26,746)              | 43,750,877              |
| Ukraine Hryvnia  | -                   | -                       | 1,861,923               | -                     | 1,861,923               |
| Uruguayan Peso   | 10,932              | -                       | 623,137                 | -                     | 634,069                 |
| Vietnam Dong   | 99,926              | 2,183,395               | -                       | -                     | 2,283,321               |
| <b>Total subject to foreign currency risk</b>  | <b>95,012,450</b>   | <b>8,456,382,391</b>    | <b>1,551,976,624</b>    | <b>(5,516,829)</b>    | <b>10,097,854,636</b>   |
| Investments in international securities payable in U.S. dollars  | -                   | 1,453,214,262           | 1,945,109,596           | (1,715,692)           | 3,396,608,166           |
| <b>Total international investment securities (including domestic securities payable in foreign currency)</b> | <b>95,012,450</b>   | <b>9,909,596,653</b>    | <b>3,497,086,220</b>    | <b>(7,232,521)</b>    | <b>13,494,462,802</b>   |
| Domestic investments (excluding securities payable in foreign currency)                                      | -                   | 7,914,084,770           | 10,228,675,191          | (48,655,856)          | 18,094,104,105          |
| <b>Total fair value</b>  | <b>\$95,012,450</b> | <b>\$17,823,681,423</b> | <b>\$13,725,761,411</b> | <b>(\$55,888,377)</b> | <b>\$31,588,566,907</b> |

In addition to the previous table, the fair value of TRS's investments in foreign currency denominated real estate and private equity funds was \$15,095,549 and \$458,506,146 at June 30, 2019, respectively. Currencies included Euro, British pound, Canadian dollar, Japanese yen and South Korean won.

### **3. SECURITIES LENDING PROGRAM**

The TRS Board of Trustees' policies permit TRS to use investments to enter into securities lending transactions, which are loans of securities to broker-dealers or other approved entities. The borrower of a security must post collateral in excess of the fair value of the security. TRS receives both cash and non-cash (i.e., securities) collateral.

Eligible forms of collateral include cash consisting of U.S. dollar, euro, sterling and yen, U.S. treasuries, government agency securities, certificates of deposit, letters of credit issued by approved banks and specific types of corporate debt obligations and common stock. Initial collateral received from the borrower must be at least 102 percent of the fair value of all loaned securities except non-U.S. securities, which require 105 percent. Securities on loan are marked to market daily and collateral for the loan is required not to fall below minimum levels established by TRS and its lending agent. Agreements are in place allowing TRS, upon demand, to return the collateral in exchange for the original securities. TRS does not have the authority to pledge or sell collateral securities without borrower default; as such, the collateral security or non-cash collateral is not reported in TRS's financial statements in accordance with GASB Statement No. 28, "Accounting and Financial Reporting for Securities Lending Transactions."

As of June 30, 2019, Citibank, N.A. served as the third-party securities lending agent for the fixed income, domestic equity and international equity lending programs. In this capacity, TRS reduces credit risk by allowing Citibank to lend securities to a diverse group of dealers on behalf of TRS. At fiscal-year end, TRS has no credit risk exposure to borrowers because the amount TRS owes the borrowers exceeds the amount the borrowers owe TRS.

The weighted average term of the loans is 15 days as securities on loan can be recalled on demand by TRS or the borrower can return the loaned securities at any time. Since loans are terminable at will, the maturity of loans generally does not match the maturity of collateral investments. TRS may enter into term loan agreements, evaluated on an individual basis. As of June 30, 2019, there were no term loans outstanding.

Cash collateral received is invested in a separate account managed by the lending agent, with a weighted average maturity of 59 days at June 30, 2019. There were no significant violations of legal or contractual provisions and there were no borrower or lending agent default losses known to the securities lending agent.

As of June 30, 2019, TRS had outstanding loaned investment securities with a fair value of \$2,549,982,718 against which it had received cash and non-cash collateral with a fair value of \$2,628,040,181. The securities on loan remain on TRS's Statement of Fiduciary Net Position in their respective investment categories. As of June 30, 2019, TRS cash collateral received and reported as securities lending obligation on the Statement of Fiduciary Net Position totaled \$2,485,795,602; whereas, the fair value of reinvested cash collateral reported as securities lending collateral was \$2,485,824,046. The net increase (decrease) in fair value of investments within the Statement of Changes in Fiduciary Net Position reflects the change in fair value of the reinvested cash collateral. TRS also reports securities lending collateral with the Office of the Illinois State Treasurer on the Statement of Fiduciary Net Position. Further detail on this amount can be obtained by calling the Office of the Illinois State Treasurer at (217) 558-1250 or by visiting [www.treasurer.il.gov](http://www.treasurer.il.gov).

Income earned and costs related to securities lending activities are reported on the Statement of Changes in Fiduciary Net Position. For FY19, the System earned net income of \$10,848,699 from securities lending. Additional detail regarding

securities lending activity is included within the Investments section.

#### **4. DERIVATIVES**

TRS, through its investment managers, invests in derivative securities as a fundamental part of the overall investment process. All TRS derivatives are considered investments and the fair value is reported in the Statement of Fiduciary Net Position. TRS does not directly invest in derivatives but allows certain external managers to utilize these instruments within the investment portfolio for a variety of purposes. TRS managers may hold derivatives to hedge investment transactions accounted for at fair value. The term “hedge” in this context denotes the broad economic activity of entering into contracts intended to offset risks associated with certain transactions, such as the changes in interest rates on investments in debt securities, commodities or instruments denominated in a foreign currency. Assets and liabilities that are measured at fair value, such as investments, do not qualify as hedgeable items and do not meet the requirements for hedge accounting.

A derivative security is an investment whose return depends upon the value of another financial instrument or security such as stocks, bonds, commodities or a market index. The derivative investments in TRS’s portfolio are used primarily to enhance performance and reduce volatility. TRS’s investments in derivatives are not leveraged through borrowing. In the case of an obligation to purchase (long a financial future or call option), the full value of the obligation is primarily held in cash or cash equivalents. For obligations to sell (short a financial future or put option), the reference security is held in the portfolio.

To varying degrees, derivative transactions involve credit risk, sometimes known as default or counterparty risk and market risk. Credit risk is the possibility that a loss may occur because a party to a transaction fails to perform according to the established contract terms. To eliminate credit risk, derivative securities can be acquired through a

clearinghouse that guarantees delivery and accepts the risk of default by either party. The Commodity Futures Trading Commission (CFTC) mandates that any entity that trades or is counterparty to OTC (over-the-counter) derivatives must have a Global Market Entity Identifier (GMEI). TRS is registered and maintains a legal entity identifier.

Market risk is the possibility that a change in interest, currency or other pertinent market rates will cause the value of a financial instrument to decrease or become more costly to settle. Imposing limits on the types, amounts and degree of risk that investment managers may undertake restricts the market risk associated with the constantly fluctuating prices of derivatives. These limits and derivative positions of the investment managers are reviewed on a regular basis to monitor compliance.

As of June 30, 2019, derivative investments in the TRS investment portfolio included currency forward contracts, rights, warrants, futures, options, swaps and swaptions. Within the financial statements, currency forward contracts are reflected as investment payables/receivables, rights and warrants are reflected as equities and all futures, options, swaps and swaptions are classified as derivatives. The change in fair value of derivative investments is included in investment income on the Statement of Changes in Fiduciary Net Position.

The following tables summarize the derivatives held within the TRS investment portfolio and the change in fair value of derivative investments, realized and unrealized, during the fiscal year. The notional amounts shown represent TRS’s financial exposure to these instruments in U.S. dollars. Investments in limited partnerships and commingled funds may include derivatives that are not covered in the following disclosure.

As of June 30, 2019, the TRS investment portfolio held the following derivatives.

| Investment Derivatives                  | Fair Value at June 30, 2019  | Change in Fair Value       | Shares/Par    | Notional                       |
|---|------------------------------|----------------------------|---------------|--------------------------------|
| Credit default swaps buying protection  | \$545,840                    | (\$879,660)                | 51,807,000    | \$51,329,877                   |
| Credit default swaps selling protection | (382,139)                    | 1,314,681                  | 154,718,261   | 154,388,969                    |
| Index and variance swaps                | 1,161,659                    | (5,805,322)                | (39,084,049)  | 64,892,408                     |
| Pay fixed interest rate swaps           | (62,276,154)                 | (105,366,644)              | 1,443,647,390 | 1,446,599,853                  |
| Receive fixed interest rate swaps       | 7,068,097                    | 18,848,460                 | 272,687,256   | 266,163,797                    |
| Pay fixed inflation swaps               | (2,796,610)                  | (1,790,404)                | 76,129,033    | 74,193,553                     |
| Receive fixed inflation swaps           | 722,370                      | 1,718,330                  | 46,895,519    | 47,617,890                     |
| Commodity futures long                  | -                            | (2,817,383)                | 1,220,955     | 7,430,587                      |
| Commodity futures short                 | -                            | (217,900)                  | (10,087,280)  | (11,695,278)                   |
| Equity futures long                     | -                            | 935,360                    | 76,952,475    | 76,578,052                     |
| Equity futures short                    | -                            | 799,535                    | (34,832)      | (36,913,592)                   |
| Fixed income futures long               | -                            | 71,701,034                 | 1,030,982,949 | 1,347,700,867                  |
| Fixed income futures short              | -                            | (36,491,791)               | (845,996,041) | (865,735,859)                  |
| Currency forward options purchased      | 309,747                      | (684,701)                  | 89,991,483    | 83,287,525                     |
| Currency forward options written        | -                            | 177,383                    | -             | -                              |
| Options on futures purchased            | -                            | (32,625)                   | -             | -                              |
| Options on futures written              | (167,545)                    | 1,340,498                  | (650,000)     | 35,405,972                     |
| Swaptions purchased                     | 1,015,249                    | (1,772,690)                | 197,535,531   | 14,029,676                     |
| Swaptions written                       | (1,058,994)                  | 5,649,044                  | (316,941,613) | 41,224,924                     |
| Inflation options                       | (29,897)                     | 211,400                    | (146,005,042) | 104,074,008                    |
| FX forwards                             | (14,458,812)                 | 77,359,951                 | -             | -                              |
| Rights                                  | 840,589                      | 151,824                    | 8,040,058     | 8,040,058                      |
| Warrants                                | 33,180,378                   | 1,823,359                  | 7,827,332     | 7,827,332                      |
| <b>Grand total</b>                      | <b><u>(\$36,326,222)</u></b> | <b><u>\$26,171,739</u></b> |               | <b><u>\$ 2,916,440,619</u></b> |

## CURRENCY FORWARD CONTRACTS

**Objective:** Currency forward contracts are agreements to exchange one currency for another at an agreed upon price and settlement date. TRS's investment managers use these contracts primarily to hedge the currency exposure of its investments.

**Terms:** Currency forward contracts are two-sided contracts in the form of either forward purchases or forward sales. Forward purchases obligate TRS to purchase specific currency at an agreed upon price. Forward sales obligate TRS to sell specific currency at an agreed upon price. As of June 30, 2019, TRS had currency forward purchase or sale

contracts for 37 different currencies with various settlement dates.

**Fair Value:** As of June 30, 2019, TRS's open currency forward contracts had a net fair value (unrealized-loss) of \$14,458,812.

## FINANCIAL FUTURES

**Objective:** Financial futures are agreements to purchase or sell a specific amount of an asset at a specified delivery or maturity date for an agreed upon price. These derivative securities are used to improve yield, adjust the duration of the fixed

income portfolio, protect against changes in interest rates or replicate an index.

**Terms:** Futures contracts are standardized and traded on organized exchanges, thereby minimizing TRS's credit risk. As the daily market value of the futures contract varies from the original contract price, a gain or loss is recognized and paid to, or received from, the clearinghouse. As of June 30, 2019, TRS had outstanding futures contracts with a notional value, or exposure, of \$517,364,777. Notional values do not represent the actual values in the Statement of Fiduciary Net Position. The contracts have various expiration dates through March 2020.

**Fair Value:** Gains and losses on futures contracts are settled daily based on the change of the index or commodity price for the underlying notional value. Because of daily settlement, the futures contracts have no fair value. TRS's realized gain on futures contracts was \$26,775,396 during FY19.

| Type   | Number of Contracts | Notional Principal          |
|--|---------------------|-----------------------------|
| <b>Commodity Futures</b>                         |                     |                             |
| Commodity futures - long                         | 133                 | \$7,430,587                 |
| Commodity futures - short                        | (245)               | (11,695,278)                |
| <b>Equity Futures</b>                            |                     |                             |
| U.S. stock index futures - long                  | 21                  | 1,106,070                   |
| International equity index futures - long        | 1,384               | 75,471,982                  |
| International equity index futures - short       | (1,234)             | (36,913,592)                |
| <b>Fixed Income/Cash Equivalent Futures</b>      |                     |                             |
| Fixed income index futures - long                | 8,552               | 1,152,471,047               |
| Fixed income index futures - short               | (2,004)             | (330,462,149)               |
| International fixed income index futures - long  | 712                 | 139,042,295                 |
| International fixed income index futures - short | (3,216)             | (331,106,198)               |
| Cash equivalent (eurodollar) futures - long      | 229                 | 56,187,525                  |
| Cash equivalent (eurodollar) futures - short     | (833)               | (204,167,512)               |
| <b>Total futures (net)</b>                       | <b><u>3,499</u></b> | <b><u>\$517,364,777</u></b> |

## FINANCIAL OPTIONS

**Objective:** Financial options are agreements that give one party the right, but not the obligation, to buy or sell a specific amount of an asset for a specified price, called the strike price, on or before a specified expiration date. The owner (buyer) of an option has all the rights, while the seller (writer) of an option has the obligations of the agreement. As a writer of financial options, TRS receives a premium at the outset of the agreement and bears the risk of an unfavorable change in the price of the financial instrument underlying the option. Premiums received are recorded as a liability when the financial option is written. The Options Clearing Corporation (OCC) performs much the same function for options markets as the clearinghouse does for futures markets.

**Terms:** As of June 30, 2019, the TRS investment portfolio held currency forward options with notional value of \$83,287,525, inflation options with notional value of \$104,074,008, and options on futures with underlying notional value of \$35,405,972. Contractual principal/notional values do not represent the actual values in the Statement of Fiduciary Net Position. The contracts have various expiration dates through June 2035.

**Fair Value:** Fluctuations in the fair value of financial options are recognized in TRS's financial statements as incurred rather than at the time the options are exercised or expire. As of June 30, 2019, the fair value of all option contracts, gross of premiums received, was \$112,305. The fair value represents the amount needed to close all positions as of that date. The following table presents the aggregate contractual principal (notional value) of outstanding contracts as of June 30, 2019. Notional principal amounts are often used to express the volume of these transactions but do not reflect the extent to which positions may offset one another. Options on futures represent the corresponding futures exposure.

| Type  | Number of Contracts | Notional Principal |
|---|---------------------|--------------------|
| <b>Currency Forward Options</b>                       |                     |                    |
| Currency forward call options<br>- purchased          | 1                   | \$22,091,948       |
| Currency forward put options<br>- purchased           | 2                   | 61,195,577         |
| <b>Inflation Options</b>                              |                     |                    |
| Inflation call options - written                      | 5                   | 104,005,053        |
| Inflation put options - written                       | 9                   | 68,955             |
| <b>Options on Futures</b>                             |                     |                    |
| Fixed income call options on futures<br>USD - written | (85)                | 5,959,520          |
| Fixed income put options on futures<br>USD - written  | (37)                | 88,800             |
| Commodity call options on futures<br>USD - written    | (60)                | 809,652            |
| Commodity put options on futures<br>USD - written     | (36)                | 28,548,000         |

## SWAPTIONS

**Objective:** Swaptions are options on swaps that give the purchaser the right, but not the obligation, to enter into a swap at a specific date in the future. An interest-rate swaption gives the buyer the right to pay or receive a specified fixed interest rate in a swap in exchange for a floating rate for a stated time period. TRS has both written and purchased interest rate swaptions in its portfolio. In a written call swaption, the seller (writer) is obligated to pay a fixed rate in exchange for a floating rate for a stated period of time and in a written put swaption, the seller is obligated to receive a fixed rate in exchange for a floating rate if the swaption is exercised. A purchased (long) call swaption gives the buyer the right to receive a fixed rate in exchange for a floating rate for a stated period of time while a purchased (long) put swaption gives the buyer the right to pay a fixed rate in exchange for a floating rate if the swaption is exercised.

The TRS investment portfolio also holds credit default swaptions. A credit default swaption gives the holder the right, but not the obligation to buy (call) or sell (put) protection on a specified entity or index for a specified future time period.

As the writer of a swaption, TRS receives a premium at the outset of the agreement. Premiums are

recorded as a liability when the swaption is written. As the purchaser of a swaption, TRS pays an upfront premium.

**Terms:** As of June 30, 2019, TRS had outstanding written put swaption exposure of \$41,224,924 and purchased put swaption exposure of \$14,029,676. The contracts have various maturity dates through December 2019. Exposure amounts for swaptions do not represent the actual values in the Statement of Fiduciary Net Position.

**Fair Value:** Fluctuations in the fair value of swaptions are recognized in TRS's financial statements as incurred rather than at the time the swaptions are exercised or when they expire. As of June 30, 2019, the fair value of swaption contracts was (\$43,745).

## CREDIT DEFAULT SWAPS/INDEX SWAPS

**Objective:** Credit default swaps are financial instruments used to replicate the effect of investing in debt obligations of corporate bond issuers as a means to manage bond exposure, effectively buying or selling insurance protection in case of default. Credit default swaps may be specific to an individual security or to a specific market sector (index swaps). The risk of the credit default/index swap is comparable to the credit risk of the underlying debt obligations of issuers that comprise the credit default/index swap, with the primary risk being counterparty risk. The owner/buyer of protection pays an agreed upon premium to the seller of protection for the right to sell the debt at a previously agreed upon value in the event of a default by the bond issuer. The premium is paid periodically over the term of the swap or until a credit event of the bond issuer occurs. In the event of a default, the swap is called and the seller of protection makes a payment to the buyer, which is usually based on a fixed percentage of total par.

Purchased credit default swaps decrease credit exposure (buying protection), providing the right to sell debt to the counterparty in the event of a default. A buyer of credit protection against a basket of securities pays an upfront or periodic payment until either maturity or default. In the event of a

default, the buyer receives a lump-sum payment. If no default occurs, the buyer loses only the premium paid.

Written credit default swaps increase credit exposure (selling protection), obligating the portfolio to buy debt from counterparties in the event of a default. A seller of credit protection against a basket of securities receives an upfront or periodic payment to compensate against potential default events. If a default event occurs, the seller must pay the buyer the full notional value of the obligation in exchange for the obligation. If no default occurs, the seller will have earned the premium paid.

**Terms:** As of June 30, 2019, TRS had credit default/index swaps in its portfolio with various maturity dates through May 2063. The notional values as of June 30, 2019, included purchased credit default swaps (buying protection) of \$51,329,877, written credit default swaps (selling protection) of \$154,388,969 and index swaps of \$64,892,408.

**Fair Value:** The fair value of credit default swaps, including index swaps, held by TRS was \$1,325,360 as of June 30, 2019. This represents the amount due to or (from) TRS under the terms of the counterparty agreements.

### INTEREST RATE SWAPS

**Objective:** Interest rate swaps are agreements between parties to exchange a set of cash flow streams over a period of time. In the most common type of interest rate swap arrangement, one party agrees to pay fixed interest payments on designated dates to a counterparty who, in turn, agrees to make return interest payments that float with some reference rate. Long positions (receive fixed) increase exposure to long-term interest rates; short positions (pay fixed) decrease interest rate/risk exposure.

**Terms:** As of June 30, 2019, TRS held interest rate swaps in various currencies with various expiration/maturity dates ranging from 2019 to 2049. Swap agreements typically are settled on a net basis, with a party receiving or paying only the net amount of the fixed/floating payments. Payments may be

made at the conclusion of a swap agreement or periodically during its term.

**Fair Value:** The table below presents the fair value of TRS's interest rate swap exposure as of June 30, 2019.

| As of June 30, 2019        |                |
|----------------------------|----------------|
| Receive floating/pay fixed | (\$62,276,154) |
| Receive fixed/pay floating | 7,068,097      |

### INFLATION-LINKED SWAPS

**Objective:** Inflation-linked swaps are agreements where a fixed payment is exchanged for a variable payment linked to an inflation index. These swaps can protect against unfavorable changes in inflation expectations and are used to transfer inflation risk from one counterparty to another.

**Terms:** As of June 30, 2019, TRS was a party to inflation-linked swaps denominated in various currencies with expiration dates through October 2046. Inflation-linked swaps initially have no net value; the value of the swap's outstanding payments will change as interest and inflation rates change. The value may be either positive or negative.

**Fair value:** The fair value of the inflation-linked swaps held by TRS was (\$2,074,240) as of June 30, 2019.

### DERIVATIVE INTEREST RATE RISK

Interest rate risk for derivative securities is disclosed in the Financial Note D. 2. Both interest rate and inflation rate swaps have fair values that are sensitive to interest rate changes.

TRS had the following interest rate and inflation swaps at June 30, 2019.

| Asset Description                     | Par        | Gross Notional | TRS Receives   | TRS Pays | Maturity Date | Fair Value 6/30/19 |
|---------------------------------------|------------|----------------|----------------|----------|---------------|--------------------|
| <b>Pay Fixed Interest Rate Swaps:</b> |            |                |                |          |               |                    |
| Interest Rate Swap GBP                | 700,000    | \$893,148      | 6 month LIBOR  | 2.05%    | 9/23/2019     | (\$2,314)          |
| Interest Rate Swap ILS                | 22,450,000 | 6,296,619      | 3 month TELBOR | 0.29     | 2/16/2020     | (106)              |
| Interest Rate Swap ILS                | 13,770,000 | 3,861,654      | 3 month TELBOR | 0.27     | 3/21/2020     | 514                |
| Interest Rate Swap EUR                | 14,300,000 | 16,297,408     | 12 month EONIA | 0.99     | 3/30/2020     | 12,562             |
| Interest Rate Swap ILS                | 16,530,000 | 4,632,487      | 3 month TELBOR | 0.37     | 6/20/2020     | (2,595)            |
| Interest Rate Swap ILS                | 11,400,000 | 3,193,247      | 3 month TELBOR | 0.42     | 6/20/2020     | (3,361)            |
| Interest Rate Swap USD                | 50,200,000 | 50,257,554     | 3 month LIBOR  | 2.90     | 9/14/2020     | (560,288)          |
| Interest Rate Swap USD                | 500,000    | 500,435        | 3 month LIBOR  | 2.00     | 12/16/2020    | (772)              |
| Interest Rate Swap USD                | 18,300,000 | 18,314,753     | 3 month LIBOR  | 2.75     | 12/19/2020    | (228,037)          |
| Interest Rate Swap USD                | 800,000    | 800,530        | 3 month LIBOR  | 1.25     | 6/21/2021     | 8,644              |
| Interest Rate Swap GBP                | 17,220,000 | 21,915,897     | 6 month LIBOR  | 1.00     | 9/18/2021     | (71,492)           |
| Interest Rate Swap USD                | 52,250,000 | 53,188,367     | 12 month LIBOR | 2.33     | 9/27/2021     | (908,211)          |
| Interest Rate Swap EUR                | 1,125,000  | 1,281,150      | EONIA          | 0.25     | 5/11/2022     | (9,762)            |
| Interest Rate Swap USD                | 9,030,000  | 9,030,000      | 12 month LIBOR | 2.35     | 5/31/2022     | (220,326)          |
| Interest Rate Swap USD                | 810,000    | 810,000        | 12 month LIBOR | 2.36     | 9/27/2022     | (22,292)           |
| Interest Rate Swap USD                | 14,115,000 | 14,313,484     | 12 month LIBOR | 2.61     | 11/30/2022    | (547,470)          |
| Interest Rate Swap USD                | 2,100,000  | 1,867,168      | 3 month LIBOR  | 2.56     | 5/8/2023      | (232,832)          |
| Interest Rate Swap EUR                | 2,770,000  | 3,154,477      | EONIA          | 0.10     | 5/11/2023     | (46,510)           |
| Interest Rate Swap USD                | 825,000    | 827,712        | 3 month LIBOR  | 2.11     | 2/15/2024     | (13,513)           |
| Interest Rate Swap USD                | 8,548,000  | 8,576,101      | 3 month LIBOR  | 2.15     | 2/15/2024     | (152,620)          |
| Interest Rate Swap USD                | 2,595,000  | 2,603,531      | 3 month LIBOR  | 2.18     | 2/15/2024     | (50,090)           |
| Interest Rate Swap EUR                | 3,140,000  | 3,575,833      | EONIA          | 0.05     | 5/11/2024     | (82,489)           |
| Interest Rate Swap USD                | 15,955,000 | 16,007,450     | 3 month LIBOR  | 1.96     | 5/15/2024     | (152,847)          |
| Interest Rate Swap ZAR                | 18,350,000 | 1,307,602      | 3 month JIBAR  | 7.15     | 6/6/2024      | (6,709)            |
| Interest Rate Swap ZAR                | 29,490,000 | 2,101,427      | 3 month JIBAR  | 7.18     | 6/6/2024      | (13,149)           |
| Interest Rate Swap USD                | 15,900,000 | 15,904,083     | 3 month LIBOR  | 1.98     | 6/27/2024     | (168,894)          |
| Interest Rate Swap USD                | 13,144,000 | 13,224,412     | 3 month LIBOR  | 2.73     | 7/7/2024      | (619,605)          |
| Interest Rate Swap USD                | 25,855,000 | 25,939,996     | 3 month LIBOR  | 2.17     | 8/15/2024     | (517,140)          |
| Interest Rate Swap USD                | 14,410,000 | 14,457,371     | 3 month LIBOR  | 2.18     | 8/15/2024     | (292,267)          |
| Interest Rate Swap GBP                | 96,400,000 | 122,688,299    | 6 month LIBOR  | 1.25     | 9/18/2024     | (2,039,308)        |
| Interest Rate Swap USD                | 53,215,000 | 53,389,939     | 3 month LIBOR  | 2.33     | 11/15/2024    | (1,538,806)        |
| Interest Rate Swap USD                | 13,890,000 | 13,957,992     | 3 month LIBOR  | 1.91     | 1/22/2025     | (103,622)          |
| Interest Rate Swap USD                | 10,240,000 | 10,287,745     | 3 month LIBOR  | 1.97     | 1/27/2025     | (108,029)          |
| Interest Rate Swap USD                | 2,560,000  | 2,571,385      | 3 month LIBOR  | 1.94     | 1/29/2025     | (22,160)           |
| Interest Rate Swap USD                | 2,170,000  | 2,179,652      | 3 month LIBOR  | 1.94     | 1/30/2025     | (19,207)           |
| Interest Rate Swap USD                | 3,420,000  | 3,434,436      | 3 month LIBOR  | 1.82     | 2/3/2025      | (7,196)            |
| Interest Rate Swap USD                | 7,920,000  | 7,920,000      | 12 month LIBOR | 2.45     | 2/28/2025     | (397,673)          |
| Interest Rate Swap USD                | 5,525,000  | 5,538,153      | 3 month LIBOR  | 3.02     | 2/28/2025     | (369,381)          |
| Interest Rate Swap USD                | 7,050,000  | 7,051,810      | 3 month LIBOR  | 1.98     | 3/27/2025     | (78,230)           |
| Interest Rate Swap USD                | 7,050,000  | 7,051,810      | 3 month LIBOR  | 1.99     | 3/27/2025     | (81,048)           |
| Interest Rate Swap EUR                | 190,000    | 216,372        | EONIA          | 0.10     | 5/11/2025     | (5,711)            |
| Interest Rate Swap USD                | 23,079,000 | 23,129,116     | 3 month LIBOR  | 3.00     | 5/31/2025     | (1,570,583)        |
| Interest Rate Swap USD                | 7,760,000  | 7,810,435      | 3 month LIBOR  | 2.45     | 7/2/2025      | (260,162)          |
| Interest Rate Swap USD                | 2,145,000  | 2,145,000      | 12 month LIBOR | 2.80     | 7/31/2025     | (160,892)          |

(continued)

(continued)

| Asset Description      | Par           | Gross Notional | TRS Receives                 | TRS Pays | Maturity Date | Fair Value 6/30/19 |
|------------------------|---------------|----------------|------------------------------|----------|---------------|--------------------|
| Interest Rate Swap USD | 8,200,000     | \$8,236,474    | 3 month LIBOR                | 3.10%    | 7/31/2025     | (\$621,363)        |
| Interest Rate Swap USD | 20,397,000    | 20,487,727     | 3 month LIBOR                | 3.11     | 7/31/2025     | (1,550,821)        |
| Interest Rate Swap GBP | 6,560,000     | 8,348,913      | 6 month LIBOR                | 2.34     | 1/13/2026     | (553,446)          |
| Interest Rate Swap USD | 60,545,000    | 60,545,000     | 12 month LIBOR               | 2.27     | 1/31/2026     | (2,656,522)        |
| Interest Rate Swap USD | 2,700,000     | 2,700,524      | 3 month LIBOR                | 2.24     | 1/31/2026     | (71,295)           |
| Interest Rate Swap USD | 5,137,000     | 5,137,000      | 3 month LIBOR                | 2.41     | 1/31/2026     | (190,135)          |
| Interest Rate Swap USD | 5,100,000     | 5,100,000      | 12 month LIBOR               | 2.29     | 3/12/2026     | (230,384)          |
| Interest Rate Swap JPY | 1,490,000,000 | 13,829,697     | 6 month JPY LIBOR            | 0.30     | 3/18/2026     | (356,248)          |
| Interest Rate Swap USD | 10,395,000    | 10,395,000     | 3 month LIBOR                | 1.88     | 4/30/2026     | (49,043)           |
| Interest Rate Swap GBP | 310,000       | 387,402        | 12 month SONIA               | 1.00     | 5/8/2026      | (7,135)            |
| Interest Rate Swap USD | 2,600,000     | 2,602,815      | 3 month LIBOR                | 2.25     | 6/15/2026     | (71,515)           |
| Interest Rate Swap USD | 34,910,000    | 34,910,000     | 3 month LIBOR                | 2.40     | 12/7/2026     | (791,210)          |
| Interest Rate Swap USD | 36,400,000    | 36,424,126     | 3 month LIBOR                | 1.75     | 12/21/2026    | 263,828            |
| Interest Rate Swap USD | 6,171,000     | 6,226,937      | 12 month LIBOR               | 1.82     | 2/15/2027     | (77,877)           |
| Interest Rate Swap USD | 4,330,000     | 4,369,249      | 12 month LIBOR               | 1.90     | 2/15/2027     | (79,388)           |
| Interest Rate Swap USD | 1,720,000     | 1,735,592      | 12 month LIBOR               | 1.96     | 2/15/2027     | (40,164)           |
| Interest Rate Swap USD | 4,335,000     | 4,374,298      | 12 month LIBOR               | 2.07     | 2/15/2027     | (135,210)          |
| Interest Rate Swap USD | 1,790,000     | 1,796,873      | 3 month LIBOR                | 2.31     | 5/8/2027      | (58,538)           |
| Interest Rate Swap USD | 525,000       | 526,726        | 3 month LIBOR                | 2.29     | 5/15/2027     | (16,475)           |
| Interest Rate Swap USD | 6,300,000     | 6,304,176      | 3 month LIBOR                | 1.50     | 6/21/2027     | 180,831            |
| Interest Rate Swap USD | 6,200,000     | 6,204,521      | 3 month LIBOR                | 2.50     | 12/20/2027    | (290,378)          |
| Interest Rate Swap JPY | 380,000,000   | 3,527,031      | 6 month JPY LIBOR            | 0.30     | 3/20/2028     | (100,180)          |
| Interest Rate Swap NZD | 1,200,000     | 806,329        | 3 month NZD Bank Bill        | 3.25     | 3/21/2028     | (101,217)          |
| Interest Rate Swap JPY | 520,000,000   | 4,826,464      | 6 month JPY LIBOR            | 0.30     | 3/21/2028     | (137,042)          |
| Interest Rate Swap USD | 34,000,000    | 34,000,000     | 3 month LIBOR                | 3.10     | 4/17/2028     | (1,572,403)        |
| Interest Rate Swap EUR | 4,010,000     | 4,566,590      | 12 month EONIA               | 0.50     | 5/11/2028     | (245,381)          |
| Interest Rate Swap USD | 169,680,000   | 169,803,689    | 3 month LIBOR                | 2.25     | 6/20/2028     | (4,730,499)        |
| Interest Rate Swap USD | 4,200,000     | 4,222,454      | 3 month LIBOR                | 2.72     | 7/18/2028     | (277,652)          |
| Interest Rate Swap USD | 15,200,000    | 15,281,263     | 3 month LIBOR                | 2.77     | 7/18/2028     | (1,062,230)        |
| Interest Rate Swap USD | 18,626,600    | 18,626,600     | 12 month LIBOR               | 2.58     | 8/15/2028     | (1,427,633)        |
| Interest Rate Swap USD | 7,540,000     | 7,564,787      | 3 month LIBOR                | 2.84     | 8/15/2028     | (585,379)          |
| Interest Rate Swap JPY | 5,231,690,000 | 48,558,775     | 6 month JPY LIBOR            | 0.45     | 3/20/2029     | (2,096,429)        |
| Interest Rate Swap USD | 20,400,000    | 20,416,246     | 3 month LIBOR                | 3.00     | 6/19/2029     | (1,923,183)        |
| Interest Rate Swap CLP | 748,315,000   | 1,102,174      | 3 month Chile Interbank Rate | 1.00     | 7/1/2029      | 9                  |
| Interest Rate Swap GBP | 6,300,000     | 8,018,011      | 6 month LIBOR                | 1.50     | 9/18/2029     | (339,367)          |
| Interest Rate Swap EUR | 320,000       | 364,416        | 12 month EONIA               | 0.75     | 5/11/2033     | (25,210)           |
| Interest Rate Swap GBP | 305,000       | 388,581        | 12 month SONIA               | 1.20     | 5/8/2034      | (15,590)           |
| Interest Rate Swap EUR | 2,650,000     | 3,017,821      | 6 month EURIBOR              | 2.11     | 10/25/2037    | (291,149)          |
| Interest Rate Swap JPY | 720,000,000   | 6,682,796      | 6 month JPY LIBOR            | 0.75     | 3/20/2038     | (613,589)          |
| Interest Rate Swap EUR | 935,000       | 1,064,778      | 12 month EONIA               | 1.10     | 5/11/2039     | (128,791)          |
| Interest Rate Swap USD | 870,000       | 872,860        | 3 month LIBOR                | 2.66     | 11/15/2043    | (78,529)           |
| Interest Rate Swap USD | 19,030,000    | 19,153,313     | 3 month LIBOR                | 3.49     | 3/31/2044     | (4,758,079)        |
| Interest Rate Swap USD | 1,800,000     | 1,801,567      | 3 month LIBOR                | 2.75     | 12/16/2045    | (195,351)          |
| Interest Rate Swap USD | 19,845,000    | 19,866,480     | 3 month LIBOR                | 2.50     | 6/15/2046     | (1,134,876)        |
| Interest Rate Swap USD | 5,400,000     | 5,406,191      | 3 month LIBOR                | 2.25     | 9/14/2046     | (24,070)           |

(continued)

(continued)

| Asset Description                           | Par        | Gross Notional         | TRS Receives    | TRS Pays | Maturity Date | Fair Value 6/30/19    |
|---|------------|------------------------|-----------------|----------|---------------|-----------------------|
| Interest Rate Swap USD                      | 48,300,000 | \$48,441,981           | 3 month LIBOR   | 2.38%    | 11/18/2046    | (\$1,755,505)         |
| Interest Rate Swap USD                      | 19,100,000 | 19,112,660             | 3 month LIBOR   | 2.25     | 12/21/2046    | (84,246)              |
| Interest Rate Swap USD                      | 7,500,000  | 7,541,115              | 3 month LIBOR   | 2.54     | 4/13/2047     | (532,210)             |
| Interest Rate Swap USD                      | 4,870,000  | 4,933,436              | 12 month LIBOR  | 2.00     | 12/15/2047    | (43,147)              |
| Interest Rate Swap USD                      | 1,300,000  | 1,300,000              | 12 month LIBOR  | 2.43     | 12/20/2047    | (137,567)             |
| Interest Rate Swap USD                      | 863,000    | 863,000                | 12 month LIBOR  | 2.48     | 12/20/2047    | (101,206)             |
| Interest Rate Swap USD                      | 1,110,000  | 1,110,000              | 12 month LIBOR  | 2.50     | 12/20/2047    | (135,533)             |
| Interest Rate Swap USD                      | 5,700,000  | 5,704,157              | 3 month LIBOR   | 2.75     | 12/20/2047    | (646,470)             |
| Interest Rate Swap USD                      | 15,000,000 | 15,009,942             | 3 month LIBOR   | 2.59     | 12/21/2047    | (1,264,506)           |
| Interest Rate Swap USD                      | 17,234,000 | 17,283,454             | 3 month LIBOR   | 2.98     | 2/20/2048     | (2,920,864)           |
| Interest Rate Swap USD                      | 17,234,000 | 17,282,320             | 3 month LIBOR   | 3.00     | 2/22/2048     | (3,005,624)           |
| Interest Rate Swap USD                      | 17,234,000 | 17,281,114             | 3 month LIBOR   | 3.02     | 2/23/2048     | (3,069,859)           |
| Interest Rate Swap EUR                      | 2,870,000  | 3,268,357              | 6 month EURIBOR | 1.66     | 3/19/2048     | (206,999)             |
| Interest Rate Swap USD                      | 400,000    | 400,182                | 3 month LIBOR   | 2.54     | 3/23/2048     | (27,161)              |
| Interest Rate Swap USD                      | 25,100,000 | 25,118,304             | 3 month LIBOR   | 2.50     | 6/20/2048     | (1,487,608)           |
| Interest Rate Swap USD                      | 1,900,000  | 1,905,194              | 3 month LIBOR   | 2.91     | 8/22/2048     | (283,956)             |
| Interest Rate Swap USD                      | 600,000    | 601,640                | 3 month LIBOR   | 2.94     | 8/22/2048     | (94,343)              |
| Interest Rate Swap USD                      | 21,900,000 | 21,907,059             | 3 month LIBOR   | 2.97     | 9/26/2048     | (3,601,822)           |
| Interest Rate Swap USD                      | 4,700,000  | 4,703,789              | 3 month LIBOR   | 3.00     | 12/19/2048    | (808,031)             |
| Interest Rate Swap EUR                      | 6,800,000  | 7,743,843              | 6 month EURIBOR | 1.25     | 9/18/2049     | (1,137,210)           |
| <b>Total Pay Fixed Interest Rate Swaps:</b> |            | <b>\$1,446,599,853</b> |                 |          |               | <b>(\$62,276,154)</b> |

**Receive Fixed Interest Rate Swaps:**

|                        |             |              |       |                       |            |           |
|------------------------|-------------|--------------|-------|-----------------------|------------|-----------|
| Interest Rate Swap USD | 27,000,000  | \$27,006,713 | 1.75% | 3 month LIBOR         | 12/19/2020 | \$6,713   |
| Interest Rate Swap EUR | 1,125,000   | -            | 0.37  | EONIA                 | 5/11/2022  | -         |
| Interest Rate Swap EUR | 2,770,000   | 447          | 0.37  | EONIA                 | 5/11/2023  | -         |
| Interest Rate Swap USD | 11,100,000  | 11,680,885   | 2.80  | 3 month LIBOR         | 8/22/2023  | 469,515   |
| Interest Rate Swap USD | 49,600,000  | 51,684,067   | 2.60  | 3 month LIBOR         | 9/26/2023  | 1,743,756 |
| Interest Rate Swap USD | 15,200,000  | 15,840,268   | 2.70  | 3 month LIBOR         | 12/14/2023 | 620,888   |
| Interest Rate Swap CNY | 27,750,000  | 4,105,934    | 3.10  | 7 day CNRR            | 4/10/2024  | 37,417    |
| Interest Rate Swap CNY | 7,335,000   | 1,087,674    | 3.17  | 7 day CNRR            | 4/22/2024  | 13,213    |
| Interest Rate Swap CNY | 7,335,000   | 1,090,572    | 3.23  | 7 day CNRR            | 4/23/2024  | 16,084    |
| Interest Rate Swap EUR | 3,140,000   | -            | 0.37  | EONIA                 | 5/11/2024  | -         |
| Interest Rate Swap CNY | 13,600,000  | 1,987,734    | 3.01  | 7 day CNRR            | 5/15/2024  | 23        |
| Interest Rate Swap CZK | 60,850,000  | 2,758,796    | 1.91  | 6 month PRIBOR        | 5/17/2024  | 28,836    |
| Interest Rate Swap CNY | 33,230,000  | 4,852,760    | 2.93  | 7 day CNRR            | 6/5/2024   | 4,592     |
| Interest Rate Swap CNY | 12,520,000  | 1,824,764    | 2.90  | 7 day CNRR            | 6/14/2024  | (546)     |
| Interest Rate Swap CNY | 37,395,000  | 5,441,586    | 2.88  | 7 day CNRR            | 6/19/2024  | (8,097)   |
| Interest Rate Swap CNY | 36,000,000  | 5,241,508    | 2.90  | 7 day CNRR            | 6/28/2024  | 36        |
| Interest Rate Swap EUR | 37,200,000  | 43,356,562   | 0.25  | 6 month EURIBOR       | 9/18/2024  | 993,187   |
| Interest Rate Swap EUR | 190,000     | -            | 0.37  | EONIA                 | 5/11/2025  | -         |
| Interest Rate Swap BRL | 4,293,312   | 1,120,227    | 7.33  | 3 month Brazilian CDI | 1/4/2027   | 33        |
| Interest Rate Swap MXN | 110,000,000 | 5,696,839    | 7.35  | 28 day Mexican TIIE   | 9/30/2027  | (41,713)  |

(continued)

(continued)

| Asset Description                               | Par           | Gross Notional       | TRS Receives                | TRS Pays              | Maturity Date | Fair Value 6/30/19   |
|---|---------------|----------------------|-----------------------------|-----------------------|---------------|----------------------|
| Interest Rate Swap ILS                          | 4,730,000     | \$1,407,015          | 1.97%                       | 3 month TELBOR        | 2/16/2028     | \$71,206             |
| Interest Rate Swap ILS                          | 2,890,000     | 851,624              | 1.88                        | 3 month TELBOR        | 3/21/2028     | 37,106               |
| Interest Rate Swap EUR                          | 4,010,000     | -                    | 0.37                        | EONIA                 | 5/11/2028     | -                    |
| Interest Rate Swap ILS                          | 3,530,000     | 1,043,579            | 2.00                        | 3 month TELBOR        | 6/20/2028     | 53,233               |
| Interest Rate Swap ILS                          | 2,430,000     | 723,094              | 2.08                        | 3 month TELBOR        | 6/20/2028     | 41,338               |
| Interest Rate Swap USD                          | 41,800,000    | 43,694,734           | 3.13                        | 3 month LIBOR         | 9/13/2028     | 1,894,734            |
| Interest Rate Swap MXN                          | 25,700,000    | 1,419,942            | 8.37                        | 28 day Mexican TIIE   | 2/13/2029     | 78,169               |
| Interest Rate Swap MXN                          | 32,000,000    | 1,741,798            | 8.09                        | 28 day Mexican TIIE   | 3/21/2029     | 63,789               |
| Interest Rate Swap COP                          | 8,577,950,000 | 2,806,959            | 5.88                        | COOVIBR               | 5/14/2029     | 132,201              |
| Interest Rate Swap MXN                          | 51,500,000    | 2,764,235            | 7.98                        | 28 day Mexican TIIE   | 5/16/2029     | 80,599               |
| Interest Rate Swap MXN                          | 124,590,000   | 6,762,398            | 8.08                        | 28 day Mexican TIIE   | 5/22/2029     | 237,995              |
| Interest Rate Swap GBP                          | 3,660,000     | 4,601,617            | 3.47                        | UK Retail Price Index | 9/15/2032     | (56,465)             |
| Interest Rate Swap EUR                          | 320,000       | -                    | 0.37                        | EONIA                 | 5/11/2033     | -                    |
| Interest Rate Swap GBP                          | 3,930,000     | 4,948,689            | 3.50                        | UK Retail Price Index | 9/15/2033     | (53,022)             |
| Interest Rate Swap EUR                          | 2,650,000     | 3,309,667            | 2.09                        | 3 month EURIBOR       | 10/25/2037    | 291,846              |
| Interest Rate Swap EUR                          | 935,000       | -                    | 0.37                        | EONIA                 | 5/11/2039     | -                    |
| Interest Rate Swap EUR                          | 2,870,000     | 3,477,256            | 1.65                        | 3 month EURIBOR       | 3/19/2048     | 208,899              |
| Interest Rate Swap USD                          | 1,730,000     | 1,833,854            | 2.50                        | 3 month LIBOR         | 6/20/2048     | 102,532              |
| <b>Total Receive Fixed Interest Rate Swaps:</b> |               | <b>\$266,163,797</b> |                             |                       |               | <b>\$7,068,097</b>   |
| <b>Pay Fixed Inflation-Linked Swaps:</b>        |               |                      |                             |                       |               |                      |
| Inflation Swap USD                              | 13,600,000    | \$13,600,000         | U.S. CPI URNSA              | 1.82%                 | 5/13/2021     | (\$16,875)           |
| Inflation Swap EUR                              | 6,280,000     | 7,151,667            | France CPI ex-Tobacco Index | 1.35                  | 6/15/2021     | (96,500)             |
| Inflation Swap USD                              | 18,200,000    | 16,264,519           | U.S. CPI URNSA              | 2.50                  | 7/15/2022     | (1,935,481)          |
| Inflation Swap USD                              | 2,760,000     | 2,760,000            | U.S. CPI URNSA              | 2.26                  | 5/9/2023      | (71,054)             |
| Inflation Swap USD                              | 4,230,000     | 4,230,000            | U.S. CPI URNSA              | 2.28                  | 5/10/2023     | (112,650)            |
| Inflation Swap EUR                              | 15,200,000    | 17,309,766           | EMU HICP                    | 1.23                  | 12/15/2023    | (316,032)            |
| Inflation Swap USD                              | 10,600,000    | 10,600,000           | U.S. CPI URNSA              | 1.96                  | 7/25/2024     | (35,052)             |
| Inflation Swap EUR                              | 2,000,000     | 2,277,601            | EMU HICP                    | 1.71                  | 3/15/2033     | (212,966)            |
| <b>Total Pay Fixed Inflation-Linked Swaps:</b>  |               | <b>\$74,193,553</b>  |                             |                       |               | <b>(\$2,796,610)</b> |
| <b>Receive Fixed Inflation-Linked Swaps:</b>    |               |                      |                             |                       |               |                      |
| Inflation Swap EUR                              | 2,000,000     | \$2,340,977          | 1.54%                       | EMU HICP              | 6/15/2023     | \$63,376             |
| Inflation Swap USD                              | 3,600,000     | 3,544,491            | 1.79                        | U.S. CPI URNSA        | 7/18/2026     | (55,509)             |
| Inflation Swap USD                              | 2,900,000     | 2,862,387            | 1.81                        | U.S. CPI URNSA        | 7/19/2026     | (37,613)             |
| Inflation Swap USD                              | 2,000,000     | 1,972,143            | 1.80                        | U.S. CPI URNSA        | 7/20/2026     | (27,857)             |
| Inflation Swap USD                              | 500,000       | 493,750              | 1.81                        | U.S. CPI URNSA        | 9/20/2026     | (6,250)              |
| Inflation Swap USD                              | 3,000,000     | 3,050,981            | 2.09                        | U.S. CPI URNSA        | 7/17/2027     | 50,981               |
| Inflation Swap USD                              | 1,600,000     | 1,628,536            | 2.10                        | U.S. CPI URNSA        | 7/20/2027     | 28,536               |
| Inflation Swap USD                              | 2,300,000     | 2,335,177            | 2.08                        | U.S. CPI URNSA        | 7/25/2027     | 35,177               |
| Inflation Swap USD                              | 60,000        | 61,415               | 2.18                        | U.S. CPI URNSA        | 9/20/2027     | 1,415                |
| Inflation Swap USD                              | 2,300,000     | 2,346,273            | 2.15                        | U.S. CPI URNSA        | 9/25/2027     | 46,273               |
| Inflation Swap USD                              | 2,600,000     | 2,654,964            | 2.16                        | U.S. CPI URNSA        | 10/17/2027    | 54,964               |
| Inflation Swap USD                              | 3,200,000     | 3,359,731            | 2.37                        | U.S. CPI URNSA        | 6/6/2028      | 159,731              |

(continued)

(continued)

| Asset Description                                  | Par       | Gross Notional      | TRS Receives | TRS Pays              | Maturity Date | Fair Value 6/30/19 |
|--|-----------|---------------------|--------------|-----------------------|---------------|--------------------|
| Inflation Swap USD                                 | 8,200,000 | \$8,624,633         | 2.38%        | U.S. CPI URNSA        | 7/9/2028      | \$424,633          |
| Inflation Swap GBP                                 | 5,100,000 | 6,566,501           | 3.58         | UK Retail Price Index | 10/15/2033    | 75,730             |
| Inflation Swap GBP                                 | 4,600,000 | 5,762,105           | 3.36         | UK Retail Price Index | 4/15/2035     | (92,316)           |
| Inflation Swap GBP                                 | 10,000    | 13,826              | 3.59         | UK Retail Price Index | 10/15/2046    | 1,099              |
| <b>Total Receive Fixed Inflation-Linked Swaps:</b> |           | <b>\$47,617,890</b> |              |                       |               | <b>\$722,370</b>   |

CDI - Cetip Interbank Deposit (interbank lending rate)

COOVIBR - Columbia Overnight Interbank Rate

CNRR - China Fixing Repo Rates

CPI - Consumer Price Index

EMU HICP - European Monetary Union Harmonized Index of Consumer Prices

EONIA - Euro Over Night Index Average

EURIBOR - Euro Interbank Offered Rate

JIBAR - Johannesburg Interbank Agreed Rate

LIBOR - London Interbank Offered Rate

PRIBOR - Czech Interbank Offered Rate

SONIA - Sterling Over Night Index Average

TELBOR - Tel Aviv Interbank Offered Rate

URNSA - Urban Consumers NSA Index Rate

## DERIVATIVE CREDIT RISK

Credit risk is the possibility that a loss may occur because a party to a transaction fails to perform according to the established terms. In order to eliminate credit risk, derivative securities are traded through a clearing house that guarantees delivery and accepts the risk of default by either party. Derivatives that are exchange traded are not subject to credit risk and are evaluated within the investment risk disclosure.

Non-exchange traded derivative instruments may expose TRS to credit/counterparty risk. TRS investment managers reduce credit risk by evaluating the credit quality and operational capabilities of the counterparties. Because the counterparty risk of a security will fluctuate with market movements, all TRS managers using non-exchange traded derivatives operate a collateral call process ensuring full collateralization of these derivatives. TRS does not have a policy regarding master netting arrangements.

As of June 30, 2019, the aggregate fair value of non-exchange traded derivative instruments in asset positions was \$42,226,731. All applicable futures, options and swaps are in compliance with Dodd-Frank requirements and cleared through the appropriate futures and swaps exchanges. The counterparty risk exposure below is primarily unsettled currency forward contracts. This represents the maximum loss that would be recognized at the

reporting date if all counterparties failed to perform as contracted.

## Counterparty Ratings for Non-Exchange Traded Derivatives

| Quality Rating                      | Fair Value at June 30, 2019 |
|-------------------------------------|-----------------------------|
| Aa2                                 | \$7,118,487                 |
| Aa3                                 | 16,977,638                  |
| A1                                  | 4,236,396                   |
| A2                                  | 7,166,845                   |
| A3                                  | 6,727,365                   |
| <b>Total subject to credit risk</b> | <b>\$42,226,731</b>         |

Although the derivative instruments held within the TRS investment portfolio are executed with various counterparties, approximately 90 percent of the net market value exposure to credit risk is for non-exchange traded derivative contracts held with 9 counterparties.

## 5. INVESTMENT COMMITMENTS

Investments in certain limited partnerships commit TRS to possible future capital contributions. As of June 30, 2019, TRS had remaining unfunded commitments of \$8,397,888,687 within the real estate, other real assets, private equity, diversifying strategies and global fixed income asset classes.

## 6. SCHEDULE OF INVESTMENT RETURNS

For the year ended June 30, 2019, the annual money-weighted rate of return on pension plan investments, net of investment expense, was 5.1 percent. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the timing of cash flows and the changing amounts invested.

## 7. FAIR VALUE MEASUREMENT

TRS categorizes investments measured at fair value within the fair value hierarchy established by generally accepted accounting principles. The hierarchy prioritizes valuation inputs used to measure the fair value of the asset or liability into three broad categories. The inputs or methodology used for valuing securities are not necessarily an indication of the risk associated with investing in those securities. Levels 1, 2 and 3 (lowest priority level) of the fair value hierarchy are defined as follows:

- Level 1** Inputs using unadjusted quoted prices in active markets or exchanges for identical assets and liabilities.
- Level 2** Significant other observable inputs, which may include quoted prices for similar assets or liabilities in active markets; quoted prices for identical or similar assets or liabilities in non-active markets; and inputs other than quoted prices that are observable for the assets or liabilities, either directly or indirectly.
- Level 3** Valuations for which one or more significant inputs are unobservable and may include situations where there is minimal, if any, market activity for the investment.

If the fair value is measured using inputs from different levels in the fair value hierarchy, the measurement should be categorized based on the lowest priority level input that is significant to the valuation. The System's assessment of the significance of a particular input to the fair

value measurement in its entirety requires judgment and considers factors specific to the investment.

Investments measured at fair value using net asset value (NAV) per share (or equivalent) as a practical expedient to fair value are not classified in the fair value hierarchy; however, separate disclosures for these investments are required.

Debt and equity investments classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets, to the extent these securities are actively traded.

Short-term investments consisting of money market funds, certificates of deposit and highly liquid cash equivalents are generally reported at amortized cost which approximates fair market value. These investments are not categorized in the fair value hierarchy.

Debt and investment derivatives classified in Level 2 of the fair value hierarchy are normally valued based on price data obtained from observed transactions and market price quotations from broker dealers and/or pricing vendors. Valuation estimates from service providers' internal models use observable inputs such as interest rates, yield curves, credit/risk spreads and default rates. Matrix pricing techniques value securities based on their relationship to benchmark quoted prices. Exchange traded and over-the-counter investment derivatives valued by independent pricing service providers, where the value is derived from underlying asset prices, reference rates, indices or other observable inputs are also included in Level 2.

Debt securities classified as Level 3 include valuations using significant unobservable inputs, valuations using proprietary information, inputs that cannot be corroborated by observable market data and securities valued with last trade date due to limited trading volume. Real assets classified as Level 3 include direct investments in real estate. Valuations for real estate investments are performed quarterly by investment managers. An appraisal by an independent third-party member of the Appraisal Institute is obtained once every three years for each property and is used to establish fair market value.

The following table summarizes the valuation of TRS investments by the fair value hierarchy levels as of June 30, 2019.

### Investments and Derivative Instruments Measured at Fair Value (\$ thousands)

|  | Fair Value Measurements Using |  |   |   |
|--|-------------------------------|--|---|---|
|  | June 30, 2019                 | Quoted Prices in Active Markets for Identical Assets Level 1 | Significant Other Observable Inputs Level 2 | Significant Unobservable Inputs Level 3 |
| <b>Investments by fair value level</b>                   |                               |  |   |   |
| <b>Debt securities</b>                                   |                               |  |   |   |
| Asset-backed securities                                  | \$325,690                     | \$ -   | \$324,718                                   | \$972                                   |
| Collateralized loan obligations                          | 220,444                       | -  | 220,444                                     | -                                       |
| Commercial & collateralized mortgages                    | 425,435                       | -  | 425,435                                     | -                                       |
| Domestic corporate obligations                           | 3,058,308                     | -  | 3,058,308                                   | -                                       |
| Fixed income mutual funds                                | 827,491                       | 827,491  | -   | -                                       |
| Foreign debt/corporate obligations                       | 3,483,276                     | -  | 3,476,941                                   | 6,335                                   |
| Municipals   | 93,022                        | -  | 93,022                                      | -                                       |
| U.S. agencies obligations                                | 119,472                       | -  | 119,472                                     | -                                       |
| U.S. government-backed mortgages                         | 599,118                       | -  | 599,118                                     | -                                       |
| U.S. treasuries  | 1,436,033                     | -  | 1,436,033                                   | -                                       |
| <b>Total debt securities</b>                             | <b>10,588,289</b>             | <b>827,491</b>   | <b>9,753,491</b>                            | <b>7,307</b>                            |
| <b>Equity investments</b>                                |                               |  |   |   |
| International common and preferred stock                 | 9,603,424                     | 9,589,909  | 13,515                                      | -                                       |
| U.S. common and preferred stock                          | 7,918,737                     | 7,914,493  | 4,244                                       | -                                       |
| <b>Total equity investments</b>                          | <b>17,522,161</b>             | <b>17,504,402</b>  | <b>17,759</b>                               | <b>-</b>                                |
| <b>Real assets</b>                                       |                               |  |   |   |
| Real estate  | 4,839,257                     | -  | -   | 4,839,257                               |
| <b>Total real assets</b>                                 | <b>4,839,257</b>              | <b>-</b>   | <b>-</b>                                    | <b>4,839,257</b>                        |
| <b>Total investments by fair value level</b>             | <b>\$32,949,707</b>           | <b>\$18,331,893</b>  | <b>\$9,771,250</b>                          | <b>\$4,846,564</b>                      |
| <b>Investments measured at the Net Asset Value (NAV)</b> |                               |  |   |   |
| Commingled fixed income funds                            | \$3,137,473                   |  |   |   |
| Diversifying strategies                                  | 5,374,252                     |  |   |   |
| International equity commingled fund                     | 301,521                       |  |   |   |
| Private equity partnerships                              | 6,378,902                     |  |   |   |
| Private real estate partnerships                         | 2,515,552                     |  |   |   |
| Other real assets  | 527,431                       |  |   |   |
| <b>Total investments measured at the NAV</b>             | <b>18,235,131</b>             |  |   |   |
| <b>Total investments measured at fair value</b>          | <b>\$51,184,838</b>           |  |   |   |
| <b>Investment derivative instruments</b>                 |                               |  |   |   |
| Credit default swaps                                     | \$164                         | \$ -   | \$164                                       | \$ -                                    |
| Index and variance swaps                                 | 1,162                         | -  | 1,162                                       | -                                       |
| Inflation swaps  | (1,714)                       | -  | (1,714)                                     | -                                       |
| Interest rate swaps                                      | (55,568)                      | -  | (55,568)                                    | -                                       |
| Options  | 3,691                         | -  | 3,691                                       | -                                       |
| Swaptions  | (3,623)                       | -  | (3,623)                                     | -                                       |
| <b>Total investment derivative instruments</b>           | <b>(\$55,888)</b>             | <b>\$ -</b>  | <b>(\$55,888)</b>                           | <b>\$ -</b>                             |
| <b>Invested securities lending collateral</b>            |                               |  |   |   |
| <b>Total invested securities lending collateral*</b>     | <b>\$2,485,824</b>            | <b>\$325,881</b>   | <b>\$2,159,943</b>                          | <b>\$ -</b>                             |

\* Does not include lending collateral with the State Treasurer.

Investments measured at NAV for fair value are not subject to level classification. The valuation method for investments measured at the NAV per share (or its equivalent) is presented on the following table.

**Investments Measured at the Net Asset Value (NAV)**  
**(\$ thousands)**

|   | Fair Value<br>June 30, 2019 | Unfunded<br>Commitments | Redemption Frequency<br>(if Currently Eligible) | Redemption<br>Notice Period |
|---|-----------------------------|-------------------------|---|-----------------------------|
| Diversifying funds - liquid <sup>1</sup>          | \$4,799,439                 | \$ -                    | Daily, weekly, monthly,<br>quarterly            | 1 - 90 days                 |
| Diversifying funds - illiquid <sup>2</sup>        | 574,813                     | 139,855                 | Not eligible                                    | N/A                         |
| <b>Total diversifying strategies</b>              | <b>5,374,252</b>            | <b>139,855</b>          |   |                             |
| Commingled fixed income funds <sup>3</sup>        | 1,625,529                   | -                       | Monthly, quarterly                              | 30-90 days                  |
| Fixed income private debt funds <sup>4</sup>      | 1,511,944                   | 1,281,329               | Not eligible                                    | N/A                         |
| <b>Total commingled fixed income funds</b>        | <b>3,137,473</b>            | <b>1,281,329</b>        |   |                             |
| International equity commingled fund <sup>5</sup> | 301,521                     | -                       | Daily   | 1 day                       |
| Private equity partnerships <sup>6</sup>          | 6,378,902                   | 3,314,719               | Not eligible                                    | N/A                         |
| Private real estate partnerships <sup>6</sup>     | 2,515,552                   | 2,879,948               | Not eligible                                    | N/A                         |
| Real return fund <sup>7</sup>                     | 275,078                     | -                       | Monthly   | 30 days                     |
| Real assets partnerships <sup>8</sup>             | 252,353                     | 782,038                 | Not eligible                                    | N/A                         |
| <b>Total other real assets</b>                    | <b>527,431</b>              | <b>782,038</b>          |   |                             |
| <b>Total investments measured at the NAV</b>      | <b>\$18,235,131</b>         | <b>\$8,397,889</b>      |   |                             |

- Diversifying funds (liquid strategies):** The diversifying strategies asset class applies various strategies that provide diversification to the total investment portfolio. Investments focus on reducing equity-like risk characteristics encompassed in the overall TRS portfolio by enhancing exposures to strategies that show little to no correlation to growth factors while adding positive skew and active risk management characteristics. Risk parity and alternative risk premia strategies consists of four direct investments focusing on market neutral and long only expressions of cross-asset risk. The systematic and discretionary macro strategies include direct investments in 10 funds diversifying through regional and product expertise, speed of algorithms and style of trading. Opportunistic alpha funds, including six direct investments and one diversified fund of funds, use idiosyncratic alpha capture through liquidity and security selection. The fair value of these investments has been determined using the NAV per share of the investments. The strategies maintain a liquidity profile of less than one year, ranging from daily to quarterly and require advance notice prior to redemption. TRS submitted redemption requests for two direct investments, valued at \$122.7 million, with exit dates of July 31 and September 30, 2019.
- Diversifying funds (illiquid strategies):** The diversifying strategies asset class also includes three opportunistic alpha funds in which redemptions are restricted over the life of the partnership. The partnership's interest is valued using the NAV per share (or its equivalent). The most significant element of NAV is the fair value of the underlying investment holdings which are valued on a monthly basis by the general partner and are audited annually. The average life of these funds spans five to 10 years and the funds will distribute any free cash from the master fund in excess of the amount needed to maintain prudent liquidity. TRS has no plans to liquidate as of June 30, 2019.
- Commingled fixed income funds:** The investment strategies for the 11 fixed income funds include high yield, defensive bond arbitrage, emerging market debt, relative value and TRS customized accounts investing in

opportunistic investments. The fair value of the investments has been determined using the NAV per share (or its equivalent) of the investments. Liquidity ranges from monthly to quarterly upon notice of redemption and TRS has no plans to liquidate as of June 30, 2019.

- 4) **Fixed income private debt funds:** Private debt funds consist of 36 funds investing across strategies such as stressed debt/credit, direct and specialty lending, real estate credit and bank loans. These funds provide additional exposure to niche and/or specific non-traditional point-in-time opportunities that are not normally targeted by traditional fixed income managers. Funds are valued using the NAV per share (or its equivalent) and are audited annually. Redemption restrictions are in place over the life of the partnership. The average life of these funds span three to 12 years and distributions are received throughout the life of the fund. TRS has no plans to liquidate as of June 30, 2019; however, three of the funds, with fair value of \$45.9 million, are approaching the end of the partnership term, winding down and distributing cash as the funds sell underlying investments.
- 5) **International equity commingled fund:** Includes one fund investing in emerging market small cap equities diversified across multiple sectors. The fair value of the investment has been determined using the NAV per share of the investments. Daily liquidity is available.
- 6) **Private equity and real estate partnerships:** TRS has 170 private equity partnerships which include investments in privately held equity, such as buyouts, co-investments, venture capital and growth equity, as well privately held debt. The 51 real estate limited partnerships invest in various property types across multiple geographic regions. Investments in limited partnerships are normally long-term with an approximate life of 10 to 12 years and considered illiquid. Investors are subject to redemption restrictions which limit and restrict the ability of limited partners to exit prior to dissolution. Partnership interests are valued using their respective NAV calculated by the general partner's fair valuation policy and are generally audited annually. The most significant element of NAV is the fair value of the investment holdings which are typically valued on a quarterly basis by the general partners. Distributions are received as the funds sell underlying portfolio company investments. TRS has no plans on liquidating the portfolio, however will opportunistically sell funds in the secondary market to reposition the portfolio and optimize returns. During the fiscal year, TRS sold 33 private equity funds on the secondary market. As of June 30, 2019, it is probable that all investments in this type will be sold at an amount different from the current NAV of the plan's ownership interest.
- 7) **Real return fund:** TRS holds one multi-strategy real return fund that targets assets that hedge inflation while mitigating extraneous risks (such as equities and real rates). The fund allows monthly redemptions with notice and the partnership's interest is valued using the NAV per share (or its equivalent). The most significant element of NAV is the fair value of the underlying securities which are valued on a monthly basis by the general partner. TRS has no plans to liquidate this fund as of June 30, 2019.
- 8) **Real assets partnerships:** Real assets strategies include seven limited partnerships investing in global infrastructure, direct energy and non-U.S. agriculture. These partnerships are not eligible for redemption, considered illiquid and have an approximate life of six to 20 years. Distributions are received during the life of the fund as underlying investments are liquidated. Partnership interests are valued by the general partner using their respective NAV per share (or equivalent), with the most significant element of NAV being the fair value of the investment holdings. TRS has no plans to liquidate these funds. As of June 30, 2019, it is probable that all investments in this type will be sold at an amount different from the current NAV of the plan's ownership interest.

## E. RESERVES

TRS maintains statutory reserve accounts in accordance with the provisions of 40 ILCS 5/16-101 et seq. In 1997, the Illinois General Assembly passed legislation that allowed the crediting of income at fair value, as opposed to book value, to the Benefit Trust Reserve.

### 1. BENEFIT TRUST

| 2019                |                  |
|---------------------|------------------|
| Balances at June 30 | \$53,253,086,048 |

This reserve serves as a clearing account for TRS income and expenses. The reserve is credited with contributions from the State of Illinois that are not specifically allocated to the Minimum Retirement Annuity Reserve, member and employer contributions, income from TRS invested assets and contributions from annuitants who qualify for automatic annual increases in annuity.

The reserve accumulates, with 6 percent interest, the contributions by members prior to retirement. Contributions have been 7.5 percent of salary since July 1, 1998. Contributions are fully refundable upon withdrawal from TRS, excluding interest credited thereon. The interest accrued is refundable only in the event of death. Interest is credited as of the date of retirement or death of those retiring or dying during the year and as of the end of the fiscal year for all other members. Interest is computed annually based upon the individual member's balance in the reserve at the beginning of the fiscal year.

This reserve is charged for transfers to the Minimum Retirement Annuity Reserve and all

- refunds to withdrawing members,
- retirement annuity payments (except as provided by the Minimum Retirement Annuity Reserve),
- benefits that are paid to disabled members,
- death benefits paid and

- refunds to annuitants for survivor benefit contributions.

The expected benefit payments do not equal the present value of the reserve. The additional amount needed (the unfunded actuarial accrued liability) as calculated by the actuary was \$78.1 billion in FY19, based on the actuarial value of assets.

### 2. MINIMUM RETIREMENT ANNUITY

| 2019                |             |
|---------------------|-------------|
| Balances at June 30 | \$9,703,319 |

The minimum annuity is set by law at \$25 per month for each year of creditable service to a maximum of \$750 per month after 30 or more years of creditable service. To qualify, annuitants are required to make a one-time contribution that is credited to the reserve. Interest at 6 percent is credited to the reserve annually based upon the average reserve balance. The State of Illinois also appropriated funds necessary to pay the minimum benefits. All benefits paid under this program are charged to the reserve. This reserve is fully funded.

## F. OTHER POST-EMPLOYMENT BENEFITS FOR TRS EMPLOYEES

The state provides health, dental, vision and life insurance benefits for retirees and their dependents in a program administered by the Department of Central Management Services (CMS). Substantially all state employees become eligible for post-employment benefits if they eventually become annuitants of one of the state-sponsored pension plans.

Health, dental and vision benefits include basic benefits for annuitants and dependents under the state's self-insurance plan and insurance contracts currently in force. Annuitants may be required to contribute towards health, dental and vision benefits with an amount based on factors such as date of retirement, years of credited service with the State of Illinois, whether the annuitant is covered by Medicare and whether the annuitant has chosen a managed health care plan. Employees of the System

who retired before Jan. 1, 1998 and are vested in either SERS or TRS do not contribute towards health and vision benefits. A premium is required for dental. For annuitants who retired on or after Jan. 1, 1998, the annuitant's contribution amount is reduced 5 percent for each year of credited service with the state allowing those annuitants with 20 or more years of credited service to not have to contribute towards health and vision benefits. A premium is required for dental. Annuitants also receive life insurance coverage equal to the annual salary of their last day of employment until age 60, at which time the benefit becomes \$5,000.

The State of Illinois pays the TRS portion of employer costs for the benefits provided. The total cost of the state's portion of health, dental, vision and life insurance benefits of all members, including post-employment health, dental, vision and life

insurance benefits, is recognized as an expenditure by the state in the Illinois *Comprehensive Annual Financial Report*. The System adopted GASB 75 during the previous year, but has chosen not to record the other post-retirement liability because it is deemed insignificant to the financial statements. The footnote and required supplementary information also required by GASB 75 have been excluded, as well, due to the insignificance of the liability.

A summary of post-employment benefit provisions, changes in benefit provisions and employee eligibility requirements, including eligibility for vesting and the authority under which benefit provisions are established, are included as an integral part of the financial statements for CMS. A copy of the financial statements may be obtained by contacting their office, Department of Central Management Services, 704 Stratton Office Building, Springfield, IL 62706.

# REQUIRED SUPPLEMENTARY INFORMATION

## Schedule of Changes in the Net Pension Liability for Fiscal Years:

|  | 2019                           | 2018                           | 2017                           | 2016                           | 2015                           | 2014                           |
|--|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| <b>Total pension liability</b>                             |                                |                                |                                |                                |                                |                                |
| Service cost   | \$1,947,627,286                | \$1,838,002,948                | \$1,877,570,053                | \$1,681,242,232                | \$1,948,079,771                | \$1,894,351,211                |
| Interest   | 8,991,684,121                  | 8,703,519,454                  | 8,390,352,464                  | 8,264,257,311                  | 7,864,916,421                  | 7,561,104,814                  |
| Changes of benefit terms                                   | -                              | (374,603,419)                  | -                              | -                              | -                              | -                              |
| Difference between expected and actual experience          | 258,778,925                    | 1,191,346,970                  | 482,486,212                    | 701,827,169                    | (90,079,446)                   | 39,950,212                     |
| Change of assumptions                                      | 77,241,572                     | (666,054,719)                  | (2,725,599,755)                | 7,553,894,504                  | 1,136,454,886                  | -                              |
| Benefit payments, including refund of member contributions | (6,818,760,572)                | (6,551,634,376)                | (6,438,005,920)                | (5,931,207,177)                | (5,625,037,173)                | (5,320,662,979)                |
| <b>Net change in total pension liability</b>               | <b>4,456,571,332</b>           | <b>4,140,576,858</b>           | <b>1,586,803,054</b>           | <b>12,270,014,039</b>          | <b>5,234,334,459</b>           | <b>4,174,743,258</b>           |
| <b>Total pension liability - beginning</b>                 | <b>129,914,383,296</b>         | <b>125,773,806,438</b>         | <b>124,187,003,384</b>         | <b>111,916,989,345</b>         | <b>106,682,654,886</b>         | <b>102,507,911,628</b>         |
| <b>Total pension liability - ending (a)</b>                | <b>134,370,954,628</b>         | <b>129,914,383,296</b>         | <b>125,773,806,438</b>         | <b>124,187,003,384</b>         | <b>111,916,989,345</b>         | <b>106,682,654,886</b>         |
| <b>Plan fiduciary net position</b>                         |                                |                                |                                |                                |                                |                                |
| Contributions - employer                                   | 88,514,781                     | 84,633,117                     | 149,495,577                    | 148,040,767                    | 145,591,585                    | 158,334,598                    |
| Contributions - nonemployer contributing entity            | 4,466,020,692                  | 4,095,125,358                  | 3,986,363,699                  | 3,742,469,245                  | 3,377,664,945                  | 3,438,382,892                  |
| Contributions - member                                     | 963,972,120                    | 938,037,245                    | 929,130,165                    | 951,809,398                    | 935,451,049                    | 928,745,853                    |
| Net investment income (loss)                               | 2,617,831,332                  | 4,049,271,728                  | 5,520,453,001                  | (44,103,178)                   | 1,770,549,533                  | 6,782,031,720                  |
| Benefit payments, including refund of member contributions | (6,818,760,572)                | (6,551,634,376)                | (6,438,005,920)                | (5,931,207,177)                | (5,625,037,173)                | (5,320,662,979)                |
| Administrative expense                                     | (24,335,680)                   | (21,550,896)                   | (22,728,735)                   | (22,967,917)                   | (21,686,860)                   | (21,218,069)                   |
| <b>Net change in plan fiduciary net position</b>           | <b>1,293,242,673</b>           | <b>2,593,882,176</b>           | <b>4,124,707,787</b>           | <b>(1,155,958,862)</b>         | <b>582,533,079</b>             | <b>5,965,614,015</b>           |
| <b>Plan fiduciary net position - beginning</b>             | <b>51,969,546,694</b>          | <b>49,375,664,518</b>          | <b>45,250,956,731</b>          | <b>46,406,915,593</b>          | <b>45,824,382,514</b>          | <b>39,858,768,499</b>          |
| <b>Plan fiduciary net position - ending (b)</b>            | <b>53,262,789,367</b>          | <b>51,969,546,694</b>          | <b>49,375,664,518</b>          | <b>45,250,956,731</b>          | <b>46,406,915,593</b>          | <b>45,824,382,514</b>          |
| <b>Employers' net pension liability - ending (a) - (b)</b> | <b><u>\$81,108,165,261</u></b> | <b><u>\$77,944,836,602</u></b> | <b><u>\$76,398,141,920</u></b> | <b><u>\$78,936,046,653</u></b> | <b><u>\$65,510,073,752</u></b> | <b><u>\$60,858,272,372</u></b> |

Note: Information is not available prior to 2014. Additional years will be added to future reports as schedules are intended to show 10 years of historical data.

## Schedule of the Net Pension Liability for Fiscal Years:

|  | 2019                    | 2018                    | 2017                    | 2016                    | 2015                    | 2014                    |
|--|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Total pension liability  | \$134,370,954,628       | \$129,914,383,296       | \$125,773,806,438       | \$124,187,003,384       | \$111,916,989,345       | \$106,682,654,886       |
| Plan fiduciary net position  | 53,262,789,367          | 51,969,546,694          | 49,375,664,518          | 45,250,956,731          | 46,406,915,593          | 45,824,382,514          |
| <b>Net pension liability</b>   | <b>\$81,108,165,261</b> | <b>\$77,944,836,602</b> | <b>\$76,398,141,920</b> | <b>\$78,936,046,653</b> | <b>\$65,510,073,752</b> | <b>\$60,858,272,372</b> |
| Plan fiduciary net position as a percentage of the total pension liability | 39.6%                   | 40.0%                   | 39.3%                   | 36.4%                   | 41.5%                   | 43.0%                   |
| Covered payroll  | \$10,450,452,444        | \$10,163,980,000        | \$9,965,569,893         | \$9,811,614,284         | \$9,641,170,627         | \$9,512,809,680         |
| Net pension liability as a percentage of covered payroll                   | 776.1%                  | 766.9%                  | 766.6%                  | 804.5%                  | 679.5%                  | 639.8%                  |

## Schedule of Investment Returns for Fiscal Years:

|   | 2019 | 2018 | 2017  | 2016   | 2015 | 2014  |
|---|------|------|-------|--------|------|-------|
| Annual money-weighted rate of return, net of investment expense | 5.1% | 8.5% | 12.5% | (0.1%) | 4.0% | 17.4% |

Note: Information is not available prior to 2014. Additional years will be added to future reports as schedules are intended to show 10 years of historical data.

## Schedule of Contributions from Employers and Other Contributing Entities, Last 10 Fiscal Years (\$ thousands)

|  | 2019               | 2018               | 2017               | 2016             | 2015             | 2014             | 2013             | 2012             | 2011             | 2010             |
|--|--------------------|--------------------|--------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Actuarially-determined contribution (ADC)                              | \$7,429,037        | \$7,080,756        | \$6,248,879        | \$4,582,530      | \$4,119,526      | \$4,091,978      | \$3,582,033      | \$3,429,945      | \$2,743,221      | \$2,481,914      |
| Contributions in relation to the actuarially-determined contribution:* |                    |                    |                    |                  |                  |                  |                  |                  |                  |                  |
| State  | 4,465,578          | 4,094,616          | 3,985,783          | 3,741,802        | 3,376,878        | 3,437,478        | 2,702,278        | 2,405,172        | 2,169,518        | 2,079,129        |
| Federal & Employer Contributions                                       | 87,707             | 84,034             | 148,749            | 147,408          | 144,780          | 157,228          | 155,787          | 153,409          | 154,150          | 170,653          |
| Total contributions  | 4,553,285          | 4,178,650          | 4,134,532          | 3,889,210        | 3,521,658        | 3,594,706        | 2,858,065        | 2,558,581        | 2,323,668        | 2,249,782        |
| <b>Contribution deficiency</b>   | <b>\$2,875,752</b> | <b>\$2,902,106</b> | <b>\$2,114,347</b> | <b>\$693,320</b> | <b>\$597,868</b> | <b>\$497,272</b> | <b>\$723,968</b> | <b>\$871,364</b> | <b>\$419,553</b> | <b>\$232,132</b> |
| Covered payroll  | \$10,450,452       | \$10,163,980       | \$9,965,570        | \$9,811,614      | \$9,641,171      | \$9,512,810      | \$9,394,741      | \$9,321,098      | \$9,205,603      | \$9,251,139      |
| Contributions as a percentage of covered payroll                       | 43.6%              | 41.1%              | 41.5%              | 39.6%            | 36.5%            | 37.8%            | 30.4%            | 27.4%            | 25.2%            | 24.3%            |

\* Contributions for minimum benefits from the state and for excess sick from employers do not count towards actuarial funding requirements. Beginning in FY18, employer contributions on salaries exceeding the statutory salary of the governor are included and the projected excess salary contribution is included in the ADC. In all years, employer contributions for excess salary increases are included. However, employer contributions for excess sick leave are not included because there is no assumption for excess sick leave and it is not included in the funding requirements. Before FY17, the actuarially determined contribution was based on GASB Statement No. 25. Beginning in FY17, a different basis for determining the actuarially-determined contribution is used, as described in the following table.

## NOTES TO REQUIRED SUPPLEMENTARY INFORMATION

The Schedule of Changes in Net Pension Liability and the Schedule of Net Pension Liability are affected by various factors. In FY19, they increased the total pension liability by \$4.5 billion.

The Schedule of Contributions from Employers and Other Contributing Entities compares actual and actuarially-determined contributions. There is a difference between these amounts because actual contributions are based on state statute under a methodology that does not conform to that used to determine the actuarially-determined contribution.

The following assumptions were used to determine the statutory and actuarially-determined contributions for FY19.

|   | For Funding per State Statute  | For Determining the Actuarially-determined Contribution   |
|---|--|---|
| Valuation Used to Determine Funding Amount: | June 30, 2017  | June 30, 2017   |
| Actuarial Cost Method:                      | Projected unit credit  | Entry age normal  |
| Amortization Method:                        | 15-year phase-in to a level percent of payroll reached in FY10; then level percent of payroll until a 90 percent funding level is achieved in FY45 | Level percent of payroll  |
| Remaining Amortization:                     | 26 years, closed   | 20 years, closed beginning with 2015 actuarial valuation; subsequent increases in the UL amortized over subsequent 20-year periods. |
| Asset Valuation Method:                     | Actuarial value of assets with five-year smoothing of investment gains and losses  | Actuarial value of assets with five-year smoothing of investment gains and losses   |

**OTHER SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF ADMINISTRATIVE EXPENSES**  
**FOR THE YEARS ENDED JUNE 30**

|   | 2019                       | 2018                       |
|---|----------------------------|----------------------------|
| <b>Personnel services</b>                 |                            |                            |
| Salaries                                  | \$11,031,954               | \$10,346,412               |
| Retirement contributions                  | 2,259,264                  | 2,030,511                  |
| Insurance and payroll taxes               | 3,724,737                  | 3,408,592                  |
|   | <u>17,015,955</u>          | <u>15,785,515</u>          |
| <b>Professional services</b>              |                            |                            |
| Actuarial services                        | 259,272                    | 267,156                    |
| External auditors                         | 261,014                    | 269,125                    |
| Legal services                            | 213,249                    | 174,288                    |
| Legislative consulting                    | 84,000                     | 84,000                     |
| Information systems consulting            | 1,734,617                  | 844,845                    |
| Operations consulting                     | 318,242                    | 233,466                    |
| Other                                     | 4,565                      | 6,748                      |
|   | <u>2,874,959</u>           | <u>1,879,628</u>           |
| <b>Communications</b>                     |                            |                            |
| Postage                                   | 191,128                    | 165,325                    |
| Printing and copying                      | 205,490                    | 202,744                    |
| Telephone                                 | 161,340                    | 163,494                    |
|   | <u>557,958</u>             | <u>531,563</u>             |
| <b>Other services</b>                     |                            |                            |
| Administrative services                   | 549,072                    | 270,677                    |
| Building operations and maintenance       | 441,844                    | 500,749                    |
| EDP supplies and equipment                | 242,881                    | 95,747                     |
| Equipment repairs, rental and maintenance | 196,268                    | 219,130                    |
| Insurance                                 | 181,883                    | 304,757                    |
| Memberships and subscriptions             | 144,838                    | 96,130                     |
| Office equipment and furniture            | 68,861                     | 29,458                     |
| Office supplies                           | 16,625                     | 19,398                     |
| Software licenses and maintenance         | 965,505                    | 659,828                    |
| Travel, conferences, education            | 203,312                    | 209,816                    |
|   | <u>3,011,089</u>           | <u>2,405,690</u>           |
| <b>Depreciation expense</b>               | <u>875,719</u>             | <u>948,500</u>             |
| <b>Total administrative expenses</b>      | <b><u>\$24,335,680</u></b> | <b><u>\$21,550,896</u></b> |

Note: Above amounts do not include investment administrative expenses, which are deducted from investment income and shown in a separate schedule on the following page.

## SCHEDULE OF INVESTMENT EXPENSES FOR THE YEARS ENDED JUNE 30

|   | 2019                        | 2018                        |
|---|-----------------------------|-----------------------------|
| <b>Investment manager fees</b>          | <u>\$316,622,153</u>        | <u>\$350,149,552</u>        |
| <b>Master custodian fees</b>            |                             |                             |
| State Street Bank and Trust Company     | 2,604,167                   | 2,531,250                   |
| <b>Consulting services</b>              |                             |                             |
| Albourne America, L.L.C.                | 166,667                     | 416,000                     |
| Aksia, L.L.C.                           | 525,153                     | -                           |
| Courtland Partners, Ltd.                | -                           | 208,944                     |
| RVK, Inc.                               | 525,000                     | 457,646                     |
| Stepstone Group Real Estate, L.P.       | 288,370                     | 71,027                      |
| Stout Risius Ross, Inc.                 | 85,000                      | -                           |
| TorreyCove Capital Partners, L.L.C.     | 1,101,250                   | 997,500                     |
|   | <u>2,691,440</u>            | <u>2,151,117</u>            |
| <b>Legal services</b>                   |                             |                             |
| DLA Piper, L.L.P.                       | 737,886                     | 123,767                     |
| Jackson Walker, L.L.P.                  | -                           | 253,292                     |
|   | <u>737,886</u>              | <u>377,059</u>              |
| <b>Tax advisory services</b>            |                             |                             |
| Ernst & Young Private, Ltd.             | 84,681                      | 75,482                      |
| <b>Other investment expense</b>         |                             |                             |
| Auditing costs                          | 70,200                      | 63,430                      |
| Communication services                  | 24,367                      | 30,311                      |
| Dividend expense                        | 974,876                     | 3,190,912                   |
| Education, meetings and travel          | 155,261                     | 153,678                     |
| Foreign tax expense                     | 17,457,561                  | 18,064,442                  |
| Investment activity expenses            | 1,124,017                   | 2,298,273                   |
| Investment analytical systems           | 1,103,484                   | 1,116,671                   |
| Personnel costs                         | 4,896,596                   | 4,974,888                   |
| Research, subscriptions and memberships | 84,205                      | 81,407                      |
| Other costs                             | 122,966                     | 98,141                      |
|   | <u>26,013,533</u>           | <u>30,072,153</u>           |
| <b>Total investment expenses</b>        | <u><b>\$348,753,860</b></u> | <u><b>\$385,356,613</b></u> |

Note: Investment manager fee detail is shown on pages 84 to 87.

## SCHEDULE OF PROFESSIONAL SERVICES FOR THE YEARS ENDED JUNE 30

|  | 2019                      | 2018                      |
|--|---------------------------|---------------------------|
| <b>Actuarial services</b>                                    |                           |                           |
| The Segal Company Midwest, Inc.                              | \$259,272                 | \$267,156                 |
| <b>External auditors</b>                                     |                           |                           |
| Office of the Auditor General (BKD)                          | 261,014                   | 269,125                   |
| <b>Legal services</b>  |                           |                           |
| Cavanagh & O'Hara  | -                         | 8,414                     |
| DLA Piper, L.L.C.  | 4,915                     | -                         |
| Holland & Knight, L.L.P.                                     | 142,120                   | 33,080                    |
| Howard & Howard Attorneys, P.L.L.C.                          | 3,093                     | 5,406                     |
| Kopec White & Spooner  | 2,784                     | 28,640                    |
| Loewenstein & Smith, P.C.                                    | 832                       | 12,189                    |
| Reinhart Boerner Van Deuren                                  | 51,562                    | 85,822                    |
| Whitt Law, L.L.C.  | 7,943                     | 737                       |
|  | <u>213,249</u>            | <u>174,288</u>            |
| <b>Legislative consulting</b>                                |                           |                           |
| Leinenweber Baroni & Daffada Consulting, L.L.C.              | 84,000                    | 84,000                    |
| <b>Information systems consulting</b>                        |                           |                           |
| Advanced Design Management Group, L.L.C.                     | 21,420                    | 37,864                    |
| Agile Progress, L.L.C.                                       | 206,554                   | 528,769                   |
| Apex Systems   | 97,533                    | -                         |
| AT&T Corporation   | -                         | 1,440                     |
| Blu Age Corporation  | 562                       | -                         |
| Capitol Strategies Consulting, Inc.                          | -                         | 16,813                    |
| Catapult Systems, L.L.C.                                     | 15,530                    | -                         |
| Converge One, Inc.   | 2,695                     | -                         |
| Decker Innovations, Inc.                                     | 272,547                   | -                         |
| HSO North America, L.L.C.                                    | 265,764                   | 208,995                   |
| Illuminative Strategies, Inc.                                | 53,331                    | -                         |
| Levi Ray & Shoup, Inc.                                       | 343,779                   | -                         |
| Linea Solutions, Inc.  | 13,750                    | -                         |
| ProCircular, Inc.  | 24,100                    | 8,000                     |
| Promet Solutions Corporation                                 | 30,229                    | 28,343                    |
| Provaliant Retirement, L.L.C.                                | 351,063                   | -                         |
| Sentinel Technologies, Inc.                                  | 35,760                    | 14,621                    |
|  | <u>1,734,617</u>          | <u>844,845</u>            |
| <b>Operations consulting</b>                                 |                           |                           |
| CDW L.L.C.   | 6,299                     | -                         |
| CEM Benchmarking, Inc.                                       | 45,000                    | 45,000                    |
| Darlington & Company, Inc.                                   | 76,428                    | -                         |
| Darlington Partners Ltd.                                     | 31,544                    | 43,347                    |
| Graham & Hyde  | -                         | 3,042                     |
| Higher Logic, L.L.C. (formerly known as Real Magnet, L.L.C.) | 10,396                    | 15,971                    |
| Holland, William G.  | -                         | 500                       |
| Jasculca Terman Strategic Communications                     | 86,000                    | 70,000                    |
| Levi Ray & Shoup, Inc.                                       | 11,914                    | 16,814                    |
| Management Association                                       | 15,596                    | 10,313                    |
| SABA Software  | 2,900                     | 8,479                     |
| Segal Waters Public Sector                                   | 32,165                    | 20,000                    |
|  | <u>318,242</u>            | <u>233,466</u>            |
| <b>Other</b>   | 4,565                     | 6,748                     |
| <b>Total professional services</b>                           | <u><u>\$2,874,959</u></u> | <u><u>\$1,879,628</u></u> |

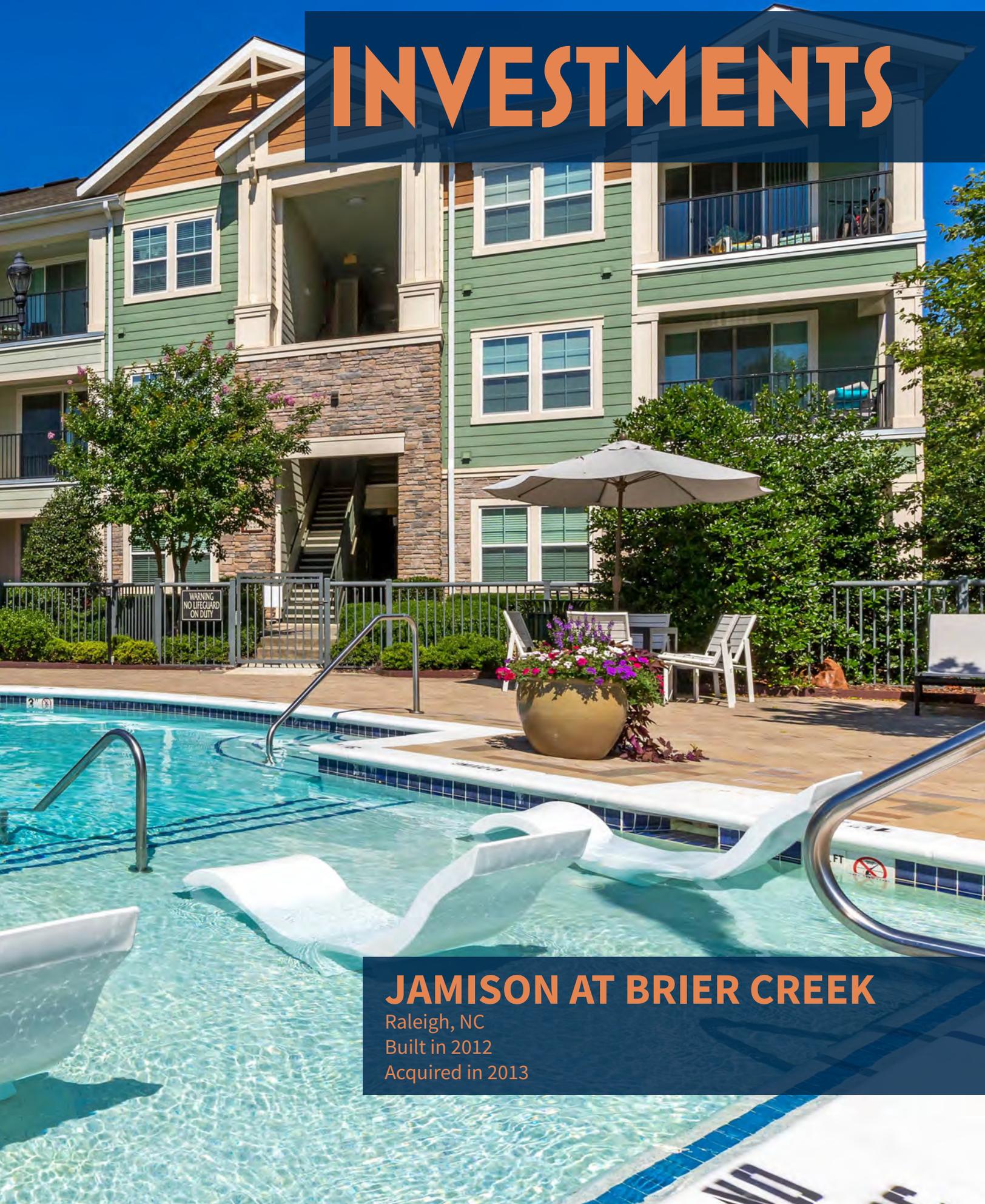


SIX HILLS  
COMMUNITY  
46

3 FT

1 1/2 FT  
NO DIVING

# INVESTMENTS



## JAMISON AT BRIER CREEK

Raleigh, NC  
Built in 2012  
Acquired in 2013

## INTRODUCTION

The Teachers' Retirement System trust fund is invested by authority of the Illinois Pension Code under the “prudent person rule,” requiring investments to be managed solely in the interest of fund participants and beneficiaries. The TRS Investment Policy guides TRS’s investments. Investment principles include preserving the long-term principal of the trust fund, maximizing total return within prudent risk parameters and acting in the exclusive interest of TRS members.

The TRS investment portfolio increased \$754.9 million over the past 12 months, ending with a value of \$52.8 billion on June 30, 2019. The TRS portfolio remains fully diversified across different asset classes. Within each asset class, TRS utilizes a number of investment managers with various investment styles to ensure appropriate diversification, allowing the portfolio to achieve broad exposure to the market while minimizing overall risk. This broad diversification serves as the best defense against the uncertainty of volatile global markets.

The global public equity market has continued to rally since the Global Financial Crisis ended in early 2009; however, global central bank narratives became more dovish as global growth began to slow and geopolitics contributed to brief periods of market volatility. Under these market conditions, the System’s private assets in private equity and opportunistic real estate outperformed public assets during the fiscal year; generating 12.3 percent and 8.2 percent, net of fee returns, respectively. All asset classes produced positive returns, contributing to the overall TRS portfolio posting a return of 5.2 percent, net of fees, for the fiscal year ended June 30, 2019.

State Street Bank and Trust, as master trustee, has provided TRS a statement of detailed assets, along

with their fair value as of June 30, 2019. State Street Bank and Trust has also provided detailed financial reports of all investments, receipts, disbursements, purchases and sales of securities and other transactions pertinent to the fund for fiscal year 2019. TRS investment consultants have also contributed key investment portfolio data and analysis during the fiscal year and throughout the investment process.

Investment performance calculations use time-weighted rate of return. State Street Bank and Trust calculates returns using industry best practices. Additionally, State Street Bank and Trust calculates performance rates of return by portfolio, composite and for all respective indices used throughout this section. The TRS investment staff, in collaboration with the staff of its custodian, prepared the Investments section.

A complete listing of investment holdings is available upon request.

### Summary Data as of June 30, 2019

|                              |                                     |
|------------------------------|-------------------------------------|
| Total fund fair value        | \$52.8 billion                      |
| 1-year return (net of fees)  | 5.2%                                |
| 3-year return (net of fees)  | 8.7%                                |
| 5-year return (net of fees)  | 5.9%                                |
| 10-year return (net of fees) | 9.5%                                |
| 20-year return (net of fees) | 6.3%                                |
| 30-year return (net of fees) | 8.0%                                |
| Percent externally managed   | 100.0%                              |
| Number of external managers  | 159                                 |
| Master Trustee and Custodian | State Street Bank and Trust Company |
| General consultant           | RVK, Inc.                           |

TRS is the 42nd largest pension system in the United States according to *Pensions & Investments*. Rankings are based on the fair value of total assets as of Sept. 30, 2018.

## ASSET ALLOCATION

A pension fund's most important investment policy decision is the selection of its asset allocation. Similar to other large institutional funds, TRS maintains a well-diversified portfolio to manage risk effectively. The TRS Board of Trustees adopts long-term strategic allocation targets to be implemented over several years. Recognizing the prudence of making measured movement toward long-term targets, the board also sets interim targets for shorter periods.

During FY19, TRS continued implementation of the asset allocation structure adopted by the board in June 2017 (effective July 1, 2017). This implementation solidifies the previously adopted asset class structure and seeks to continue minor shifts focused on balancing private and public capital, improving diversification, managing liquidity and enhancing the overall portfolio risk/return profile. The 2017 study established new targets for the continued diversification of the fund by modestly reducing the long-term allocation to diversifying strategies, accompanied by slight increases to the income and real assets classes in order to balance the portfolio and its defensive characteristics. Further rebalancing within the equity class resulted in a gradual reduction in exposure to publicly-traded equity securities, with corresponding increases to private equity and opportunistic real estate in an effort to enhance long-term returns.

TRS periodically compares the asset mix to policy targets to determine when rebalancing of the fund or changes to the interim policy targets are necessary. The following Strategic Investment Listing table shows the asset allocation targets, as adopted by the TRS Board of Trustees, compared to the total assets assigned to each particular asset class at June 30, 2019.

### Strategic Investment Listing Allocation Targets vs. Total Assets

| Asset Class                          | As of June 30, 2019      |                      |                      |                      | As of June 30, 2018  |                      |
|--------------------------------------|--------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|                                      | Total Fund \$ (Million)  | Actual Percent       | Interim Target       | Long-term Target     | Actual Percent       | Long-term Target     |
| Public equity                        | \$18,090.1               | 34.4%                | 36.0%                | 34.0%                | 35.9%                | 34.0%                |
| Private equity                       | 7,240.5                  | 13.7                 | 12.0                 | 15.0                 | 13.2                 | 15.0                 |
| Real estate (opportunistic)          | 1,351.9                  | 2.6                  | 3.0                  | 5.0                  | 2.8                  | 5.0                  |
| <b>Total Equity</b>                  | <b>26,682.5</b>          | <b>50.7</b>          | <b>51.0</b>          | <b>54.0</b>          | <b>51.9</b>          | <b>54.0</b>          |
| Real estate (core - value-add)       | 6,003.4                  | 11.4                 | 11.0                 | 11.0                 | 11.2                 | 11.0                 |
| Other real assets                    | 527.4                    | 1.0                  | 4.0                  | 4.0                  | 2.5                  | 4.0                  |
| <b>Total Real Assets</b>             | <b>6,530.8</b>           | <b>12.4</b>          | <b>15.0</b>          | <b>15.0</b>          | <b>13.7</b>          | <b>15.0</b>          |
| <b>Total Diversifying Strategies</b> | <b>5,471.8</b>           | <b>10.4</b>          | <b>13.0</b>          | <b>14.0</b>          | <b>11.4</b>          | <b>14.0</b>          |
| Global income                        | 13,089.7                 | 24.8                 | 20.0                 | 17.0                 | 20.7                 | 17.0                 |
| Short-term                           | 879.5                    | 1.7                  | 1.0                  | 0.0                  | 2.3                  | 0.0                  |
| <b>Total Income</b>                  | <b>13,969.2</b>          | <b>26.5</b>          | <b>21.0</b>          | <b>17.0</b>          | <b>23.0</b>          | <b>17.0</b>          |
| <b>Pending settlements/expenses*</b> | <b>171.5</b>             | <b>NA</b>            | <b>NA</b>            | <b>NA</b>            | <b>NA</b>            | <b>NA</b>            |
| <b>Total TRS Fund</b>                | <b><u>\$52,825.8</u></b> | <b><u>100.0%</u></b> | <b><u>100.0%</u></b> | <b><u>100.0%</u></b> | <b><u>100.0%</u></b> | <b><u>100.0%</u></b> |

Sources: State Street Bank and Trust and TRS

\* This amount is included within the liability section in the Statement of Fiduciary Net Position.

## PORTFOLIO SECURITIES SUMMARY

The Portfolio Securities Summary table contains a detailed list of security types. The amounts in this table differ from the allocation percentages shown in the previous Strategic Investment Listing table. The Strategic Investment Listing represents assets assigned to managers within each asset class, whereas the Portfolio Securities Summary represents specific types of financial instruments; thus, the types of investments a manager holds explain the principal difference. For example, cash and currency held within a manager's portfolio are categorized according to the manager's primary assignment on the Strategic Investment Listing. However, in the Portfolio Securities Summary, these investments are categorized as cash and/or foreign currency.

### Portfolio Securities Summary for the Years Ended June 30

|   | 2019                           |                      | 2018                           |                      |
|---|--------------------------------|----------------------|--------------------------------|----------------------|
|   | Fair Value                     | % of Total           | Fair Value                     | % of Total           |
| U.S. treasuries & agencies              | \$1,555,504,658                | 2.9%                 | \$1,734,891,964                | 3.3%                 |
| U.S. government-backed mortgages        | 599,118,460                    | 1.1                  | 679,749,043                    | 1.3                  |
| Municipals                              | 93,021,714                     | 0.2                  | 46,548,126                     | 0.1                  |
| Asset-backed securities                 | 325,690,344                    | 0.6                  | 354,042,784                    | 0.7                  |
| Collateralized loan obligations         | 220,443,502                    | 0.4                  | 143,394,757                    | 0.3                  |
| Commercial & collateralized mortgages   | 425,435,486                    | 0.8                  | 282,315,363                    | 0.5                  |
| Commingled funds (U.S. & international) | 3,964,963,672                  | 7.5                  | 3,508,455,165                  | 6.7                  |
| Domestic corporate obligations          | 3,058,307,686                  | 5.8                  | 2,741,852,675                  | 5.3                  |
| Foreign debt/corporate obligations      | 3,483,275,889                  | 6.6                  | 2,646,843,261                  | 5.1                  |
| <b>Total fixed income</b>               | <b>13,725,761,411</b>          | <b>25.9</b>          | <b>12,138,093,138</b>          | <b>23.3</b>          |
| U.S. equities                           | 7,918,736,361                  | 15.0                 | 7,792,088,707                  | 15.0                 |
| International equities                  | 9,904,945,062                  | 18.8                 | 10,415,507,298                 | 20.0                 |
| <b>Total public equities</b>            | <b>17,823,681,423</b>          | <b>33.8</b>          | <b>18,207,596,005</b>          | <b>35.0</b>          |
| Diversifying strategies                 | 5,374,252,320                  | 10.2                 | 5,855,617,530                  | 11.2                 |
| Private equity                          | 6,378,902,197                  | 12.1                 | 6,788,646,545                  | 13.0                 |
| Real estate                             | 7,354,809,101                  | 13.9                 | 7,235,561,047                  | 13.9                 |
| Other real assets                       | 527,431,201                    | 1.0                  | 464,051,207                    | 0.9                  |
| <b>Total alternative investments</b>    | <b>19,635,394,819</b>          | <b>37.2</b>          | <b>20,343,876,329</b>          | <b>39.0</b>          |
| Derivatives                             | (55,888,377)                   | (0.1)                | 32,220,547                     | 0.1                  |
| Short-term investments                  | 1,601,845,805                  | 3.0                  | 1,280,712,915                  | 2.5                  |
| Foreign currency                        | 95,012,450                     | 0.2                  | 68,446,828                     | 0.1                  |
| <b>TRS total portfolio</b>              | <b><u>\$52,825,807,531</u></b> | <b><u>100.0%</u></b> | <b><u>\$52,070,945,762</u></b> | <b><u>100.0%</u></b> |

Sources: State Street Bank and Trust and TRS

## SECURITIES HOLDINGS (HISTORICAL)

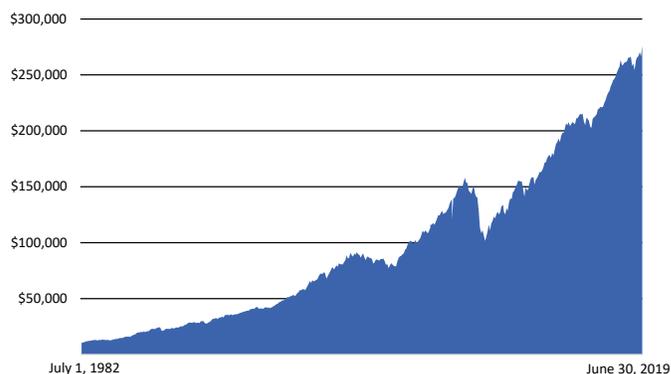
Historically, TRS has adopted various asset allocation strategies. The Securities Holdings table shows the actual asset allocation based on asset types for the last five-year period.

### Securities Holdings for the Years Ended June 30

| Asset Type                      | 2019          | 2018          | 2017          | 2016          | 2015          |
|---------------------------------|---------------|---------------|---------------|---------------|---------------|
| Fixed income                    | 25.9%         | 23.3%         | 21.5%         | 21.7%         | 18.8%         |
| Public equities                 | 33.8          | 35.0          | 35.5          | 35.2          | 40.1          |
| Diversifying strategies         | 10.2          | 11.2          | 11.9          | 12.6          | 13.4          |
| Private equity                  | 12.1          | 13.0          | 13.1          | 12.0          | 11.5          |
| Real estate                     | 13.9          | 13.9          | 14.4          | 15.2          | 13.6          |
| Other real assets               | 1.0           | 0.9           | 0.9           | 0.7           | 0.6           |
| Short-term/currency/derivatives | 3.1           | 2.7           | 2.7           | 2.6           | 2.0           |
| <b>Total</b>                    | <b>100.0%</b> | <b>100.0%</b> | <b>100.0%</b> | <b>100.0%</b> | <b>100.0%</b> |

TRS's asset allocation has provided consistent overall returns throughout the years, as represented by the following chart showing the growth of \$10,000 since July 1, 1982.

### Growth of \$10,000



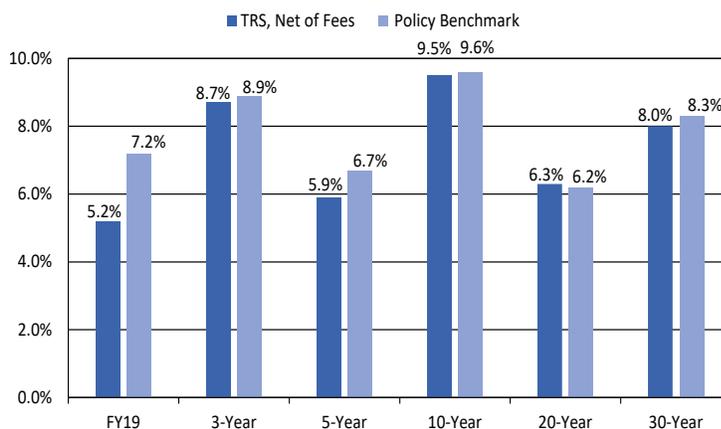
## INVESTMENT RESULTS

As of June 30, 2019, the fair value of TRS's investments as reported on the Statement of Fiduciary Net Position was \$52.8 billion, an increase of \$0.8 billion from prior year. TRS had a total fund annualized return of 5.8 percent, gross of fees and 5.2 percent, net of fees, for the one-year period ended June 30, 2019.

The Performance Summary chart and table summarize total fund and asset class performance versus comparative benchmarks. As illustrated, the TRS total fund underperformed the policy index by 200 basis points for the year ended June 30, 2019. The TRS policy index represents a weighted average of each asset class benchmark, based on the total fund's interim target asset allocation. The fund's total return also underperformed the 7.0 percent actuarial return assumption and the real rate of return expectation, which is to exceed the rate of inflation, as measured by the Consumer Price Index, by 4.5 percentage points.

### Total Fund Performance Summary (net of fees)

#### TRS Total Fund vs. Policy Benchmark



Sources: State Street Bank and Trust and TRS

## Asset Class Performance Summary (net of fees)

| Asset Class/Index                                 | Years ended June 30 |             |              |              |             | Annualized at 6/30/19 |             |             |
|---|---------------------|-------------|--------------|--------------|-------------|-----------------------|-------------|-------------|
|   | 2019                | 2018        | 2017         | 2016         | 2015        | 3 Years               | 5 Years     | 10 Years    |
| <b>TRS total fund</b>                             | <b>5.2%</b>         | <b>8.5%</b> | <b>12.6%</b> | <b>0.01%</b> | <b>4.0%</b> | <b>8.7%</b>           | <b>5.9%</b> | <b>9.5%</b> |
| TRS weighted policy index*                        | 7.2                 | 8.2         | 11.4         | 2.4          | 4.6         | 8.9                   | 6.7         | 9.6         |
| <b>Equity</b>                                     | <b>5.7</b>          | <b>12.8</b> | <b>19.8</b>  | <b>(3.3)</b> | <b>3.5</b>  | <b>12.6</b>           | <b>7.4</b>  | <b>11.6</b> |
| TRS equity composite benchmark <sup>1</sup>       | 6.5                 | 12.7        | 19.4         | (1.4)        | 3.7         | 12.8                  | 7.9         | 12.3        |
| <b>Real assets</b>                                | <b>1.6</b>          | <b>6.2</b>  | <b>5.2</b>   | <b>11.4</b>  | <b>8.5</b>  | <b>4.3</b>            | <b>6.5</b>  | <b>7.6</b>  |
| TRS real asset composite benchmark <sup>2</sup>   | 6.6                 | 7.4         | 6.9          | 9.5          | 11.0        | 7.0                   | 8.3         | 8.6         |
| <b>Diversifying strategies</b>                    | <b>2.1</b>          | <b>4.5</b>  | <b>3.5</b>   | <b>(2.4)</b> | <b>2.4</b>  | <b>3.4</b>            | <b>2.0</b>  | <b>6.3</b>  |
| TRS diversifying composite benchmark <sup>3</sup> | 6.4                 | 5.4         | 5.5          | 5.1          | 4.6         | 5.8                   | 5.4         | 5.6         |
| <b>Income</b>                                     | <b>7.0</b>          | <b>2.0</b>  | <b>5.8</b>   | <b>2.9</b>   | <b>3.2</b>  | <b>4.9</b>            | <b>4.2</b>  | <b>6.5</b>  |
| TRS income composite benchmark <sup>4</sup>       | 7.4                 | (0.3)       | (0.3)        | 5.7          | 1.8         | 2.2                   | 2.8         | 3.7         |

\* Policy index and TRS benchmarks represent weighted average of asset class benchmarks and interim target allocations.

Note: Performance calculations provided by State Street Bank and Trust use net-of-fee time-weighted rates of return.

Sources: State Street Bank and Trust and TRS

- Equity composite includes the following asset classes and corresponding benchmarks:

| <b>Asset Class</b>        | <b>Benchmark</b>                  |
|---------------------------|-----------------------------------|
| Public equity             | MSCI ACWI Investable Market Index |
| Private equity            | Russell 3000 Index + 3.0%         |
| Real estate opportunistic | NCREIF Property Index             |

- Real assets composite includes the following asset classes and corresponding benchmarks:

| <b>Asset Class</b>             | <b>Benchmark</b>       |
|--------------------------------|------------------------|
| Real estate core and value-add | NCREIF Property Index  |
| Other real assets              | CPI (inflation) + 5.0% |

- Diversifying strategies composite includes the following asset classes and corresponding benchmarks:

| <b>Asset Class</b>      | <b>Benchmark</b>                                   |
|-------------------------|--|
| Diversifying strategies | ICE BofAML 3 Month U.S. Treasury Bill Index + 4.0% |

- Income composite includes the following asset classes and corresponding benchmarks:

| <b>Asset Class</b>     | <b>Benchmark</b>                            |
|------------------------|---|
| Global income          | Bloomberg Barclays Aggregate Index (Hedged) |
| Short-term investments | ICE BofAML 3 Month U.S. Treasury Bill Index |

The following sections provide a brief and informative overview of the assets held by TRS for the period ended June 30, 2019.

## EQUITY

TRS's equity asset class broadly includes investments in global public equity securities, private equity investments and opportunistic real estate strategies. As of June 30, 2019, the asset class represented 50.7 percent of total fund with a value of \$26.7 billion.

## GLOBAL PUBLIC EQUITY

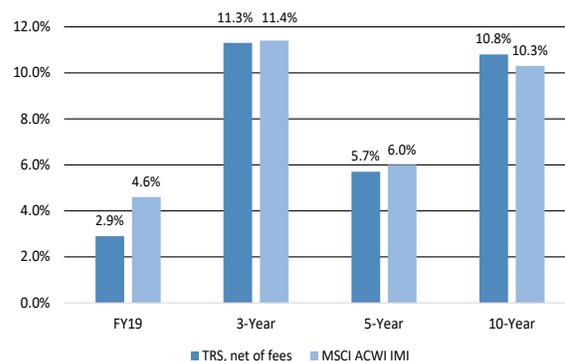
TRS invests in public equities, or common stock, representing shares or units of ownership in specific corporations offering the opportunity to participate in the success of the global economy. Stockholders share in the growth of a company through an increase in stock price, as well as through the distribution of corporate profits in the form of dividends. TRS's public equity managers are able to participate in the strength of individual markets by seeking out superior companies that are particularly strong in their own markets or industries, as not all economies move in tandem.

The global public equity market has continued to rally since the end of the Global Financial Crisis in early 2009. Market volatility remains low, relative to history. Both domestic and international markets contributed to global public equity performance for the year ended June 30, 2019.

As of June 30, 2019, the global public equity portfolio value represented \$18.1 billion, or 34.4 percent of the total fund. The long-term policy target for public equities is 34.0 percent of total fund. The global public equity portfolio earned 2.9 percent on a net of fee basis, underperforming the MSCI All Country World Investable Market Index by 1.7 percent.

One-, three-, five- and 10-year comparisons to these benchmarks are shown in the following charts.

### Global Public Equity vs. Benchmark Return



Sources: State Street Bank and Trust and TRS

The top 10 holdings in global public equities, categorized by U.S. and international, as of June 30, 2019 are shown below. These 20 securities combine to represent 11.2 percent of the Global Public Equity holdings. These stocks illustrate the sector and geographic diversification present in the portfolio.

### Top 10 U.S. Equity Holdings at June 30, 2019

| Firm                         | Sector        | Fair Value (USD)              |
|------------------------------|---------------|-------------------------------|
| Microsoft Corp.              | Technology    | \$209,785,111                 |
| Amazon.com, Inc.             | Consumer      | 186,499,831                   |
| Apple, Inc.                  | Technology    | 142,165,144                   |
| Berkshire Hathaway, Inc.     | Financials    | 126,310,899                   |
| Facebook, Inc.               | Technology    | 115,506,254                   |
| Johnson & Johnson            | Health Care   | 114,723,404                   |
| Verizon Communications, Inc. | Communication | 94,727,424                    |
| Pfizer, Inc.                 | Health Care   | 92,065,050                    |
| Alphabet, Inc.               | Communication | 79,105,317                    |
| Cisco Systems, Inc.          | Technology    | 77,300,926                    |
| <b>Total</b>                 |               | <b><u>\$1,238,189,360</u></b> |

Sources: State Street Bank and Trust and TRS

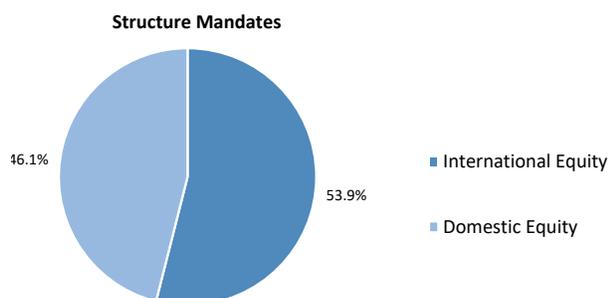
## Top 10 International Equity Holdings at June 30, 2019

| Firm                               | Country     | Fair Value (USD)            |
|------------------------------------|-------------|-----------------------------|
| Roche Holding AG                   | Switzerland | \$143,204,482               |
| Alibaba Group Holding LTD          | China       | 105,269,287                 |
| Tencent Holdings LTD               | China       | 84,382,991                  |
| Samsung Electronics LTD            | Korea       | 78,301,312                  |
| Nestle SA                          | Switzerland | 73,873,202                  |
| Enel Group                         | Italy       | 60,112,883                  |
| Novartis AG                        | Switzerland | 56,171,939                  |
| Sanofi                             | France      | 55,168,152                  |
| Allianz SE                         | Germany     | 53,531,076                  |
| Nippon Telegraph & Telephone Corp. | Japan       | 49,895,262                  |
| <b>Total</b>                       |             | <b><u>\$759,910,586</u></b> |

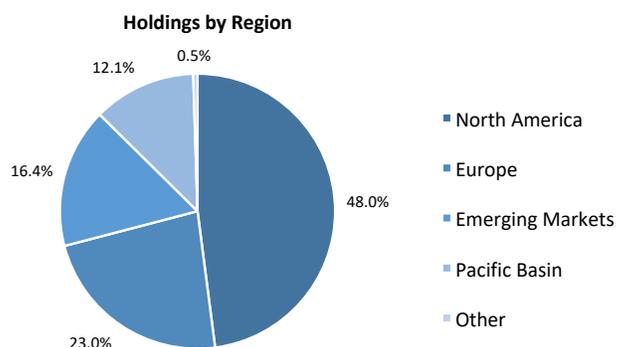
Sources: State Street Bank and Trust and TRS

Investment managers are chosen to diversify the portfolio based on capitalization, geography and style basis. This diversification is important for controlling the risk of the portfolio, as well as balancing the portfolio. As of June 30, 2019, the following charts convey the sector and regional exposure, asset allocation mix and fundamental characteristics for the global public equity portfolio.

## Global Public Equity Characteristics and Exposures

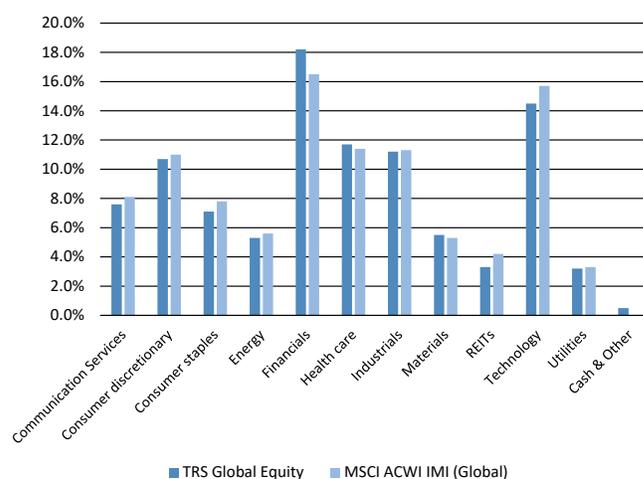


Source: State Street Bank and Trust and TRS



Sources: BlackRock Aladdin and TRS

## Diversification by Sector



Sources: BlackRock Aladdin and TRS

| Fundamental Characteristics      | TRS Global Public Equity | MSCI ACWI IMI (Global) |
|----------------------------------|--------------------------|------------------------|
| Average market cap (\$ billions) | \$118.2                  | \$139.5                |
| Price/earnings ratio             | 14.6x                    | 16.2x                  |
| Dividend yield                   | 2.65%                    | 2.38%                  |
| Price/book ratio                 | 2.4x                     | 2.5x                   |

Sources: BlackRock Aladdin and TRS

TRS employed the following public equity managers as of June 30, 2019.

### Global Public Equity Managers and Assets Under Management (inception date of account)

|   | Assets        |
|---|---------------|
| <b>Developed Markets Large Cap</b>              |               |
| Acadian Asset Management, L.L.C. (07/16)        | \$988,026,149 |
| AQR Capital Management, L.L.C. (8/18)           | 467,587,475   |
| Arrowstreet Capital, L.P. (11/17)               | 1,031,859,694 |
| Boston Partners Global Investors, Inc. (3/10)   | 671,700,461   |
| Brown Capital Management, L.L.C. (10/16)        | 62,081,671    |
| J.P. Morgan Investment Management, Inc. (07/16) | 356,253,026   |
| LSV Asset Management (9/14)                     | 2,048,651,288 |
| Mondrian Investment Partners Limited (4/93)     | 528,197,576   |
| Northern Trust Investments, Inc. (8/10)         | 2,231,370,570 |
| RhumbLine Advisors, L.P. (5/06)                 | 4,439,729,560 |
| Strategic Global Advisors (3/11)                | 602,444,713   |
| T. Rowe Price Associates, Inc. (11/06)          | 814,788,068   |
| <b>Developed Markets Small Cap</b>              |               |
| AQR Capital Management, L.L.C. (5/17)           | 213,440,340   |
| Emerald Advisors, Inc. (11/04)                  | 209,096,503   |
| Grandeur Peak Global Advisors, L.L.C. (12/18)   | 244,949,889   |
| LSV Asset Management (12/02)                    | 606,420,358   |
| Matarin Capital Management (7/17)               | 30,602,101    |
| RhumbLine Advisors, L.P. (5/07)                 | 98,224,606    |
| Strategic Global Advisors (12/13)               | 333,353,673   |
| <b>Emerging Markets</b>                         |               |
| AQR Capital Management, L.L.C. (7/13)           | 604,776,507   |
| Axiom International Investors (5/15)            | 436,661,069   |
| Dimensional Fund Advisors (6/11)                | 301,521,067   |
| J.P. Morgan Investment Management, Inc. (8/15)  | 477,354,506   |
| Northern Trust Investments, Inc. (4/13)         | 62,020,754    |
| Wasatch Advisors (11/14)                        | 226,971,734   |

*Note: The list does not include managers terminated prior to June 30, 2019 with residual assets in the account.*

## PRIVATE EQUITY

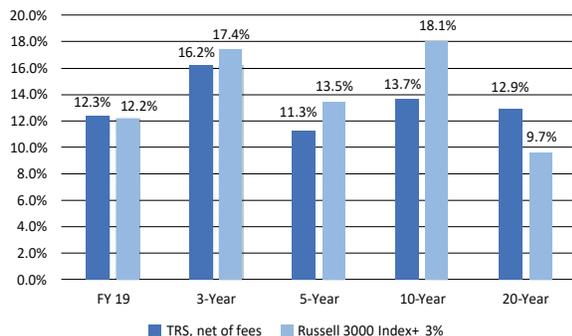
Private equity includes investments that are placed and traded outside of the stock exchanges and other public markets. Over the long term, they are an attractive investment for pension funds, endowments, insurance companies and other sophisticated investors. The investment class benefits the economy by providing needed capital to start-up companies and for continued growth in privately held companies and firms that are restructuring to better compete. Investing in private equity carries additional risk, but with skillful selection of managers, returns can be significantly higher than public equity investments.

The asset class is commonly referred to as private equity, even though it includes privately placed debt instruments as well. Often, the debt includes a control position that is similar to equity as it allows the debt holder to influence the operations and management of the company. TRS is widely diversified across all subsectors within private equity, including buyout, growth equity, venture capital and distressed debt.

TRS measures private equity performance against the Russell 3000 Index plus 300 basis points (3 percentage points). This benchmark does not specifically compare performance to the private equity industry, but rather to the TRS long-term expectation that private equity produce returns superior to the public markets. For the one-year period ended June 30, 2019, private equity earned 12.3 percent on a net of fee basis, compared to the benchmark gain of 12.2 percent. TRS's investments in private equity maintain strong long-term returns. The long-term performance strength of the private equity program and the asset class's diversification both benefit the overall portfolio.

One-, three-, five-, 10- and 20-year comparisons relative to the benchmark follow.

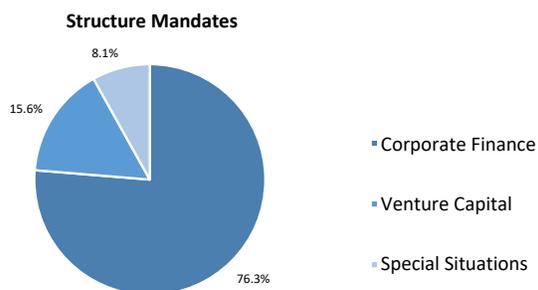
### Private Equity vs. Benchmark Return



Sources: State Street Bank and Trust and TRS

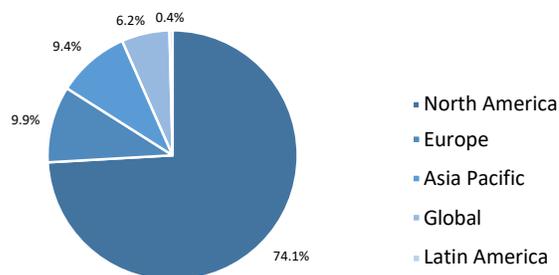
In May 2018, the Board of Trustees approved an asset allocation study keeping the private equity long-term allocation target at 15 percent, effective Jan. 1, 2019. Successful implementation of this target is subject to many factors, including public market performance and sufficient availability of high-quality private equity opportunities in the market. TRS continues to prudently increase its exposure to private equity and as of June 30, 2019, \$7.2 billion or 13.7 percent of the TRS investment portfolio was assigned to the private equity asset class. The following charts provide exposure percentage by type and geography at June 30, 2019.

### Exposure % by Investment Type



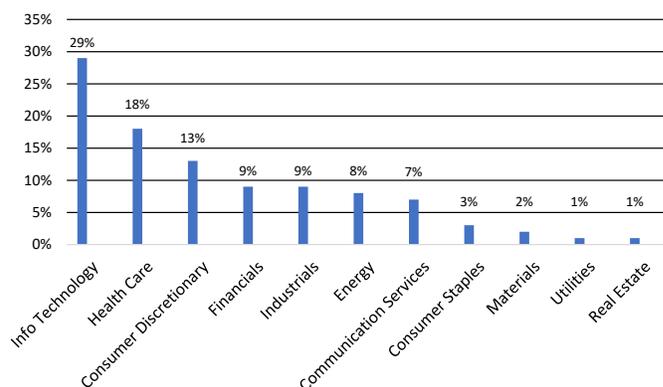
Source: TorreyCove Capital Partners, L.L.C.

### Holdings by Region



Source: TorreyCove Capital Partners, L.L.C.

### Sector Positioning of Private Equity Holdings



Source: TorreyCove Capital Partners, L.L.C.

The following table lists the private equity partnerships/funds and the respective assets under management that TRS has investments with as of June 30, 2019.

### Private Equity Partnerships and Assets Under Management (inception date of account)

|  | Assets             |
|--|--------------------|
| Advent International GPE VI Limited Partnership (7/08)           | \$12,056,265       |
| Advent International GPE VII-C Limited Partnership (12/12)       | 74,410,630         |
| Advent International GPE VIII-B-2 Limited Partnership (9/16)     | 113,903,210        |
| Altaris Constellation Partners IV, L.P. (6/18)                   | 5,308,837          |
| Altaris Health Partners IV, L.P. (6/18)                          | 16,971,754         |
| Apollo Investment Fund V, L.P. (5/01)                            | 2,305,001          |
| Apollo Investment Fund VI, L.P. (5/06)                           | 2,798,690          |
| Apollo Investment Fund VII Annex A (5/12)                        | 164,359            |
| Apollo Investment Fund VII, L.P. (1/08)                          | 49,640,168         |
| Apollo Investment Fund VIII Annex A (4/16)                       | 25,573,718         |
| Apollo Investment Fund VIII, L.P. (12/13)                        | 223,818,506        |
| Apollo Investment Fund IX, L.P. (3/19)                           | 19,069,988         |
| Apollo Lincoln Private Credit Fund, L.P. (10/14)                 | 31,481,456         |
| Astorg VI, SLP (7/16)  | 50,213,803         |
| Astorg VII, SLP (6/19)   | 3,028,588          |
| Battery Ventures XI-A Side Fund, L.P. (6/16)                     | 7,403,999          |
| Battery Ventures XI-A, L.P. (6/16)                               | 11,179,880         |
| Blackstone Capital Partners VI Annex A (10/11)                   | 22,141,016         |
| Carlyle Japan International Partners III Annex A (10/14)         | 146,441            |
| Carlyle Partners IV, L.P. (4/05)                                 | 2,606,696          |
| Carlyle/Riverstone Global Energy and Power Fund III, L.P. (4/06) | 6,337,627          |
| Clearlake Capital Partners II, L.P. (7/09)                       | 5,146,213          |
| Clearlake Capital Partners III, L.P. (10/12)                     | 31,490,359         |
| Clearlake Capital Partners IV, L.P. (9/15)                       | 105,794,932        |
| Clearlake Capital Partners IV Annex A (1/17)                     | 34,265,883         |
| Clearlake Capital Partners V, L.P. (2/18)                        | 50,029,607         |
| Clearlake Opportunities Partners (P), L.P. (9/15)                | 33,473,748         |
| Edgewater Growth Capital Partners, L.P. (11/03)                  | 1,915,826          |
| Edgewater Growth Capital Partners II, L.P. (2/06)                | 3,583,483          |
| Edgewater Growth Capital Partners III, L.P. (9/11)               | 35,785,847         |
| EIF United States Power Fund IV, L.P. (11/11)                    | 69,629,307         |
| Energy Capital Partners II Annex A (10/11)                       | 9,001,969          |
| EQT Midmarket Europe, L.P. (8/17)                                | 46,448,810         |
| EQT VI, L.P. (9/11)  | 35,043,017         |
| EQT VII, L.P. (1/16)   | 125,623,176        |
| EQT VIII, L.P. (8/18)  | 19,988,957         |
|  | <i>(continued)</i> |

| <i>(continued)</i>   |                    |
|--|--------------------|
|  | Assets             |
| Evercore Capital Partners II, L.P. (distributed securities) (4/03) | \$15,757           |
| Grain Communications Opportunity Fund, L.P. (7/16)                 | 44,016,467         |
| Grain Communications Opportunity Fund II, L.P. (12/18)             | 4,881,192          |
| Granite Ventures II, L.P. (5/05)                                   | 36,472,356         |
| Green Equity Investors V, L.P. (8/07)                              | 24,500,977         |
| Green Equity Investors VI, L.P. (11/12)                            | 115,279,075        |
| Greenspring IL Master, L.P. (1/18)                                 | 85,227,794         |
| Greenspring IL Special, L.P. (6/18)                                | 70,798,669         |
| GTCR Fund VIII, L.P. (7/03)  | 465,669            |
| Harvest Partners Structured Capital Fund II, L.P. (6/18)           | 21,112,926         |
| Hopewell Ventures, L.P. (6/04)                                     | 3,476,588          |
| ICV Partners II, L.P. (1/06)                                       | 311,296            |
| ICV Partners III, L.P. (10/13)                                     | 21,347,849         |
| ICV Partners IV, L.P. (5/18)                                       | 6,127,646          |
| IL Asia Investors, L.P. (12/14)                                    | 155,500,409        |
| Inflexion Partnership Capital II, L.P. (6/18)                      | 1,747,514          |
| Inflexion Buyout Partnership V, L.P. (6/18)                        | 1,677,771          |
| Inflexion Enterprise Fund V (No. 1), L.P. (6/19)                   | 11,944             |
| Inflexion Supplemental Fund V (No. 1), L.P. (5/19)                 | 81,639             |
| Institutional Venture Partners XV, L.P. (6/15)                     | 53,039,148         |
| Institutional Venture Partners XVI, L.P. (2/18)                    | 36,995,436         |
| JMI Equity Fund VII, L.P. (2/11)                                   | 20,066,822         |
| JMI Equity Fund VIII-A, L.P. (10/15)                               | 29,701,939         |
| Lightspeed Venture Partners IX, L.P. (3/12)                        | 59,389,857         |
| Lightspeed Venture Partners X, L.P. (7/14)                         | 17,861,692         |
| Lightspeed Venture Partners XI, L.P. (3/16)                        | 12,197,485         |
| Lightspeed Venture Partners Select, L.P. (3/14)                    | 18,938,233         |
| Lightspeed Venture Partners Select II, L.P. (6/16)                 | 19,197,028         |
| Littlejohn Fund IV, L.P. (7/10)                                    | 24,840,497         |
| LiveOak Venture Partners I, L.P. (2/13)                            | 31,076,616         |
| Longitude Venture Partners, L.P. (3/08)                            | 451,426            |
| Longitude Venture Partners II, L.P. (4/13)                         | 37,001,645         |
| Longitude Venture Partners III, L.P. (12/16)                       | 30,307,610         |
| Madison Dearborn Capital Partners VII, L.P. (1/16)                 | 55,268,048         |
| Marlin Equity V, L.P. (2/18)                                       | 16,580,564         |
|  | <i>(continued)</i> |

(continued)

|   | <b>Assets</b>      |
|---|--------------------|
| MBK Partners Fund II, L.P. (5/09)                               | \$1,427,703        |
| MBK Partners Fund III Annex B (10/15)                           | 35,076,184         |
| MBK Partners Fund III, L.P. (4/13)                              | 156,049,290        |
| MBK Partners Fund IV, L.P. (3/17)                               | 80,729,529         |
| Morgan Creek Partners Asia, L.P. (1/11)                         | 84,752,500         |
| New Enterprise Associates 15, L.P. (3/15)                       | 46,339,031         |
| New Enterprise Associates 16, L.P. (5/17)                       | 29,009,803         |
| New Mountain Partners III, L.P. (8/07)                          | 76,566,849         |
| New Mountain Partners IV, L.P. (7/14)                           | 120,448,492        |
| New Mountain Partners V, L.P. (11/17)                           | 37,699,011         |
| NGP Natural Resources IX Annex A (11/12)                        | 247,154            |
| NGP Natural Resources X, L.P. (5/12)                            | 32,597,402         |
| NGP Natural Resources XI, L.P. (11/14)                          | 91,495,457         |
| NGP Natural Resources XII, L.P. (11/17)                         | 27,996,007         |
| Oaktree European Principal Fund III, L.P. (11/11)               | 45,094,048         |
| Oaktree Opportunities Fund VIII, L.P. (3/10)                    | 5,194,159          |
| Oaktree Opportunities Fund IX, L.P. (3/13)                      | 76,749,759         |
| Oaktree Opportunities Fund Xb, L.P. (6/18)                      | 11,797,735         |
| OCM European Principal Opportunities Fund II, L.P. (8/08)       | 687,709            |
| OCM Opportunities Fund V, L.P. (6/04)                           | 13,974             |
| OCM Opportunities Fund VIIb, L.P. (6/08)                        | 2,171,214          |
| Sunstone Partners I, L.P. (2/16)                                | 19,151,860         |
| Palladium Equity Partners IV, L.P. (3/14)                       | 11,681,402         |
| Parthenon Investors IV Annex A (6/15)                           | 258,476,109        |
| Parthenon Investors IV, L.P. (4/12)                             | 67,020,767         |
| Parthenon Investors V, L.P. (1/17)                              | 76,446,987         |
| Providence Equity Partners VI Annex A (8/12)                    | 45,020,093         |
| Providence Equity Partners VI International, L.P. (3/07)        | 31,990,911         |
| Providence Equity Partners VII, L.P. (6/12)                     | 192,649,849        |
| RCP SBO Fund, L.P. (10/16)                                      | 48,072,380         |
| Rhone Partners IV, L.P. (1/12)                                  | 22,682,051         |
| Rhone Partners V, L.P. (7/15)                                   | 58,650,506         |
| Riverstone/Carlyle Global Energy and Power Fund IV, L.P. (3/08) | 29,616,912         |
| Riverstone Global Energy and Power Fund V Annex A (11/13)       | 1,538,699          |
|   | <i>(continued)</i> |

(continued)

|   | <b>Assets</b> |
|---|---------------|
| Riverstone Global Energy and Power Fund V, L.P. (6/12)  | \$145,210,814 |
| Riverstone Global Energy and Power Fund VI, L.P. (9/16) | 85,257,753    |
| RRJ Capital Master Fund III, L.P. (12/15)               | 57,057,590    |
| Scale Venture Partners V, L.P. (1/16)                   | 40,713,435    |
| SCP Private Equity Partners, L.P. (5/97)                | 20,370        |
| Shasta Ventures, L.P. (1/05)                            | 2,129,611     |
| Silver Lake Alpine, L.P. (9/18)                         | 9,205,371     |
| Silver Lake Partners III, L.P. (8/07)                   | 31,909,164    |
| Silver Lake Partners IV, L.P. (10/13)                   | 210,665,974   |
| Silver Lake Partners V, L.P. (6/18)                     | 78,003,650    |
| Siris Partners II, L.P. (1/12)                          | 16,148,210    |
| Siris Partners III Annex A (12/15)                      | 5,510,996     |
| Siris Partners III, L.P. (5/15)                         | 37,641,198    |
| Siris Partners IV, L.P. (3/19)                          | 7,061,565     |
| SK Capital Partners V-A, L.P. (10/18)                   | 6,576,827     |
| Sofinnova Venture Partners VIII, L.P. (8/11)            | 19,609,164    |
| Sofinnova Venture Partners IX, L.P. (12/14)             | 50,528,986    |
| Sofinnova Venture Partners X, L.P. (11/17)              | 14,615,896    |
| StarVest Partners II, L.P. (1/09)                       | 7,147,402     |
| TA XII-A, L.P. (2/16)                                   | 86,027,603    |
| TDR Capital IV 'A', L.P. (11/18)                        | 569           |
| The Baring Asia Private Equity Fund V, L.P. (4/11)      | 86,586,585    |
| The Baring Asia Private Equity Fund VI, L.P.1 (9/15)    | 102,665,639   |
| Trident V Annex A (10/11)                               | 2,204,554     |
| Trident V, L.P. (12/10)                                 | 48,272,790    |
| Trident VI, L.P. (9/14)                                 | 107,003,575   |
| Trident VII, L.P. (12/11)                               | 76,521,331    |
| Trustbridge Partners IV, L.P. (12/11)                   | 60,875,158    |
| Veritas Capital Fund IV, L.P. (11/10)                   | 13,050,778    |
| Veritas Capital Fund V, L.P. (6/15)                     | 167,918,303   |
| Veritas Capital Fund VI, L.P. (6/17)                    | 107,994,456   |
| Vista Equity Partners Fund III, L.P. (11/07)            | 9,946,758     |
| Vista Equity Partners Fund IV, L.P. (10/11)             | 36,880,897    |
| Vista Equity Partners Fund V, L.P. (5/14)               | 259,659,602   |
| Vista Equity Partners Fund VI, L.P. (6/16)              | 179,729,603   |
| Vista Foundation Fund III, L.P. (7/16)                  | 39,659,132    |

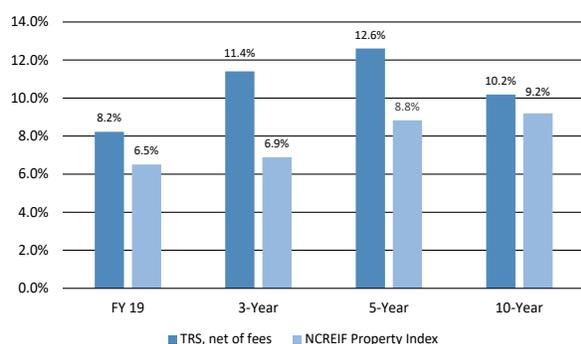
## OPPORTUNISTIC REAL ESTATE

Due to the risk profile inherent within opportunistic real estate investments, these assets are included in the equity asset class for reporting purposes.

The TRS portfolio maintains a long-term target allocation of 5.0 percent to opportunistic strategies.

As of June 30, 2019, TRS held \$1.4 billion in opportunistic real estate assets, or 2.6 percent of the total fund portfolio. For the fiscal year, this sub component of TRS's real estate portfolio earned 8.2 percent, net of fees, outpacing the National Council of Real Estate Investment Fiduciaries ("NCREIF") Index by 170 basis points. Opportunistic real estate performance and benchmark comparisons are noted in the following chart; sector and geographical exposures are presented with the real estate portfolio within the real assets narrative.

### Opportunistic Real Estate vs. Benchmark Return



Source: State Street Bank and Trust and TRS

Performance of the opportunistic real estate funds has been strong throughout multiple time periods. The opportunistic funds outperformed relative to NCREIF by 170 bps for one-year, 450 bps for three-year, 380 bps for five-year, and 100 bps for 10-years. The near-term strength of the real estate market coupled with accretive value enhancement strategies employed within the opportunistic real estate portfolio has been favorable, thus driving positive returns.

The following table lists the opportunistic real estate partnerships/funds (and the respective assets under management) that TRS has investments with as of June 30, 2019.

### Opportunistic Real Estate Partnerships and Assets Under Management (inception date of account)

|  | Assets      |
|--|-------------|
| <b>Opportunistic Real Estate</b>                                 |             |
| Blackstone Real Estate Partners VI, L.P. (9/07)                  | \$5,088,351 |
| Blackstone Real Estate Partners VII, L.P. (1/12)                 | 123,280,000 |
| Blackstone Real Estate Partners VIII.TE.2, L.P. (8/15)           | 260,590,660 |
| Blackstone Real Estate Partners Asia, L.P. (12/13)               | 82,262,081  |
| Blackstone Real Estate Partners Asia II, L.P. (6/18)             | 22,471,003  |
| Capri Select Income II, L.L.C. (12/05)                           | 38,757      |
| Carlyle Europe Real Estate Partners III, L.P. (3/08)             | 3,593,199   |
| Carlyle Realty Partners VII, L.P. (7/14)                         | 59,637,738  |
| Carlyle Realty Partners VIII, L.P. (8/17)                        | 16,944,013  |
| Carlyle Realty Qualified Partners IV, L.P. (6/05)                | 28,073,072  |
| CB Richard Ellis Strategic Partners Europe Fund III, L.P. (5/07) | 1,062,163   |
| Dyal Capital III Annex A (5/17)                                  | 48,855,363  |
| European Property Investors Special Opportunities 5 SCSP (3/19)  | 105,043     |
| Fortress Japan Opportunity Fund III (Dollar A), L.P. (8/15)      | 91,155,582  |
| Fortress Japan Opportunity Fund IV (Dollar A), L.P. (7/18)       | 4,314,160   |
| Gateway Real Estate Fund IV, L.P. (7/13)                         | 19,791,746  |
| IC Hospitality Fund II, L.P. (4/15)                              | 8,951,712   |
| LaSalle Asia Opportunity Fund III, L.P. (12/07)                  | 917,806     |
| LaSalle Asia Opportunity Fund IV, L.P. (7/13)                    | 9,414,069   |
| Lone Star Real Estate Fund III (U.S.), L.P. (1/14)               | 7,291,061   |
| Lone Star Real Estate Fund IV (U.S.), L.P. (10/15)               | 107,883,464 |
| Lone Star Real Estate Fund V (U.S.), L.P. (9/17)                 | 22,293,869  |
| Niam Nordic V, L.P. (4/12)                                       | 10,335,144  |
| Rockpoint Real Estate Fund V, L.P. (8/15)                        | 85,937,218  |
| Southwest Multifamily Partners, L.P. (8/12)                      | 19,034,830  |
| Starwood Distressed Opportunity Fund IX Global, L.P. (3/13)      | 54,213,646  |
| Starwood IX Annex A (11/13)                                      | 18,831,817  |
| Starwood Opportunity Fund X Global, L.P. (10/15)                 | 125,994,825 |
| Starwood Opportunity Fund XI Global, L.P. (7/18)                 | 28,407,190  |
| Starwood X Annex A (1/15)  | 5,568,001   |
| Starwood X Annex B (7/15)  | 2,105,930   |
| Walton Street Real Estate Fund IV, L.P. (7/03)                   | 768,101     |
| Walton Street Real Estate Fund VI, L.P. (4/09)                   | 37,739,909  |
| Walton Street Real Estate Fund VII, L.P. (6/13)                  | 38,946,789  |

# INCOME

The income asset class is comprised of investments in the financial obligations of entities, including, but not limited to, U.S. and foreign corporations, governments, agencies or municipalities and short-term investments. These investments may be publicly-traded instruments or private debt or credit investments. The majority of global income assets promise to pay a specified sum of money at a future date, while paying specified interest during the term of the issue. Income generative assets and other debt-related investments can reduce volatility, offer low or negative correlation to other asset classes and provide income streams, or coupons.

Global central bank narratives became more dovish as global growth began to slow. Lower growth and inflation forecasts, combined with speculation of developed markets' central banks ending balance sheet reduction programs, caused U.S. rates to significantly back up during the fiscal year. Geopolitics, including elections, trade war speculation and political controversy in several countries, dominated headlines and contributed to brief periods of market volatility. Expected fundamentals continue to project a global slowdown. Staying senior in the capital stack will continue to be a theme within the global income asset class, while being opportunistic across the globe.

The asset class blended benchmark consists of global income measured against the Bloomberg Barclays Aggregate Hedged Index, along with short-term investments against the ICE BofAML 3-month U.S. Treasury Bill Index.

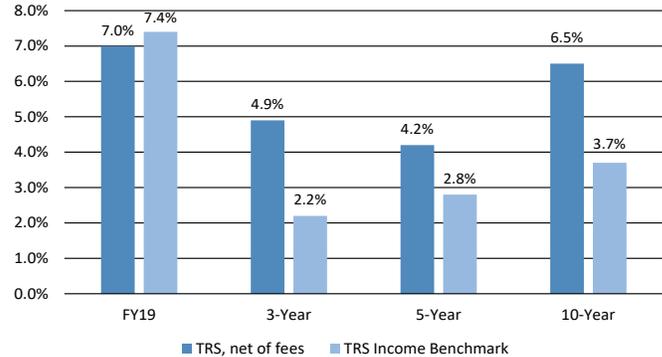
For the fiscal year ending June 30, 2019, the \$14.0 billion income portfolio represented 26.5 percent of the total fund. Traditional fixed income investments and private debt strategies comprise the majority of investments, representing 93.7 percent of the asset class, while TRS's cash portfolio completes the remainder of the asset class. The long-term policy target

for income is 17.0 percent of total fund; however, current levels remain closer to the interim target.

TRS's income portfolio modestly underperformed the asset class blended index during the fiscal year. Sub-asset classes, including global/EMD and private credit, outperformed their sub components; however, the rapid U.S. interest rate decline is reflective of the underweight to U.S. treasury bills. TRS continues to maintain a bias away from U.S. and global fixed income indices as benchmark investments tend to reward governments and corporations with the highest debt levels, while increasing exposures to private debt opportunities, higher in the capital debt structure. TRS also maintained below market weight duration and safety in anticipation of potential market dislocations or liquidity events.

For the year ended June 30, 2019, the income asset class earned 7.0 percent on a net of fee basis compared to asset class blended benchmark of 7.4 percent. One-, three-, five-, and 10-year comparisons to this benchmark are shown in the following chart, showing strong outperformance over the long term.

## Income vs. Benchmark Return



Sources: State Street Bank and Trust and TRS

The following table lists the top 10 global income investments or funds held by TRS as of June 30, 2019, exclusive of the TRS cash portfolio.

## Top 10 Global Income Holdings at June 30, 2019

| Security/Position   | Fair Value (USD)              |
|---|-------------------------------|
| PIMCO Horseshoe Fund, L.P.  | \$466,618,362                 |
| Franklin Templeton Emerging Market Debt Opportunities (Cayman) Fund, Ltd. | 396,846,132                   |
| PGIM Fixed Income Global Liquidity Relative Value Fund I (Cayman), Ltd.   | 341,615,706                   |
| PIMCO Income Fund   | 304,692,744                   |
| PIMCO Asset-Backed Securities Portfolio                                   | 279,653,657                   |
| Prudential Trust Company Collective Trust                                 | 155,060,433                   |
| Federal National Mortgage Association                                     | 152,038,109                   |
| NXT Capital Senior Loan Fund IV, L.P.                                     | 123,701,499                   |
| Apollo Lincoln Fixed Income Fund, L.P.                                    | 106,961,726                   |
| Global Transport Income Fund Master Partnership SCSp                      | 106,811,581                   |
| <b>Total</b>  | <b><u>\$2,433,999,949</u></b> |

Sources: State Street Bank and Trust and TRS

The following table lists the top 10 largest debt securities holdings, excluding commingled funds, held within the TRS plan portfolio as of June 30, 2019. A complete listing of investment holdings is available as a separate report.

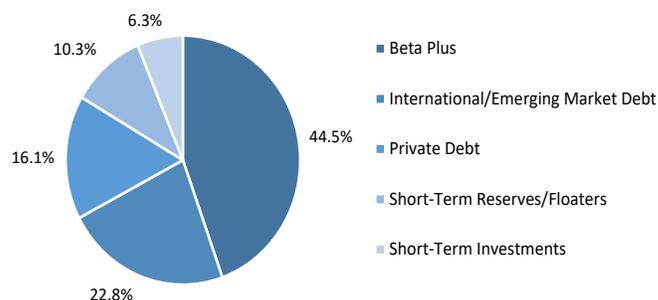
## Largest Debt Securities Holdings at June 30, 2019

| Security/Position                     | Maturity Date | Interest Rate | Fair Value (USD)            |
|---------------------------------------|---------------|---------------|-----------------------------|
| Federal National Mortgage Association | 8/19/49       | 3.50%         | \$152,038,109               |
| United States Treasury Note/Bond      | 5/15/46       | 2.50          | 104,273,663                 |
| United States Treasury Note/Bond      | 8/15/27       | 2.25          | 99,404,220                  |
| Federal National Mortgage Association | 9/12/49       | 3.50          | 62,331,230                  |
| United States Treasury Note/Bond      | 5/31/22       | 1.75          | 58,438,781                  |
| United States Treasury Bill           | 8/29/19       | 0.01          | 54,721,018                  |
| United States Treasury Bill           | 11/14/19      | 0.01          | 53,956,045                  |
| United States Treasury Note/Bond      | 3/15/21       | 2.38          | 47,958,301                  |
| United States Treasury Note/Bond      | 11/30/22      | 2.00          | 47,323,199                  |
| United Kingdom Gilt Inflation Linked  | 3/22/26       | 0.13          | 47,184,245                  |
| <b>Total</b>                          |               |               | <b><u>\$727,628,811</u></b> |

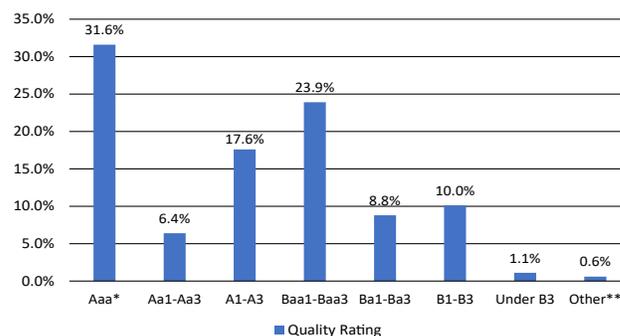
Sources: State Street Bank and Trust and TRS

The following charts provide the asset allocation mix and statistical information on TRS's income portfolio as of June 30, 2019.

## Income Allocation



## Diversification by Quality Rating for Individual Bonds



Sources: State Street Bank and Trust and TRS

\* U.S. treasury securities are included.

\*\* Other includes unrated securities.

Note: Public debt instruments only.

## Global Income Fundamental Characteristics

|                        | TRS Global Income Portfolio | Bloomberg Barclays Hedged Index |
|------------------------|-----------------------------|---------------------------------|
| Average maturity       | 6.6 years                   | 7.9 years                       |
| Effective duration     | 3.7 years                   | 5.7 years                       |
| Average quality rating | A3                          | Aa2                             |

Sources: State Street Bank and Trust and TRS

Note: Public debt instruments only.

TRS employed the following income managers as of June 30, 2019. This excludes assets overseen by managers in other asset classes containing income or other debt securities/funds as a small part of their overall strategies.

### Income Managers and Assets Under Management (inception date of account)

|   | Assets             |
|---|--------------------|
| AllianceBernstein, L.P. (8/18)  | \$533,839,270      |
| AG Direct Lending Fund II, L.P. (12/16)   | 95,940,042         |
| Apollo Lincoln Fixed Income Fund, L.P. (3/14)                                     | 180,231,873        |
| BIG Real Estate Fund I, L.P. (11/17)  | 22,172,462         |
| Beach Point Sangamon, L.P. (9/18)   | 89,973,064         |
| Dolan McEniry Capital Management, L.L.C. (5/06)                                   | 863,694,829        |
| DoubleLine Mortgage Opportunities L.P. (9/17)                                     | 79,285,334         |
| EISAF II, L.P. (10/18)  | 49,468,327         |
| Franklin Advisers, Inc. (2/08)  | 810,588,596        |
| Franklin Templeton Emerging Market Debt Opportunities (Cayman) Fund, Ltd. (12/10) | 396,846,132        |
| Garcia Hamilton & Associates, L.P. (6/10)   | 927,089,157        |
| Global Transport Income Fund Master Partnership SCSp (11/17)                      | 106,811,581        |
| LCM Partners CO IIIa, L.P. (9/16)   | 66,770,803         |
| LCM Partners SOLO III, L.P. (9/18)  | 24,469,693         |
| MacKay Shields L.L.C. (8/11)  | 999,071,636        |
| Maranon Senior Credit Fund II-B, L.P. (6/13)*                                     | 37,666,232         |
| Monroe Capital Private Credit Fund II, L.P. (4/16)                                | 40,503,000         |
| Northern Shipping Fund III, L.P. (1/16)   | 68,708,402         |
| NXT Capital Senior Loan Fund II, L.P. (8/13)*                                     | 17,017,855         |
| NXT Capital Senior Loan Fund IV, L.P. (1/16)                                      | 123,701,499        |
| NXT Capital Senior Loan Fund V, L.P. (10/17)                                      | 66,876,531         |
| Oaktree Enhanced Income Fund II, L.P. (5/14)                                      | 28,144,515         |
| Oaktree Enhanced Income Fund III, L.P. (4/16)                                     | 97,791,337         |
| Oaktree Real Estate Debt Fund, L.P. (10/13)                                       | 18,152,507         |
| Oaktree Real Estate Debt Fund II, L.P. (3/17)                                     | 38,360,511         |
| Pacific Investment Management Company, L.L.C. (7/82)                              | 2,193,579,095      |
|   | <i>(continued)</i> |

| <i>(continued)</i>  |               |
|---|---------------|
|   | Assets        |
| PIMCO BRAVO Fund III Onshore Feeder, L.P. (12/16)                               | \$70,563,033  |
| PIMCO BRAVO Fund Onshore Feeder I, L.P. (11/10)*                                | 766,064       |
| PIMCO BRAVO Fund Onshore Feeder II, L.P. (3/13)                                 | 71,147,454    |
| PIMCO Corporate Opportunities Fund II, L.P. (1/16)                              | 69,500,361    |
| PIMCO Commercial Real Estate Debt Fund, L.P. (2/19)                             | 10,201,345    |
| PIMCO Horseshoe Fund, L.P. (12/14)  | 466,618,362   |
| Pemberton Debt Fund Delaware I, L.P. (11/16)                                    | 45,538,848    |
| Pemberton Debt Fund Delaware II, L.P. (1/19)                                    | 43,651,198    |
| PGIM, Inc. (12/08)  | 1,560,277,731 |
| PGIM Fixed Income Global Liquidity Relative Value Fund I (Cayman), Ltd. (12/15) | 341,615,706   |
| PGIM Fixed Income Emerging Markets Long Short Fund I, L.P. (9/18)               | 42,026,609    |
| Ramirez Asset Management, Inc. (3/17)   | 134,638,761   |
| Riverstone Credit Partners, L.P. (12/15)  | 41,953,091    |
| Riverstone Credit Partners II, L.P. (5/18)                                      | 46,158,843    |
| SCP Private Corporate Lending Fund, L.P. (5/19)                                 | 9,550,179     |
| State Street Global Advisors Trust Company (8/18)                               | 307,563,720   |
| Taplin, Canida & Habacht (4/13)   | 1,438,210,239 |
| Taurus Mining Finance Annex Fund L.L.C. (1/17)                                  | 18,446,166    |
| Taurus Mining Finance Fund L.L.C. (4/15)  | 47,391,834    |
| TCW Asset Management Company (8/13)   | 908,432,636   |
| The Varde Private Debt Opportunities Fund (Onshore), L.P. (8/18)                | 39,910,037    |
| Vista Credit Opportunities Fund I-B, L.P. (10/14)                               | 15,324,959    |

\* Accounts currently in liquidation or being discontinued.

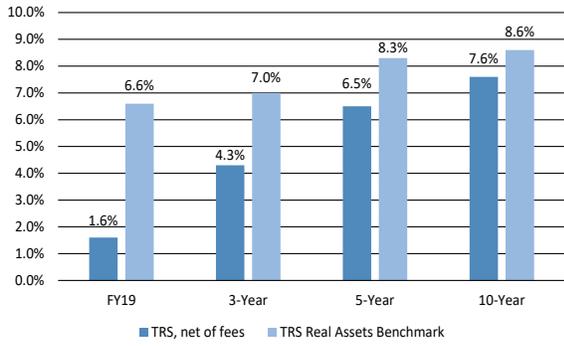
Note: The list does not include managers terminated prior to June 30, 2019 with residual assets in the account.

# REAL ASSETS

For the fiscal year ended June 30, 2019, the \$6.5 billion real assets portfolio represented 12.4 percent of the total fund. Real estate core and value-add strategies comprise the majority of investments, representing 92 percent of the asset class, while other real assets including infrastructure, agriculture and special situations complete the remainder of the asset class. Given TRS has moved to a risk-based asset class structure, opportunistic real estate investments are grouped within equity exposure; whereas, core and value-add real estate investments are classified as real assets.

The asset class blended benchmark consists of real estate strategies measured against the NCREIF Property Index, while other real assets are benchmarked against the Consumer Price Index (CPI) + 5.0 percent. The long-term policy target for real assets is 15.0 percent of total fund, comprised of 11.0 percent allocated to core and value-add real estate and 4.0 percent allocated to other real assets. For the fiscal year, TRS’s real assets portfolio generated 1.6 percent, net of fees, compared to the 6.6 percent return of the benchmark. Real assets performance and benchmark comparisons are noted in the following chart.

## Real Assets vs. Benchmark Return



Sources: State Street Bank and Trust and TRS

The real asset class offers competitive returns, provides diversification benefits to portfolios of stocks and bonds, and serves as a hedge against inflation. Investments in real assets are intended to increase the TRS total portfolio long-term rate of return and reduce year-to-year volatility. Additionally, real

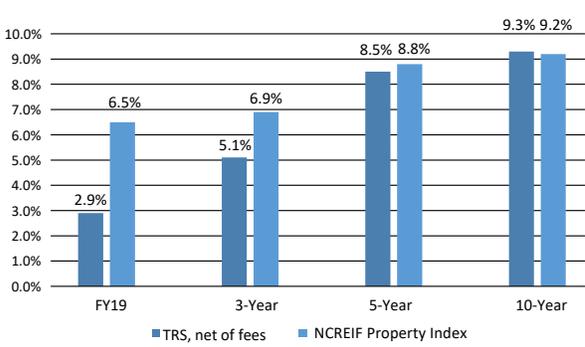
assets provide a strong income component to pay TRS benefits.

Real estate investments currently represent a significant portion of the asset class and are defined as direct investments or ownership in land and buildings including apartments, offices, warehouses, shopping centers and hotels. Further, TRS holds partnership interests in entities that purchase and manage property and pass rent and sale income back to TRS. In addition to direct investments, TRS may also make investments in commingled funds and co-investments.

Real estate returns moderated to normalized/sustainable levels in FY19. Overall, real estate market fundamentals remain strong, which supports continued favorable income returns; however, appreciation returns have diminished to more typical historical levels. TRS’s real estate managers have been active in the market throughout the year, upgrading the portfolios by identifying investments that provide downside protection in the event of a market correction.

The TRS portfolio maintains a long-term target allocation of 11.0 percent to core and value-add real estate. As of June 30, 2019, TRS held \$6.0 billion in such assets or 11.4 percent of the total fund portfolio. For the fiscal year, TRS’s core and value-add real estate portfolio earned 2.9 percent, net of fees, compared to the benchmark of 6.5 percent. Real estate performance and benchmark comparisons are noted in the following chart.

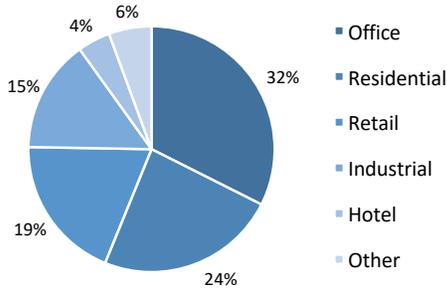
## Core and Value-add Real Estate vs. Benchmark Return



Sources: State Street Bank and Trust and TRS

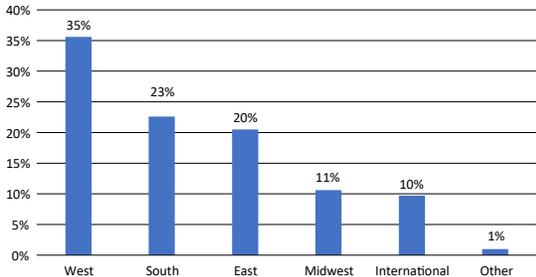
To enhance returns and reduce risk, TRS acquires high quality properties diversified geographically and by property type. In an effort to accurately capture sector and geographical exposures, the following charts are inclusive of opportunistic real estate investments (detailed further in the equity discussion). The data sets below exhibit TRS’s real estate holdings by type, geography and risk return profiles as of June 30, 2019.

**Real Estate Holdings by Property Type**



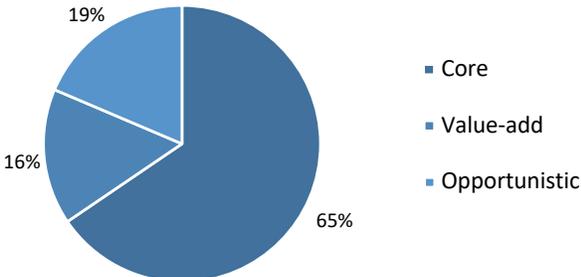
Source: StepStone Group Real Estate L.P.

**Geographic Diversification of Real Estate Holdings**



Source: StepStone Group Real Estate L.P.

**Real Estate Holdings by Risk/Return**



Source: StepStone Group Real Estate L.P.

Professional real estate advisors manage real estate owned by TRS. Separate account managers administer TRS’s direct investments in real estate assets; closed-end and open-end accounts represent partnership interests in real estate funds including TRS’s international real estate accounts.

As of June 30, 2019, TRS employed the following managers and/or funds investing in core real estate, value-add real estate and other real assets including their respective assets under management.

**Real Asset Managers & Assets Under Management (inception date of account)**

|  | Assets        |
|--|---------------|
| <b>Real Estate (Core and Value-add)</b>                                |               |
| <b>Separate Accounts</b>   |               |
| Barings, L.L.C. (7/08)   | \$443,260,483 |
| Barings II, L.L.C. (7/09)  | 6,098,773     |
| Capri/Capital Advisors, L.L.C. (12/91)                                 | 827,487,830   |
| Heitman Capital Management, L.L.C. (7/09)                              | 1,664,502,231 |
| Invesco Institutional (N.A.), Inc. (7/08)                              | 884,591,877   |
| LPC Realty Advisors I, Ltd. (7/92)                                     | 897,669,607   |
| Principal Real Estate Investors, L.L.C. (10/13)                        | 199,176,517   |
| <b>Commingled Accounts</b>   |               |
| Exeter Value Fund IV, L.P. (9/17)                                      | 28,893,452    |
| Lion Industrial Trust (4/05)   | 554,802,924   |
| Madison International Real Estate Liquidity Fund VI (TE), L.P. (3/16)  | 100,981,788   |
| Oak Street Real Estate Capital Fund III, L.P. (5/16)                   | 11,111,551    |
| Oak Street Real Estate Capital Fund IV, L.P. (11/17)                   | 32,671,179    |
| Starwood Value Add Fund, L.P. (6/17)                                   | 292,639,815   |
| Westbrook Real Estate Fund X, L.P. (7/16)                              | 59,022,762    |
| <b>Other Real Assets</b>   |               |
| AQR Real Return Offshore Fund, L.P. (6/12)                             | 275,077,985   |
| Black River Agriculture Fund 2, L.P. (6/13)                            | 76,780,415    |
| Blackstone Infrastructure Partners, L.P. (3/19)                        | 41,589,636    |
| Blackstone Infrastructure Partners (Supplemental Account), L.P. (3/19) | 24,953,633    |
| Sheridan Production Partners III-B, L.P. (11/14)                       | 24,347,000    |
| West Street Global Infrastructure Partners III, L.P. (1/16)            | 84,682,532    |

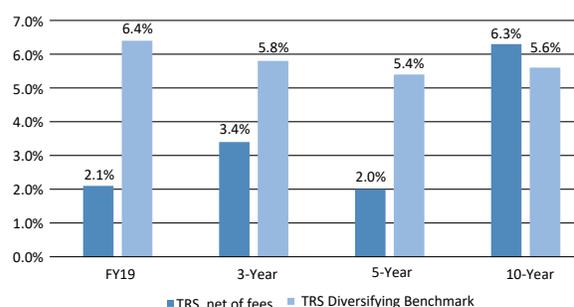
## DIVERSIFYING STRATEGIES

Diversifying strategies includes mandates designed to provide attractive return and risk attributes while exhibiting low correlation to traditional public equity and fixed income investments. This segment of the portfolio continues to evolve and currently includes systematic macro, discretionary macro, opportunistic, risk parity and alternative risk premia strategies. TRS has been investing in diversifying strategies profiles since FY07. The makeup of the program has gone through a number of evolutions as strategic adjustments are made in response to changes throughout the entire plan and global financial markets. Investments in diversifying strategies are administered via both direct investment manager relationships and diversified fund of funds.

The current benchmark consists of the relatively risk-free index of 90-Day Treasury Bills + 4.0 percent. While this is not an investible index, the benchmark represents the intended risk reduction characteristic of the asset class. Structurally, TRS continues to migrate away from fund of funds investments in order to lower the program's total expense ratio while increasing return expectations. Consistent with objectives, the asset class provides beneficial diversification for the total plan, while producing relatively stable, low volatility returns.

The long-term policy target for diversifying strategies is 14.0 percent of total fund. As of June 30, 2019, the TRS diversifying strategies asset class value was \$5.5 billion, or 10.4 percent of total fund. For the fiscal year, TRS's diversifying strategies portfolio generated 2.1 percent, net of fees, compared to the 6.4 percent return of the benchmark. Diversifying strategies performance and benchmark comparisons are noted in the following chart.

## Diversifying Strategies vs. Benchmark Return



Sources: State Street Bank and Trust and TRS

As of June 30, 2019, TRS employed the following managers and/or funds including their respective assets under management.

## Diversifying Strategies Managers and Assets Under Management (inception date of account)

|  | Assets        |
|--|---------------|
| <b>Diversified Fund of Funds</b>                           |               |
| Grosvenor Monarch Fund, L.L.C. (6/07)                      | \$330,760,536 |
| <b>Direct Investment Funds</b>                             |               |
| 1818 I, L.P. (03/16)                                       | 84,316,009    |
| Alphadyne Global Rates Fund II, Ltd. (06/14)               | 403,327,195   |
| AQR Multi-Strategy Fund XIV, L.P. (07/07)                  | 548,177,188   |
| Brevan Howard Systematic Trading Fund, L.P. (06/15)        | 172,510,720   |
| Bridgewater Optimal Portfolio, L.L.C. (04/16)              | 458,871,837   |
| CCP Core Macro Fund, L.P. (03/18)                          | 219,025,020   |
| Crabel Fund, L.P. (12/15)                                  | 90,314,498    |
| Graham Global Investment Fund I SPC, Ltd. (02/19)          | 304,743,442   |
| Grosvenor Monarch Fund Series B (03/11)                    | 400,842,841   |
| IPM Systematic Macro Fund, L.P. (01/19)                    | 245,658,036   |
| Kepos Exotic Beta Fund, L.P. (04/18)                       | 200,957,671   |
| Key Trends 15 Fund, L.L.C. (11/16)                         | 109,793,790   |
| Kirkoswald Global Macro Fund, L.P. (06/19)                 | 200,000,000   |
| Light Sky Macro Fund, L.P. (07/18)                         | 227,424,410   |
| Man Alternative Risk Premia, S.P. (12/17)                  | 304,153,931   |
| PDT Mosaic Offshore Holdings, L.L.C. (06/15)               | 193,936,341   |
| Tilden Park Investment Fund, L.P. (08/18)                  | 287,041,624   |
| Trend Macro Onshore, L.P. (12/18)                          | 253,181,588   |
| Varadero International, Ltd. (06/14)                       | 269,291,498   |
| Varadero Special Opportunities International, L.P. (06/18) | 71,834,971    |

## SECURITIES LENDING

Citibank, N.A. served as the third-party securities lending agent for the fixed income, domestic equity and international equity lending programs. The lending agent is responsible for making loans, acquiring collateral, marking loans and collateral to market on a daily basis and investing cash collateral based on lending agreement terms. The TRS Board of Trustees' policies permit TRS to use investments to enter into securities lending transactions, which are loans of securities to broker-dealers or other entities. Additional information regarding securities lending activity is included in the Notes to Financial Statements under "Note D. Investments."

The borrower of a security must post collateral in excess of the fair value of the security. TRS receives both cash and non-cash (i.e., securities) collateral. The following table represents the fair values of the securities lending activity based on type of collateral as of June 30, 2019.

| Collateral Type            | Collateral Received    | Securities on Loan     | Collateral %  |
|----------------------------|------------------------|------------------------|---------------|
| Cash collateral            | \$2,485,795,602        | \$ 2,419,967,264       | 102.7%        |
| Non-cash collateral        | 142,244,579            | 130,015,454            | 109.4         |
| <b>Total</b>               | <b>\$2,628,040,181</b> | <b>\$2,549,982,718</b> | <b>103.1%</b> |
| Reinvested cash collateral | \$2,485,824,046        |                        |               |

Source: Citibank, N.A.

Note: Does not include lending collateral with the State Treasurer.

TRS earns income from fees paid by the borrowers and interest earned from investing the cash collateral. For the year ended June 30, 2019, TRS earned net income of \$10.8 million through its securities lending program. The following table summarizes fiscal year net income from securities lending activity and the fiscal year averages regarding securities available to loan.

| Lending Income for FY19       |                  |
|-------------------------------|------------------|
| Securities lending income     | \$58,380,879     |
| Borrower rebates              | (46,839,722)     |
| Lending agent fees            | (692,458)        |
| Securities lending net income | \$10,848,699     |
| Loan Averages During FY19     |                  |
| Available to loan             | \$19,346,422,785 |
| Securities on loan            | 2,276,896,261    |
| Percentage on loan            | 11.8%            |

Sources: State Street Bank and Trust and Citibank, N.A.

## BROKERAGE ACTIVITY

The following table shows the top 50 listed brokers used by TRS external equity managers for the year ended June 30, 2019. TRS also manages a commission recapture program as part of its trading strategies. For the year ended June 30, 2019, TRS recaptured \$0.02 million in cash that was reinvested in the fund. In addition, TRS uses commission recapture refunds to pay for Investment Department expenses. During FY19, TRS used \$0.2 million of recaptured funds to offset expenses.

### Top 50 Brokers Used by TRS Managers

| Broker   | Shares Traded | FY19 Commission |
|--|---------------|-----------------|
| Goldman Sachs & Co. (Worldwide)                            | 137,247,528   | \$945,561       |
| Citigroup, Inc. and all Subsidiaries (Worldwide)           | 616,912,072   | 583,850         |
| Instinet, L.L.C. (Worldwide)                               | 251,825,170   | 506,551         |
| Merrill Lynch & Co., Inc. and all Subsidiaries (Worldwide) | 169,557,230   | 405,139         |
| Cowen, Inc.  | 256,918,529   | 351,298         |
| Credit Suisse (Worldwide)                                  | 174,789,260   | 293,426         |
| UBS AG   | 62,526,383    | 271,631         |
| Loop Capital Markets, L.L.C.                               | 24,251,825    | 259,880         |
| HSBC Bank PLC  | 117,671,926   | 246,814         |
| J.P. Morgan Securities, Inc. (Worldwide)                   | 203,575,992   | 233,027         |
| Macquarie Bank & Securities, Ltd. (Worldwide)              | 51,188,221    | 210,411         |
| Morgan Stanley & Co., Inc. and Subsidiaries (Worldwide)    | 88,923,652    | 178,987         |
| BNP Paribas Securities Services S.C.A.                     | 40,414,261    | 173,755         |
| Societe Generale S.A. and all Subsidiaries                 | 81,925,148    | 150,917         |
| Jefferies & Company, Inc.                                  | 74,481,696    | 136,205         |
| Investment Technology Group, Inc. (Worldwide)              | 55,142,871    | 113,494         |
| Williams Capital Group, L.P.                               | 8,197,182     | 101,135         |
| Barclays (Worldwide)                                       | 1,900,380     | 98,004          |
| Sanford Bernstein (Worldwide)                              | 25,427,104    | 87,041          |
| CLSA Securities  | 16,770,579    | 64,393          |
| Deutsche Bank & Securities (Worldwide)                     | 40,398,331    | 59,313          |
| Brasil Plural S.A.   | 3,886,660     | 56,966          |
| Cabrera Capital Markets, Inc.                              | 5,329,806     | 51,193          |
| CL King & Associates, Inc.                                 | 2,064,100     | 49,313          |
| KB Financial Group   | 824,256       | 43,557          |

*(continued)*

*(continued)*

| Broker   | Shares Traded        | FY19 Commission    |
|--|----------------------|--------------------|
| North South Capital, L.L.C.                    | 1,926,989            | \$40,216           |
| Liquidnet, Inc.                                | 4,982,481            | 39,737             |
| Credit Lyonnais Securities                     | 40,475,953           | 32,443             |
| Mischler Financial Group                       | 1,584,067            | 30,754             |
| Academy Securities, Inc.                       | 1,454,129            | 28,591             |
| Mirae Asset Daewoo Co., Ltd.                   | 536,284              | 24,986             |
| Sturdivant & Co., Inc.                         | 784,331              | 22,769             |
| Korea Investment Holdings                      | 146,024              | 22,088             |
| Pershing, L.L.C.                               | 1,981,575            | 20,961             |
| RBC Dain Rauscher (Worldwide)                  | 1,808,701            | 20,683             |
| Exane, Inc.                                    | 6,274,089            | 19,934             |
| Joh. Berenberg, Gossler & Co.                  | 213,330              | 17,400             |
| Penserra Securities, L.L.C.                    | 4,299,438            | 15,948             |
| Stifel Nicolaus & Company, Inc.                | 559,521              | 14,769             |
| Banco Bradesco, S.A.                           | 3,044,688            | 14,618             |
| Kim Eng Securities, Ltd.                       | 3,809,305            | 13,790             |
| EFG Hermes Holding S.A.E                       | 10,661,396           | 13,433             |
| Baird, Robert W., & Company, Incorporated      | 480,728              | 13,254             |
| Kotak Securities, Ltd.                         | 496,573              | 13,123             |
| Investec Group                                 | 734,297              | 12,794             |
| Ambit Holdings Pvt., Ltd.                      | 1,692,174            | 11,853             |
| ICICI Brokerage Services, Ltd.                 | 2,361,128            | 10,362             |
| XP Investimentos S.A.                          | 2,320,300            | 10,203             |
| Raymond James and Associates, Inc. (Worldwide) | 343,697              | 10,180             |
| Abg Securities, Ltd.                           | 588,776              | 9,394              |
| (All Others - 113 Brokers)                     | 47,496,468           | 264,292            |
| <b>Total</b>                                   | <b>2,653,206,604</b> | <b>\$6,420,436</b> |

Sources: State Street Bank and Trust and TRS

## INVESTMENT MANAGER AND CUSTODIAN FEES

For the year ended June 30, 2019, fee payments to external investment managers and the master custodian totaled \$319.2 million.

### Schedule of Fees

| Investment Manager/Account                            | FY19        |
|---|-------------|
| Acadian Asset Management, L.L.C.                      | \$3,080,384 |
| Advent International GPE VI Limited Partnership       | 166,809     |
| Advent International GPE VII-C Limited Partnership    | 819,909     |
| Advent International GPE VIII-B-2 Limited Partnership | 1,599,441   |
| AG Direct Lending Fund II, L.P.                       | 1,159,996   |
| All Weather Portfolio Limited                         | 1,003,252   |
| AllianceBernstein, L.P.                               | 939,534     |
| Alphadyne Global Rates Fund II, Ltd.                  | 22,493,015  |
| Altaris Health Partners IV, L.P.                      | 146,279     |
| Apollo Investment Fund IX, L.P.                       | 4,206,057   |
| Apollo Investment Fund VI, L.P.                       | 1,958       |
| Apollo Investment Fund VII, L.P.                      | 459,261     |
| Apollo Investment Fund VIII, L.P.                     | 467,475     |
| Apollo Lincoln Fixed Income Fund, L.P.                | 910,323     |
| Apollo Lincoln Private Credit Fund, L.P.              | 352,092     |
| AQR Capital Management, L.L.C.                        | 6,902,987   |
| AQR Real Return Offshore Fund, L.P.                   | 2,052,774   |
| AQR U.S. Relaxed Constraint Equity Fund II, L.P.      | 663,772     |
| Arrowstreet Capital, L.P.                             | 6,126,867   |
| Astorg VI, SLP  | 969,151     |
| Astorg VII, SLP                                       | 442,151     |
| Axiom International Investors, L.L.C.                 | 2,752,031   |
| The Baring Asia Private Equity Fund V, L.P.           | 1,208,366   |
| The Baring Asia Private Equity Fund VI, L.P.1         | 749,873     |
| Barings, L.L.C.                                       | 1,504,796   |
| Battery Ventures XI-A Side Fund, L.P.                 | 104,607     |
| Battery Ventures XI-A, L.P.                           | 249,723     |
| Beach Point Sangamon, L.P.                            | 297,900     |
| BIG Real Estate Fund I, L.P.                          | 42,703      |
| Black River Agriculture Fund 2, L.P.                  | 1,067,545   |
| BlackRock Asia Property Fund III, L.P.                | (129)       |
| Blackstone Capital Partners VI, L.P.                  | 85,263      |
| Blackstone Infrastructure Partners, L.P.              | 687,326     |
| Blackstone Real Estate Partners Asia II, L.P.         | 1,619,683   |
| Blackstone Real Estate Partners Asia, L.P.            | 871,810     |
| Blackstone Real Estate Partners VI, L.P.              | 9,202       |
| Blackstone Real Estate Partners VII, L.P.             | 1,397,888   |
| Blackstone Real Estate Partners VIII.TE.2, L.P.       | 1,845,748   |
| Brevan Howard Systematic Trading Fund, L.P.           | 1,601,252   |
| Bridgewater Optimal Portfolio, L.L.C.                 | 5,138,657   |
|   | (continued) |

| (continued)   |             |
|---|-------------|
| Investment Manager/Account  | FY19        |
| Brown Capital Management, L.L.C.  | \$385,800   |
| Capri/Capital Advisors, L.L.C.  | 2,158,439   |
| Carlson Capital, L.P.   | 4,233,756   |
| Carlyle Europe Real Estate Partners III, L.P.                             | 140,776     |
| Carlyle Japan International Partners III, L.P.                            | 144,209     |
| Carlyle Partners VI, L.P.   | 113,285     |
| Carlyle Realty Partners VII, L.P.   | 653,178     |
| Carlyle Realty Partners VIII, L.P.  | 1,484,402   |
| Carlyle Realty Qualified Partners IV, L.P.                                | 11,928      |
| Carlyle/Riverstone Global Energy and Power Fund III, L.P.                 | 152,555     |
| CCP Core Macro Fund, L.P.   | 984,505     |
| Channing Capital Management, L.L.C.                                       | 244,108     |
| Clearlake Capital Partners II, L.P.                                       | 62,303      |
| Clearlake Capital Partners III, L.P.                                      | 273,621     |
| Clearlake Capital Partners IV, L.P.                                       | 961,302     |
| Clearlake Capital Partners V, L.P.  | 348,881     |
| Clearlake Opportunities Partners (P), L.P.                                | 704,822     |
| Crabel Fund, L.P.   | 436,039     |
| Dimensional Fund Advisors, L.P.   | 2,745,506   |
| Dolan McEniry Capital Management, L.L.C.                                  | 1,932,907   |
| DoubleLine Mortgage Opportunities, L.P.                                   | 484,459     |
| Edgewater Growth Capital Partners II, L.P.                                | 79,199      |
| EIF United States Power Fund IV, L.P.                                     | 878,466     |
| EISAF II, L.P.  | 1,919,697   |
| Emerald Advisers, Inc.  | 1,071,136   |
| Energy Capital Partners II Annex A  | 42,103      |
| EQT Midmarket Europe, L.P.  | 1,467,373   |
| EQT VI, L.P.  | 445,729     |
| EQT VII, L.P.   | 1,089,070   |
| EQT VIII, L.P.  | 1,637,562   |
| European Property Investors Special Opportunities 5 SCSP                  | 959,676     |
| Exeter Value Fund IV, L.P.  | 460,000     |
| Fortress Japan Opportunity Fund III (Dollar A), L.P.                      | (157,902)   |
| Fortress Japan Opportunity Fund IV (Dollar A), L.P.                       | 604,398     |
| Franklin Advisers, Inc.   | 2,375,964   |
| Franklin Templeton Emerging Market Debt Opportunities (Cayman) Fund, Ltd. | 1,863,063   |
| Garcia Hamilton & Associates, L.P.  | 887,342     |
| Gateway Real Estate Fund IV, L.P.   | 361,546     |
|   | (continued) |

| <i>(continued)</i>                                      |                    |
|---|--------------------|
| <b>Investment Manager/Account</b>                       | <b>FY19</b>        |
| GI Partners Fund IV, L.P.                               | \$281,272          |
| Global Transport Income Fund<br>Master Partnership SCSp | 408,911            |
| Graham Global Investment Fund I SPC Ltd.                | 867,160            |
| Grain Communications Opportunity Fund II, L.P.          | 1,148,352          |
| Grain Communications Opportunity Fund, L.P.             | 648,270            |
| Grandeur Peak Global Advisors                           | 809,344            |
| Granite Ventures II, L.P.                               | 90,559             |
| Great Point Partners II, L.P.                           | 56,758             |
| Green Equity Investors VI, L.P.                         | 339,104            |
| Greenspring IL Master, L.P.                             | 863,671            |
| Grosvenor Monarch Fund, L.L.C.                          | 2,363,613          |
| Harvest Partners Structured Capital Fund II, L.P.       | (130,597)          |
| Heitman Capital Management, L.L.C.                      | 5,345,969          |
| Hopewell Ventures, L.P.                                 | 14,070             |
| IC Hospitality Fund II, L.P.                            | 133,844            |
| ICV Partners III, L.P.                                  | 5,435              |
| ICV Partners IV, L.P.                                   | 935,810            |
| IL Asia Investors, L.P.                                 | 853,959            |
| Inflexion Partnership Capital II, L.P.                  | 425,035            |
| Inflexion Buyout Partnership V, L.P.                    | 970,308            |
| Inflexion Supplemental Fund V (No. 1), L.P.             | 120                |
| Institutional Venture Partners XV, L.P.                 | 876,517            |
| Institutional Venture Partners XVI, L.P.                | 1,043,318          |
| Invesco Institutional (N.A.), Inc.                      | 2,889,459          |
| IPM Systematic Macro Fund, L.P.                         | 769,059            |
| ISAM Systematic Trend, L.L.C.                           | 275,882            |
| JMI Equity Fund VII, L.P.                               | 325,505            |
| JMI Equity Fund VIII-A, L.P.                            | 408,000            |
| JP Morgan Investment Management, Inc.                   | 3,078,411          |
| JP Morgan Management Associates, L.L.C.                 | 217,844            |
| Kepos Exotic Beta Fund, L.P.                            | 1,201,355          |
| Key Trends 15 Fund, L.L.C.                              | 989,742            |
| LaSalle Asia Opportunity Fund IV, L.P.                  | 213,145            |
| LCM Partners CO IIIa, L.P.                              | 677,217            |
| LCM Partners SOLO III, L.P.                             | 104,131            |
| Lee Overlay Partners Limited                            | 65,000             |
| Levin Capital Strategies, L.P.                          | 259,923            |
| Light Sky Macro Fund, L.P.                              | 2,128,223          |
| Lightspeed Venture Partners IX, L.P.                    | 652,275            |
| Lightspeed Venture Partners Select II, L.P.             | 345,116            |
| Lightspeed Venture Partners Select, L.P.                | 384,319            |
| Lightspeed Venture Partners X, L.P.                     | 329,178            |
| Lightspeed Venture Partners XI, L.P.                    | 272,088            |
| Lion Industrial Trust                                   | 4,416,652          |
| Littlejohn Fund IV, L.P.                                | 236,826            |
|   | <i>(continued)</i> |

| <i>(continued)</i>  |                    |
|---|--------------------|
| <b>Investment Manager/Account</b>                                 | <b>FY19</b>        |
| LiveOak Venture Partners I, L.P.                                  | \$382,500          |
| Lone Star Real Estate Fund III (U.S.), L.P.                       | \$22,953           |
| Lone Star Real Estate Fund IV (U.S.), L.P.                        | 502,596            |
| Lone Star Real Estate Fund V (U.S.), L.P.                         | 2,288,084          |
| Longitude Venture Partners II, L.P.                               | 358,961            |
| Longitude Venture Partners III, L.P.                              | 886,342            |
| LPC Realty Advisors I, Ltd.                                       | 3,306,681          |
| LSV Asset Management  | 8,103,992          |
| MacKay Shields, L.L.C.  | 2,372,958          |
| Madison Dearborn Capital Partners VII, L.P.                       | 988,600            |
| Madison International Real Estate<br>Liquidity Fund VI (TE), L.P. | 1,195,507          |
| Magnetar Constellation Fund IV, L.L.C.                            | 753,853            |
| Magnetar Constellation Fund V, L.L.C.                             | 813,813            |
| Man Alternative Risk Premia SP                                    | 2,691,592          |
| Maranon Mezzanine Fund, L.P.                                      | 3,823              |
| Maranon Senior Credit Fund II-B, L.P.                             | 327,332            |
| Marlin Equity V, L.P.   | 939,606            |
| Matarin Capital Management, L.L.C.                                | 125,008            |
| MBK Partners Fund III Annex B                                     | (85,027)           |
| MBK Partners Fund III, L.P.                                       | 1,335,307          |
| MBK Partners Fund IV, L.P.  | 2,057,755          |
| Mondrian Investment Partners Limited                              | 1,939,659          |
| Monroe Capital Private Credit Fund II, L.P.                       | 497,702            |
| Morgan Creek Partners Asia, L.P.                                  | 724,751            |
| Morgan Creek Partners Venture<br>Access Fund, L.P.                | (134,602)          |
| New Enterprise Associates 15, L.P.                                | 293,354            |
| New Enterprise Associates 16, L.P.                                | 501,962            |
| New Mountain Partners IV, L.P.                                    | 229,708            |
| New Mountain Partners V, L.P.                                     | 1,253,783          |
| NGP Natural Resources X, L.P.                                     | 806,182            |
| NGP Natural Resources XI, L.P.                                    | 1,368,336          |
| NGP Natural Resources XII, L.P.                                   | 1,373,974          |
| Niam Nordic V, L.P.   | 136,353            |
| Northern Shipping Fund III, L.P.                                  | 796,977            |
| Northern Trust Investments, Inc.                                  | 648,046            |
| NXT Capital Senior Loan Fund II, L.P.                             | 173,368            |
| NXT Capital Senior Loan Fund IV, L.P.                             | 2,426,232          |
| NXT Capital Senior Loan Fund V, L.P.                              | 936,836            |
| Oak Street Real Estate Capital Fund III, L.P.                     | 152,841            |
| Oak Street Real Estate Capital Fund IV, L.P.                      | 327,271            |
| Oaktree Enhanced Income Fund II, L.P.                             | 1,661,655          |
| Oaktree Enhanced Income Fund III, L.P.                            | 2,029,737          |
| Oaktree European Principal Fund III, L.P.                         | 743,421            |
| Oaktree Opportunities Fund IX, L.P.                               | 1,130,782          |
| Oaktree Opportunities Fund VIII, L.P.                             | 177,976            |
|   | <i>(continued)</i> |

| <i>(continued)</i>  |             |
|---|-------------|
| <b>Investment Manager/Account</b>                                       | <b>FY19</b> |
| Oaktree Opportunities Fund Xb, L.P.                                     | \$120,143   |
| Oaktree Real Estate Debt Fund II, L.P.                                  | 93,330      |
| Oaktree Real Estate Debt Fund, L.P.                                     | 293,618     |
| OCM European Principal Opportunities Fund II, L.P.                      | 114,762     |
| OCM Opportunities Fund VIIb, L.P.                                       | 64,816      |
| Pacific Investment Management Company, L.L.C.                           | 12,277,529  |
| Palladium Equity Partners IV, L.P.                                      | 127,226     |
| Parthenon Investors V, L.P.   | 1,213,036   |
| PDT Partners, L.L.C.  | 15,098,753  |
| Pemberton Debt Fund Delaware I, L.P.                                    | 730,619     |
| Pemberton Debt Fund Delaware II, L.P.                                   | 169,180     |
| Penso Fund Platform SPC   | 963,041     |
| PGIM Fixed Income Emerging Markets Long Short Fund I, L.P.              | 191,896     |
| PGIM Fixed Income Global Liquidity Relative Value Fund I (Cayman), Ltd. | 4,108,303   |
| PGIM, Inc.  | 2,109,112   |
| PIMCO BRAVO Fund III Onshore Feeder, L.P.                               | 832,994     |
| PIMCO BRAVO Fund Onshore Feeder I, L.P.                                 | 634         |
| PIMCO BRAVO Fund Onshore Feeder II, L.P.                                | 1,264,171   |
| PIMCO Commercial Real Estate Debt Fund, L.P.                            | 39,426      |
| PIMCO Distressed Senior Credit Opportunities Fund II, L.P.              | 1,025,378   |
| Pine Brook Capital Partners, L.P.                                       | 30,167      |
| Principal Real Estate Investors, L.L.C.                                 | 704,384     |
| Prism Mezzanine Fund, L.P.  | 26,646      |
| Proterra Credit Fund, L.P.  | 104,110     |
| Providence Equity Partners VII, L.P.                                    | 485,469     |
| Ramirez Asset Management, Inc.  | 193,640     |
| RCP SBO Fund, L.P.  | 512,500     |
| Rhone Partners IV, L.P.   | 258,267     |
| Rhone Partners V, L.P.  | 1,280,924   |
| RhumbLine Advisers, L.P.  | 342,591     |
| Riverstone Credit Partners II, L.P.                                     | 443,228     |
| Riverstone Credit Partners, L.P.  | 537,478     |
| Riverstone Global Energy and Power Fund V, L.P.                         | 1,378,628   |
| Riverstone Global Energy and Power Fund VI, L.P.                        | 2,112,383   |
| Riverstone/Carlyle Global Energy and Power Fund IV, L.P.                | 218,619     |
| Robeco Boston Partners Asset Management, L.P.                           | 1,206,702   |
| Robeco Transtrend Diversified Fund L.L.C.                               | 788,020     |
| Rockpoint Real Estate Fund V, L.P.                                      | 1,327,541   |
| RRJ Capital Master Fund III, L.P.                                       | (2,984,615) |
| Scale Venture Partners V, L.P.  | 600,000     |
| SCP Illinois. L.L.C.  | 99,044      |

*(continued)*

| <i>(continued)</i>   |             |
|--|-------------|
| <b>Investment Manager/Account</b>  | <b>FY19</b> |
| SCP Private Corporate Lending Fund, L.P.                                     | \$146,268   |
| Sheridan Production Partners III-B, L.P.                                     | 1,125,000   |
| Silver Lake Alpine, L.P.   | 24,444      |
| Silver Lake Partners III, L.P.   | 156,881     |
| Silver Lake Partners IV, L.P.  | 912,670     |
| Silver Lake Partners V, L.P.   | 1,882,520   |
| Siris Partners II, L.P.  | 436,084     |
| Siris Partners III, L.P.   | 1,134,233   |
| Siris Partners IV, L.P.  | 463,211     |
| SK Capital Partners V-A, L.P.  | 296,840     |
| Sofinnova Venture Partners IX, L.P.  | 1,008,117   |
| Sofinnova Venture Partners VIII, L.P.  | 542,179     |
| Sofinnova Venture Partners X, L.P.   | 1,490,598   |
| Southwest Multifamily Partners, L.P.   | 188,563     |
| Standard Life Investments Global Absolute Return Strategies Master Fund Ltd. | 241,079     |
| StarVest Partners II, L.P.   | 94,730      |
| Starwood Distressed Opportunity Fund IX Global, L.P.                         | 929,869     |
| Starwood IX Annex A  | 309,840     |
| Starwood Opportunity Fund X Global, L.P.                                     | 8,146,316   |
| Starwood Opportunity Fund XI Global, L.P.                                    | 4,819,682   |
| Starwood Value Add Fund, L.P.  | 1,344,498   |
| Starwood X Annex A   | (80,489)    |
| Starwood X Annex B   | (1,986)     |
| State Street Bank and Trust Company (Custody)                                | 2,604,167   |
| State Street Global Advisors Trust Company                                   | 221,663     |
| Strategic Global Advisors, L.L.C.  | 3,690,319   |
| Sunstone Partners I, L.P.  | 319,483     |
| T. Rowe Price Associates, Inc.   | 2,432,189   |
| TA XII-A, L.P.   | 1,048,838   |
| Taplin, Canida & Habacht, L.L.C.   | 904,984     |
| Taurus Mining Finance Annex Fund L.L.C.                                      | 487,500     |
| Taurus Mining Finance Fund L.L.C.  | 1,000,000   |
| TCW Asset Management Company   | 3,250,018   |
| TDR Capital IV 'A', L.P.   | 1,466,566   |
| Tilden Park Investment Fund, L.P.  | 2,359,333   |
| Trend Macro Onshore, L.P.  | 756,265     |
| Trident V, L.P.  | 544,928     |
| Trident VI, L.P.   | 1,100,461   |
| Trident VII, L.P.  | 1,283,849   |
| Trustbridge Partners IV, L.P.  | 463,630     |
| TSG8, L.P.   | 1,246,575   |
| Union Grove Partners Direct Venture Fund, L.P.                               | (28,292)    |
| Union Grove Partners Venture Access Fund II, L.P.                            | (41,460)    |
| Union Grove Partners Venture Access Fund, L.P.                               | (131,266)   |
| Varadero International, Ltd.   | 6,285,124   |

*(continued)*

(continued)

| <b>Investment Manager/Account</b>                         | <b>FY19</b>                 |
|---|-----------------------------|
| Varadero Special Opportunities International, L.P.        | \$399,603                   |
| The Varde Private Debt Opportunities Fund (Onshore), L.P. | 119,952                     |
| Veritas Capital Fund V, L.P.                              | 74,475                      |
| Veritas Capital Fund VI, L.P.                             | 257,997                     |
| Vicente Capital Partners Growth Equity Fund, L.P.         | 23,441                      |
| Vista Credit Opportunities Fund I-B, L.P.                 | 415,290                     |
| Vista Equity Partners Fund III, L.P.                      | 8,664                       |
| Vista Equity Partners Fund IV, L.P.                       | 91,657                      |
| Vista Equity Partners Fund V, L.P.                        | 2,606,584                   |
| Vista Equity Partners Fund VI, L.P.                       | 1,783,989                   |
| Vista Foundation Fund III, L.P.                           | 906,442                     |
| Walton Street Real Estate Fund VI, L.P.                   | 417,764                     |
| Walton Street Real Estate Fund VII, L.P.                  | 1,003,343                   |
| Wasatch Advisors, Inc.                                    | 2,180,723                   |
| West Street Global Infrastructure Partners III, L.P.      | 1,687,500                   |
| Westbrook Real Estate Fund X, L.P.                        | 871,556                     |
| <b>Total fees paid by TRS</b>                             | <b><u>\$319,226,320</u></b> |



# ACTUARIAL

## STERLING PARC

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November 12, 2019

Board of Trustees  
Teachers' Retirement System of the State of Illinois  
2815 West Washington Street  
Springfield, Illinois 62702

### ACTUARIAL CERTIFICATION

Ladies and Gentlemen:

This report presents the results of the annual valuation of the assets and liabilities of the Teachers' Retirement System of the State of Illinois (TRS or System) as of June 30, 2019, prepared in accordance with the funding policy specified under the Illinois Pension Code (40 ILCS 5/16). This valuation takes into account all of the pension benefits to which members are entitled.

#### **Actuarial Assumptions and Methods**

The valuation was based on the actuarial assumptions adopted by the Board of Trustees, reflecting the three-year demographic and economic experience review covering the period July 1, 2014, through June 30, 2017, presented at the August 2018 Board meeting. Based upon recent experience and the expectation that the funds available for the automatic annual increase and inactive vested buyouts are limited to \$650 million, the buyout assumptions used for the valuation have been modified. In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the System and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience of the System. The actuarial assumptions and methods used for funding purposes meet the parameters set by Actuarial Standards of Practice. The methods mandated by the Illinois Pension Code as described in the Funding Adequacy section are inadequate to appropriately fund TRS.

#### **Assets and Membership Data**

TRS reported to the actuary the individual data for members of the System as of the prior valuation date. Valuation results are projected, based upon the actuarial assumptions, to account for the one-year difference between the date of the census data and the valuation date. The amount of assets in the trust fund as of the valuation date was based on statements prepared by TRS.

#### **Funding Adequacy**

The member and employer contribution rates are determined in accordance with the funding policy specified under the Illinois Pension Code (40 ILCS 5/16). The member contribution rate is 9.0%, which is comprised of 7.5% toward the cost of the retirement annuity, 0.5% toward the cost of the automatic annual increase in the retirement annuity and 1.0% for survivor benefits. The employer contributions are determined such that, together with the member contributions, the plan is projected to achieve 90% funding by 2045. The 2045 funding objective of 90% was set in 1994 as a 50-year objective. TRS members have always contributed their share. **The State funding has been inadequate, resulting in TRS being among the worst funded public employee retirement systems in the United States. We strongly recommend an actuarial funding method that targets 100% funding. Generally, this implies payments that are ultimately at least enough to cover normal cost, interest on the unfunded actuarial accrued liability, and the principal balance.** The funding policy adopted by the Board, referred to as the Board Funding Policy, meets this standard.

Board of Trustees  
Teachers' Retirement System of the State of Illinois  
November 12, 2019

The valuation indicates that for the fiscal year ending June 30, 2019, the actuarial experience of TRS was unfavorable, generating a net actuarial loss of \$942 million (0.7% of the actuarial accrued liability). This loss is the net result of a \$590 million loss due to unfavorable investment return experience and a \$352 million net loss due to demographic experience in fiscal 2019.

### Actuarial Certification

In preparing the results presented in this report, we have relied upon information TRS provided to us regarding the benefit provisions, System members, benefit payments and unaudited plan assets. While the scope of our engagement did not call for us to perform an audit or independent verification of this information, we have reviewed this information for reasonableness. The accuracy of the results presented in this report is dependent upon the accuracy and completeness of the underlying information.

There is a schedule of Required Supplementary Information in the Financial Section of the System's Annual Financial Report. Segal has provided the Schedule of Changes in the Net Pension Liability, the Schedule of the Net Pension Liability, and the Schedule of Contributions from Employers and Other Contributing Entities. Segal reviewed this information in the Required Supplementary Information and the Notes to Required Supplementary Information to verify its consistency with the valuation report.

The Actuarial Section of the System's Annual Financial Report contains the following schedules, which were not prepared by Segal, but were reviewed by Segal for consistency with the valuation report: Actuarial Valuation, Reconciliation of Unfunded Liability, State Funding Amounts, Unfunded Liability as a Percentage of Payroll Test, and Schedule of Contributions from Employers and Other Contributing Entities. The Actuarial Section also contains the following schedules, which were prepared by Segal: Funded Ratio Test, Solvency Test, Employer Normal Cost by Tier, and Funded Ratio by Tier. Segal neither reviewed nor prepared any items beyond those specifically listed in this paragraph and the preceding paragraph.

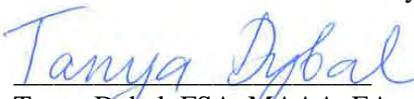
In our opinion, the results presented comply with the Illinois Pension Code and, where applicable, the Internal Revenue Code, and the Statements of the Governmental Accounting Standards Board. While all calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board, this does not endorse the funding methodology required by the Illinois Pension Code. The undersigned are independent actuaries. They are Fellows of the Society of Actuaries, Enrolled Actuaries, and Members of the American Academy of Actuaries, and are experienced in performing valuations for large public retirement systems. They meet the Qualification Standards of the American Academy of Actuaries.

Respectfully submitted,

Segal Consulting, a Member of the Segal Group

By:   
\_\_\_\_\_  
Kim Nicholl, FSA, MAAA, EA  
Senior Vice President and Actuary

  
\_\_\_\_\_  
Matthew A. Strom, FSA, MAAA, EA  
Senior Vice President and Actuary

  
\_\_\_\_\_  
Tanya Dybal, FSA, MAAA, EA  
Consulting Actuary

The Actuarial Section of this report discusses the System’s funded status and measures changes in its financial condition over time. The actuarial accrued liability, actuarial value of assets and unfunded liability presented in this section are used to determine state funding requirements. The total pension liability, plan fiduciary net position and net pension liability are used for financial disclosure only and are required by GASB Statement No. 67. For the GASB disclosure, please see the Financial Section of this report: “Notes to Financial Statements, A. Plan Description, 6. Actuarial Measurements.”

Pursuant to Public Act 97-0674, the Office of the Auditor General employs a state actuary, Cheiron, to review the five state systems’ actuarial valuation reports. The reports are considered preliminary until the state actuary has reviewed them. In its review of the previous report prepared by Segal Consulting, Cheiron recommended that federal funds contributions be treated in the same manner as other school district contributions resulting in the calculation of state contributions to be the level percent of payroll required to attain 90 percent by fiscal year 2045. The change was implemented for the June 30, 2019 actuarial valuation, effective for contributions in fiscal years 2021 and thereafter. Cheiron recommended additional disclosure on stress testing, but it has not been included in the 2019 preliminary actuarial valuation.

TRS and Segal believe this type of analysis is better suited for discussion with input from the TRS Board of Trustees, staff, the actuary and the TRS general investment consultant, RVK, Inc. However, additional disclosure on the types of risk faced by the plan has been added to the actuarial report. The preliminary June 30, 2019 actuarial valuation prepared by Segal Consulting has been submitted to the state actuary.

## ACTUARIAL ASSUMPTIONS AND METHODS

Each year the actuary reconciles the differences between actuarial assumptions and experience to explain the change in TRS’s unfunded liability.

The unfunded liability is the difference between the accrued liability (the present value of benefits including the cost of annual increases) and the assets that are available to cover the liability.

Most assumptions were adopted in the FY18 valuation and are based on the 2018 experience analysis unless otherwise noted.

### INVESTMENT RETURN

The investment return rate is 7.0 percent per annum, compounded annually and net of investment expenses, including inflation at 2.5 percent and real return at 4.5 percent. This is the expected rate of return on investments adopted effective June 30, 2016 and is also used to discount benefit payments. These rates were adopted in the FY16 valuation.

### SALARY INCREASES

Components of the salary increase assumption include:

- inflation of: 2.5 percent and
- real wage growth (productivity) of: 0.75 percent.

The sample annual percentage salary increases (including merit and components of increase listed previously) are below.

#### Salary Increase Assumptions

| Service            | Male and Female |
|--------------------|-----------------|
| 1 year             | 9.50%           |
| 2 years            | 7.50            |
| 3 years            | 7.00            |
| 4 years            | 6.75            |
| 5 years            | 6.50            |
| 10 years           | 5.50            |
| 15 years           | 4.75            |
| 20 years and above | 4.00            |

For a member who works 34 years, the assumed average salary increase over the member's career is 4.94 percent per year. The actual average salary increase for teachers who were in full-time or regular part-time status at both June 30, 2017 and June 30, 2018 is 5.93 percent.

## INFLATION

Inflation is assumed to be 2.5 percent per annum and is implicit in investment and earnings progression assumptions. This rate was adopted in the FY16 valuation.

## RETIREMENT AGE

Graduated rates are based on age and service of active members at retirement.

Sample annual retirement rates follow. The Tier 1 rates were revised in 2018 and the Tier 2 rates were revised in 2012.

Tier 1 is composed of members who entered into service before Jan. 1, 2011:

### Tier 1 Retirement Assumptions

| Age | Years of Service |       |       |       |     |
|-----|------------------|-------|-------|-------|-----|
|     | 5-18             | 19-29 | 30-31 | 32-33 | 34+ |
| 54  | -%               | 7%    | 8%    | 40%   | 45% |
| 55  | -                | 7     | 8     | 40    | 45  |
| 60  | 20               | 30    | 40    | 60    | 40  |
| 65  | 25               | 40    | 45    | 50    | 40  |
| 70  | 100              | 100   | 100   | 50    | 30  |
| 75  | 100              | 100   | 100   | 100   | 100 |

Tier 2 is composed of those entering into service on or after Jan. 1, 2011:

### Tier 2 Retirement Assumptions

| Age | Years of Service |       |     |       |     |
|-----|------------------|-------|-----|-------|-----|
|     | 9-18             | 19-30 | 31  | 32-33 | 34+ |
| 62  | 13%              | 15%   | 20% | 25%   | 25% |
| 65  | 8                | 10    | 15  | 20    | 20  |
| 67  | 20               | 40    | 70  | 70    | 70  |
| 70  | 100              | 100   | 100 | 100   | 100 |

## MORTALITY

The assumed mortality rates are based on the Society of Actuaries RP-2014 mortality tables with adjustments as appropriate for TRS experience. The rates are used on a fully generational basis using projection table MP-2017.

For retirees, the RP-2014 White Collar

Annuitant table:

- female rates are multiplied by 70 percent for ages under 78 and 110 percent for ages 78 to 114 and
- male rates are multiplied by 94 percent for ages under 81 and 110 percent for ages 81-114.

For disabled members, the RP-2014 Disabled Retiree table is used with male and female rates multiplied by 117 percent for ages 45-99.

For beneficiaries, the RP-2014 Annuitant table is used with male and female rates multiplied by 116 percent and 96 percent, respectively, for ages 50-114.

For active and inactive members, the RP-2014 White Collar Employee table is used with male and female rates multiplied by 104 percent for all ages.

## DISABILITY

Here are the sample annual disability rates:

### Disability Assumptions

| Age | Male  | Female |
|-----|-------|--------|
| 25  | 0.01% | 0.03%  |
| 30  | 0.01  | 0.04   |
| 40  | 0.03  | 0.07   |
| 50  | 0.10  | 0.18   |
| 55  | 0.14  | 0.20   |
| 60  | 0.18  | 0.27   |
| 65  | 0.25  | 0.30   |

## TERMINATION FROM ACTIVE SERVICE

Here are the sample annual termination rates (for reasons other than death, disability or retirement):

## Termination Assumptions

| Age | Under 5 Yrs of Service |        | 5 or More Yrs of Service |        |
|-----|------------------------|--------|--------------------------|--------|
|     | Male                   | Female | Male                     | Female |
| 25  | 7.0%                   | 6.5%   | 3.0%                     | 5.0%   |
| 30  | 6.5                    | 7.0    | 3.0                      | 4.8    |
| 40  | 10.0                   | 8.0    | 1.8                      | 1.5    |
| 50  | 12.0                   | 8.0    | 1.3                      | 1.5    |
| 55  | 11.5                   | 11.8   | 2.0                      | 2.0    |
| 60  | 15.0                   | 14.0   | 3.0                      | 2.5    |
| 65  | 30.0                   | 30.0   | 3.0                      | 3.0    |

## SEVERANCE PAY

The percent of retirees from active service assumed to receive severance pay and the amount of such severance payments are assumed to be as follows and are not applicable to Tier 2.

### Severance Pay Assumptions

| Percent Retiring with Severance Pay | Severance Pay as a Percent of Other Pensionable Earnings in Last Year of Service |
|-------------------------------------|--|
| 20%                                 | 10.0%  |

## OPTIONAL SERVICE AT RETIREMENT

The accrued liability for retirement benefits for active members who have not previously purchased optional service is increased to cover the employer cost of optional service purchased in the last two years of service. The sample purchases at retirement follow.

### Optional Service Assumptions

| Years of Regular Service at Retirement | Maximum Service Purchased |
|--|---------------------------|
| 10                                     | 0.107 years               |
| 20                                     | 0.445 years               |
| 25                                     | 0.752 years               |
| 30                                     | 0.841 years               |
| 34 or more                             | None                      |

## UNUSED AND UNCOMPENSATED SICK LEAVE

Unused and uncompensated sick leave varies by the amount of regular service at retirement.

The sample amounts of sick leave at retirement are:

### Sick Leave Assumptions

| Years of Service at Retirement | Sick Leave Service Credit |
|--------------------------------|---------------------------|
| 20                             | 0.953 years               |
| 25                             | 1.137 years               |
| 30                             | 1.376 years               |
| 34                             | 1.387 years               |
| 35 or more                     | None                      |

## POST-RETIREMENT INCREASES

Tier 1: 3%, compounded (statutory).

Tier 2: 1.25%, not compounded (adopted in 2016 valuation).

## ACTUARIAL COST METHOD

The actuarial cost method required by the Illinois Pension Code is projected unit credit, which was adopted in the FY89 valuation as required by Public Act 86-0273. The entry age normal cost method has been the basis of the TRS board's funding policy since FY15 and is used for financial reporting under GASB Statement No. 67.

## ASSET VALUATION METHOD

The practice of five-year prospective asset smoothing was adopted in the FY09 valuation as required by Public Act 96-0043.

## ACCELERATED BENEFIT PROGRAMS (BUYOUTS)

Under the programs established by Public Act 100-0587 and extended to June 30, 2024 by Public Act 101-0010:

- 22 percent of eligible Tier 1 and Tier 2 inactive members are assumed to participate in the Accelerated Pension Benefit Program.
- 15 percent of new Tier 1 retirees are assumed to participate in the Accelerated Annual Increase Program.

Buyouts are assumed to be paid through June 30, 2022, at which point the assumed \$650 million buyout allotment to TRS is expected to be reached.

The Accelerated Pension Benefit Program participation assumption is based on the experience of the state of Missouri and used by the Illinois legislature in its analysis of the proposed legislation. It was adopted in the 2018 actuarial valuation.

The Accelerated Annual Increase Program participation assumption is based on TRS experience for the first year of the program and was adopted in the 2019 valuation.

## ANNUAL ACTUARIAL VALUATION

The annual actuarial valuation measures the total liability for all benefits earned to date. The accrued liability is a present value estimate of all the benefits that have been earned to date but not yet paid. The unfunded liability is the present value of future benefits payable that are not covered by the assets on the valuation date.

All actuarial assumptions used to prepare the actuarial valuation are reviewed every three years. The last review, called an actuarial experience analysis, was conducted in 2018. The major economic assumptions are reviewed every year. This more frequent review was recommended by the state actuary.

The funded ratio shows the percentage of the accrued liability covered by assets. The following table shows the funded ratio based on the actuarial value of assets and the fair value of assets.

### Actuarial Valuation (\$ thousands)

|   | Year Ended<br>June 30, 2019 |
|---|-----------------------------|
| <b>Based on actuarial value of assets</b> |                             |
| Total actuarial accrued liability         | \$131,456,969               |
| Less actuarial value of assets*           | 53,391,193                  |
| <b>Unfunded liability</b>                 | <u><b>\$78,065,776</b></u>  |
| Funded ratio*                             | 40.6%                       |
| <b>Based on fair value of assets</b>      |                             |
| Total actuarial accrued liability         | \$131,456,969               |
| Less assets at fair value                 | 53,262,789                  |
| <b>Unfunded liability</b>                 | <u><b>\$78,194,180</b></u>  |
| Funded ratio                              | 40.5%                       |

\* Five-year prospective smoothing began in FY09.

## ANALYSIS OF FINANCIAL EXPERIENCE: RECONCILIATION OF UNFUNDED LIABILITY

The \$2.8 billion net increase in the 2019 unfunded liability was caused by a combination of factors.

The first factor shown in the table is the difference between actual employer/state contributions and the amount that would cover the employer/state's cost of benefits earned during the year and prevent the prior year's unfunded liability from growing. That shortfall was \$1.8 billion.

Actuarial gains and losses occurred under the other assumptions. The most significant loss was on investments, which includes 20 percent of the difference between expected and actual returns in FY19 and increased the unfunded liability by \$590 million during the year. Other actuarial losses occurred under the assumptions for retirement, terminations, mortality and rehires (members coming back into teaching service). The loss of \$29 million in the "other" category is a balancing item.

Actuarial gains occurred under the assumptions for salary increases, disabilities and new members, meaning that experience was more favorable (less costly) than assumed.

The net effect of the actuarial gains and losses was an increase in the unfunded liability of \$0.9 billion.

Further increases in the unfunded liability were due to revised assumptions about the impact of the accelerated pension benefit payments described in the Financial Section under "Legislative." Based on the first year of the experience with the automatic annual increase buyout program, TRS lowered assumed utilization from 25 percent to 15 percent. This lowered liability savings and increased the unfunded liability by \$81 million (\$0.1 billion).

In summary, the \$2.8 billion increase in the unfunded liability is due to the \$1.8 billion employer cost in excess of contributions, the \$0.9 billion

increase due to experience and the \$0.1 billion increase due to assumption changes.

### Reconciliation of Unfunded Liability

| Reconciliation of Unfunded Actuarial Accrued Liability | Year Ended<br>June 30, 2019 |
|--|-----------------------------|
| <b>Unfunded liability at beginning of year</b>         | <b>\$75,288,440,204</b>     |
| <b>Additions</b>                                       |                             |
| Employer cost in excess of contributions               | 1,754,692,034               |
| <b>Experience (gain)/loss from:</b>                    |                             |
| Investment (gain)/loss on actuarial value of assets*   | 589,910,262                 |
| Salary increases for continuing active members         | (84,011,865)                |
| Retirements other than expected                        | 324,388,173                 |
| Disabilities other than expected                       | (17,840,394)                |
| Terminations other than expected                       | 60,351,523                  |
| Mortality other than expected                          | 10,977,383                  |
| Rehires  | 39,508,399                  |
| New entrants   | (10,851,490)                |
| Other  | 29,494,007                  |
| <b>Net experience (gain)/loss</b>                      | <b>941,925,998</b>          |
| Changes in actuarial assumptions on buyout utilization | 80,717,984                  |
| <b>Net increase in unfunded liability</b>              | <b>2,777,336,016</b>        |
| <b>Unfunded liability at end of year</b>               | <b>\$78,065,776,220</b>     |

\* Assets were expected to earn 7.0 percent during the year ended June 30, 2019. This item is the difference between the expected and the actual return on an actuarial basis. For example, in FY19, the actual return of \$2.985 billion was less than the expected actuarial return of \$3.575 billion, resulting in an actuarial loss which increased the unfunded pension benefit liability by \$0.590 billion.

## ACTUARIAL STANDARDS AND ILLINOIS STATE PENSION FUNDING

In 2012, the TRS Board of Trustees resolved to begin certifying state funding amounts that were in accordance with generally accepted actuarial principles and standards. These amounts have been submitted to the legislative and executive branches in addition to the amounts calculated under Illinois law. The board's purpose is to illustrate the gap between sound funding policy and current practice.

Additional amounts certified by the board from 2012 through 2014 would have begun amortizing the unfunded liability over an open 30-year period or would have stabilized it by paying the accruing interest. Over time, however, actuarial standards have evolved and become more stringent.

In 2015, the board adopted the actuary's recommendation to shorten the amortization period under its alternative certification to 20 years. In this scenario, the amortization payments would increase by 2 percent per year, which is the actuary's estimate of the annual increase in Illinois revenue. Future increases in the unfunded liability would be amortized over subsequent 20-year periods (layered amortization). Additionally, the actuarial accrued liability and the employer's normal cost would be calculated under the entry age normal actuarial cost method, which is the most commonly used method in the public sector. Entry age would assign costs more evenly over an employee's career. It would replace the projected unit credit actuarial cost method that is required under Illinois law. The projected unit credit method has the effect of delaying the cost of a member's service and deferring contributions, thereby leading to higher costs in the long run.

## STATE FUNDING

Public Act 88-0593 was enacted in 1994 and first affected state contributions in FY96. The law established a 50-year funding plan that includes a 15-year phase-in period. By the end of the funding period in FY45, TRS will have a 90 percent funded ratio. A key feature of this act is the "continuing appropriation" language that requires state contributions to be made automatically to TRS, provided state funds are available.

Public Act 93-0002, the pension obligation bond legislation, was enacted in 2003 and first affected state contributions in FY05. The law requires a multi-step process that ensures that state contributions through FY33 do not exceed certain maximums. After FY33 when debt service on the bonds is repaid, contributions are higher than they would have been without the maximums.

Public Act 100-0023, enacted in 2017, made two changes that affected TRS funding and required TRS to recertify the FY18 state contribution. First, changes in actuarial assumptions made since the FY12 actuarial valuation are to be phased in over five-year periods to reduce volatility in the state contribution. Second, the act requires employers to contribute to TRS an amount that covers the employer normal cost on earnings that exceed the governor's statutory salary.

## STATE FUNDING AMOUNTS

The FY20 certified state contributions are based on the June 30, 2018 actuarial valuation and the FY21 certifications are based on the June 30, 2019 actuarial valuation. The state actuary will review the proposed certifications for FY21 as well as the preliminary June 30, 2019 valuation. Final certifications for FY21 are due Jan. 15, 2020 pursuant to Public Act 97-0674.

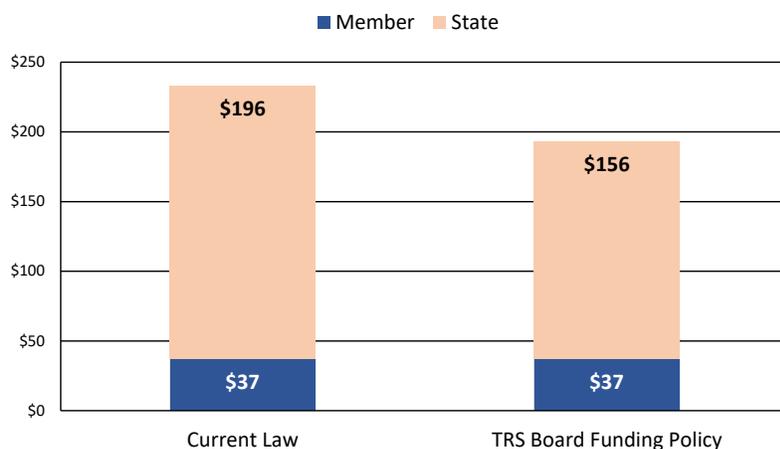
The following table shows funding requirements under the statutory funding plan and the TRS Board of Trustee's funding plan that was adopted in 2015.

### FY20 & FY21 State Contribution Requirements

|  | FY20<br>Requirements | FY21<br>Requirements |
|--|----------------------|----------------------|
| <b>Based on Statutory Funding Plan</b>   |                      |                      |
| Benefit Trust Reserve                    | \$4,813,077,696      | \$5,140,336,721      |
| Minimum Annuity Reserve                  | 500,000              | 400,000              |
| Total State Contribution                 | \$4,813,577,696      | \$5,140,736,721      |
| <b>Based on TRS Board Funding Policy</b> |                      |                      |
| Benefit Trust Reserve                    | \$7,878,170,709      | \$8,343,796,301      |
| Minimum Annuity Reserve                  | 500,000              | 400,000              |
| Total State Contribution                 | \$7,878,670,709      | \$8,344,196,301      |
| <b>Employer Normal Cost Rate</b>         |                      |                      |
| Tier 1                                   | 13.75%               | 13.85%               |
| Tier 2                                   | (1.48%)              | (1.43%)              |
| Combined                                 | 10.66%               | 10.41%               |

Under the TRS Board of Trustee's funding policy, the state funding requirement is initially higher than under the statutory plan because it begins reducing the unfunded liability immediately. Over time, however, funding based on this actuarial standard greatly reduces state contributions because it reduces the finance charges that occur under the statutory plan. Under the board's funding policy, total state contributions through FY45 would be \$40 billion lower than under current law.

### State and Member Required Contributions FY21-FY45 (\$ Billions)



## TESTS OF FINANCIAL CONDITION

The funded ratio shows the percentage of the accrued liability covered by actuarial value of assets and the fair value of assets.

### Funded Ratio Test (\$ thousands)

| As of<br>June 30 | Assets                            |                    |              | Unfunded Liability Using Assets<br>Based on |              | Funded Ratio Using Assets<br>Based on |            |
|------------------|-----------------------------------|--------------------|--------------|---|--------------|---------------------------------------|------------|
|                  | Actuarial<br>Accrued<br>Liability | Actuarial<br>Value | Fair Value   | Actuarial<br>Value                          | Fair Value   | Actuarial<br>Value                    | Fair Value |
| 2010             | \$77,293,198                      | \$37,439,092       | \$31,323,784 | \$39,854,106                                | \$45,969,414 | 48.4%                                 | 40.5%      |
| 2011             | 81,299,745                        | 37,769,753         | 37,471,267   | 43,529,992                                  | 43,828,478   | 46.5                                  | 46.1       |
| 2012             | 90,024,945                        | 37,945,397         | 36,516,825   | 52,079,548                                  | 53,508,120   | 42.1                                  | 40.6       |
| 2013             | 93,886,988                        | 38,155,191         | 39,858,768   | 55,731,797                                  | 54,028,220   | 40.6                                  | 42.5       |
| 2014             | 103,740,377                       | 42,150,765         | 45,824,383   | 61,589,612                                  | 57,915,994   | 40.6                                  | 44.2       |
| 2015             | 108,121,825                       | 45,435,193         | 46,406,916   | 62,686,632                                  | 61,714,909   | 42.0                                  | 42.9       |
| 2016             | 118,629,890                       | 47,222,098         | 45,250,957   | 71,407,792                                  | 73,378,933   | 39.8                                  | 38.1       |
| 2017             | 122,904,034                       | 49,467,525         | 49,375,665   | 73,436,509                                  | 73,528,369   | 40.2                                  | 40.2       |
| 2018             | 127,019,330                       | 51,730,890         | 51,969,547   | 75,288,440                                  | 75,049,783   | 40.7                                  | 40.9       |
| 2019             | 131,456,969                       | 53,391,193         | 53,262,789   | 78,065,776                                  | 78,194,180   | 40.6                                  | 40.5       |

The unfunded liability as a percentage of payroll is a standard measure of the relative size of the unfunded liability. Increases in this percentage indicate deterioration in a system's financial position.

### Unfunded Liability as a Percentage of Payroll Test Based on Actuarial Value of Assets (\$ thousands)

| Year Ended<br>June 30 | Approximate<br>Member Payroll* | Unfunded<br>Liability | Percentage<br>of Payroll |
|-----------------------|--------------------------------|-----------------------|--------------------------|
| 2010                  | \$9,251,139                    | \$39,854,106          | 430.8%                   |
| 2011                  | 9,205,603                      | 43,529,992            | 472.9                    |
| 2012                  | 9,321,098                      | 52,079,548            | 558.7                    |
| 2013                  | 9,394,741                      | 55,731,797            | 593.2                    |
| 2014                  | 9,512,810                      | 61,589,612            | 647.4                    |
| 2015                  | 9,641,171                      | 62,686,632            | 650.2                    |
| 2016                  | 9,811,614                      | 71,407,792            | 727.8                    |
| 2017                  | 9,965,570                      | 73,436,509            | 736.9                    |
| 2018                  | 10,163,980                     | 75,288,440            | 740.7                    |
| 2019                  | 10,450,452                     | 78,065,776            | 747.0                    |

\* Payroll supplied by TRS

The solvency test measures TRS's ability to cover different types of obligations if the plan was terminated and is hypothetical. The columns are in the order that assets would be used to cover certain types of obligations. Employee contributions would be refunded first, amounts due for participants currently receiving benefits would be covered next and the employer's obligation for active members would be covered last. Columns (1) and (2) should be fully covered by assets. The portion of column (3) that is covered by assets should increase over time.

### Solvency Test (\$ thousands)

| Year Ended June 30 | Aggregate Accrued Liabilities for |   |                                     |                           | Percentage of Benefits Covered by Net Assets |     |     |
|--------------------|-----------------------------------|---|-------------------------------------|---------------------------|--|-----|-----|
|                    | Active Member Contributions (1)   | Participants Currently Receiving Benefits (2) | Active Members Employer Portion (3) | Actuarial Value of Assets | (1)  | (2) | (3) |
| 2010               | \$7,715,984                       | \$47,475,906                                  | \$22,101,308                        | \$37,439,092              | 100%   | 63% | -   |
| 2011               | 8,048,689                         | 50,567,881                                    | 22,683,175                          | 37,769,753                | 100  | 59  | -   |
| 2012               | 8,270,073                         | 58,734,636                                    | 23,020,236                          | 37,945,397                | 100  | 51  | -   |
| 2013               | 8,569,939                         | 61,254,334                                    | 24,062,715                          | 38,155,191                | 100  | 48  | -   |
| 2014               | 8,890,558                         | 65,614,627                                    | 29,235,192                          | 42,150,765                | 100  | 51  | -   |
| 2015               | 9,281,893                         | 70,545,782                                    | 28,294,150                          | 45,435,193                | 100  | 51  | -   |
| 2016               | 9,629,934                         | 77,688,075                                    | 31,311,881                          | 47,222,098                | 100  | 48  | -   |
| 2017               | 9,683,095                         | 80,882,353                                    | 32,338,586                          | 49,467,525                | 100  | 49  | -   |
| 2018               | 10,057,427                        | 82,968,465                                    | 33,993,438                          | 51,730,890                | 100  | 50  | -   |
| 2019               | 10,474,097                        | 85,788,806                                    | 35,194,066                          | 53,391,193                | 100  | 50  | -   |

## OTHER INFORMATION

### Schedule of Contributions from Employers and Other Contributing Entities<sup>1</sup>

(\$ thousands)

| Year Ended June 30 | State Contributions <sup>2</sup> | Federal and Employer Contributions <sup>3</sup> | Total       | Actuarially Determined Contribution <sup>4</sup> | Percentage Contributed | Annual Required Contribution per State Statute | Percentage Contributed |
|--------------------|----------------------------------|---|-------------|--|------------------------|--|------------------------|
| 2010               | \$2,079,129                      | \$170,653                                       | \$2,249,782 | \$2,481,914                                      | 90.6%                  | \$2,217,053                                    | 101.5%                 |
| 2011               | 2,169,518                        | 154,150   | 2,323,668   | 2,743,221  | 84.7                   | 2,293,321                                      | 101.3                  |
| 2012               | 2,405,172                        | 153,409   | 2,558,581   | 3,429,945  | 74.6                   | 2,547,803                                      | 100.4                  |
| 2013               | 2,702,278                        | 155,787   | 2,858,065   | 3,582,033  | 79.8                   | 2,843,463                                      | 100.5                  |
| 2014               | 3,437,478                        | 157,228   | 3,594,706   | 4,091,978  | 87.8                   | 3,592,578                                      | 100.1                  |
| 2015               | 3,376,878                        | 144,780   | 3,521,658   | 4,119,526  | 85.5                   | 3,497,366                                      | 100.7                  |
| 2016               | 3,741,802                        | 147,408   | 3,889,210   | 4,582,530  | 84.9                   | 3,883,544                                      | 100.1                  |
| 2017               | 3,985,783                        | 148,749   | 4,134,532   | 6,248,879  | 66.2                   | 4,124,119                                      | 100.3                  |
| 2018               | 4,094,616                        | 84,034  | 4,178,650   | 7,080,756  | 59.0                   | 4,183,040                                      | 99.9                   |
| 2019               | 4,465,578                        | 87,707  | 4,553,285   | 7,429,037  | 61.3                   | 4,554,862                                      | 100.0                  |

1. Actual contributions varied slightly from contributions that are required by statute mainly because of differences between estimated and actual federal contributions.
2. State contribution amounts reflect recertifications and may not agree with original certifications in actuarial reports. Minimum benefit reimbursements are excluded.
3. Beginning in FY18, the federal contribution rate for salaries paid from federal funds is the same as the total employer normal cost rate. Previously, it was the same as the state contribution rate.
4. Actuarially determined contribution (ADC) through FY16 was based on GASB Statement No. 25. Beginning in FY17, the ADC is based on the TRS Board of Trustees funding policy.

The previous Schedule of Contributions from Employers and Other Contributing Entities is similar to the Schedule of the Employers' Contributions shown in the Required Supplementary Information in the Financial Section. Through FY16, both tables are based on an Actuarially Determined Contribution (ADC). Until FY17, the ADC includes the employer's normal cost and amortizes the System's unfunded liability over a 30-year open period, with the amortization component based on a level percent of pay pursuant to GASB Statement No. 25. Beginning in FY17, a different comparison is used due to the board's adoption of a more stringent actuarial funding calculation for its alternative certification. The board's funding policy was described earlier in this section under "Actuarial Standards and Illinois State Pension Funding."

The schedule of Retirees and Beneficiaries Added and Removed from the Rolls shows the overall trends in the number of benefit recipients and the amounts they receive.

### Retirees and Beneficiaries Added to and Removed from Rolls

| Year Ended June 30 | Number at Beginning of Year | Number Added to Rolls | Number Removed from Rolls | Number at End of Year | End-of-Year Annual Allowances |          | Average Annual Allowance |          |
|--------------------|-----------------------------|-----------------------|---------------------------|-----------------------|-------------------------------|----------|--------------------------|----------|
|                    |                             |                       |                           |                       | Amount                        | Increase | Amount                   | Increase |
| 2010               | 94,424                      | 5,711                 | 2,381                     | 97,754                | \$4,109,018,971               | 7.7%     | \$42,034                 | 4.0%     |
| 2011               | 97,754                      | 6,377                 | 2,843                     | 101,288               | 4,418,500,521                 | 7.5      | 43,623                   | 3.8      |
| 2012               | 101,288                     | 6,943                 | 2,784                     | 105,447               | 4,781,692,373                 | 8.2      | 45,347                   | 4.0      |
| 2013               | 105,447                     | 6,404                 | 3,068                     | 108,783               | 5,100,219,925                 | 6.7      | 46,884                   | 3.4      |
| 2014               | 108,783                     | 6,433                 | 2,883                     | 112,333               | 5,430,104,782                 | 6.5      | 48,339                   | 3.1      |
| 2015               | 112,333                     | 5,789                 | 3,200                     | 114,922               | 5,718,110,055                 | 5.3      | 49,756                   | 2.9      |
| 2016               | 114,922                     | 5,723                 | 2,995                     | 117,650               | 6,024,825,507                 | 5.4      | 51,210                   | 2.9      |
| 2017               | 117,650                     | 5,627                 | 3,126                     | 120,151               | 6,328,506,420                 | 5.0      | 52,671                   | 2.9      |
| 2018               | 120,151                     | 5,672                 | 3,400                     | 122,423               | 6,629,605,138                 | 4.8      | 54,153                   | 2.8      |
| 2019               | 122,423                     | 5,238                 | 3,362                     | 124,299               | 6,915,297,528                 | 4.3      | 55,634                   | 2.7      |

Source: TRS

| Year Ended June 30 | Amount Added to Rolls    |                        |                           |
|--------------------|--------------------------|------------------------|---------------------------|
|                    | Annual Benefit Increases | New Benefit Recipients | Amount Removed from Rolls |
| 2010               | \$114,879,927            | \$247,234,501          | \$68,388,326              |
| 2011               | 125,124,423              | 263,213,399            | 78,856,272                |
| 2012               | 135,604,876              | 311,161,467            | 83,574,491                |
| 2013               | 145,282,975              | 268,124,075            | 94,879,498                |
| 2014               | 153,329,242              | 273,690,582            | 97,134,967                |
| 2015               | 162,158,193              | 237,388,307            | 111,541,227               |
| 2016               | 168,459,973              | 250,009,083            | 111,753,604               |
| 2017               | 180,258,847              | 242,035,397            | 118,613,331               |
| 2018               | 187,737,960              | 249,984,285            | 136,623,527               |
| 2019               | 194,545,787              | 233,753,123            | 142,606,520               |

Source: TRS

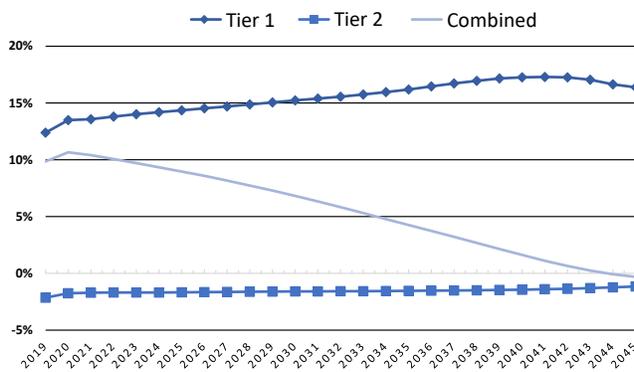
# FUNDING ANALYSIS BY TIER

Public Act 96-0889 established a new tier of benefits for teachers who first contributed to TRS or another reciprocal pension system on or after Jan. 1, 2011. Tier 2 teachers have later retirement dates, longer vesting requirements, salary caps for pensions lower than the Social Security wage base and lower cost of living increases after retirement that are not compounded. On July 1, 2016, the member contribution rate for both tiers decreased from 9.4 percent to 9.0 percent.

The employer normal cost rate measures the employer’s cost of the benefits being earned by active teachers during the year. It does not include any contributions towards the unfunded liability. The chart below shows that while the combined employer normal cost of both tiers in 2019 is nearly 10 percent of pay, the cost of Tier 2 is negative and stays negative through 2045.

As more Tier 2 members enter TRS, the combined employer normal cost continues to fall. By 2044, the combined employer normal cost is negative. In the meantime, the cost of Tier 1, which is a closed group, continues to increase as Tier 1 members age and accrue more service. The increases in employer normal cost for both tiers is a function of the projected unit credit actuarial cost method required by the Illinois Pension Code.

## Employer Normal Cost by Tier

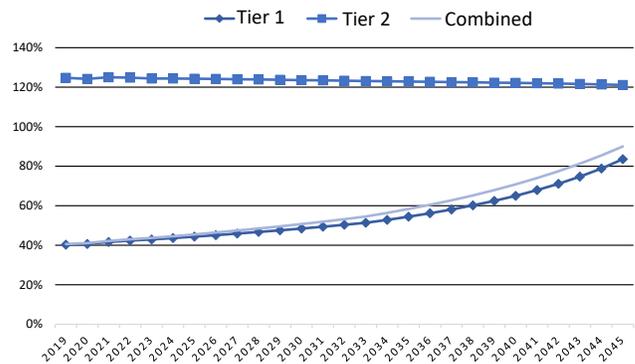


Note: Combined rate includes administrative expenses.  
 Source: 2017 valuation for 2019 data; 2018 valuation for 2020 data; 2019 valuation for subsequent years.

Under the 50-year funding plan, TRS will attain a funded ratio of 90 percent by 2045. The following chart illustrates what the funded ratios would be if they were operated as separate retirement plans. Tier 2 would be overfunded because member contributions are higher than the cost of Tier 2 benefits. The surplus Tier 2 assets lower the employer/state contributions required for Tier 1. Tier 2 active members are projected to outnumber Tier 1 active members by 2026.

By 2045, Tier 1 would be 84 percent funded and Tier 2 would be 121 percent funded, with the combined plan attaining the 90 percent target funded ratio. In practice, the two tiers are combined for administrative and funding purposes and their assets are commingled.

## Funded Ratio by Tier



Source: 2017 valuation for 2019 data; 2018 valuation for 2020 data; 2019 valuation for subsequent years.

## Average Annual Salary for Active Members (Excluding Substitutes) by Years of Service and Number of Employers

| Years of Service               |         | 2019             | 2018            | 2017            | 2016            |
|--------------------------------|---------|------------------|-----------------|-----------------|-----------------|
| <b>Under 5</b>                 | Members | 26,111           | 25,959          | 26,486          | 26,767          |
|                                | Salary  | \$51,835         | \$50,568        | \$49,935        | \$49,464        |
| <b>5-9</b>                     | Members | 26,264           | 25,831          | 26,436          | 27,845          |
|                                | Salary  | \$60,626         | \$59,615        | \$59,150        | \$59,276        |
| <b>10-14</b>                   | Members | 28,322           | 29,465          | 29,617          | 29,395          |
|                                | Salary  | \$73,266         | \$72,008        | \$71,412        | \$71,140        |
| <b>15-19</b>                   | Members | 24,459           | 24,304          | 23,936          | 22,894          |
|                                | Salary  | \$85,131         | \$84,065        | \$82,745        | \$81,868        |
| <b>20-24</b>                   | Members | 16,209           | 15,590          | 14,728          | 14,120          |
|                                | Salary  | \$94,599         | \$93,379        | \$92,035        | \$90,942        |
| <b>25-29</b>                   | Members | 10,038           | 8,786           | 8,254           | 8,087           |
|                                | Salary  | \$101,340        | \$99,102        | \$97,624        | \$96,157        |
| <b>30-34</b>                   | Members | 3,950            | 3,976           | 3,979           | 3,936           |
|                                | Salary  | \$106,097        | \$105,266       | \$104,652       | \$102,896       |
| <b>35 +</b>                    | Members | 353              | 379             | 453             | 592             |
|                                | Salary  | \$112,963        | \$111,104       | \$110,576       | \$107,826       |
| <b>Total Members</b>           |         | <b>135,706</b>   | <b>134,290</b>  | <b>133,889</b>  | <b>133,636</b>  |
| Salary                         |         | \$74,518         | \$73,028        | \$71,773        | \$70,868        |
| % Change salary                |         | 2.0%             | 1.7%            | 1.3%            | 1.9%            |
| Total payroll full & part-time |         | \$10,112,568,797 | \$9,806,930,120 | \$9,609,615,197 | \$9,470,516,048 |
| Number of Employers            |         | 990              | 990             | 989             | 992             |

Source: TRS

Annual salaries are computed using full- and part-time salary rates only; substitute and hourly employee salaries are omitted. Total payroll shown will be lower than payroll figures used elsewhere in this report.

| 2015            | 2014            | 2013            | 2012            | 2011            | 2010            |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 26,698          | 25,191          | 24,812          | 25,733          | 27,960          | 33,487          |
| \$47,796        | \$46,845        | \$46,058        | \$46,222        | \$47,292        | \$46,324        |
| 29,798          | 33,028          | 34,682          | 35,071          | 34,626          | 34,529          |
| \$58,935        | \$58,540        | \$58,027        | \$57,741        | \$57,416        | \$57,105        |
| 29,214          | 28,747          | 28,503          | 28,105          | 26,865          | 25,051          |
| \$70,589        | \$70,233        | \$69,686        | \$68,751        | \$67,691        | \$66,788        |
| 21,421          | 19,917          | 19,406          | 18,610          | 17,935          | 17,790          |
| \$80,737        | \$79,921        | \$79,295        | \$78,328        | \$77,268        | \$76,001        |
| 13,877          | 13,562          | 12,280          | 11,834          | 11,682          | 11,391          |
| \$89,591        | \$88,037        | \$86,235        | \$84,904        | \$83,563        | \$82,184        |
| 7,908           | 7,827           | 7,913           | 7,940           | 7,834           | 7,786           |
| \$94,510        | \$93,016        | \$91,735        | \$89,986        | \$88,416        | \$86,566        |
| 3,970           | 3,941           | 4,247           | 4,826           | 5,839           | 6,554           |
| \$100,785       | \$98,807        | \$96,966        | \$94,665        | \$93,299        | \$91,077        |
| 731             | 809             | 889             | 994             | 1,179           | 1,251           |
| \$105,372       | \$103,533       | \$101,293       | \$98,140        | \$98,678        | \$95,486        |
| 133,617         | <b>133,022</b>  | <b>132,732</b>  | <b>133,113</b>  | <b>133,920</b>  | <b>137,839</b>  |
| \$69,538        | \$68,556        | \$67,558        | \$66,696        | \$66,044        | \$64,385        |
| 1.4%            | 1.5%            | 1.3%            | 1.0%            | 2.6%            | 3.3%            |
| \$9,291,458,946 | \$9,119,456,232 | \$8,967,108,456 | \$8,878,104,648 | \$8,844,612,480 | \$8,874,727,268 |
| 1,006           | 1,013           | 1,019           | 1,024           | 1,029           | 1,030           |

### Average Annual Salary and Age for Active Members by Years of Service as of June 30, 2019

| Age                  |         | Subs          | Years of Service |               |               |               |
|----------------------|---------|---------------|------------------|---------------|---------------|---------------|
|                      |         |               | Under 5          | 5-9           | 10-14         | 15-19         |
| 20-24                | Members | 2,057         | 3,251            | -             | -             | -             |
|                      | Salary  | \$4,937       | \$44,384         | -             | -             | -             |
| 25-29                | Members | 2,646         | 9,514            | 4,276         | -             | -             |
|                      | Salary  | \$5,979       | \$49,829         | \$56,077      | -             | -             |
| 30-34                | Members | 2,184         | 4,641            | 10,513        | 4,203         | -             |
|                      | Salary  | \$5,822       | \$53,541         | \$60,253      | \$69,292      | -             |
| 35-39                | Members | 2,666         | 3,035            | 4,511         | 11,819        | 4,312         |
|                      | Salary  | \$5,395       | \$55,356         | \$62,750      | \$73,822      | \$82,765      |
| 40-44                | Members | 3,360         | 2,250            | 2,616         | 4,782         | 9,810         |
|                      | Salary  | \$5,809       | \$54,962         | \$61,751      | \$75,294      | \$85,943      |
| 45-49                | Members | 3,623         | 1,547            | 1,949         | 3,115         | 4,429         |
|                      | Salary  | \$5,718       | \$57,025         | \$63,131      | \$73,776      | \$86,813      |
| 50-54                | Members | 3,121         | 955              | 1,271         | 2,145         | 2,677         |
|                      | Salary  | \$5,841       | \$56,600         | \$62,355      | \$72,498      | \$85,262      |
| 55-59                | Members | 2,876         | 576              | 743           | 1,513         | 2,044         |
|                      | Salary  | \$6,136       | \$57,645         | \$63,665      | \$73,356      | \$82,272      |
| 60-64                | Members | 2,299         | 259              | 311           | 611           | 957           |
|                      | Salary  | \$5,796       | \$56,524         | \$64,749      | \$73,220      | \$85,071      |
| 65-69                | Members | 1,551         | 63               | 67            | 115           | 201           |
|                      | Salary  | \$5,673       | \$57,425         | \$64,906      | \$75,734      | \$85,879      |
| 70-74                | Members | 677           | 17               | 7             | 17            | 25            |
|                      | Salary  | \$5,861       | \$58,134         | \$54,425      | \$81,692      | \$92,976      |
| Over 74              | Members | 261           | 3                | -             | 2             | 4             |
|                      | Salary  | \$6,029       | \$71,342         | -             | \$64,974      | \$82,383      |
| <b>Total Members</b> |         | <b>27,321</b> | <b>26,111</b>    | <b>26,264</b> | <b>28,322</b> | <b>24,459</b> |
| Salary               |         | \$5,742       | \$51,835         | \$60,626      | \$73,266      | \$85,131      |

Source: TRS

|                            | Average Age | Average Years of Service | Members |
|----------------------------|-------------|--------------------------|---------|
| Full and part-time members | 42          | 13                       | 135,706 |
| Substitutes                | 46          | 4                        | 27,321  |
| All                        | 43          | 11                       | 163,027 |

| Years of Service |               |              |            |           |           |           | Full & Part-time<br>Member Totals |
|------------------|---------------|--------------|------------|-----------|-----------|-----------|-----------------------------------|
| 20-24            | 25-29         | 30-34        | 35-39      | 40-44     | 45-49     | 50+       |                                   |
| -                | -             | -            | -          | -         | -         | -         | 3,251                             |
| -                | -             | -            | -          | -         | -         | -         | \$44,384                          |
| -                | -             | -            | -          | -         | -         | -         | 13,790                            |
| -                | -             | -            | -          | -         | -         | -         | \$51,766                          |
| -                | -             | -            | -          | -         | -         | -         | 19,357                            |
| -                | -             | -            | -          | -         | -         | -         | \$60,606                          |
| 1                | -             | -            | -          | -         | -         | -         | 23,678                            |
| \$103,300        | -             | -            | -          | -         | -         | -         | \$70,976                          |
| 3,163            | -             | -            | -          | -         | -         | -         | 22,621                            |
| \$94,477         | -             | -            | -          | -         | -         | -         | \$79,006                          |
| 7,140            | 2,448         | -            | -          | -         | -         | -         | 20,628                            |
| \$95,729         | \$99,738      | -            | -          | -         | -         | -         | \$84,993                          |
| 3,113            | 4,915         | 1,456        | -          | -         | -         | -         | 16,532                            |
| \$95,196         | \$102,304     | \$106,041    | -          | -         | -         | -         | \$88,956                          |
| 1,867            | 2,010         | 2,190        | 118        | -         | -         | -         | 11,061                            |
| \$90,993         | \$101,793     | \$106,472    | \$110,843  | -         | -         | -         | \$88,636                          |
| 708              | 552           | 235          | 119        | 32        | -         | -         | 3,784                             |
| \$91,533         | \$98,820      | \$103,249    | \$115,135  | \$109,495 | -         | -         | \$85,029                          |
| 182              | 93            | 60           | 22         | 29        | 16        | -         | 848                               |
| \$91,120         | \$99,192      | \$105,793    | \$116,775  | \$120,130 | \$96,992  | -         | \$86,909                          |
| 35               | 17            | 8            | 6          | 1         | 7         | 1         | 141                               |
| \$94,492         | \$98,215      | \$98,310     | \$109,985  | \$92,796  | \$128,653 | \$134,029 | \$89,596                          |
| -                | 3             | 1            | 1          | -         | -         | 1         | 15                                |
| -                | \$75,205      | \$134,642    | \$66,900   | -         | -         | \$132,578 | \$82,216                          |
| <b>16,209</b>    | <b>10,038</b> | <b>3,950</b> | <b>266</b> | <b>62</b> | <b>23</b> | <b>2</b>  | <b>135,706</b>                    |
| \$94,599         | \$101,340     | \$106,097    | \$113,069  | \$114,200 | \$106,628 | \$133,304 | \$74,518                          |

## **PLAN SUMMARY**

### **ADMINISTRATION**

TRS was created and is governed by Article 16 of the Illinois Pension Code, contained in the Illinois Compiled Statutes (ILCS). A 13-member board of trustees is authorized to carry out duties granted to it under the article.

### **MEMBERSHIP**

Membership in TRS is mandatory for all full-time, part-time and substitute school personnel employed in Illinois outside the city of Chicago in positions requiring licensure. Persons employed at certain state agencies are also members.

### **BENEFITS**

Public Act 96-0889 established a second, lower tier of benefits for teachers who first contributed to TRS or one of the Illinois reciprocal retirement systems on or after Jan. 1, 2011. Tier 1 benefits were not affected by PA 96-0889. See the table on pages 108-109 for a summary of Tier 1 and Tier 2 benefits.

See the Financial Section for a discussion of benefit programs recently enacted by the legislature. The accelerated benefit programs and optional defined contribution plan are discussed on page 10. Tier 3 is discussed in the Notes to the Financial Section under "A. Plan Description, 5. Benefits Provisions."

### **OTHER PROVISIONS**

#### **EMPLOYMENT-RELATED FELONY CONVICTION**

Any member convicted of a felony related to or in connection with teaching is not eligible for TRS benefits. However, the member may receive a refund of contributions.

#### **CONTINUITY OF CREDIT WITHIN ILLINOIS**

TRS is one of 13 public retirement systems that are included in the provisions of the Illinois Reciprocal Act. This act ensures continuous pension credit for public employment in Illinois.

#### **CONFLICTS**

Conditions involving a claim for benefits may require further clarification. If conflicts arise between the material in this summary and that of the law, the law takes precedence.



## AQUA VIA

Oakland, CA

Built in 2006

Acquired in 2011

# SUMMARY OF TIER 1 AND TIER 2 BENEFIT PROVISIONS

| Tier 1  |   |
|---|---|
| <b>Tier 1 Defined</b>                             | Members who first contributed to TRS or one of the other Illinois reciprocal retirement systems before Jan. 1, 2011 are covered by Tier 1. Tier 1 membership is retained even if a member takes a refund and does not repay it.   |
| <b>Retirement Eligibility (Vesting)</b>           | <p>Tier 1 members who meet the following age and service requirements are eligible to retire:</p> <ul style="list-style-type: none"> <li>• Age 55 with 20 years of service (reduced 6% for every year that the member's age at retirement is under 60)</li> <li>• Age 55 with 35 years of service (no reduction)</li> <li>• Age 60 and 10 years of service (no reduction)</li> <li>• Age 62 with 5 years of service (no reduction)</li> </ul> <p>A member with fewer than five years of service can receive a single sum retirement benefit at age 65.</p>  |
| <b>Retirement Formula</b>                         | <p>Retirement benefits for most Tier 1 members are based on a formula of 2.2% times years of creditable service times final average salary. The maximum benefit is 75% of final average salary.</p> <p>Some Tier 1 members with service before July 1, 1998 will have benefits based on the graduated formula that was in effect before that date. The maximum benefit is also 75% under the graduated formula.</p> <p>Public Act 90-0582 changed the benefit accrual rate beginning July 1, 1998. Members could upgrade their service under the graduated formula by making a contribution to TRS. The law provides that each three full years worked after the effective date reduces the number of years to be upgraded by one. Subsequently, Public Act 91-0017 reduced the 2.2 formula upgrade cost for members with more than 34 years of service.</p> <p>The final average salary is based on the member's highest four consecutive years of service out of the last 10.</p> <p>Tier 1 members hired before July 1, 2005 may receive a money-purchase style "actuarial" benefit. By law, the higher of the formula benefit or the actuarial benefit is paid.</p>   |
| <b>Post-Retirement Increases</b>                  | <p>Annual increases are 3% of the current retiree benefit.</p> <p>The first increase is the later of the Jan. 1 following attainment of age 61 or the first anniversary of retirement.</p>  |
| <b>Disability Benefits</b>                        | <p>Nonoccupational disability benefits are payable as disability benefits or disability retirement benefits to members who have a minimum of three years of creditable service.</p> <p>No minimum service requirement applies to occupational benefits for duty-related accidents or illnesses. Members continue to accrue service credit while they are receiving disability benefits but not while receiving disability retirement benefits.</p> <p>Generally, nonoccupational disability benefits are 40% of pay; occupational disability benefits are 60% of pay, reduced by payments received under workers' compensation and disability retirement benefits are 35% of pay annually or a higher amount based on service credit and age.</p> <p>On the Jan. 1 following the fourth anniversary of the granting of the disability benefit, the monthly benefit is increased by 7%. Thereafter, the benefit increases by 3% of the current benefit.</p> <p>Public Act 94-0539 allows individuals who have received disability benefits for at least one year to return to teaching on a limited basis if their conditions improve. Disability benefits can continue so long as the combined earnings from teaching and disability benefits do not exceed 100% of the salary rate upon which the disability is based.</p> |
| <b>Survivor Benefits</b>                          | <p>In most cases, survivor benefits for Tier 1 members' dependent beneficiaries are 50% of the retired member's benefit. The annual increase is 3% of the current survivor benefit.</p> <p>A dependent beneficiary can elect a lump sum payment instead of a monthly annuity. Nondependent beneficiaries are only eligible for lump sum payments. Refunds of member contributions not already received in retirement benefits are also payable as death benefits.</p>   |
| <b>Post-Retirement Employment</b>                 | Until June 30, 2020, Tier 1 retirees can teach up to 120 days or 600 hours per year without having their retirement benefits suspended. After that date, the limits return to 100 days or 500 hours.  |
| <b>Contributions to TRS</b>                       | <p>During FY19, Tier 1 members contributed 9.0% of pay. Of this rate, 7.5% is for retirement benefits, 1.0% is for survivor benefits and 0.5% is for the annual increase.</p> <p>TRS members do not contribute to Social Security or Medicare for TRS-covered employment. However, members who were hired or changed employers after March 31, 1986 and who elected to participate in Medicare during a 2004 referendum do contribute to Medicare.</p>  |
| <b>Contributions for Retiree Health Insurance</b> | During FY19, members contributed 1.24% of pay to the Teachers' Health Insurance Security Fund.  |
| <b>Refunds</b>                                    | After a four-month waiting period from the date last taught, a member ceasing TRS-covered employment may withdraw all contributions except for the 1% survivor benefit contribution. Credit can be re-established if the member returns to a TRS-covered position for one year or to a reciprocal system for two years and repays the refund with interest. A member receiving disability benefits is not eligible for a refund.  |
| <b>Service Credit</b>                             | A member is granted a maximum of one year of service credit for 170 paid days per school year, defined by statute as July 1 through June 30. Optional service credit is available for periods of public school teaching in other states or under the authority of the United States government; substitute or part-time teaching prior to July 1, 1990; leaves of absence or involuntary layoff; military service; and gaps in teaching due to pregnancy or adoption prior to July 1, 1983. Up to two years of unused, uncompensated sick leave that has been certified by former employers may also be added to service credit at retirement.  |
| <b>Accelerated Benefit Programs (temporary)</b>   | <p>Until June 30, 2024, inactive members with five years of TRS service can take a lump-sum payment of 60 percent of the present value of their future benefit payments. Buyout payments are contingent upon sufficient bond proceeds being available.</p> <p>Until June 30, 2024, retiring members can elect to receive 70 percent of the present value of the difference between the current 3 percent compounded annual increase that starts no earlier than age 61 and a 1.5 percent noncompounded annual increase that starts no earlier than age 67. Buyout payments are contingent upon sufficient bond proceeds being available.</p>  |

| Tier 2  |  |
|---|--|
| <b>Tier 2 Defined</b>                             | Members who first contributed to TRS on or after Jan. 1, 2011 and do not have any previous service with one of the other Illinois reciprocal retirement systems are covered by Tier 2.   |
| <b>Retirement Eligibility (vesting)</b>           | <p>Tier 2 members who meet the following age and service requirements are eligible to retire:</p> <ul style="list-style-type: none"> <li>• Age 67 with 10 years of service (no reduction)</li> <li>• Age 62 with 10 years of service (reduced 6% for every year the member's age at retirement is under age 67)</li> </ul> <p>A member with fewer than five years of service can receive a single sum retirement benefit at age 65.</p>  |
| <b>Retirement Formula</b>                         | <p>Retirement benefits for Tier 2 members are based on a formula of 2.2% times years of creditable service times final average salary. The maximum benefit is 75% of final average salary.</p> <p>Tier 2 creditable earnings for pension purposes are limited by an amount that is tied to the 2010 Social Security Wage Base (SSWB). The Tier 2 limit increases by 3% or half the increase in the Consumer Price Index, whichever is less. The FY18 Tier 2 limit was \$113,644.91.</p> <p>The final average salary is based on the member's highest eight consecutive years of service out of the last 10.</p> <p>Tier 2 does not provide a money-purchase style "actuarial" benefit.</p> |
| <b>Post-Retirement Increases</b>                  | <p>Annual increases will be the lesser of 3% or one-half of the increase in the Consumer Price Index times the original retiree benefit.</p> <p>The first increase is the later of the Jan. 1 following attainment of age 67 or the first anniversary of retirement.</p>   |
| <b>Disability Benefits</b>                        | Same as Tier 1, including increases.   |
| <b>Survivor Benefits</b>                          | <p>In most cases, survivor benefits for Tier 2 members' dependent beneficiaries will be 66 2/3% of the retired member's benefit. The annual increase is the lesser of 3% or one-half of the increase in the Consumer Price Index times the original survivor benefit.</p> <p>A dependent beneficiary can elect a lump sum payment instead of a monthly annuity. Nondependent beneficiaries are only eligible for lump sum payments. Refunds of member contributions not already received in retirement benefits are also payable as death benefits.</p>  |
| <b>Post-Retirement Employment</b>                 | The law suspends a Tier 2 member's retirement benefits if the member accepts full-time employment in a position covered by one of the Illinois reciprocal retirement systems.  |
| <b>Contributions to TRS</b>                       | <p>During FY19, Tier 2 members also contributed 9.0% of pay, with components designated for the same purposes.</p> <p>Tier 2 members do not contribute to Social Security for their TRS-covered employment but do contribute to Medicare.</p>  |
| <b>Contributions for Retiree Health Insurance</b> | Same as Tier 1.  |
| <b>Refunds</b>                                    | Same as Tier 1.  |
| <b>Service Credit</b>                             | Same as Tier 1. The purchase of optional service earned before Jan. 1, 2011 does not change a Tier 2 member's status to Tier 1.  |
| <b>Accelerated Benefit Program (temporary)</b>    | Until June 30, 2024, inactive members with 10 years of TRS service can take a lump-sum payment of 60 percent of the present value of their future benefit payments. Buyout payments are contingent upon sufficient bond proceeds being available.  |



# STATISTICAL



## CORPORATE 500

Deerfield, IL

Built between 1986 and 1990

Acquired in 2015

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## STATISTICAL SECTION

The tables in this section present detailed information on benefit payments and recipients, member and employer contributions, employer contribution rates and the largest TRS employers.

### SECTION CONTENTS

#### **10-YEAR FINANCIAL TRENDS – PAGES 114-115**

These two schedules contain information that allows the reader to view the change in net position and benefit and refund deductions from net position over a 10-year period. Both schedules help the reader understand the financial changes that have occurred over time.

#### **EMPLOYEE AND EMPLOYER CONTRIBUTION RATES – PAGE 116**

This schedule offers information on the contribution rates for employees, the state and employers to the System over a 10-year period.

#### **ACTIVE MEMBERS BY TIER – PAGE 116**

This schedule shows the number of members by tier since Tier 2 began in FY11.

#### **RETIRED MEMBERS BY YEARS OF SERVICE AND YEARS IN RETIREMENT – PAGE 117**

This schedule shows the number of retirees by their years of service and years in retirement in five-year increments. It also shows their average current monthly benefits and average benefits when they first retired. A column on the right shows the average age of retirees in each “years retired” increment.

#### **DEMOGRAPHICS OF BENEFIT RECIPIENTS AND ACTIVE MEMBERS – PAGE 118-119**

These schedules help the reader understand characteristics of the specific groups of benefit recipients and active members of the TRS.

#### **BENEFIT RECIPIENTS BY TYPE AND SUMMARY STATISTICS, ALL BENEFIT RECIPIENTS – PAGE 120**

This schedule shows counts by benefit type and range. Additional tables show averages by benefit type and retirements by subtype.

#### **AVERAGE BENEFIT PAYMENTS TO NEW RETIREES – PAGE 121**

This schedule contains information regarding the average benefits paid to new retirees over a 10-year period. The schedule also allows the reader to view those payments by increments of years of service.

#### **MEDIANS FOR RETIREES – PAGE 121**

This schedule shows the median age, median monthly amount, median service credit and retiree count for all and new retirees.

#### **PARTICIPATING EMPLOYERS – PAGE 122**

This schedule allows the reader to view the 10 largest participating employers of TRS. The reader can also view the percentages of total membership covered by the largest employers in the current year and nine years ago.

## Changes in Net Position Restricted for Pensions, Last 10 Fiscal Years (\$ thousands)

|   | 2019                       | 2018                       | 2017                       | 2016                       |
|---|----------------------------|----------------------------|----------------------------|----------------------------|
| <b>Additions</b>  |                            |                            |                            |                            |
| Member contributions*                                       | \$963,972                  | \$938,037                  | \$929,130                  | \$951,809                  |
| State of Illinois   | 4,466,021                  | 4,095,125                  | 3,986,364                  | 3,742,469                  |
| Employer contributions**                                    | 88,514                     | 84,633                     | 149,495                    | 148,041                    |
| Investment income (loss) net of expenses                    | <u>2,617,831</u>           | <u>4,049,272</u>           | <u>5,520,453</u>           | <u>(44,103)</u>            |
| <b>Total additions to/reductions from plan net position</b> | <b>8,136,338</b>           | <b>9,167,067</b>           | <b>10,585,442</b>          | <b>4,798,216</b>           |
| <b>Deductions</b>   |                            |                            |                            |                            |
| Benefit payments  | 6,745,544                  | 6,458,710                  | 6,152,868                  | 5,848,180                  |
| Refunds   | 73,216                     | 92,925                     | 285,138                    | 83,027                     |
| Administrative expenses                                     | <u>24,336</u>              | <u>21,550</u>              | <u>22,729</u>              | <u>22,968</u>              |
| <b>Total deductions from plan net position</b>              | <b>6,843,096</b>           | <b>6,573,185</b>           | <b>6,460,735</b>           | <b>5,954,175</b>           |
| <b>Changes in net position restricted for pensions</b>      |                            |                            |                            |                            |
| Beginning of year   | 51,969,547                 | 49,375,665                 | 45,250,957                 | 46,406,916                 |
| Net increase (decrease)                                     | <u>1,293,242</u>           | <u>2,593,882</u>           | <u>4,124,708</u>           | <u>(1,155,959)</u>         |
| <b>End of year</b>  | <b><u>\$53,262,789</u></b> | <b><u>\$51,969,547</u></b> | <b><u>\$49,375,665</u></b> | <b><u>\$45,250,957</u></b> |

\* Member contributions include contributions for purchases of optional service, early retirement and upgrades to the 2.2 formula.

\*\* Employer contributions include contributions from federal funds and for early retirement, the 2.2 formula, salary increases in excess of 6 percent used in final average salary calculations and excess sick leave used for service credit. Beginning in 2018, contributions on earnings exceeding the governor's statutory salary are also included.

## Benefit and Refund Deductions from Net Position by Type, Last 10 Fiscal Years (\$ thousands)

|  | 2019               | 2018               | 2017               | 2016               |
|--|--------------------|--------------------|--------------------|--------------------|
| <b>Type of benefit</b>   |                    |                    |                    |                    |
| Retirement   | \$6,405,908        | \$6,140,877        | \$5,857,968        | \$5,575,130        |
| Survivor   | 306,503            | 285,068            | 263,430            | 242,578            |
| Disability   | <u>33,133</u>      | <u>32,765</u>      | <u>31,470</u>      | <u>30,472</u>      |
| <b>Total benefits</b>  | <b>\$6,745,544</b> | <b>\$6,458,710</b> | <b>\$6,152,868</b> | <b>\$5,848,180</b> |
| <b>Type of refund</b>  |                    |                    |                    |                    |
| Withdrawals  | 23,358             | 27,356             | 30,487             | 26,797             |
| Death benefits and excess contribution refunds paid to survivors | 21,172             | 20,263             | 19,135             | 17,094             |
| 2.2 and optional service   | 11,132             | 13,247             | 14,185             | 15,074             |
| Survivor contributions refunded to retirees                      | 8,225              | 8,839              | 9,410              | 10,458             |
| Early Retirement Option and other                                | <u>9,329</u>       | <u>23,220</u>      | <u>211,921</u>     | <u>13,604</u>      |
| <b>Total refunds</b>   | <b>\$73,216</b>    | <b>\$92,925</b>    | <b>\$285,138</b>   | <b>\$83,027</b>    |

| 2015                | 2014                | 2013                | 2012                | 2011                | 2010                |
|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| \$935,451           | \$928,746           | \$921,423           | \$917,661           | \$909,577           | \$899,401           |
| 3,377,665           | 3,438,383           | 2,703,312           | 2,406,364           | 2,170,918           | 2,080,729           |
| 145,591             | 158,335             | 157,179             | 154,895             | 155,111             | 171,421             |
| <u>1,770,550</u>    | <u>6,782,031</u>    | <u>4,561,768</u>    | <u>224,107</u>      | <u>7,234,539</u>    | <u>3,679,643</u>    |
| 6,229,257           | 11,307,495          | 8,343,682           | 3,703,027           | 10,470,145          | 6,831,194           |
| 5,536,399           | 5,225,207           | 4,893,084           | 4,553,822           | 4,228,283           | 3,927,838           |
| 88,638              | 95,456              | 88,398              | 84,635              | 76,587              | 60,350              |
| <u>21,687</u>       | <u>21,218</u>       | <u>20,257</u>       | <u>19,012</u>       | <u>17,792</u>       | <u>16,951</u>       |
| 5,646,724           | 5,341,881           | 5,001,739           | 4,657,469           | 4,322,662           | 4,005,139           |
| 45,824,382          | 39,858,768          | 36,516,825          | 37,471,267          | 31,323,784          | 28,497,729          |
| 582,534             | 5,965,614           | 3,341,943           | (954,442)           | 6,147,483           | 2,826,055           |
| <u>\$46,406,916</u> | <u>\$45,824,382</u> | <u>\$39,858,768</u> | <u>\$36,516,825</u> | <u>\$37,471,267</u> | <u>\$31,323,784</u> |

| 2015          | 2014          | 2013          | 2012          | 2011          | 2010          |
|---------------|---------------|---------------|---------------|---------------|---------------|
| \$5,281,221   | \$4,986,156   | \$4,670,385   | \$4,347,173   | \$4,036,147   | \$3,749,666   |
| 224,779       | 208,424       | 192,390       | 177,422       | 163,910       | 151,074       |
| <u>30,399</u> | <u>30,627</u> | <u>30,309</u> | <u>29,227</u> | <u>28,226</u> | <u>27,098</u> |
| \$5,536,399   | \$5,225,207   | \$4,893,084   | \$4,553,822   | \$4,228,283   | \$3,927,838   |
| 29,789        | 33,128        | 30,194        | 25,563        | 22,528        | 17,149        |
| 17,881        | 20,633        | 16,764        | 18,415        | 16,404        | 15,161        |
| 17,855        | 19,331        | 20,053        | 20,988        | 19,861        | 15,050        |
| 10,197        | 10,990        | 10,780        | 10,358        | 10,252        | 7,967         |
| <u>12,916</u> | <u>11,374</u> | <u>10,607</u> | <u>9,311</u>  | <u>7,542</u>  | <u>5,023</u>  |
| \$88,638      | \$95,456      | \$88,398      | \$84,635      | \$76,587      | \$60,350      |

## Employee and Employer Contribution Rates, Last 10 Fiscal Years

| Fiscal Year | Employee Rate (%) <sup>1</sup> | Employer Rate (%)  |                                  |  | Total <sup>4</sup> |
|-------------|--------------------------------|--------------------|----------------------------------|--|--------------------|
|             |                                | State <sup>2</sup> | School Districts for 2.2 Formula | School Districts from Federal Sources <sup>3</sup> |                    |
| 2010        | 9.40%                          | 22.56%             | 0.58%                            | 0.82%  | 23.96%             |
| 2011        | 9.40                           | 22.38              | 0.58                             | 0.72   | 23.68              |
| 2012        | 9.40                           | 24.06              | 0.58                             | 0.85   | 25.49              |
| 2013        | 9.40                           | 27.21              | 0.58                             | 0.84   | 28.63              |
| 2014        | 9.40                           | 34.44              | 0.58                             | 0.97   | 35.99              |
| 2015        | 9.40                           | 32.42              | 0.58                             | 0.58   | 33.58              |
| 2016        | 9.40                           | 35.30              | 0.58                             | 0.76   | 36.64              |
| 2017        | 9.00                           | 37.81              | 0.58                             | 0.73   | 39.12              |
| 2018        | 9.00                           | 39.22              | 0.58                             | 0.20   | 40.02              |
| <b>2019</b> | <b>9.00</b>                    | <b>41.93</b>       | <b>0.58</b>                      | <b>0.20</b>  | <b>42.71</b>       |

1. Employee rate decreased to 9.00 percent in FY17 because the ERO program was discontinued.
2. State contributions rates reflect recertifications and may not agree with original certifications in actuarial reports.
3. Beginning in FY18, the federal contribution rate for salaries paid from federal funds is the same as the total employer normal cost rate. Previously, it was the same as the state contribution rate.
4. Totals shown are rates certified by the TRS Board of Trustees based on estimated payrolls and may not total due to rounding. Actual amounts collected do not equal amounts estimated by actuaries due to differences between estimated and actual payroll.

## Active Members by Tier

| Fiscal Year | Tier 1         |             | Tier 2        |             | Total - Both Tiers |              |
|-------------|----------------|-------------|---------------|-------------|--------------------|--------------|
|             | Number         | % of Total  | Number        | % of Total  | Number             | % of Total   |
| 2011        | 164,030        | 98.8%       | 1,983         | 1.2%        | 166,013            | 100.0%       |
| 2012        | 150,996        | 93.1        | 11,221        | 6.9         | 162,217            | 100.0        |
| 2013        | 144,297        | 89.8        | 16,395        | 10.2        | 160,692            | 100.0        |
| 2014        | 138,260        | 86.5        | 21,578        | 13.5        | 159,838            | 100.0        |
| 2015        | 133,147        | 83.4        | 26,560        | 16.6        | 159,707            | 100.0        |
| 2016        | 128,107        | 80.2        | 31,628        | 19.8        | 159,735            | 100.0        |
| 2017        | 123,630        | 77.0        | 36,858        | 23.0        | 160,488            | 100.0        |
| 2018        | 119,333        | 74.2        | 41,526        | 25.8        | 160,859            | 100.0        |
| <b>2019</b> | <b>115,839</b> | <b>71.1</b> | <b>47,188</b> | <b>28.9</b> | <b>163,027</b>     | <b>100.0</b> |

Note: Tier 2 membership began Jan. 1, 2011.

## Retired Members by Years of Service and Years in Retirement as of June 30, 2019\*

| Years Retired               |                      | Years of Service |              |                |                |                |                |                |                |                |                | Weighted Average | Avg. Age       |            |
|-----------------------------|----------------------|------------------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------|----------------|------------|
|                             |                      | Under 5          | 5-9          | 10-14          | 15-19          | 20-24          | 25-29          | 30-34          | 35-39          | 40-44          | 45-49          |                  |                | 50+        |
| <b>Under 1</b>              | <b>Retirees</b>      | <b>131</b>       | <b>210</b>   | <b>288</b>     | <b>415</b>     | <b>524</b>     | <b>493</b>     | <b>599</b>     | <b>768</b>     | <b>52</b>      | <b>11</b>      | <b>2</b>         | <b>3,493</b>   | <b>61</b>  |
|                             | Avg. current benefit | \$222            | \$806        | \$1,475        | \$2,532        | \$3,491        | \$4,712        | \$5,985        | \$6,941        | \$7,864        | \$8,673        | \$11,286         | \$4,371        |            |
|                             | Avg. orig. benefit   | \$222            | \$806        | \$1,475        | \$2,527        | \$3,484        | \$4,708        | \$5,976        | \$6,941        | \$7,864        | \$8,673        | \$11,286         | \$4,368        |            |
| <b>1 - 4</b>                | <b>Retirees</b>      | <b>841</b>       | <b>1,421</b> | <b>1,543</b>   | <b>1,859</b>   | <b>2,617</b>   | <b>2,471</b>   | <b>2,737</b>   | <b>3,424</b>   | <b>321</b>     | <b>51</b>      | <b>8</b>         | <b>17,293</b>  | <b>64</b>  |
|                             | Avg. current benefit | \$291            | \$787        | \$1,575        | \$2,583        | \$3,590        | \$4,774        | \$6,065        | \$6,787        | \$7,756        | \$9,793        | \$11,819         | \$4,205        |            |
|                             | Avg. orig. benefit   | \$273            | \$733        | \$1,474        | \$2,428        | \$3,397        | \$4,524        | \$5,777        | \$6,573        | \$7,277        | \$9,142        | \$11,003         | \$4,009        |            |
| <b>5 - 9</b>                | <b>Retirees</b>      | <b>1,123</b>     | <b>2,183</b> | <b>2,107</b>   | <b>2,074</b>   | <b>3,290</b>   | <b>3,176</b>   | <b>4,375</b>   | <b>6,402</b>   | <b>579</b>     | <b>94</b>      | <b>12</b>        | <b>25,415</b>  | <b>67</b>  |
|                             | Avg. current benefit | \$340            | \$877        | \$1,658        | \$2,684        | \$3,737        | \$5,064        | \$6,535        | \$7,204        | \$8,096        | \$9,178        | \$14,759         | \$4,728        |            |
|                             | Avg. orig. benefit   | \$279            | \$717        | \$1,358        | \$2,206        | \$3,098        | \$4,184        | \$5,387        | \$5,952        | \$6,674        | \$7,570        | \$12,275         | \$3,903        |            |
| <b>10 - 14</b>              | <b>Retirees</b>      | <b>895</b>       | <b>1,517</b> | <b>1,404</b>   | <b>1,373</b>   | <b>2,465</b>   | <b>2,590</b>   | <b>7,953</b>   | <b>5,179</b>   | <b>325</b>     | <b>46</b>      | <b>5</b>         | <b>23,752</b>  | <b>71</b>  |
|                             | Avg. current benefit | \$342            | \$828        | \$1,597        | \$2,677        | \$3,777        | \$5,207        | \$7,030        | \$7,538        | \$7,998        | \$8,653        | \$12,111         | \$5,401        |            |
|                             | Avg. orig. benefit   | \$241            | \$587        | \$1,129        | \$1,900        | \$2,679        | \$3,674        | \$4,919        | \$5,374        | \$5,634        | \$6,109        | \$8,974          | \$3,811        |            |
| <b>15 - 19</b>              | <b>Retirees</b>      | <b>759</b>       | <b>853</b>   | <b>843</b>     | <b>783</b>     | <b>1,877</b>   | <b>2,198</b>   | <b>9,038</b>   | <b>3,622</b>   | <b>232</b>     | <b>30</b>      | <b>4</b>         | <b>20,239</b>  | <b>75</b>  |
|                             | Avg. current benefit | \$332            | \$809        | \$1,533        | \$2,542        | \$3,615        | \$5,084        | \$7,048        | \$7,649        | \$7,601        | \$7,841        | \$8,360          | \$5,713        |            |
|                             | Avg. orig. benefit   | \$202            | \$494        | \$942          | \$1,563        | \$2,228        | \$3,137        | \$4,379        | \$4,712        | \$4,664        | \$4,882        | \$5,266          | \$3,536        |            |
| <b>20 - 24</b>              | <b>Retirees</b>      | <b>409</b>       | <b>446</b>   | <b>347</b>     | <b>292</b>     | <b>670</b>     | <b>771</b>     | <b>1,287</b>   | <b>1,485</b>   | <b>694</b>     | <b>8</b>       | <b>-</b>         | <b>6,409</b>   | <b>80</b>  |
|                             | Avg. current benefit | \$379            | \$864        | \$1,239        | \$2,099        | \$2,997        | \$4,530        | \$6,239        | \$7,160        | \$7,458        | \$8,013        | -                | \$4,835        |            |
|                             | Avg. orig. benefit   | \$202            | \$454        | \$655          | \$1,119        | \$1,618        | \$2,460        | \$3,434        | \$3,816        | \$3,717        | \$4,366        | -                | \$2,578        |            |
| <b>25 - 29</b>              | <b>Retirees</b>      | <b>177</b>       | <b>243</b>   | <b>338</b>     | <b>288</b>     | <b>751</b>     | <b>1,150</b>   | <b>1,772</b>   | <b>2,822</b>   | <b>3,692</b>   | <b>5</b>       | <b>2</b>         | <b>11,240</b>  | <b>83</b>  |
|                             | Avg. current benefit | \$274            | \$741        | \$1,264        | \$1,756        | \$2,538        | \$3,186        | \$4,283        | \$5,467        | \$6,150        | \$5,319        | \$4,684          | \$4,670        |            |
|                             | Avg. orig. benefit   | \$126            | \$333        | \$569          | \$795          | \$1,140        | \$1,466        | \$1,985        | \$2,569        | \$2,946        | \$2,482        | \$2,074          | \$2,200        |            |
| <b>30 - 34</b>              | <b>Retirees</b>      | <b>56</b>        | <b>97</b>    | <b>187</b>     | <b>203</b>     | <b>600</b>     | <b>526</b>     | <b>625</b>     | <b>430</b>     | <b>13</b>      | <b>1</b>       | <b>-</b>         | <b>2,738</b>   | <b>90</b>  |
|                             | Avg. current benefit | \$256            | \$610        | \$1,095        | \$1,681        | \$2,350        | \$3,279        | \$4,773        | \$5,697        | \$5,280        | \$7,244        | -                | \$3,383        |            |
|                             | Avg. orig. benefit   | \$99             | \$227        | \$426          | \$661          | \$935          | \$1,309        | \$1,911        | \$2,260        | \$2,112        | \$3,025        | -                | \$1,347        |            |
| <b>35 - 39</b>              | <b>Retirees</b>      | <b>11</b>        | <b>11</b>    | <b>51</b>      | <b>68</b>      | <b>240</b>     | <b>183</b>     | <b>191</b>     | <b>114</b>     | <b>8</b>       | <b>-</b>       | <b>-</b>         | <b>877</b>     | <b>94</b>  |
|                             | Avg. current benefit | \$244            | \$409        | \$922          | \$1,362        | \$1,954        | \$2,604        | \$3,720        | \$4,793        | \$3,666        | -              | -                | \$2,712        |            |
|                             | Avg. orig. benefit   | \$84             | \$113        | \$304          | \$461          | \$673          | \$905          | \$1,306        | \$1,696        | \$1,255        | -              | -                | \$945          |            |
| <b>40 - 44</b>              | <b>Retirees</b>      | <b>4</b>         | <b>1</b>     | <b>7</b>       | <b>9</b>       | <b>38</b>      | <b>27</b>      | <b>17</b>      | <b>21</b>      | <b>3</b>       | <b>1</b>       | <b>-</b>         | <b>128</b>     | <b>99</b>  |
|                             | Avg. current benefit | \$188            | \$356        | \$793          | \$1,215        | \$1,337        | \$2,016        | \$2,318        | \$3,019        | \$2,832        | \$2,655        | -                | \$1,850        |            |
|                             | Avg. orig. benefit   | \$58             | \$14         | \$220          | \$341          | \$384          | \$619          | \$704          | \$930          | \$891          | \$849          | -                | \$556          |            |
| <b>45 - 49</b>              | <b>Retirees</b>      | <b>-</b>         | <b>-</b>     | <b>-</b>       | <b>1</b>       | <b>6</b>       | <b>2</b>       | <b>1</b>       | <b>4</b>       | <b>-</b>       | <b>-</b>       | <b>-</b>         | <b>14</b>      | <b>104</b> |
|                             | Avg. current benefit | -                | -            | -              | \$976          | \$1,287        | \$787          | \$1,525        | \$2,845        | -              | -              | -                | \$1,656        |            |
|                             | Avg. orig. benefit   | -                | -            | -              | \$97           | \$279          | \$143          | \$349          | \$777          | -              | -              | -                | \$394          |            |
| <b>Total retirees</b>       |                      | <b>4,406</b>     | <b>6,982</b> | <b>7,115</b>   | <b>7,365</b>   | <b>13,078</b>  | <b>13,587</b>  | <b>28,595</b>  | <b>24,271</b>  | <b>5,919</b>   | <b>247</b>     | <b>33</b>        | <b>111,598</b> |            |
| <b>Avg. current benefit</b> |                      | <b>\$326</b>     | <b>\$827</b> | <b>\$1,546</b> | <b>\$2,532</b> | <b>\$3,477</b> | <b>\$4,731</b> | <b>\$6,565</b> | <b>\$7,027</b> | <b>\$6,747</b> | <b>\$8,872</b> | <b>\$12,048</b>  | <b>\$4,905</b> |            |
| <b>Avg. orig. benefit</b>   |                      | <b>\$239</b>     | <b>\$629</b> | <b>\$1,188</b> | <b>\$1,995</b> | <b>\$2,628</b> | <b>\$3,507</b> | <b>\$4,583</b> | <b>\$5,148</b> | <b>\$3,889</b> | <b>\$7,093</b> | <b>\$9,938</b>   | <b>\$3,510</b> |            |

\* Represents monthly benefit

**Demographics of Benefit Recipients and Active Members as of June 30, 2019  
(excludes inactive members)**

| Age           | Retirees      |               |                | Disability Benefit Recipients |            |              | Survivors    |              |               |
|---------------|---------------|---------------|----------------|-------------------------------|------------|--------------|--------------|--------------|---------------|
|               | Male          | Female        | Total          | Male                          | Female     | Total        | Male         | Female       | Total         |
| Under 20      | -             | -             | -              | -                             | -          | -            | 47           | 10           | 57            |
| 20-24         | -             | -             | -              | -                             | -          | -            | 12           | 5            | 17            |
| 25-30         | -             | -             | -              | -                             | 1          | 1            | -            | 1            | 1             |
| 30-34         | -             | -             | -              | 1                             | 6          | 7            | 4            | 6            | 10            |
| 35-39         | -             | -             | -              | 2                             | 29         | 31           | 10           | 9            | 19            |
| 40-44         | -             | -             | -              | 3                             | 44         | 47           | 12           | 35           | 47            |
| 45-49         | -             | -             | -              | 19                            | 76         | 95           | 24           | 35           | 59            |
| 50-54         | 10            | 14            | 24             | 21                            | 135        | 156          | 33           | 69           | 102           |
| 55-59         | 967           | 2,865         | 3,832          | 40                            | 151        | 191          | 95           | 154          | 249           |
| 60-64         | 3,313         | 12,208        | 15,521         | 28                            | 146        | 174          | 175          | 284          | 459           |
| 65-69         | 6,352         | 22,206        | 28,558         | 24                            | 116        | 140          | 346          | 745          | 1,091         |
| 70-74         | 8,547         | 19,620        | 28,167         | 20                            | 83         | 103          | 596          | 1,215        | 1,811         |
| 75-79         | 5,793         | 11,220        | 17,013         | 14                            | 38         | 52           | 620          | 1,592        | 2,212         |
| 80-84         | 3,406         | 6,130         | 9,536          | 6                             | 29         | 35           | 519          | 1,594        | 2,113         |
| 85-89         | 1,949         | 3,497         | 5,446          | 2                             | 19         | 21           | 468          | 1,391        | 1,859         |
| 90+           | 925           | 2,576         | 3,501          | 1                             | 6          | 7            | 358          | 1,177        | 1,535         |
| <b>Total:</b> | <b>31,262</b> | <b>80,336</b> | <b>111,598</b> | <b>181</b>                    | <b>879</b> | <b>1,060</b> | <b>3,319</b> | <b>8,322</b> | <b>11,641</b> |

| Actives       |                |                | Total Retirees, Disabled, Survivors<br>and Active Members |                |                | Percent Distribution of<br>Retirees, Disabled, Survivors<br>and Active Members |           |            |
|---------------|----------------|----------------|---|----------------|----------------|--|-----------|------------|
| Male          | Female         | Total          | Male  | Female         | Total          | Male   | Female    | Total      |
| 3             | 10             | 13             | 50  | 20             | 70             | 71%  | 29%       | 100%       |
| 1,047         | 4,250          | 5,297          | 1,059   | 4,255          | 5,314          | 20   | 80        | 100        |
| 3,552         | 12,884         | 16,436         | 3,552   | 12,886         | 16,438         | 22   | 78        | 100        |
| 5,005         | 16,536         | 21,541         | 5,010   | 16,548         | 21,558         | 23   | 77        | 100        |
| 6,296         | 20,047         | 26,343         | 6,308   | 20,085         | 26,393         | 24   | 76        | 100        |
| 6,133         | 19,848         | 25,981         | 6,148   | 19,927         | 26,075         | 24   | 76        | 100        |
| 5,726         | 18,525         | 24,251         | 5,769   | 18,636         | 24,405         | 24   | 76        | 100        |
| 4,607         | 15,045         | 19,652         | 4,671   | 15,263         | 19,934         | 23   | 77        | 100        |
| 2,938         | 10,999         | 13,937         | 4,040   | 14,169         | 18,209         | 22   | 78        | 100        |
| 1,254         | 4,829          | 6,083          | 4,770   | 17,467         | 22,237         | 21   | 79        | 100        |
| 773           | 1,626          | 2,399          | 7,495   | 24,693         | 32,188         | 23   | 77        | 100        |
| 335           | 483            | 818            | 9,498   | 21,401         | 30,899         | 31   | 69        | 100        |
| 118           | 108            | 226            | 6,545   | 12,958         | 19,503         | 34   | 66        | 100        |
| 26            | 13             | 39             | 3,957   | 7,766          | 11,723         | 34   | 66        | 100        |
| 3             | 3              | 6              | 2,422   | 4,910          | 7,332          | 33   | 67        | 100        |
| 3             | 2              | 5              | 1,287   | 3,761          | 5,048          | 25   | 75        | 100        |
| <b>37,819</b> | <b>125,208</b> | <b>163,027</b> | <b>72,581</b>   | <b>214,745</b> | <b>287,326</b> | <b>25</b>  | <b>75</b> | <b>100</b> |

## Benefit Recipients by Type as of June 30, 2019

| Monthly Benefit Range            | Number of Recipients (all) | Type of Monthly Benefit |                       |                             |                         |                           | Subtypes of Age Retirement Benefit |                   |                         |                         |                    |              |                  |
|----------------------------------|----------------------------|-------------------------|-----------------------|-----------------------------|-------------------------|---------------------------|------------------------------------|-------------------|-------------------------|-------------------------|--------------------|--------------|------------------|
|                                  |                            | Retirement              | Disability Retirement | Non-occupational Disability | Occupational Disability | Survivor Monthly Benefits | Regular 2.2 Flat Formula           | Graduated Formula | Actuarial Benefit Style | ERO (2.2 & Grad. Form.) | ERI (State or TRS) | Other        | Retirement Total |
| Under \$500                      | 6,505                      | 5,575                   | 3                     | 1                           | -                       | 926                       | 1,281                              | 1,404             | 2,888                   | 1                       | -                  | 1            | 5,575            |
| \$500 - \$999                    | 7,063                      | 5,396                   | 35                    | 1                           | -                       | 1,631                     | 931                                | 1,148             | 3,273                   | 7                       | 26                 | 11           | 5,396            |
| \$1,000 - \$1,499                | 6,439                      | 4,949                   | 74                    | 5                           | -                       | 1,411                     | 970                                | 1,304             | 2,513                   | 57                      | 87                 | 18           | 4,949            |
| \$1,500 - \$1,999                | 6,725                      | 4,902                   | 266                   | 48                          | -                       | 1,509                     | 1,267                              | 1,139             | 2,031                   | 246                     | 199                | 20           | 4,902            |
| \$2,000 - \$2,499                | 7,072                      | 5,308                   | 168                   | 62                          | 2                       | 1,532                     | 1,671                              | 1,064             | 1,634                   | 600                     | 319                | 20           | 5,308            |
| \$2,500 - \$2,999                | 7,216                      | 5,612                   | 94                    | 48                          | 1                       | 1,461                     | 2,100                              | 833               | 1,241                   | 936                     | 485                | 17           | 5,612            |
| \$3,000 - \$3,499                | 6,978                      | 5,765                   | 62                    | 34                          | 2                       | 1,115                     | 2,392                              | 600               | 943                     | 1,180                   | 622                | 28           | 5,765            |
| \$3,500 - \$3,999                | 7,143                      | 6,335                   | 30                    | 17                          | 1                       | 760                       | 2,864                              | 522               | 736                     | 1,404                   | 778                | 31           | 6,335            |
| \$4,000 - \$4,499                | 7,612                      | 7,027                   | 21                    | 11                          | -                       | 553                       | 3,346                              | 497               | 603                     | 1,717                   | 816                | 48           | 7,027            |
| \$4,500 - \$4,999                | 7,941                      | 7,611                   | 14                    | 5                           | -                       | 311                       | 3,660                              | 549               | 487                     | 2,026                   | 812                | 77           | 7,611            |
| \$5,000 - \$5,499                | 7,942                      | 7,730                   | 15                    | 3                           | -                       | 194                       | 3,802                              | 629               | 429                     | 2,037                   | 753                | 80           | 7,730            |
| \$5,500 - \$5,999                | 7,810                      | 7,698                   | 9                     | -                           | -                       | 103                       | 3,668                              | 631               | 384                     | 2,144                   | 766                | 105          | 7,698            |
| \$6,000 - \$6,499                | 7,055                      | 6,998                   | 10                    | -                           | 1                       | 46                        | 3,297                              | 567               | 292                     | 2,182                   | 554                | 106          | 6,998            |
| \$6,500 - \$6,999                | 5,804                      | 5,760                   | 6                     | 1                           | -                       | 37                        | 2,787                              | 578               | 228                     | 1,692                   | 395                | 80           | 5,760            |
| \$7,000 - \$7,499                | 4,769                      | 4,745                   | 3                     | -                           | -                       | 21                        | 2,317                              | 530               | 165                     | 1,296                   | 352                | 85           | 4,745            |
| \$7,500 - \$7,999                | 4,183                      | 4,168                   | 3                     | -                           | -                       | 12                        | 1,983                              | 485               | 126                     | 1,177                   | 326                | 71           | 4,168            |
| \$8,000 - \$8,499                | 3,491                      | 3,483                   | 2                     | -                           | -                       | 6                         | 1,687                              | 406               | 104                     | 940                     | 292                | 54           | 3,483            |
| \$8,500 - \$8,999                | 3,002                      | 2,997                   | 1                     | -                           | -                       | 4                         | 1,375                              | 353               | 64                      | 961                     | 190                | 54           | 2,997            |
| \$9,000 - \$9,499                | 2,467                      | 2,464                   | -                     | -                           | -                       | 3                         | 1,114                              | 321               | 55                      | 791                     | 147                | 36           | 2,464            |
| \$9,500 - \$9,999                | 1,905                      | 1,905                   | -                     | -                           | -                       | -                         | 857                                | 247               | 50                      | 621                     | 87                 | 43           | 1,905            |
| \$10,000 or more                 | 5,177                      | 5,170                   | 1                     | -                           | -                       | 6                         | 2,312                              | 767               | 145                     | 1,578                   | 241                | 127          | 5,170            |
| <b>Total benefit recipients:</b> | <b>124,299</b>             | <b>111,598</b>          | <b>817</b>            | <b>236</b>                  | <b>7</b>                | <b>11,641</b>             | <b>45,681</b>                      | <b>14,574</b>     | <b>18,391</b>           | <b>23,593</b>           | <b>8,247</b>       | <b>1,112</b> | <b>111,598</b>   |

## Summary Statistics, all Benefit Recipients, as of June 30, 2019

|                                  | Age Retirement | Disability Benefits (3 types) | Survivor Benefits |
|----------------------------------|----------------|-------------------------------|-------------------|
| Average Monthly Benefit          | \$4,905        | \$2,507                       | \$2,251           |
| Average Age                      | 72             | 60                            | 78                |
| Average Service Credit           | 27             | 16                            | -                 |
| Average Years Receiving Benefits | 13             | 10                            | 10                |

| Percentage of Retirement Benefits by Subtype |                   |                         |                         |                    |       |                  |
|--|-------------------|-------------------------|-------------------------|--------------------|-------|------------------|
| Regular 2.2 Flat Form.                       | Graduated Formula | Actuarial Benefit Style | ERO (2.2 & Grad. Form.) | ERI (State or TRS) | Other | Retirement Total |
| 41%  | 13%               | 17%                     | 21%                     | 7%                 | 1%    | 100%             |

## Average Benefit Payments for New Retirees, Last 10 Fiscal Years

| Retirement Effective Dates                       |                                | Years of Service |              |                |                |                |                |                |                |                | All FY Retirees | Avg. Age all FY Retirees | Avg. Service all FY Retirees |
|--|--------------------------------|------------------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|--------------------------|------------------------------|
|  |                                | Under 5          | 5-9          | 10-14          | 15-19          | 20-24          | 25-29          | 30-34          | 35-39          | 40+            |                 |                          |                              |
| <b>Period July 1, 2018 through June 30, 2019</b> | <b>Average monthly benefit</b> | <b>\$222</b>     | <b>\$806</b> | <b>\$1,480</b> | <b>\$2,528</b> | <b>\$3,484</b> | <b>\$4,708</b> | <b>\$5,976</b> | <b>\$6,941</b> | <b>\$8,106</b> | <b>\$4,366</b>  | <b>age</b>               | <b>25</b>                    |
|  | Average final average salary   | \$50,646         | \$40,502     | \$54,277       | \$76,259       | \$86,859       | \$95,751       | \$103,192      | \$110,647      | \$114,482      | \$88,551        | <b>61</b>                | <b>years</b>                 |
|  | Number of retired members      | 131              | 210          | 289            | 417            | 524            | 493            | 599            | 768            | 65             | 3,496           |                          |                              |
| <b>Period July 1, 2017 through June 30, 2018</b> | <b>Average monthly benefit</b> | <b>\$257</b>     | <b>\$735</b> | <b>\$1,529</b> | <b>\$2,558</b> | <b>\$3,405</b> | <b>\$4,633</b> | <b>\$6,048</b> | <b>\$6,954</b> | <b>\$8,000</b> | <b>\$4,316</b>  | <b>age</b>               | <b>25</b>                    |
|  | Average final average salary   | \$52,883         | \$41,137     | \$58,671       | \$77,377       | \$84,015       | \$95,035       | \$104,219      | \$111,051      | \$118,480      | \$88,392        | <b>61</b>                | <b>years</b>                 |
|  | Number of retired members      | 154              | 269          | 337            | 423            | 585            | 576            | 633            | 855            | 73             | 3,905           |                          |                              |
| <b>Period July 1, 2016 through June 30, 2017</b> | <b>Average monthly benefit</b> | <b>\$272</b>     | <b>\$787</b> | <b>\$1,482</b> | <b>\$2,497</b> | <b>\$3,457</b> | <b>\$4,589</b> | <b>\$5,770</b> | <b>\$6,581</b> | <b>\$7,733</b> | <b>\$4,162</b>  | <b>age</b>               | <b>25</b>                    |
|  | Average final average salary   | \$59,017         | \$44,909     | \$56,887       | \$74,590       | \$85,524       | \$93,583       | \$99,597       | \$104,930      | \$111,419      | \$86,183        | <b>61</b>                | <b>years</b>                 |
|  | Number of retired members      | 184              | 255          | 351            | 426            | 615            | 587            | 666            | 816            | 102            | 4,002           |                          |                              |
| <b>Period July 1, 2015 through June 30, 2016</b> | <b>Average monthly benefit</b> | <b>\$287</b>     | <b>\$715</b> | <b>\$1,461</b> | <b>\$2,407</b> | <b>\$3,453</b> | <b>\$4,595</b> | <b>\$5,710</b> | <b>\$6,496</b> | <b>\$7,728</b> | <b>\$4,130</b>  | <b>age</b>               | <b>25</b>                    |
|  | Average final average salary   | \$63,114         | \$37,543     | \$55,895       | \$70,973       | \$84,277       | \$91,799       | \$97,075       | \$103,177      | \$110,395      | \$84,256        | <b>61</b>                | <b>years</b>                 |
|  | Number of retired members      | 193              | 289          | 330            | 429            | 660            | 630            | 728            | 832            | 107            | 4,198           |                          |                              |
| <b>Period July 1, 2014 through June 30, 2015</b> | <b>Average monthly benefit</b> | <b>\$262</b>     | <b>\$744</b> | <b>\$1,499</b> | <b>\$2,338</b> | <b>\$3,342</b> | <b>\$4,331</b> | <b>\$5,641</b> | <b>\$6,237</b> | <b>\$7,003</b> | <b>\$3,977</b>  | <b>age</b>               | <b>25</b>                    |
|  | Average final average salary   | \$55,476         | \$39,421     | \$56,937       | \$69,664       | \$81,069       | \$87,776       | \$95,675       | \$99,309       | \$100,159      | \$81,522        | <b>61</b>                | <b>years</b>                 |
|  | Number of retired members      | 185              | 277          | 325            | 466            | 651            | 591            | 647            | 882            | 94             | 4,118           |                          |                              |
| <b>Period July 1, 2013 through June 30, 2014</b> | <b>Average monthly benefit</b> | <b>\$273</b>     | <b>\$775</b> | <b>\$1,461</b> | <b>\$2,267</b> | <b>\$3,214</b> | <b>\$4,349</b> | <b>\$5,602</b> | <b>\$6,118</b> | <b>\$7,027</b> | <b>\$4,058</b>  | <b>age</b>               | <b>26</b>                    |
|  | Average final average salary   | \$54,810         | \$46,277     | \$52,702       | \$67,862       | \$78,513       | \$88,108       | \$94,508       | \$97,649       | \$102,670      | \$81,542        | <b>61</b>                | <b>years</b>                 |
|  | Number of retired members      | 173              | 313          | 348            | 403            | 695            | 574            | 774            | 1,037          | 133            | 4,450           |                          |                              |
| <b>Period July 1, 2012 through June 30, 2013</b> | <b>Average monthly benefit</b> | <b>\$279</b>     | <b>\$771</b> | <b>\$1,424</b> | <b>\$2,237</b> | <b>\$3,179</b> | <b>\$4,232</b> | <b>\$5,396</b> | <b>\$6,066</b> | <b>\$7,369</b> | <b>\$4,070</b>  | <b>age</b>               | <b>26</b>                    |
|  | Average final average salary   | \$59,313         | \$42,291     | \$49,881       | \$66,108       | \$76,095       | \$83,918       | \$90,517       | \$96,245       | \$101,109      | \$79,689        | <b>61</b>                | <b>years</b>                 |
|  | Number of retired members      | 149              | 298          | 353            | 391            | 673            | 664            | 750            | 1,115          | 142            | 4,535           |                          |                              |
| <b>Period July 1, 2011 through June 30, 2012</b> | <b>Average monthly benefit</b> | <b>\$271</b>     | <b>\$787</b> | <b>\$1,426</b> | <b>\$2,354</b> | <b>\$3,159</b> | <b>\$4,310</b> | <b>\$5,568</b> | <b>\$6,214</b> | <b>\$7,273</b> | <b>\$4,292</b>  | <b>age</b>               | <b>27</b>                    |
|  | Average final average salary   | \$63,513         | \$49,970     | \$53,199       | \$68,176       | \$76,104       | \$85,929       | \$92,839       | \$98,975       | \$103,131      | \$83,346        | <b>60</b>                | <b>years</b>                 |
|  | Number of retired members      | 215              | 358          | 375            | 380            | 620            | 702            | 923            | 1,516          | 177            | 5,266           |                          |                              |
| <b>Period July 1, 2010 through June 30, 2011</b> | <b>Average monthly benefit</b> | <b>\$281</b>     | <b>\$712</b> | <b>\$1,317</b> | <b>\$2,171</b> | <b>\$2,989</b> | <b>\$4,097</b> | <b>\$5,190</b> | <b>\$5,708</b> | <b>\$6,527</b> | <b>\$3,984</b>  | <b>age</b>               | <b>27</b>                    |
|  | Average final average salary   | \$59,267         | \$40,317     | \$48,191       | \$62,212       | \$71,841       | \$81,416       | \$86,636       | \$91,033       | \$92,605       | \$76,805        | <b>60</b>                | <b>years</b>                 |
|  | Number of retired members      | 160              | 328          | 349            | 357            | 599            | 562            | 905            | 1,359          | 134            | 4,753           |                          |                              |
| <b>Period July 1, 2009 through June 30, 2010</b> | <b>Average monthly benefit</b> | <b>\$280</b>     | <b>\$670</b> | <b>\$1,228</b> | <b>\$2,121</b> | <b>\$2,947</b> | <b>\$3,891</b> | <b>\$5,063</b> | <b>\$5,621</b> | <b>\$5,819</b> | <b>\$3,960</b>  | <b>age</b>               | <b>27</b>                    |
|  | Average final average salary   | \$61,557         | \$38,116     | \$44,679       | \$62,156       | \$71,152       | \$77,352       | \$84,466       | \$89,648       | \$82,289       | \$75,507        | <b>60</b>                | <b>years</b>                 |
|  | Number of retired members      | 144              | 312          | 304            | 335            | 495            | 536            | 887            | 1,410          | 118            | 4,541           |                          |                              |

## Medians for Retirees as of June 30, 2019

|              | Median Age | Median Monthly Benefit | Median Service Credit | Retiree Count |
|--------------|------------|------------------------|-----------------------|---------------|
| All retirees | 71         | \$4,820                | 31                    | 111,598       |
| New Retirees | 61         | \$4,129                | 27                    | 3,496         |

## Principal Participating Employers

| Participating Employer   | City        | Year ended June 30, 2019 |                                    |                                    | Year ended June 30, 2010 |                   |                                    |
|--|-------------|--------------------------|------------------------------------|------------------------------------|--------------------------|-------------------|------------------------------------|
|  |             | Rank                     | Covered Employees (including subs) | Percentage of Total TRS Membership | Rank                     | Covered Employees | Percentage of Total TRS Membership |
| School District U46  | Elgin       | 1                        | 3,058                              | 1.9%                               | 1                        | 3,167             | 1.9%                               |
| Indian Prairie CUSD 204  | Naperville  | 2                        | 2,568                              | 1.6                                | 2                        | 2,763             | 1.6                                |
| Plainfield SD 202  | Plainfield  | 3                        | 2,403                              | 1.5                                | 3                        | 2,533             | 1.5                                |
| Rockford School District 205                                   | Rockford    | 4                        | 2,311                              | 1.4                                | 4                        | 2,453             | 1.4                                |
| Community USD 300  | Algonquin   | 5                        | 1,896                              | 1.2                                | 6                        | 1,712             | 1.0                                |
| Naperville CUSD 203  | Naperville  | 6                        | 1,853                              | 1.1                                | 5                        | 1,725             | 1.0                                |
| Oswego CUSD 308  | Oswego      | 7                        | 1,834                              | 1.1                                | -                        | -                 | -                                  |
| Schaumburg CCSD 54   | Schaumburg  | 8                        | 1,748                              | 1.1                                | 9                        | 1,538             | 0.9                                |
| Valley View CUSD 365   | Romeoville  | 9                        | 1,747                              | 1.1                                | 8                        | 1,611             | 0.9                                |
| Springfield SD 186   | Springfield | 10                       | 1,439                              | 0.8                                | 7                        | 1,676             | 1.0                                |
| Waukegan CUSD 60   | Waukegan    | -                        | -                                  | -                                  | 10                       | 1,455             | 0.9                                |
| <b>Total, largest 10 employers</b>                             |             |                          | <b>20,857</b>                      | <b>12.8%</b>                       |                          | <b>20,633</b>     | <b>12.1%</b>                       |
| All Other<br>(980 employers in 2019*; 1,020 employers in 2010) |             |                          | 142,170                            | 87.2%                              |                          | 149,642           | 87.9%                              |
| <b>Grand total</b>   |             |                          | <b>163,027</b>                     | <b>100.0%</b>                      |                          | <b>170,275</b>    | <b>100.0%</b>                      |

| *Other Employers by Type as of June 30, 2019      | Number of Other Employers | Other Covered Employees |
|---|---------------------------|-------------------------|
| Local school districts                            | 841                       | 135,325                 |
| Special districts                                 | 127                       | 6,183                   |
| State agencies                                    | 12                        | 662                     |
| <b>Total, all employers other than largest 10</b> | <b>980</b>                | <b>142,170</b>          |

| Total Employers by Type as of June 30, 2019 | Total Number of Employers | Total Covered Employees |
|---|---------------------------|-------------------------|
| Local school districts                      | 851                       | 156,182                 |
| Special districts                           | 127                       | 6,183                   |
| State agencies                              | 12                        | 662                     |
| <b>Total, all employers</b>                 | <b>990</b>                | <b>163,027</b>          |