Arkansas State Police Retirement System

Annual Financial Report
For June 30, 2019

Arkansas State Police Retirement System

A Pension Trust Fund of the State of Arkansas

Annual Financial Report

For the fiscal year ended June 30, 2019

Duncan Baird, Executive Secretary

Colonel Bill Bryant, Director of State Police

Prepared by
Arkansas Public Employees Retirement System
124 West Capitol Avenue, Suite 400
Little Rock, AR 72201

Table of Contents

Table of Contents

ACTUARIAL SECTION

STATISTICAL SECTION

INTRODUCTION

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A BRIEF HISTORY OF ASPRS

With the passage of Act 311 on March 19, 1951, the Arkansas General Assembly created the State Police Retirement System (ASPRS or the System). This System provides for the retirement of police officer employees of the Department of Arkansas State Police.

In the beginning, all ASPRS members participated in a contributory plan whereby employers and employees made contributions to the System. However, in 1977, Act 793 was signed by then Governor David Pryor. This legislation offered a choice to employees who were currently under the contributory plan. They could remain under the contributory plan or change over to the new non-contributory plan in which only employers make contributions to the System. This choice was offered to employees who were ASPRS members at some previous time and returned to work for the System on or after January 1, 1978; however, anyone joining the System on or after, January 1, 1978 who was not previously an ASPRS member is automatically covered under the new non-contributory plan.

Act 1071 of 1997 created the Tier Two Benefit Plan for the State Police Retirement System (Tier II) for all officers hired on or after April 3, 1997. Members of the plan in effect before April 3, 1997 (Tier I) had one year from April 3, 1997 to elect participation in Tier II.

Act 1242 of 2009 merged the investable assets of ASPRS with those of the Arkansas Public Employees Retirement System (APERS). All authority over investment of the merged assets was granted to the Board of Trustees of the Arkansas Public Employees Retirement System (APERS Board). Investment schedules contained herein reflect the market values accruing to each system.

This annual financial report, which covers the period from July 1, 2018 through June 30, 2019, provides comprehensive information about the System including a description of the retirement plan; investment policies and objectives; financial statements; an actuarial report; and historical and statistical information on active members, annuitants, and benefit payments.

SYSTEM HIGHLIGHTS
(as of June 30, 2019)

Active Members (Excludes DROP participants)

Tier I		Tier II	
Number	31	Number	442
Average Age (yrs.)	50.2	Average Age (yrs.)	38.5
Average Service (yrs.)	22.8	Average Service (yrs.)	9.8
Average Annual Salary	$73,823	Average Annual Salary	$53,612

Inactive Vested Members	
Number	102

2019 Retirees (Includes DROP participants)

	Age and Service	Disability
Retired Members	34	1
Average Age (yrs.)	54.56	48
Average Credited Service (yrs.)	23	14
Average Monthly Benefit	$4,291	$ 1,963

Total Retirees (Including DROP Participants, Disability Recipients, & Death-In-Service Beneficiaries)	
Retired Members	735
Average Monthly Benefit	$3,260

TROOP HEADQUARTERS

Troop "A" 501-618-8282
1 State Police Plaza Drive - Little Rock, AR 72209
Captain Mike Hagar - Commander

Troop "B" 870-523-2701
2000 Fairgrounds Rd - Newport, AR 72112
Captain Todd Shaw - Commander

Troop "C" 870-935-7302
2216 Browns Lane Access Rd - Jonesboro, AR 72403
Captain John Carter - Commander

Troop "D" 870-633-1454
3205 North Washington - Forrest City, AR 72335
Captain David Moore - Commander

Troop "E" 870-247-1483
6816 Princeton Pike - Pine Bluff, AR 71602
Captain Randall Dias - Commander

Troop "F" 870-226-3713
1237 North Myrtle - Warren, AR 71671
Captain Scott Woodward - Commander

Troop "G" 870-777-4641
2501 North Hazel - Hope, AR 71801
Captain Brady Gore - Commander

Troop "H" 479-783-5195
5728 Kelly Highway - Fort Smith, AR 72914
(vacant) - Commander

Troop "I" 870-741-3455
5196 US 65 South - Harrison, AR 72601
Captain Wesley Smithee - Commander

Troop "J" 479-754-3096
2700 West Main - Clarksville, AR 72830
Captain Kyle Drown - Commander

Troop "K" 501-767-8550
200 Karen Street - Hot Springs, AR 71901
Captain Ron Casey - Commander

Troop "L" 479-751-6663
1120 W Monroe Ave - Lowell, AR 72745
Captain David Cooper - Commander

LETTER OF TRANSMITTAL

Dear ASPRS Members:

The Arkansas State Police Retirement System (ASPRS or the System) is pleased to present the Annual Financial Report for the period ending June 30, 2019. The report is designed to provide a clear and concise picture of the financial conditions of the System. The report includes the following six sections:

- The Introduction contains the administrative organization, a letter of transmittal, and the chairman's report;
- The Financial Section contains the financial statements and required supplementary information;
- The Investments Section contains a report on investment activity, investment policies, investment results, and various investment schedules;
- The Actuarial Section contains the actuary's certification letter and the results of the annual actuarial valuation;
- The Statistical Section includes significant trend data pertaining to the System;
- The Appendix contains combined ASPRS and APERS financial statements.

Accounting System

The accrual basis of accounting is used to record the assets, liabilities, revenues, and expenses of the ASPRS trust fund. Revenues are recognized in the accounting period in which they are earned, without regard to date of collection, and expenses are recorded when incurred, regardless of when payment is made. Investments are reported at market values determined by the custodial agent. The agent's determination of market value includes, among other things, using pricing services or prices quoted by independent brokers at current exchange rates.

Revenues

The fiscal year 2019 revenue from employer contributions totaled $6.7 million. This amount is $212,346 more than the amount received in fiscal year 2018. Court fees and driver's license reinstatement fees for the fiscal year were $1.86 million, a decrease of $716,565 from fiscal year 2018. In 2019, motor vehicle title fees totaling $4.6 million were collected in accordance with Act 718 of 2011.

In addition to the funding provided in previous years, Act 1071 of 1997 provided for a transfer from insurance premium taxes to the State Police Retirement Fund. This transfer is equal to the difference between the actuarially computed contribution rate minus other funding sources

(employer contributions and driver's license reinstatement fees). The fund received $8.04 million from the insurance premium tax transfer during fiscal year 2019 and $7.11 million in fiscal year 2018.

The System earned net investment income of $17.03 million in fiscal year 2019 after expenses of just over $2.1 million, a decrease of $11.8 million from fiscal year 2018. Overall, the System's revenues decreased $11.54 million over fiscal year 2018 due primarily to slightly lower investment returns.

Expenses

Benefit payments for fiscal year 2019 were $24.93 million, which is $744,855 more than fiscal year 2018. Administrative expenses were $554,441, of which $65,500 was for professional fees, $320,497 for bad debt expenses, and $160,687 was transferred to APERS for indirect administrative costs.

Funding

The System is funded through contributions from the state and from investment income. The general financial objective of the System is to establish and receive contributions which, expressed as a percent of active member payroll, will remain approximately level from generation to generation.

Investments

Act 1242 of 2009 effectively merged the ASPRS investment program with that of APERS and granted the APERS Board all investment authority. In accordance with the Investment Code contained in the Arkansas Code Annotated, the APERS Board has established a policy which requires that the funds be invested in conformity with the "prudent investor rule." The Investment Code permits the fund to establish an investment policy based upon certain investment criteria and allows for delegation of investment authority to professional investment managers. The statement of investment policy outlines the responsibility for the investment of the fund and reflects the degree of risk that is deemed appropriate for the fund. Investment managers are to execute the investment policy in accordance with statutory authority and the policies and respective guidelines of the APERS Board, but they are free to use full discretion within those policies and guidelines. Compliance by the current investment managers is monitored on a continuing basis by the investment consulting firm Callan Associates Inc. and APERS staff. The investment managers retained by the APERS Board are listed on page 15 of this report.

Professional Services

Professional services are provided to ASPRS by firms selected by the APERS Board to aid in the efficient and effective management of the System. A list of firms retained during the year can be found on page 15 of this report.

Acknowledgments

This report is the result of the combined efforts of the APERS staff under the direction of the Board of Trustees of the State Police Retirement System. Its purpose is to provide complete and reliable information as a basis for making management decisions, as a means for determining compliance with legal provisions, and as a means for determining responsible stewardship over the assets contributed by the members and employers.

Respectfully,

Lt. Brant Tosh

Duncan Baird

BOARD OF TRUSTEES

Lt. Brant Tosh, Chair - Jonesboro, AR, Active Tier II member
Expiration of Term: July 1, 2020

Mr. Carl "Ned" Hendrix, Vice-Chair - Winthrop, AR, Citizen-At-Large
Expiration of Term: July 1, 2019

Capt. William "Randall" Dias - Pine Bluff, AR, Active Tier I member
Expiration of Term: July 1, 2020

Mr. Donnie Underwood - Marion, AR, Citizen-At-Large
Expiration of Term: July 1, 2021

Commissioner Bob Burns - Little Rock, AR, Arkansas State Police Commissioner
Expiration of Term: July 1, 2024

Mr. Phillip Milligan. Ft. Smith, AR, Citizen-At-Large
Expiration of Term: July 1, 2025

Dr. John Shelnutt - Little Rock, AR - Chief Fiscal Officer of State or Designee
Expiration of Term: Ex-Officio Member

ASPRS SENIOR STAFF

Duncan Baird
Executive Director

Jason Willett
Chief Financial Officer

Carlos Borromeo
Chief Investment Officer

Laura Gilson
Chief Legal Counsel

Allison Woods
Director of Benefits Administration

Phillip Norton
Director of Information Technology

Abbi Bruno
Director of Operations

Jacobia Twiggs
Manager, Educational Outreach

Jennifer Taylor
Manager, Member and Retiree Services Section

Jon Aucoin
Manager, Communications Section

John Owens
Internal Auditor

Usha Doolabh
Accounting Operations Manager, Investments

FINANCIAL

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MANAGEMENT'S DISCUSSION AND ANALYSIS

To help facilitate a better understanding of the financial condition of the Arkansas State Police Retirement System (ASPRS or the System) as of June 30, 2019, the results of its operation for the fiscal year ended, and the fiscal policies that govern its significant business operations, management has prepared this narrative analysis. The narrative is intended to supplement the System's financial statements and, as such, should be read in conjunction with these statements, which are presented beginning on page 25 and page 26.

Act 1242 of 2009 effectively merged the ASPRS investment program with that of the Arkansas Public Employees Retirement System (APERS) and granted the Board of Trustees of the Arkansas Public Employees Retirement System (APERS Board) all investment authority. The figures referred to in this section are ASPRS figures unless specifically stated otherwise.

Overview of the Financial Statements

This overview is intended to serve as an introduction to the System's financial reporting. Collectively, all the information contained in the Financial Section of this annual report presents the net assets held in trust for pension benefits as of June 30, 2019.

The basic financial statements contained in the Financial Section of the annual report consist of the following:

The Statement of Fiduciary Net Position (page 25) reports the pension trust fund's assets, liabilities, and resulting net position such that assets – liabilities = net position at the end of the fiscal year. It is a snapshot of the financial position of the pension trust fund at that specific time. Below is a summary of the statement that includes total assets, total liabilities, and resulting net position for fiscal years 2018 and 2019:

Summary of Fiduciary Net Position

	2019	2018
Assets		
Cash and Cash Equivalents	$ 16,179,690	$ $15,537,298
Receivables	3,195,988	3,336,641
Investments	321,588,439	309,912,126
Securities Lending Collateral	37,425,857	35,616,267
Total Assets	$ 378,389,973	$ 364,402,333
Liabilities		
Other Liabilities	$ 542,498	$ 532,415
Investment Principal Payable	2,638,268	3,263,410
Securities Lending Collateral	37,470,194	35,668,257
Total Liabilities	40,650,961	39,464,082
Net Position Restricted For Pension Benefits	$ 337,739,012	$ 324,938,251

Totals may not add due to rounding.

The Statement of Changes in Fiduciary Net Position

The Statement of Changes in Fiduciary Net Position (see page 26) reports the pension trust fund's financial transactions that have occurred during the fiscal year such that additions – deductions = net change in net position. It supports the change that has occurred to the prior year's net position value on the Statement of Fiduciary Net Position. Below is a summary of the statement that indicates the financial transactions of the trust fund for fiscal years 2018 and 2019:

Summary of Changes in Fiduciary Net Position

	2019	2018
Additions		
Employer Contributions	$ 6,727,409	$ 6,515,063
Member Contributions	27,515	133,860
Supplemental	8,035,962	7,109,703
Court	849,578	974,516
Driver's License Reinstatement Fees	1,014,554	1,606,181
Motor Vehicle Title Fees	4,598,976	4,664,316
Net Investment Income	17,031,466	28,823,333
Other Additions	17	11
Total Additions	38,285,476	49,826,983
Deductions		
Benefits	24,930,274	24,185,419
Administrative Expenses	554,441	228,430
Total Deductions	25,484,715	24,413,849
Net Increase / (Decrease)	12,800,761	25,413,134
Net Position		
Beginning of Year	324,938,251	299,525,117
End of Year	$ 337,739,012	$ 324,938,251

Totals may not add due to rounding.

Additions to Fiduciary Net Position

The reserves needed to finance retirement benefits are accumulated through the collection of employer and employee contributions and through earnings on investments. Accumulations for fiscal year 2019 totaled approximately $38.3 million (see the following table):

Operating Additions	2019	2018
Employer Contributions	$ 6,727,409	$ 6,515,063
Member Contributions	27,515	133,860
Supplemental Contributions	8,035,962	7,109,703
Court Fees	849,578	974,516
Driver's License Reinstatement Fees	1,014,554	1,606,181
Motor Vehicle Title Fees	4,598,976	4,664,316
Net Investment Income	17,031,466	28,823,333
Miscellaneous Additions	17	11
Total	$ 38,285,476	$ 49,826,983

The overall decrease in additions was approximately $11.5 million when compared to fiscal year 2018 and was due to lower investment returns. The Investments Section of this report reviews investment activity and the results of the investment portfolio for fiscal year 2019.

Deductions to Fiduciary Net Position

The primary deductions from the System include the payment of benefits to members and beneficiaries, the refund of contributions to former members, and the cost of administering the System. Deductions for fiscal year 2019 totaled approximately $25.5 million (see the following table):

Operating Deductions	2019	2018
Benefit Payments	$ 24,930,274	$ 24,185,419
Administrative Expenses	554,441	228,430
Total	$ 25,484,715	$ 24,413,849

Totals may not add due to rounding.

The Notes to the Financial Statements

The Notes to the Financial Statements are provided to help explain in narrative form some of the more complex or less obvious elements of the statements. Further, the Notes to the Financial Statements provide additional information that is essential for a comprehensive understanding of the System's financial condition and the results of its operations.

- Note 1 provides a general description of the System, including information regarding membership and employers.
- Note 2 summarizes significant accounting policies, including the basis of accounting, management's use of estimates, and other accounting policies.
- Note 3 describes deposits, discloses investment risks, and addresses securities lending as well as derivative instruments.
- Note 4 provides information regarding legally required reserves.
- Note 5 provides information regarding the System's net pension liability.
- Note 6 describes the System's Deferred Retirement Option Plan.

The required supplementary information provides additional detail and historical information considered to be useful in evaluating the condition of the plan administered by APERS. The System provides certain required schedules and related note disclosures that collectively demonstrate the System's annual progress toward funding its actuarial accrued liability and disclose the annual employer contributions required and the percentage contributed.

The other supplementary schedules summarize the major categories of administrative and investment expenses and detail the amounts paid to professional consultants.

Funding

The System's overall funding objective is to accumulate sufficient assets over time to meet its long term benefit obligations as they become due. Accordingly, collecting employer and member contributions and earning an adequate long term rate of return on its investments are essential components of the System's plan for accumulating the funds needed to finance future retirement benefits.

ASPRS overall pension fund net position increased during the fiscal year ended June 30, 2019 by $12.8 million. This increase can be attributed to an increase in the value of investments and their associated income.

System Investments as of June 30, 2019*

The investments of the pension trust fund generated a 5.78% return for the fiscal year, which is lower than the prior year's return of 10.25%. The 5.78% return placed APERS/ASPRS in the 64th percentile when compared with a median return of 6.19% for large public plans. Investment results over time are compared with the System's benchmarks in the schedule of comparative investment results located in the Investments Section of this annual report. Below is a summary of the performance of the System's assets by class:

- Domestic Equity - The System had $3.617 billion in U.S. domestic equity securities, which is approximately a 1.37% increase from fiscal year 2018. Domestic equity posted a return of 8.12% for the fiscal year. The Russell 3000 Index posted a return of 8.98%.
- International Equity - The System had $2.204 billion in international equity securities which is approximately a 0.97% increase from fiscal year 2018. International equity posted a return of 1.98% for the fiscal year. The MSCI EAFE Index posted a return of positive 1.08%.
- Fixed Income - The System had $1.454 billion in fixed income securities, which is approximately an 8.37% increase from fiscal year 2018. Fixed income posted a return of 8.57% for the fiscal year. The Barclays Aggregate Index posted a return of 7.87%.
- Diversified Strategies - The System had $453 million in diversified strategies, which is approximately a 9.54% increase from fiscal year 2018. Diversified strategies posted a return of 10.2% for the fiscal year.
- Real Assets - The System had $1.335 billion in real assets, which is approximately a 2.28% decrease from fiscal year 2018. Real assets posted a return of 1.72% for the fiscal year. CPIU+4% posted a return of 5.65%.

*Figures are APERS and ASPRS combined.

Securities Lending

The System earns additional investment income by lending investment securities to broker-dealers. This is done by the custodian bank, Bank of New York Mellon (BNYM). The broker-dealers provide collateral to BNYM and generally use the borrowed securities to cover short sales and failed trades for their clients. BNYM invests cash collateral to earn interest. For the fiscal year 2019, securities lending income to the System amounted to $3.863 million.

Actuarial Valuations and Funding Progress

The actuarial accrued liability and actuarial value of assets of the System as of June 30, 2019, amounted to $454.62 million and $335.97 million respectively.

As of June 30, 2019, the System experienced an increase in its funded status from 73% to 74% on a market value basis. On a funding basis, the System experienced an increase in its funded status from 72% to 74%.

Requests for Information

This annual report is designed to provide a general overview of the finances of the System. Questions concerning any of the information provided in this report or requests for additional information should be addressed to the Arkansas Public Employees Retirement System, 124 W. Capitol, Suite 400, Little Rock, AR 72201.

STATEMENT OF FIDUCIARY NET POSITION (as of June 30, 2019)

	2019	2018
ASSETS		
Cash and Cash Equivalents	$ 16,179,690	$ 15,537,298
Receivables		
Contributions	0	0
Investment Principal Receivable	2,332,340	2,616,960
Accrued Investment Income Receivable	851,255	586,141
Other Receivables	12,392	133,540
Total Receivables	3,195,987	3,336,641
Investments, At Fair Value		
Government Securities		
U.S. Government Securities	5,245,190	6,122,256
Futures	10,062	(9,567)
Government Agency Securities	5,547,214	3,461,237
Municipal Bonds	16,074	14,979
Agency CMO	1,738,880	0
Corporate Securities		
Collateralized Obligations	4,235,197	4,207,668
Corporate Bonds	7,900,372	8,983,087
Convertible Bonds	8,144,802	8,437,513
Convertible Preferred Stock	2,081,446	1,419,825
Common Stock	98,032,699	100,882,069
Equity Index Funds	16,204,447	21,619,815
Domestic Equity Co-Mingled	1,849,133	0
High Yield Income Fund	1,895,664	2,284,451
Preferred Stock	109,190	0
International Securities		
Global Fixed Income Fund	36,783	42,152
Corporate Fixed Income	3,040,613	1,733,053
Equity Securities	48,433,937	36,331,839
Global Preferred Stock	740,981	360,135
Global Co-Mingled Funds	3,747,183	0
International Equity Index Funds	28,726,964	0
Equity Pooled Fund Units	0	20,284,600
Global Equity Index Funds	0	13,627,073
Global Collateralized Obligations	690,669	76,193
Emerging Markets	950,801	975,050
Global Convertible Bonds	673,361	0
Emerging Markets Collateralized Obligations	0	0
Forward Contracts	0	0
Core Plus Bond Fund	18,293,869	16,499,363
Interest Rate Swaps	0	
Real Estate	38,450,938	37,192,107
Diversified Strategies	16,385,332	14,766,420
Timberland	3,284,500	3,585,552
Global Energy Fund	4,662,835	6,067,456
Commercial Loans	459,304	947,800
Total Investments	321,588,439	309,912,127
Securities Lending Collateral Investments, At Fair Value		
Agencies	91,553	0
Receivables/Payables	(515)	(371,278)
Repurchase Agreements	9,724,634	11,305,050
Asset Backed Floating Rate Notes	0	16,506,966
Corporate Floating Rate Notes	18,184,503	8,175,530
Time Deposits	0	0
Asset Backed Securities	9,425,681	
Total Securities Lending Collateral Investments	37,425,857	35,616,267
TOTAL ASSETS	378,389,972	364,402,333
LIABILITIES		
Accrued Expenses and Other Liabilities	542,498	532,415
Investment Principal Payable	2,638,268	3,263,410
Securities Lending Liability	37,470,194	35,668,257
TOTAL LIABILITIES	40,650,961	39,464,082
NET POSITION RESTRICTED FOR PENSION BENEFITS	$ 337,739,012	$ 324,938,251

Totals may not add due to rounding. The schedule of funding progress is on page 56.

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

(for the year ended June 30, 2019)

	2019	2018
Additions		
Contributions		
Employer	$ 6,727,409	$ 6,515,063
Member	27,515	133,860
Supplemental	8,035,962	7,109,703
Court	849,578	974,515
Drivers' License Reinstatement Fees	1,014,554	1,606,180
Motor Vehicle Title Fees	4,598,976	4,664,316
Total Contributions	21,253,993	21,003,638
Investment Income		
Interest	1,236,192	1,447,107
Dividends	3,359,522	2,940,294
Investment Gain/(Loss)	11,941,718	24,248,256
Security Lending Income	1,021,984	516,672
Real Estate	1,592,711	1,238,832
Other	0	11,785
Total Investment Income	19,152,127	30,402,945
Less: Investment Expense	2,120,661	1,579,612
Net Investment Income	17,031,466	28,823,333
Other Additions	17	11
Total Additions	38,285,476	49,826,982
Deductions		
Benefits	24,930,274	24,185,419
Administrative Expenses	554,441	228,430
Total Deductions	25,484,715	24,413,849
Net Increase / (Decrease)	12,800,761	25,413,134
Net Position Restricted for Pension Benefits		
Beginning of Year	324,938,251	299,525,117
End of Year	$ 337,739,012	$ 324,938,251

Totals may not add due to rounding.
See Notes to the Financial Statements beginning on page 27.

NOTES TO THE FINANCIAL STATEMENTS

Note 1: Plan Description

General Information

The Arkansas State Police Retirement System (ASPRS or the System) is a single-employer, defined benefit pension plan that was established on March 19, 1951 with the passage of Act 311 of 1951. The System provides for the retirement of police officers employed by the Department of Arkansas State Police. The laws governing the operations of ASPRS are set forth in Arkansas Code Annotated (A.C.A.), Title 24, Chapters 2 and 6. Act 1071 of 1997 created a Tier II benefit plan for all police officers hired on or after April 3, 1997.

Effective July 1, 2009, Act 1242 of 2009 transferred the assets of ASPRS to the Arkansas Public Employees Retirement System (APERS) to hold in trust for ASPRS. Act 1242 of 2009 also states that the State Police Trust Fund shall not be treated as segregated funds but shall be commingled with the assets of APERS strictly for investment purposes and that the assets of ASPRS and APERS shall be invested as determined by the Board of Trustees of the Arkansas Public Employees Retirement System (APERS Board).

Act 1242 of 2009 also created the Arkansas State Police Officers' Tier II Deferred Retirement Option Plan (DROP), and it changed the composition of the Board of Trustees of the State Police Retirement System (ASPRS Board).

Arkansas Code Annotated § 24-6-204 states that the membership of the ASPRS Board shall be composed of seven members as follows:

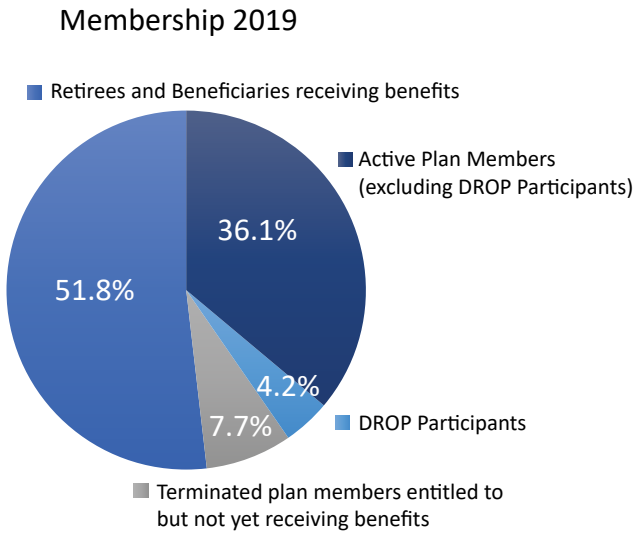
- One active member enrolled in the Tier I benefits program,
- One active, vested member enrolled in the Tier II benefits program,
- The State Police Commissioner who shall be appointed by the Governor,
- The Chief Fiscal Officer of State or his or her designee, and
- Three citizens at large who shall be appointed by the Governor.

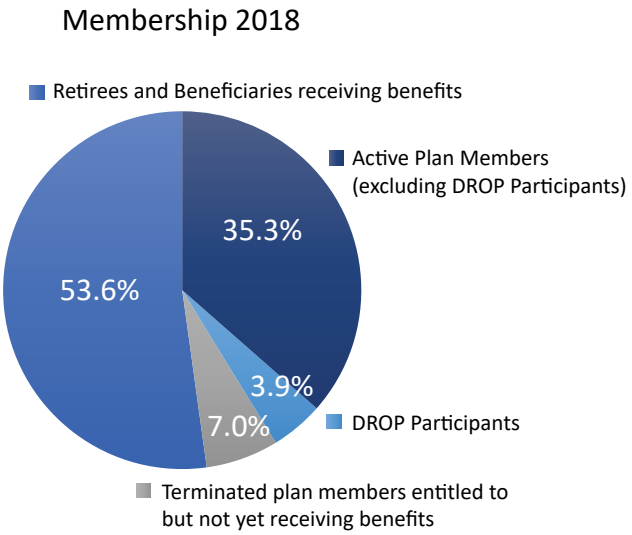
The members of the ASPRS Board are listed on page 13 of this report.

Membership

The membership as of the June 30 end of fiscal years 2018 and 2019 was as follows:

	2019	2018
Retirees and Beneficiaries Receiving Benefits	679	668
Terminated plan members entitled to but not yet receiving benefits	102	84
DROP Participants	56	61
Active Plan Members (Excludes DROP Participants)	473	467
	1,310	1,280





Totals may not add due to rounding.

Contributions

As of June 30, 2018 and 2019, there were no contributory members of ASPRS. Plan member contributions presented in the financial statements are related to service purchase payments. For fiscal year 2019, the employer contribution rate was 22% of salaries paid (A.C.A. § 24-6-209). Contribution provisions are established by state law and may be amended only by the Arkansas General Assembly.

Act 1071 of 1997 provides for a transfer from insurance premium taxes to the State Police Retirement Fund (the ASPRS fund). The ASPRS fund received $8.036 million of Act 1071 funds in fiscal year 2019 and $7.110 million in fiscal year 2018. Additional funds are collected from motor vehicle title fees in accordance with Act 718 of 2011. The ASPRS fund received $4.6 million of Act 718 funds in fiscal year 2019 and $4.66 million in fiscal year 2018.

Plan Administration

Costs of administering the plan are paid out of investment earnings.

Benefits

Benefit provisions are established by state law and found at Arkansas Code Annotated Title 24, Subchapter 6. They may be amended only by the Arkansas General Assembly. Members are eligible for full retirement benefits after meeting minimum age and service requirements. The normal retirement benefit, paid on a monthly basis, is determined based on a formula that uses (a) the member's final average salary and (b) the number of years of credited service.

Increases After Retirement

Retirees will receive a 3% cost of living adjustment (COLA) increase in their benefit each July 1. Eligibility for the COLA requires being retired from July 1 for a full 12 months.

Note 2: Summary of Significant Accounting Policies

Basis of Accounting

The System's accounts and records are maintained using fund accounting principles, and its financial statements are prepared using the accrual basis of accounting. Expenses are recorded when the liability is incurred, revenues are recorded in the accounting period in which they are earned and become measurable, and investment purchases and sales are recorded as of their trade dates. Member and employer contributions are established by statute as a percentage of salaries and are recognized when due, pursuant to legal requirements. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan.

Use of Estimates

The preparation of the System's financial statements in conformity with accounting principles generally accepted in the U.S. requires the System administrator to make significant estimates and assumptions that affect various data in the report, including the following:

- The net position restricted for pensions at the date of the financial statements
- The net pension liability and other actuarial information presented in Note 5
- The required supplementary information as of the benefit information date
- The changes in fiduciary net position during the reporting period

Estimates may also be involved in formulating disclosures of contingent assets and liabilities at the date of the financial statements. Actual results could differ from these estimates.

Cash and Cash Equivalents

Cash and cash equivalents include demand accounts, imprest accounts, cash in the state treasury, and short-term investment funds (STIF). The STIF accounts are created through daily sweeps of excess cash by the System's custodian bank into bank-sponsored commingled funds that are invested in U.S. Government and agency securities and other short-term investments. The STIF accounts had an average weighted maturity of 90 days or less and are stated at fair value.

Note 3: Deposits and Investments

Deposits

Deposits are carried at cost and are included in "cash and cash equivalents." Cash and cash equivalents include demand accounts, cash in state treasury, and short-term investment funds (STIF). As of June 30, 2019, these totals were $33,894, $764,429, and $15,381,367 respectively. State Treasury Management Law governs the management of funds held in the State Treasury (cash in state treasury) and it is the responsibility of the Treasurer of State to ensure the funds are adequately insured and collateralized.

Custodial Credit Risk for Deposits

Custodial credit risk for deposits is the risk that, in the event of the failure of a depository financial institution, the System will not be able to recover deposits or collateral securities. The System's policy is to place deposits only in collateralized or insured accounts. As of June 30, 2019, the System's only deposits exposed to potential custodial credit risk were those holding its foreign currency balance of $78,057. The System holds foreign currency in banks outside the United States as a result of transactions by international investment managers.

Act 1242 of 2009 merged the investable assets of ASPRS with those of APERS. All authority over investment of the merged assets was granted to the APERS Board. Investment schedules reflect the market values accrued to each system.

Investments

Arkansas Code Annotated §§ 24-2-601 – 24-2-619 authorize the APERS Board to have full power to invest and reinvest monies of the System and to hold, purchase, sell, assign, transfer, or dispose of any of the investments or proceeds of the investments in accordance with the prudent investor rule. Security transactions and any resulting gains or losses are accounted for on a trade basis. Net investment income includes net appreciation in the fair value of investments, interest income, dividend income, and total investment expense, which includes investment management, custodial fees, and all other significant investment related costs.

Arkansas Code Annotated § 24-2-608 also states the System shall seek to invest not less than 5% nor more than 10% of the System's portfolio in Arkansas-related investments. The APERS Board recognizes a legal responsibility to seek to invest in the Arkansas economy, while realizing its primary, legal, and fiduciary commitment is to beneficiaries of the retirement system. As stated in A.C.A. § 24-2-608 (d), "nothing in this section shall in any way limit or impair the responsibility of a fiduciary to invest in accordance with the prudent investor rule set forth in §§ 24-2-610 – 24-2-619."

Statement of Invested Assets by Type (fair value* as of June 30, 2019)

Investment Type	Combined	ASPRS	APERS
Investments at Fair Value			
Government Securities			
U.S. Government Securities	$ 145,061,055	$ 5,245,190	$ 139,815,865
U.S. Fixed Futures	278,264	10,062	268,203
Agency Pooled	153,413,831	5,547,214	147,866,617
Municipal Bonds	444,536	16,074	428,462
Agency CMO	48,090,483	1,738,880	46,351,603
Corporate Securities			
Collateralized Obligations	117,128,663	4,235,197	112,893,466
U.S. Corporate Bonds	218,492,789	7,900,372	210,592,418
Convertible Bonds	225,252,749	8,144,802	217,107,947
Convertible Preferred Stock	57,564,490	2,081,446	55,483,044
Common Stock	2,711,193,719	98,032,699	2,613,161,020
U.S. Equity Index Fund	448,150,428	16,204,447	431,945,980
Co-Mingled Funds	51,139,648	1,849,133	49,290,515
High Yield Income Bond Fund	52,426,507	1,895,664	50,530,843
Preferred Stock	3,019,751	109,190	2,910,561
International Securities			
Global Government Fixed	1,017,270	36,783	980,487
Global Corporate Bonds	84,091,245	3,040,613	81,050,632
Equity Securities	1,339,489,641	48,433,937	1,291,055,705
Global Preferred Stock	20,492,589	740,981	19,751,608
Global Co-Mingled Funds	103,632,140	3,747,183	99,884,957
International Equity Index Fund	794,473,317	28,726,964	765,746,353
Global Collateralized Obligations	19,101,147	690,669	18,410,478
Global Convertible Bonds	18,622,477	673,361	17,949,117
Emerging Market	26,295,361	950,801	25,344,560
Core Plus Bond Fund	505,935,511	18,293,869	487,641,642
Real Estate	1,063,399,691	38,450,938	1,024,948,753
Diversified Strategies	453,152,984	16,385,332	436,767,652
Timberland	90,836,191	3,284,500	87,551,690
Global Energy Fund	128,955,419	4,662,835	124,292,584
Commercial Loans	12,702,515	459,304	12,243,211
Total Investments	8,893,854,413	321,588,439	8,572,265,974
Securities Lending Collateral Investments at Fair Value			
Agencies	2,532,000	91,553	2,440,447
Receivables/Payables	(14,233)	(515)	(13,719)
Repurchase Agreements	268,944,621	9,724,634	259,219,987
Floating Rate Notes	502,910,874	18,184,503	484,726,371
Asset Backed Securities	260,676,776	9,425,681	251,251,095
Total Securities Lending Collateral Investments	1,035,050,038	37,425,857	997,624,181
Total Invested Assets	$ 9,928,904,450	$ 359,014,295	$ 9,569,890,155

* Principal only. Totals may not add due to rounding.

Asset Allocation

Asset allocation guidelines have been established as follows:

Asset Type	Allocation Target	Lower and Upper Limits
Equities	37%	32% - 42%
International Equities	24%	19% - 29%
Fixed Income	18%	13% - 23%
Diversified Strategies	5%	0% - 10%
Real Assets	16%	11% - 21%
	100%	

Investments are reported at fair value as determined by the custodian bank. The custodian bank's determination of fair values includes, among other things, using pricing services or quotes by major independent brokers at current exchange rates, as available. The schedule on page 37 reflects the fair value of investments.

Custodial Credit Risk for Investments

Custodial credit risk for investments is the risk that, in the event of failure of the counterparty to a transaction, the System will not be able to recover the value of its investments or collateral securities that are in the possession of an outside party. Investment securities are exposed to custodial credit risk if the securities are (a) uninsured, (b) not registered in the name of the government, and (c) held by either the counterparty or the counterparty's trust department or agent but not in the System's name. Arkansas Code Annotated §24-2-606 addresses the custodianship of assets, and the investment policy states that "the custodian bank shall, by nominee agreement, hold any and all securities for the beneficial interest of the APERS fund." As of June 30, 2019, there were no investments exposed to custodial credit risk.

Credit Risk for Investments

Credit risk of investments is the risk that the issuer or other counterparty will not fulfill its obligation to the holder of the investment. Credit risk exposure is dictated by each investment manager's agreement. This credit risk is measured by the credit quality of investment in debt securities as described by nationally recognized statistical rating organizations. 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 the average credit quality of the overall portfolio.

The System's exposure to credit risk as of June 30, 2019, was as follows:

Moody's Credit Rating Dispersion Detail by Credit Rating

Investment Type and Fair Value	Aaa	Aa	A
Government Securities			
U.S. Government Securities	$ 145,061,055	0	0
Agency CMO	48,090,483	0	0
Agency Pooled	153,413,831	0	0
U.S. Fixed Futures	0	0	0
Corporate Securities			
Collateralized Obligations	18,699,002	9,475,558	2,222,692
Convertible Bonds	0	0	2,023,030
Convertible Preferred Stock	0	0	0
U.S. Corporate Bonds	4,724,186	8,350,290	45,162,839
International Securities			
Emerging Market	385,875	0	1,672,386
Global Collateralized Obligations	1,483,861	0	0
Global Government Fixed	0	601,560	206,458
Global Convertible Bonds	0	2,362,140	0
Global Corporate Bonds	0	1,440,598	12,214,960
Floating Rate Fund	0	0	0
Core Plus Bond Fund	0	0	0
Commercial Loans	0	0	0
Municipal Bonds	0	444,536	0
Co-Mingled Funds	0	0	0
High Yield Income Fund	0	0	0
	$ 371,858,293	22,674,681	63,502,365

S&P's Credit Rating Dispersion Detail by Credit Rating

Investment Type and Fair Value	AAA	AA	A
Government Securities			
U.S. Government Securities	$ 0	135,720,010	0
Agency CMO	0	48,090,483	0
Agency Pooled	0	153,413,831	0
U.S. Fixed Futures	0	0	0
Corporate Securities			
Collateralized Obligations	10,500,205	1,952,571	5,728,106
Convertible Bonds	0	0	7,910,388
Convertible Preferred Stock	0	0	0
U.S. Corporate Bonds	4,803,739	7,359,145	48,052,904
International Securities			
Emerging Market	0	0	806,635
Global Collateralized Obligations	0	996,780	4,160,558
Global Government Fixed	0	808,018	0
Global Convertible Bonds	0	0	2,362,140
Global Corporate Bonds	0	2,005,049	10,430,438
Floating Rate Fund	0	0	0
Core Plus Bond Fund	0	0	0
Commercial Loans	0	0	0
Municipal Bonds	0	444,536	0
Co-Mingled Funds	0	0	0
High Yield Income Fund	0	0	0
	15,303,944	350,790,422	79,451,169
Securities Lending Collateral	$ 181,158,166	331,341,432	95,564,866

*Principal only. Figures are APERS and ASPRS combined. Totals may not add due to rounding.

Baa	Ba	B	Caa or below	NR	Fair Value*
0	0	0	0	0	$ 145,061,055
0	0	0	0	0	48,090,483
0	0	0	0	0	153,413,831
0	0	0	0	278,264	278,264
255,514	631,832	6,894,138	15,043,043	63,906,885	117,128,663
6,409,334	9,508,114	4,954,513	0	202,357,759	225,252,749
20,177,430	1,270,890	0	0	36,116,170	57,564,490
109,912,859	27,349,867	8,579,949	2,094,122	12,318,677	218,492,789
12,914,724	2,456,290	3,891,331	0	4,974,755	26,295,361
7,921,591	986,888	0	0	8,708,808	19,101,147
0	209,252	0	0	0	1,017,270
0	0	0	0	16,260,337	18,622,477
38,377,678	13,152,561	6,680,596	504,172	11,720,680	84,091,245
0	0	0	0	18,241,063	18,241,063
0	0	0	0	505,935,511	505,935,511
0	2,321,586	4,269,724	0	6,111,205	12,702,515
0	0	0	0	0	444,536
0	0	0	0	32,898,585	32,898,585
0	0	0	0	52,426,507	52,426,507
195,969,129	57,887,280	35,270,251	17,641,337	972,255,206	$ 1,737,058,542

BBB	BB	B	CCC or below	NR	Fair Value*
0	0	0	0	9,341,045	$ 145,061,055
0	0	0	0	0	48,090,483
0	0	0	0	0	153,413,831
0	0	0	0	278,264	278,264
1,107,139	1,015,259	788,762	17,191,021	78,845,600	117,128,663
8,095,235	19,851,061	7,453,965	4,647,020	177,295,079	225,252,749
24,910,682	6,291,791	0	0	26,362,017	57,564,490
120,806,019	20,888,764	5,383,607	2,267,199	8,931,413	218,492,789
11,536,644	3,883,059	2,653,150	951,750	6,464,124	26,295,361
2,583,227	460,339	0	0	10,900,244	19,101,147
0	209,252	0	0	0	1,017,270
1,905,271	0	4,763,912	0	9,591,155	18,622,477
41,829,322	13,901,799	5,463,034	235,113	10,226,491	84,091,245
0	0	0	0	18,241,063	18,241,063
0	0	0	0	505,935,511	505,935,511
3,664,475	3,426,048	5,611,992	0	0	12,702,515
0	0	0	0	0	444,536
0	0	0	0	32,898,585	32,898,585
0	0	0	0	52,426,507	52,426,507
216,438,012	69,927,371	32,118,423	25,292,102	947,737,099	1,737,058,542
0	0	0	3,191,332	386,508,307	$ 997,764,103

Concentration of Credit Risk for Investments

The concentration of credit risk is the risk of loss attributed to the magnitude of the System's investment in a single issuer (not including investments issued or guaranteed by the U.S. government or investments in mutual funds or external investment pools). The APERS Board has a formal investment policy for concentration of credit risk. None of the investments in any one issuer (other than those issued or guaranteed by the U.S. government) represented more than 5% of total investments.

Interest Rate Risk for Investments

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of investments. Investments can be highly sensitive to changes in interest rates due to their terms or characteristics. Interest rate risk is the greatest risk faced by an investor in the debt securities market since the price of a debt security will often move in the opposite direction of the change in interest rates.

The System's external fixed income investment managers use the measurement of effective duration to mitigate the interest rate risk of the fixed income investments. Each fixed income investment manager monitors and reports the effective duration on a monthly basis. The effective duration of the investment portfolio is required to be +/- 10% of the benchmark's duration. The benchmark for the U.S. fixed income markets is the Barclays Capital U.S. Aggregate Bond Index.

As of June 30, 2019, the System had the following debt security investments and maturities:

Investment Type	Investment Maturity (In Years)					
	Fair Value*	Less than 1	1 - 5	6 - 10	More than 10	Fund - No Maturities
Government Securities						
U.S. Government Securities	$ 145,061,055	$ 19,028,006	$ 15,117,931	$ 50,189,164	$ 60,725,955	$ 0
Agency CMO	48,090,483	0	0	0	48,090,483	0
Agency Pooled	153,413,831	0	10,980	0	153,402,851	0
U.S. Fixed Futures	278,264	278,264	0	0	0	0
Corporate Securities						
Collateralized Obligations	117,128,663	0	6,513,754	2,131,792	108,483,117	0
Convertible Bonds	225,252,749	5,499,399	127,111,523	69,145,323	23,496,504	0
Convertible Preferred Stock	57,564,490	57,564,490	0	0	0	0
U.S. Corporate Bonds	218,492,789	7,834,826	47,815,343	105,500,636	57,341,984	0
International Securities						
Emerging Market	26,295,361	0	2,617,137	12,362,821	11,315,403	0
Global Collateralized Obligations	19,101,147	0	0	2,981,104	16,120,043	0
Global Government Fixed	1,017,270	601,560	0	206,458	209,252	0
Global Convertible Bonds	18,622,477	0	17,237,119	0	1,385,358	0
Global Corporate Bonds	84,091,245	0	29,755,444	43,972,763	10,363,037	0
Floating Rate Fund	18,241,063	0	0	0	0	18,241,063
Core Plus Bond Fund	505,935,511	0	0	0	0	505,935,511
Commercial Loans	12,702,515	0	9,421,409	3,281,106	0	0
Municipal Bonds	444,536	0	151,659	0	292,877	0
Co-Mingled Funds	32,898,585	0	0	0	0	32,898,585
High Yield Income Fund	52,426,507	52,426,507	0	0	0	0
	$ 1,737,058,542	$ 143,233,053	$ 255,752,300	$ 289,771,166	$ 491,226,863	$557,075,159
Securities Lending Collateral						
Agencies	$ 2,532,000	$ 2,532,000	$ 0	$ 0	$ 0	
Asset-backed Securities	260,676,776	81,142,343	177,104,809	0	2,429,623	
Floating Rate Notes	502,910,874	236,524,027	266,386,847	0	0	
Repo	268,944,621	268,944,621	0	0	0	
	$ 1,035,064,271	$ 589,142,991	$ 443,491,656	$ 0	$ 2,429,623	

*Principal only.
Figures are APERS and ASPRS combined. Totals may not add due to rounding.

Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment. The System's currency risk resides within the international equity investments as well as within the fixed income investments and the fixed income managers. The System's policy is to allow the external investment managers to decide what action to take regarding their respective portfolio's foreign currency exposure using currency forward contracts. The System has a formal investment policy for foreign currency risk which limits foreign currency exposure to 10% of the investment manager's respective portfolio.

The System's exposure to foreign currency risk on June 30, 2019, was as follows:

Currency	%	Fair Value	Equities	Cash	Forward Contracts
Australian Dollar	1.58	$ 21,736,120	$ 21,736,120	$ 0	$ 0
Brazilian Real	1.67	22,864,277	22,864,277	0	0
British Pound Sterling	18.19	249,682,691	249,688,396	11	(5,716)
Canadian Dollar	5.35	73,469,932	73,469,636	10	287
Chinese Yuan Renminbi	4.55	62,494,701	62,320,322	0	174,379
Danish Krone	1.49	20,402,356	20,401,954	3	399
Euro Currency	30.01	411,985,199	411,905,546	78,016	1,636
Hong Kong Dollar	2.66	36,528,272	36,528,272	0	0
Indian Ruphia	0.37	5,063,552	5,063,552	0	0
Israeli Shekel	1.27	17,425,101	17,425,101	0	0
Japanese Yen	10.28	141,155,469	141,293,833	0	(138,364)
Malaysian Ringgit	0.34	4,680,145	4,680,145	0	0
Mauritian Rupee	0.15	1,991,738	1,991,738	0	0
Mexican New Peso	0.21	2,849,431	2,849,431	0	0
Norwegian Krone	0.41	5,596,822	5,596,731	4	86
New Zealand Dollar	0.00	0	0	0	0
Papua New Guinea Kina	0.04	583,259	583,259	0	0
Philippines Peso	0.00	0	0	0	0
Russian Ruble	0.00	0	0	0	0
Singapore Dollar	1.20	16,456,960	16,456,960	0	0
South African Rand	0.97	13,249,829	13,249,829	0	0
South Korean Won	3.45	47,356,709	47,356,979	0	(270)
Swedish Krone	3.01	41,369,546	41,369,556	0	(10)
Swiss Franc	11.41	156,689,525	156,691,258	13	(1,746)
Taiwan Dollar	1.07	14,701,567	14,701,567	0	0
Thailand Baht	0.33	4,584,631	4,584,631	0	0
	100.00%	$ 1,372,917,832	$ 1,372,809,092	$ 78,057	$ 30,683

*Principal only.
Figures are APERS and ASPRS combined. Totals may not add due to rounding.

Asset-Backed Securities

Asset-backed securities (ABSs) are bonds or notes backed by loan paper or accounts receivable originated by banks, credit card companies, or other credit providers. The originator of the loan or accounts receivable paper sells it to a specially created trust, which repackages it as securities. ABSs have been structured as pass-through securities and as structures with multiple bond classes. The System's ability to recover the amount of principal invested in these securities depends on the performance and quality of the trust assets.

Mortgage-Backed Securities

A mortgage-backed security (MBS) is a type of asset-backed security that is secured by a mortgage or collection of mortgages. MBSs depend on the underlying pool of mortgage loans to provide cash flow to make principal and interest payments on the security to its holders. The payments are usually periodic, similar to coupon payments.

MBSs are subject to credit risk, the risk that the borrower will be unable to meet its obligations. They are also subject to risks created by significant changes in interest rates. Prepayment risk refers to the possibility that interest rates may decline and remain low, encouraging borrowers to refinance their existing loans and thereby cause MBS holders to be repaid more quickly than originally anticipated. Prepayments reduce the weighted average life of the security. Alternatively, extension risk acknowledges the possibility that interest rates could rise and remain high for long periods of time, reducing the number of borrowers seeking to refinance their mortgages. As a result, MBS holders are repaid over longer periods of time. This extension of the mortgage increases the weighted average life of the security.

A collateralized mortgage obligation (CMO) is an MBS that comprises classes of bonds created by prioritizing the cash flows of the underlying mortgage pool. This approach redistributes prepayment risk and credit risk among the various bond classes in the CMO structure. Income is derived from payments and prepayments of principal and interest generated from collateral mortgages. CMOs may be collateralized by whole-loan mortgages, mortgage pass-through securities, or stripped mortgage-backed securities.

The System invests in MBSs and CMOs for diversification and to enhance fixed income returns. These instruments are reported at fair value in the Statement of Fiduciary Net Position

Corporate Bonds

Corporate bonds are a debt security issued by a corporation. The backing for the bond is usually the payment ability of the company, which is typically money to be earned from future operations. In some cases, the company's physical assets may be used as collateral for bonds. They usually have a fixed term maturity and can have either a fixed or variable interest rate. Variable interest rate bonds have adjustments that are made periodically and vary directly with movements in interest rates.

Convertible Corporate Bonds

Convertible bonds convey an option to the bondholders to be exchanged for another asset, generally a fixed number of shares of common stock at a pre-stated price.

Pooled Funds

Pooled funds are funds from many individual investors that are aggregated for the purposes of investment and benefit from economies of scale. The System could be indirectly exposed to credit and market risks associated with forward currency contracts to the extent that these pooled funds hold forward currency contracts for purposes of managing exposure to fluctuations in foreign exchange rates. APERS and ASPRS have approximately $103 million invested in international pooled funds.

Securities Lending

Arkansas Code Annotated § 24-2-602 and the APERS Board's investment policy permit the System to participate in a securities lending program to augment investment income. The System lends its securities to brokers-dealers and other entities with a simultaneous agreement to return the collateral for the same securities in the future. The System has entered into an agreement with BNY Mellon to act as agent in securities lending transactions. BNY Mellon serves as the custodian and is therefore the counterparty to securities lending transactions. The legal and contractual authorization for the securities lending program is contained in the Securities Lending Discretionary Agency Agreement executed between APERS and the custodian.

Whoever borrows the securities provides collateral in the form of cash and cash equivalents, U.S. Treasury or government agency securities, or letters of credit (for the marginal percentage collateralization only). U.S. securities are loaned versus collateral valued at 102.25% of the market value of the securities plus any accrued interest for domestic loans. Non-U.S. securities are loaned versus collateral valued at 104.997% of the market value of the securities plus any accrued interest. Collateral is marked-to-market daily if price movements exceed certain minimal thresholds.

The custodian provides for full indemnification to the System funds for any losses that might occur in the program due to the failure of a broker to return a security that was borrowed (and if the collateral is inadequate to replace the securities lent) or failure to pay the trust funds for income of the securities

while on loan. The collateral securities received cannot be pledged or sold unless the borrower defaults. Cash collateral received is invested in APERS' name; accordingly, investments made with cash collateral appear as an asset on the Statement of Fiduciary Net Position. A corresponding liability is recorded because APERS must return the cash collateral to the borrower upon expiration of the loan. The loan maturity dates generally do not match the maturity dates of the investments made with cash collateral received.

As of June 30, 2019, the cash collateral investments had an average weighted maturity of 26 days, whereas the weighted average loan maturity was 1 day. Investments with cash collateral were approximately $1,036.3 million (market value, APERS and ASPRS combined).

Derivative Instruments

The System adheres to GASB Statement No. 53, Accounting and Financial Reporting for Derivative Instruments, which addresses the recognition, measurement, and disclosure of information regarding derivative instruments entered into by state and local governments.

Derivative instruments are financial contracts or agreements whose values depend on the values of one or more underlying assets, reference rates, or financial indexes. Derivative instruments include futures contracts, forward contracts, swap contracts, options contracts, and forward foreign currency exchange. APERS, through its external investment managers, could hold such instruments. The external investment managers may enter these certain investments on behalf of APERS primarily to enhance the performance and reduce the volatility of its portfolio. The external investment managers could enter into swaps and futures contracts to gain or hedge exposure to certain markets and to manage interest rate risk. They primarily use forward foreign exchange contracts to hedge foreign currency exposure. APERS could be exposed to risk if the counterparties to the contracts are unable to meet the terms of the contracts. APERS' external investment managers seek to control this risk through counterparty credit evaluations and approvals, counterparty credit limits, and procedures for monitoring exposure. APERS' external investment managers anticipate that the counterparties will be able to satisfy their obligations under the contracts. Investments in limited partnerships and commingled funds may include derivatives that are not shown in any derivative totals.

Swaps

APERS' investment managers have entered into various swaps, including interest rate swaps, credit default swaps, and foreign currency swaps.

Interest Rate Swaps

An interest rate swap is the exchange of one set of cash flows based on interest rate specifications for another based on a specified principal amount over a period in the future. Interest rate swaps typically exchange a fixed payment for a floating payment. The floating payment is usually the London Interbank Offering Rate

(LIBOR). In the most common interest rate swap arrangement, one party agrees to pay fixed interest rate payments on designated dates to a counterparty who, in turn, agrees to make return interest rate payments that float with a specified reference rate. Long swap positions (receive fixed) increase exposure to long-term interest rates, and short positions (pay fixed) decrease exposure to interest rate risk. The System had no interest rate swaps at June 30, 2019.

Credit Default Swap

A credit default swap is a contract whereby the credit risk associated with an investment is transferred by entering into an agreement with another party, who in exchange for periodic fees, agrees to make payments in the event of a default or predetermined credit event. The System had no credit default swaps at June 30, 2019.

Foreign Currency Swap

A foreign currency swap is an agreement to swap principal and interest payments on a loan made in one currency for principal and interest payments of a loan of equal value in another currency. The System had no foreign currency swaps at June 30, 2019.

Foreign Currency Forward Contracts

A foreign currency forward is a contractual agreement between two parties to pay or receive specific amounts of foreign currency at a future date in exchange for another currency at an agreed upon exchange rate. Forward commitments are not standardized and carry credit risk due to the possible nonperformance by one of the counterparties. The maximum potential loss is the aggregate face value in U.S. dollars at the time the contract was opened. These transactions are entered in order to hedge risks from foreign currency rate fluctuation and to facilitate trade settlement of foreign security transactions. Forwards carry foreign currency risk resulting from adverse fluctuations in foreign exchange rates.

The System had the following foreign currency forwards at June 30, 2019:

	Pay	Receive	Notional Value	Market Value	Unrealized Gain/Loss
Japanese Yen	JPY	USD	$ 4,259,684	$ (4,398,048)	$ (138,364)
Chinese Yuan Renminbi	CNY	USD	13,006,392	(12,857,668)	148,725
Chinese Yuan Renminbi	USD	CNY	2,397,107	(2,397,107)	0
					$ 10,361

Figures are APERS and ASPRS combined. Totals may not add due to rounding.

Financial Futures

A financial future is an agreement 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 duration of the portfolio, circumvent changes in interest rates, or to replicate an index. Futures contracts are standardized and traded on organized exchanges, thereby reducing credit risk.

The System had the following financial futures at June 30, 2019:

Futures Contracts	Expiration	Notional Value	Fair Value	Unrealized Gain/(Loss)
U.S. 2-year Treasury Note	Sept 2019	$ 26,688,477	$ 26,897,461	$ 208,985
U.S. 5-year Treasury Note	Sept 2019	(20,427,187)	(20,795,500)	(368,313)
U.S. 10-year Treasury Note	Sept 2019	13,829,906	14,204,531	374,625
U.S. 10-year Ultra Treasury Note	Sept 2019	2,743,078	2,762,500	19,422
U.S. Long Bond Treasury	Sept 2019	(5,495,452)	(5,756,969)	(261,517)
U.S. Ultra Long Bond Treasury	Sept 2019	6,442,312	6,747,375	305,063
		$ 23,781,134	$ 24,059,399	$ 278,264

Mortgage-Backed To Be Announced (TBA)

The phrase "to be announced" (TBA) is used to describe forward MBS trades. The term is derived from the fact that the actual mortgage-backed security that will be delivered to fulfill a TBA trade is not designated at the time the trade is made. The securities are announced 48 hours prior to the established trade settlement date.

The System had no mortgage-backed TBA at June 30, 2019.

Figures are APERS and ASPRS combined. Totals may not add due to rounding.

Fair Value Measurements

The Arkansas Public Employees Retirement System categorizes its fair value measurements within the fair value hierarchy by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset and give the highest priority to unadjusted quoted prices in active markets for identical assets of liabilities (Level 1 measurements) and the lower priority to unobservable inputs (Level 3 measurements).

- Level 1 – Unadjusted quoted prices for identical instruments in active markets.
- Level 2 – Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs are observable.
- Level 3 – Valuations derived from valuation techniques in which significant inputs are unobservable.

Investments that are measured at fair value using the net asset value per share (or its equivalent) as a practical expedient are not classified in the fair value hierarchy.

In instances where inputs used to measure fair value fall into different levels in the fair value hierarchy, fair value measurements in their entirety are categorized based on the lowest level input that is significant to the valuation. The The Arkansas Public Employees Retirement System's assessment of the significance of particular inputs to these fair value measurements requires judgment and considers factors specific to each asset or liability. The table(s) on the following pages shows the fair value levelling of the investments for the System.

Assets classified in Level 1 of the fair value hierarchy are valued directly from a predetermined primary external pricing vendor. Assets classified in Level 2 are subject to pricing by an alternative pricing source due to lack of information available by the primary vendor. Real estate, timberland, and partnership assets classified in Level 3, due to lack of an independent pricing source, are valued using an internal fair value as provided by the investment manager.

The categorization of investments within the hierarchy is based upon the pricing transparency of the instrument(s) and should not be perceived as the particular investment's risk.

Investments and Derivative Instruments Measured at Fair Value (as of June 30, 2019)

	Fair Value	Level 1	Level 2	Level 3
Investments at Fair Value				
U.S. Domestic Equities	$ 96,166,113	$ 96,166,113	$ 0	$ 0
Convertible Securities	10,180,294	1,310,322	8,869,971	0
Preferred Securities	86,041	0	86,041	0
International Equities	54,047,704	54,047,704	0	0
Lazard	0	0	0	0
Convertible Securities	719,314	0	719,314	0
Preferred Securities	764,130	740,981	23,149	0
Fixed Income	4,718,866	0	4,718,866	0
Loans/JV interest	18,901	0	0	18,901
Domestic Fixed Income	0	0	0	0
Global Bond Fund	1,189,563	1,189,563	0	0
Infrastructure Fund	0	0	0	0
U.S. Government Securities	5,245,190	5,245,190	0	0
Futures	10,062	10,062	0	0
Fixed Income Fund	659,569	659,569	0	0
Corporate Bonds	19,437,736	0	19,437,736	0
Loans/JV interest	440,403	0	0	440,403
Total Investments	193,683,886	159,369,506	33,855,077	459,304
Securities Lending Collateral Investments at Fair Value				
Repo	9,600,269	0	9,600,269	0
Agencies	90,382	0	90,382	0
Floating Rate Notes	17,951,947	0	17,951,947	0
Asset Backed Floating Securities	9,305,139	0	9,305,139	0
Total Securities Lending Collateral	36,947,737	0	36,947,737	0
Total Investments at Fair Value	$ 230,631,623	$ 159,369,506	$ 70,802,814	$ 459,304

Investments at the Net Asset Value (NAV)	
High Yield Core Fund	355,169
Defensive Bond Fund	1,540,495
Domestic Equity Index Funds	16,204,447
Core Plus Bond Fund	18,293,869
Timberland	3,284,500
Global Energy Plus Fund	4,662,835
Global Equity Pooled Funds	
MCM REIT Index	5,669,012
MCM ACWI ex-US Index	28,726,963
Real Estate	
Invesco Core	16,780,839
Heitman Core	11,482,458
Heitman Value Add	525,362
TA Fund X	507,302
TA Fund XI	1,882,344
LaSalle Fund Fund VI	413,290
LaSalle Fund Fund VII	1,190,331
Diversified Strategies	
AQR Global Risk Premium	5,210,680
Newton Global Real Return	4,421,266
Blackstone	6,753,386
Total Investments at the NAV	$ 127,904,549

Investments Classified as Level 1 in the preceding table are exchange-traded securities whose values are based on published market prices and quotations from either national security exchanges or active markets for those securities.

Investments Classified as Level 2 in the preceding table include publicly traded debt securities and exchange traded stocks in inactive markets. Investments in this category are sourced from reputable pricing vendors using pricing matrix models and techniques. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices. Fair value is defined as the quoted market value on the last trading day of the period. These prices are obtained from various pricing sources by the APERS' custodian bank which maintains the book of record for all investments.

Investments Classified as Level 3 in the preceding table are unobservable, meaning that the assets lack an independent pricing source. Values are provided by the investment manager or an external pricing source such as an independent appraiser.

Investments Measured at the Net Asset Value (NAV)

The fair value of investments that are organized as commingled funds or limited partnerships have no readily ascertainable fair value. The value is determined by using the net asset value per share or its equivalent. Commingled fund values are based on each investor's proportionate share of the total underlying assets in the fund less any liabilities for client withdrawals, investment purchases or other accrued expenses. Limited partnership values are based on the capital account balance the general partner reports at the end of each reporting period, adjusted by subsequent contributions, distributions, management fees, and changes in values of foreign currency and published market prices for certain securities. Even though the limited partnerships and commingled funds issue annual financial statements audited by independent auditors, the year-end for the State and these entities do not always agree. There are inherent uncertainties in estimating fair values for these types of investments, and it is possible that the estimates will change in the near-term or that the subsequent sale of assets will be different from the reported net asset value. With certain exceptions, mainly the equity and the fixed income funds, these investments cannot be redeemed, or, have certain restrictions regarding redemption. The real estate investments distributions are through the liquidation of the underlying assets or net operating cash flows. Each investment has a different redemption frequency and notice period as noted in the following table:

Investments Measured at the Net Asset Value (NAV)

	Fair Value	Strategy Type	Fund Life of Non-redeemable Mandates	Unfunded Commitments	Redemption Frequency (if currently eligible)	Redemption Notice Period	Other Redemption Restrictions	Restriction Time Remaining
High Yield Core Fund	$ 355,169	Active High Yield Fixed Income	N/A	none	monthly	T + 3	N/A	N/A
Defensive Bond Fund	1,540,495	Income Oriented	N/A	none	daily	T + 1	N/A	N/A
Domestic Equity Index Funds	16,204,447	S & P 500 Index	N/A	none	daily	T + 3	N/A	N/A
Core Plus Bond Fund	18,293,869	Active Global Fixed Income	N/A	none	daily	T + 3	N/A	N/A
Timberland	3,284,500	Timber	N/A	none	none	N/A	N/A	partnership terminates in December 2027
Global Energy Fund	4,662,835	Global Energy stocks	N/A	none	daily	T + 3	N/A	N/A
International Equity Pooled Funds								
MCM REIT Index	5,669,012	Global Real Estate securities	N/A	none	daily	T + 1	N/A	N/A
MCM ACWI ex-US Index	28,726,963	International Equities	N/A	none	daily	T + 1	N/A	N/A
Real Estate								
Invesco	16,780,839	Core Real Esate	N/A	none	quarterly	T + 45	N/A	N/A
Heitman	11,482,458	Core Real Esate	N/A	none	quarterly	T + 90	N/A	N/A
TA Fund X	507,302	Value Add Real Estate	N/A	none	7-year lock up	N/A	N/A	currently in capital redistribution phase
TA Fund XI	1,882,344	Value Add Real Estate	N/A	none	7-year lock up	N/A	N/A	the lock up period starts on the day of the last capital call
LaSalle Fund Fund VI	413,290	Value Add Real Estate	N/A	none	7-year lock up	N/A	N/A	currently in capital redistribution phase
LaSalle Fund Fund VII	1,190,331	Value Add Real Estate	N/A	243,611	7-year lock up	N/A	N/A	the lock up period starts on the day of the last capital call
Heitman Value Partners IV	525,362	Value Add Real Estate	N/A	2,204,612	7-year lock up	N/A	N/A	the lock up period starts on the day of the last capital call
TA Fund XII	0	Value Add Real Estate	N/A	2,711,888	7-year lock up	N/A	N/A	the lock up period starts on the day of the last capital call
Diversified Strategies								
AQR Global Risk Premium	5,210,680	Risk Premia	N/A	none	weekly and monthly	T + 2	N/A	N/A
Newton Global Real Return	4,421,266	Global Real Return	N/A	none	daily	T + 3	N/A	N/A
Blackstone	6,753,386	Fund of Funds	N/A	none	last day of each quarter	1yr; 2yrs; 3yrs; >3yrs	55% liquidity; then 20%; then 15%; then 10%	N/A
Total	$ 127,904,549			$ 5,160,111				

High Yield Core Fund

The High Yield Active Core philosophy is centered on the belief that the best risk-adjusted returns and, ultimately, the best absolute returns are generated by a strategy of yield capture and error avoidance.

Defensive Bond Fund

The investment objective is to exploit different sources of return available in high yield corporate securities in a way that generates risk-adjusted returns superior to those available from conventional high yield securities. The investment strategy is based on the assumption and observation that numerous market inefficiencies exist throughout the capital markets (particularly in the high yield bond markets) and that the prudent, active and systematic exploitation of these inefficiencies can generate returns consistent with these objectives.

Domestic Equity Index Funds

This is an S&P 500 Index fund.

Core Plus Bond Fund

The Core Plus Fixed Income Strategy seeks excess return from multiple sources, including sector allocation and subsector and security selection. Duration, yield curve, and currency positioning is moderate. The largest component of the Core Plus Fixed Income risk budget is allocated to portfolio strategies that have consistently generated the highest return for the lowest unit of risk over time, such as sector allocation and subsector/security selection. The Core Plus Fixed Income portfolios may emphasize spread product in the sector allocation process and therefore may hold larger-than-benchmark allocations to corporate bonds, structured product, high yield bonds, and emerging markets debt. As a result, the strategy would likely outperform in a 'risk on' environment where corporate bonds, for example, are outperforming. The reverse would also likely be true. The Core Plus Fixed Income portfolios take an actively-managed, relative-value driven approach. The Strategy is expected to perform best in markets with excess spread dislocations that it can capitalize on through relative value trading.

Timberland

An objective of a timber investment is to provide the fund with diversification from traditional asset classes. The goal of the timber investment is to get a stable core-type return with very low or little volatility.

Global Energy Fund

The fund seeks to invest globally in opportunities found in the energy industry. The fund invests, both long and short, in the equity securities, and related instruments, of energy and energy related businesses, including companies that are not in the Benchmark, which are expected to outperform the energy sector as a whole.

International Equity Pooled Funds

- The MCM EB DV Non-SL REIT Index Fund— This REIT Index Fund seeks to match the performance and the characteristics of the Dow Jones U.S. Select REIT Index which tracks the performance of publicly traded REITs and REIT-like securities and designed to serve as a proxy for direct real estate investments.
- MCM ACWI ex-US Index -—The MSCI ACWI ex USA Index captures large and mid-cap representation across 22 of 23 Developed Markets (DM) countries (excluding the US) and 24 Emerging Markets (EM) countries*. With 2,166 constituents, the index covers approximately 85% of the global equity opportunity set outside the US.
- Fidelity Select International Strategy — The Select International strategy utilizes a disciplined investment approach that capitalizes on fundamental research by combining qualitative stock selection with quantitative risk control. The available investment universe is comprised of stocks in Japan, the United Kingdom, Europe ex UK, and Asia Pacific ex Japan rated attractive by Fidelity's analysts. The strategy uses a quantitative model to match the regional weights of the portfolio to the index. This approach is designed to diversify specific risk, reduces tracking error and factor risk, and controls transaction costs.

Real Estate

This asset class provides diversification to the total portfolio and strives to reduce total fund volatility while also enhancing the total return of the portfolio. Real estate has a low, and in some cases, negative, correlation with other major investment asset classes. The following are the strategies that comprise the Real Estate asset class and are explained in greater detail:

- Invesco Core Real Estate (ICRE) — The ICRE strategy is a portfolio of U.S. properties diversified by property type and geographic location, with an emphasis on attractive current income returns and the opportunity for both income and capital growth. It is based on top-down economic fundamentals combined with bottom-up local market intelligence.
- Heitman America Real Estate Trust (HART) — The HART strategy creates a high-quality, low-risk portfolio of stabilized, income-producing assets diversified by property type and economic exposure through acquiring assets in infill locations within major metropolitan areas, focusing on strong site attributes such as proximity to amenities and transportation networks, and ensuring that assets are well constructed with features that will appeal to tenants over long periods of time.
- TA Realty Funds X, XI, and XII — TA Realty has managed value-add, commingled real estate funds for approximately 30 years. They have investments in 35 markets, and 4 property types (office, industrial, multifamily, and retail). The firm has developed and refined a consistent approach focused on creating diversified real estate portfolios that can generate strong cash flow, benefit from an intensive asset management approach and result in the long-term creating of value of the life of the fund(s).

- LaSalle Funds VI and VII — The Funds pursue non-core properties that exhibit strong fundamentals and are expected to generate both income and appreciation. The sectors that are focused on are office, multifamily, retail, industrial, and specialty.
- Heitman Value Partners IV ("HPV IV") is the fourth offering in Heitman's North American value-add series. It is a closed-end, commingled fund that will pursue a diverse set of real estate opportunities with value-added business plans. The objective is to provide investors with attractive risk-adjusted returns. The strategy seeks to benefit from Heitman's extensive research, real estate, and capital markets expertise to identify emerging investment opportunities and trends before they are fully appreciated by the broader market. The Fund will execute investment strategies that capitalize on those opportunities.

Diversified Strategies

This asset class provides diversification to the total portfolio and strives to reduce total fund volatility while also enhancing the total return of the portfolio. The following are the strategies that comprise the Diversified Strategies asset class and are explained in greater detail:

- Global Risk Premium Tactical Fund (GRPT) — The AQR Global Risk Premium Tactical Fund seeks to efficiently deliver exposure to a broadly diversified set of global risk premia. In many institutional portfolios, equity risk is the predominant risk, a concentration driven by the need for high expected return that cannot be satisfied in a traditionally constrained, well-diversified portfolio. Rather than diversifying by capital, this strategy seeks to diversify based on risk across global equities, global nominal bonds, inflation sensitive assets, and credit/default related assets. Starting from this strategic risk-parity base, GRPT then employs modest tactical tilts across sub-sectors and across individual exposures, attempting to exploit temporary opportunities which may arise within markets. Following basic financial theory, AQR designed its Risk Parity strategies based on what they believe to be the most optimal liquid portfolio of global market betas, and AQR offers that same portfolio at various levels of leverage to target a desired amount of risk as approximated by ex-ante volatility. AQR's approach employs modest leverage to scale up a lower-risk, broadly-diversified portfolio.
- Newton Global Real Return (US$) — Newton's global real return US$ strategy is an actively managed, unconstrained, multi-asset strategy, which aims to achieve a return of one-month USD LIBOR +4 % p.a. over rolling five-year periods. The strategy seeks to add value through security selection and asset type flexibility and it also has an emphasis on capital preservation. The strategy is long only, does not use leverage or short securities and is daily valued.
- Blackstone (Fund of Funds) — The System hired Blackstone to manage a fund-of-funds strategy. As the name suggests Blackstone invests APERS funds in other hedge funds. The number of funds that APERS invests in varies on market conditions. The types of strategies that are contained within the APERS portfolio also vary. For full disclosure purposes on June 30 there were fundamental

equity strategies, event driven strategies, fundamental credit strategies, credit trading strategies, distressed credit strategies, RMBS strategies, structured ABS strategies, multi-strat strategies, commodity strategies, macro rates strategies, thematic macro strategies, quantitative strategies, CTA strategies, and special situation strategies in the portfolio.

Note 4: Legally Required Reserves

A description of reserve accounts and their balances for the year ended June 30, 2019, are as follows:

The Member Deposit Account (MDA) represents members' contributions held in trust until their retirement, at which time contributions are transferred to the Retirement Reserve Account.

The MDA Interest Reserve represents the accumulated interest paid on the MDAs held in trust. As members retire, the interest on their contributions is transferred to the Retirement Reserve Account.

The Employers' Accumulation Account accumulates employers' contributions to be used in providing the reserves required for transfer to the Retirement Reserve Account as members retire or become eligible for disability benefits.

The Retirement Reserve Account is the account to which member contributions, interest on those contributions, and employer contributions are transferred upon member retirement.

The DROP Reserve Account is the account established for the accumulation of balances paid to members who have been approved by the ASPRS Board to participate in the DROP. When a member retires, these amounts can be paid to the member as a lump sum, transferred to an authorized account, or be received as an annuity.

The Deferred Annuity Account is the account established to cover estimated retirement benefits to inactive vested members who are not currently receiving benefit payments.

The Outlawed Warrants Reserve is a cumulative total of warrants not cashed in prior years that have been outlawed. These amounts will be paid if members request payment from the Arkansas State Claims Commission and the commission approves payment.

As of June 30, 2019*	Totals
Member Deposit Account Reserve	$ 574,799
MDA Interest Reserve	(19,210)
Employer Accumulation Account	42,852,052
Retirement Reserve Account	279,483,488
DROP Reserve Account	11,598,498
Deferred Annuity Reserve	3,248,289
Outlawed Warrants Reserve	1,095
Total	$ 337,739,012

*Before recommended actuarial transfers. Totals may not add due to rounding.

Note 5: Net Pension Liability

The components of the net pension liability of the System as of the June 30 end of fiscal years 2018 and 2019 were as follows:

	FY 2019	FY 2018
Total Pension Liability	$ 458,133,785	$ 446,878,220
Fiduciary Net Position	$ 337,739,012	$ 324,938,251
Net Pension Liability	$ 120,394,773	$ 121,939,969
Fiduciary Net Position as a Percentage of Total Pension Liability	73.72%	72.71%

Actuarial Assumptions

The total pension liability was determined by an actuarial valuation as of June 30, 2019, using the following actuarial assumptions, applied to all periods included in the measurement:

Valuation Date	June 30, 2019
Actuarial Cost Method	Entry Age Normal Cost
Amortization Method	Level Percent-of-Payroll
Remaining Amortization Period	20-Year Closed
Asset Valuation Method	4-Year Smoothed Market
Actuarial Assumptions:	
Investment Rate of Return	7.15%
Projected Salary Increases	3.55% - 7.75%
Including Price Inflation at	3.25%
Cost-of-Living Increases	3.0% Annual Compound Increases
Retirees and Beneficiaries Receiving Benefits	679
Terminated Plan Members Entitled to But Not Yet Receiving Benefits	102
DROP Members	56
Active Plan Members	473
Total	1,310

Long-Term Expected Return on Plan Assets

The System's policy in regard to the allocation of invested assets was established by the APERS Board and is reviewed at least annually to determine if the asset allocation is consistent with an acceptable level of risk and volatility.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the current asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for the 10-year period from 2019 to 2029 were based upon capital market assumptions provided by the investment consultants. For each major asset class that is included in the Systems' current asset allocation as of June 30, 2019, these best estimates are summarized in the following table:

Asset Class	Current Allocation	Long-Term Expected Real Rate of Return
Broad Domestic Equity	37%	6.20%
International Equity	24	6.33
Real Assets	16	3.32
Absolute Return	5	3.56
Domestic Fixed	18	1.54
Total	100%	
Total Real Rate of Return		4.80%
Plus: Price Inflation - Actuary's Assumption		2.50
Less: Investment Expenses (Passive)		0.00
Net Expected Return		7.30%

For the year ended June 30, 2019, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 5.36%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Discount Rate

A single discount rate of 7.15% was used to measure the total pension liability. This single discount rate was based on the expected rate of return on pension plan investments of 7.15%. The projection of cash flows used to determine this single discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Sensitivity of the Net Pension Liability

The following presents the net pension liability of the System, calculated using the discount rate of 7.15%, as well as what the System's net pension liability would be if it were calculated using a discount rate that is one percentage point lower (6.15%) or one percentage point higher (8.15%) than the current rate:

	1% Decrease	Current Discount Rate	1% Increase
	6.15%	7.15%	8.15%
ASPRS	$ 175,526,247	$ 120,394,773	$ 74,571,635

Note 6: Deferred Retirement Option Plan

A Deferred Retirement Option Plan (DROP) is available to Tier Two members of the System as authorized by Ark. Code Ann. § 24-6-501 et seq. In lieu of terminating employment and accepting a retirement benefit, any member who has at least 30 years of credited service, which includes reciprocal from another system, can elect to participate in the DROP. The DROP allows a member to defer the receipt of retirement benefits for a maximum of seven years. During that time, a percentage of a member's benefit is deposited into an account that accrues interest. The System had a balance of $11,598,498 in the DROP reserve as of June 30, 2019.

REQUIRED SUPPLEMENTARY INFORMATION

The following data on historical trends indicate the System's progress in accumulating sufficient assets to pay benefits when due. It is required supplemental information.

Schedule of Funding Progress
(dollars in millions)

Actuarial Valuation Date	Actuarial Valuation of Assets (a)	Entry Age AAL (b)	UAAL (b)-(a)	Funded Ratio (a)/(b)	Annual Covered Payroll (c)	UAAL as a Percentage of Covered Payroll [(b-a)/(c)]
6/30/2010	$ 211.07	$ 333.60	$ 122.53	63.3%	$ 28.51	429.7%
6/30/2011	208.05	343.21	135.16	60.6	28.06	481.6
6/30/2012	215.01	355.30	140.29	60.5	28.43	493.5
6/30/2013@	233.15	361.46	128.31	64.5	28.01	458.1
6/30/2014@	259.46	381.86	122.40	67.9	28.55	428.7
6/30/2015@	274.83	398.96	124.14	68.9	29.93	414.8
6/30/2016	289.24	408.74	119.50	70.8	29.45	405.8
6/30/2017@	305.85	429.05	123.21	71.3	29.08	423.7
6/30/2018	319.79	442.93	123.14	72.2	29.59	416.1
6/30/2019	$ 335.97	$ 454.62	$ 118.65	73.9%	$ 30.29	391.7%

@ After changes in actuarial assumptions or methods.
Please note that differences between columns designated (a) and (b) may not add to UAAL due to rounding.

Schedule of Employer Contributions

(dollars in millions)

Year Ended June 30	Actuarially Determined Contribution	Actual Contribution*	Contribution Deficiency (Excess)	Covered Payroll	Actual Contribution as % of Covered Payroll
2010	$ 12.7	$ 20.5	$ (7.8)	$ 28.5	71.93%
2011	12.6	14.1	(1.5)	28.2	50.00
2012	14.1	19.7	(5.6)	29.5	66.78
2013	13.6	19.5	(5.9)	28.1	69.40
2014	14.0	19.5	(5.5)	29.1	67.01
2015	14.2	19.8	(5.6)	29.9	66.22
2016	14.3	19.7	(5.4)	29.4	67.01
2017	14.1	20.0	(5.9)	29.1	68.73
2018	15.2	21.0	(5.8)	30.0	70.00
2019	$ 15.6	$ 21.3	$ (5.7)	$ 30.3	70.30%

*Actual contributions are based on covered payroll at the time of the contribution. This payroll is not reported to the actuary. The covered payroll shown in the schedule above is the valuation payroll. Based on the limitations of this schedule, the final column cannot be compared to the contribution rates actually charged to the employer.

Schedule of Changes in Net Pension Liability and Related Ratios

Year Ended June 30	2019	2018
Total Pension Liability		
Service Cost	$ 6,691,528	$ 6,577,148
Interest	31,299,758	30,678,211
Benefit Changes	0	0
Differences Between Expected And Actual Experience	(1,805,446)	467,389
Assumption Changes	0	(4,529,133)
Benefit Payments	(24,930,275)	(24,185,418)
Refunds	0	0
Net Change In Total Pension Liability	$ 11,255,565	$ 9,008,197
Total Pension Liability, Beginning of Year	446,878,220	437,870,023
Total Pension Liability, End of Year (A)	$ 458,133,785	$ 446,878,220
Fiduciary Net Position		
Contributions - Employer	$ 21,254,010	$ 21,003,650
Contributions - Member	0	0
Net Investment Income	17,031,467	28,823,333
Benefit Payments	(24,930,275)	(24,185,419)
Refunds	0	0
Administrative Expense	(554,441)	(228,430)
Other Additions	0	0
Net Change In Fiduciary Net Position	12,800,761	25,413,134
Fiduciary Net Position, Beginning of Year	$ 324,938,251	$ 299,525,117
Fiduciary Net Position, End of Year (B)	$ 337,739,012	$ 324,938,251
Net Pension Liability, End of Year (A) - (B)	$ 120,394,773	$ 121,939,969
Fiduciary Net Position as a Percentage of the Total Pension Liability	73.72%	72.71%
Covered-Employee Payroll	$ 30,287,691	$ 29,593,145
Net Pension Liability as a Percentage of Covered-Employee Payroll	397.50%	412.05%

Totals may not add due to rounding.

2017	2016	2015	2014
$ 5,473,626	$ 5,488,445	$ 6,101,608	$ 4,866,199
30,322,786	29,469,678	29,218,802	28,558,511
0	0	0	0
(3,052,763)	1,757,687	(3,107,531)	(454,349)
15,875,267	0	8,703,080	8,970,858
(24,631,787)	(26,035,466)	(23,358,801)	(21,688,239)
0	0	0	0
$ 23,987,129	$ 10,680,344	$ 17,557,158	$ 20,252,980
413,882,894	403,202,550	385,645,392	365,392,412
$ 437,870,023	$ 413,882,894	$ 403,202,550	$ 385,645,392
$ 19,961,066	$ 19,713,295	$ 19,784,130	$ 19,501,684
0	0	94,814	0
31,484,250	(210,045)	6,131,684	43,307,746
(24,631,787)	(26,035,466)	(23,358,801)	(21,688,239)
0	0	0	0
(208,424)	(205,342)	(196,231)	(189,658)
0	0	6	0
26,605,105	(6,737,558)	2,455,602	40,931,533
$ 272,920,012	$ 279,657,570	$ 277,201,968	$ 236,270,435
$ 299,525,117	$ 272,920,012	$ 279,657,570	$ 277,201,968
$ 138,344,906	$ 140,962,882	$ 123,544,980	$ 108,443,424
68.41%	65.94%	69.36%	71.88%
$ 29,076,764	$ 29,448,593	$ 29,929,358	$ 28,548,873
475.79%	478.67%	412.79%	379.85%

Schedule of Net Pension Liability

FY Ending June 30	Total Pension Liability	Fiduciary Net Position	Net Pension Liability	Fiduciary Net Position as a % of Total Pension Liability	Covered Payroll	Net Pension Liability as a % of Covered Payroll
2015	$403,202,550	$279,657,570	$123,544,980	69.36%	$29,929,358	412.79%
2016	$413,882,894	$272,920,012	$140,962,882	65.94%	$29,448,593	478.67%
2017	$437,870,023	$299,525,117	$138,344,906	68.41%	$29,076,764	475.79%
2018	$446,878,220	$324,938,251	$121,939,969	72.71%	$29,593,145	412.05%
2019	$458,133,785	$337,739,012	$120,394,773	73.72%	$30,287,691	397.50%

Schedule of Investment Returns

	Annual money-weighted rate of return, net of investment expense
2015	2.26%
2016	(0.08)%
2017	11.82%
2018	9.82%
2019	5.36%

NOTES TO REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Administrative Expenses

(for the fiscal year ended June 30, 2019)

	2019	2018
Communications		
Printing and Advertising	$ 3,073	$ 2,061
Services and Charges		
Professional Fees and Services	65,500	62,700
Conference Fees and Travel	677	817
Bank and Federal Service Charges	4,007	5,389
IRS Penalties	0	0
Total Services and Charges	70,184	68,906
Bad Debt Expense	320,497	0
Transfer to APERS for Administrative Expenses	160,687	157,463
Total Administrative Expenses	$ 554,441	$ 228,430

Schedule of Investment Expenses

(for the fiscal year ended June 30, 2019)

	2019	2018
Investment Consultant Fee	$ 10,715	$ 2,584
Money Manager Fees*	1,222,599	1,182,956
Custodian Bank Fees	18,147	13,540
Other Investment Expenses	869,199	380,532
Total Investment Expenses#	$ 2,120,661	$ 1,579,612

*See the schedule of investment fees shown on page 82 in the Investments Section of this report.
#Total investment expenses include international withholding taxes, which are not included in the schedule of investment fees referenced above.

Payments for Professional Consultants

(for the fiscal year ended June 30, 2019)

	2019	2018
Gabriel, Roeder, Smith & Company	$ 65,500	$ 62,700

Totals may not add due to rounding.

INVESTMENTS

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CHIEF INVESTMENT OFFICER'S REPORT

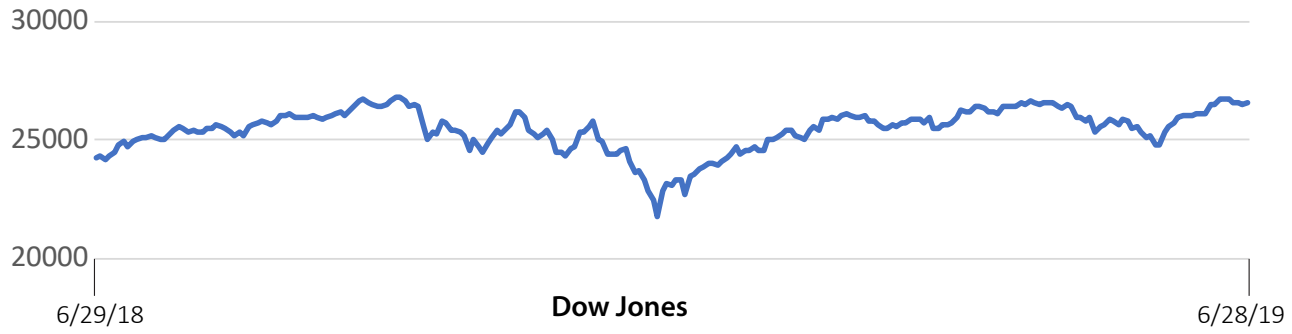
Dear Members,

On behalf of the APERS Investment Department, it is my pleasure to present the Investment Section of the APERS' Annual Financial Report for the fiscal year ended June 30, 2019.

Performance and Stability

For fiscal year 2019, the APERS investment portfolio closed with total investments and cash of $9,153,121,783. The investment return for the fiscal year was 5.78%.

The strength of the return was largely driven by the exposure to domestic equities, diversified strategies, and domestic fixed income, as you will read in my Financial Market Recap which follows. Domestic Equities as an Asset Class contributed 8.12% to the total performance of the investment fund as the Dow Jones set a new record high in January 2019 of 26,616.

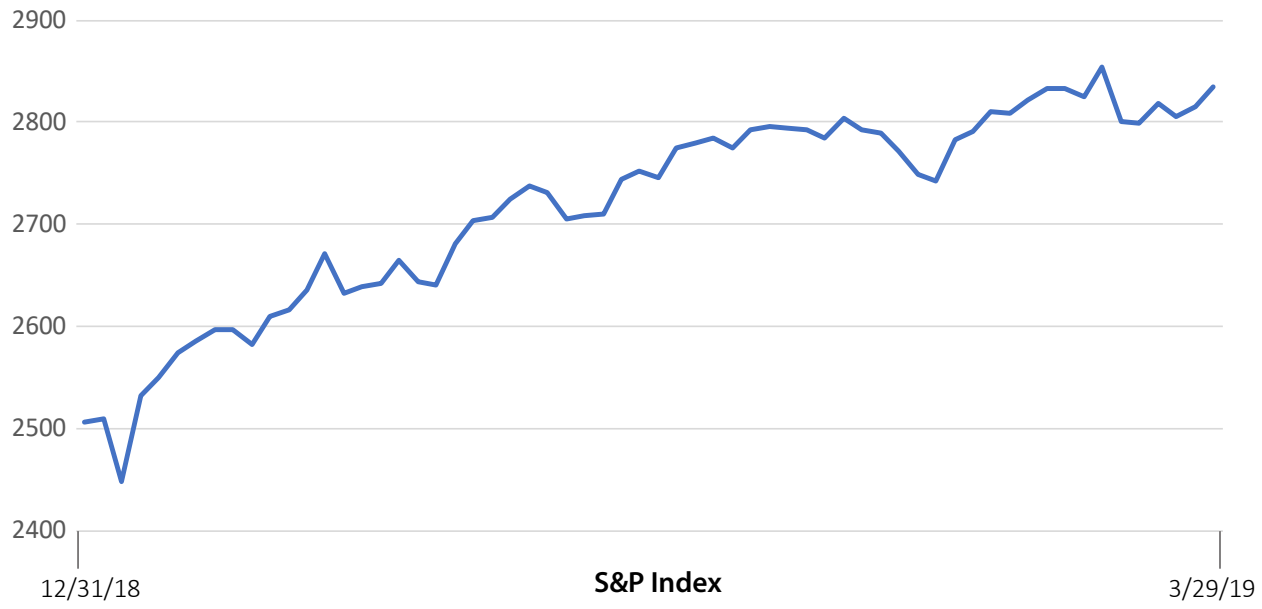


Diversified Strategies as an asset class contributed 10.20% to the total performance of the investment fund. Domestic Fixed Income as an asset class contributed 8.57% to the total performance of the investment fund. Interest rates tried to grind higher but the Federal Reserve changed its tune from hawkish to dovish going into the end of the second quarter of 2019.

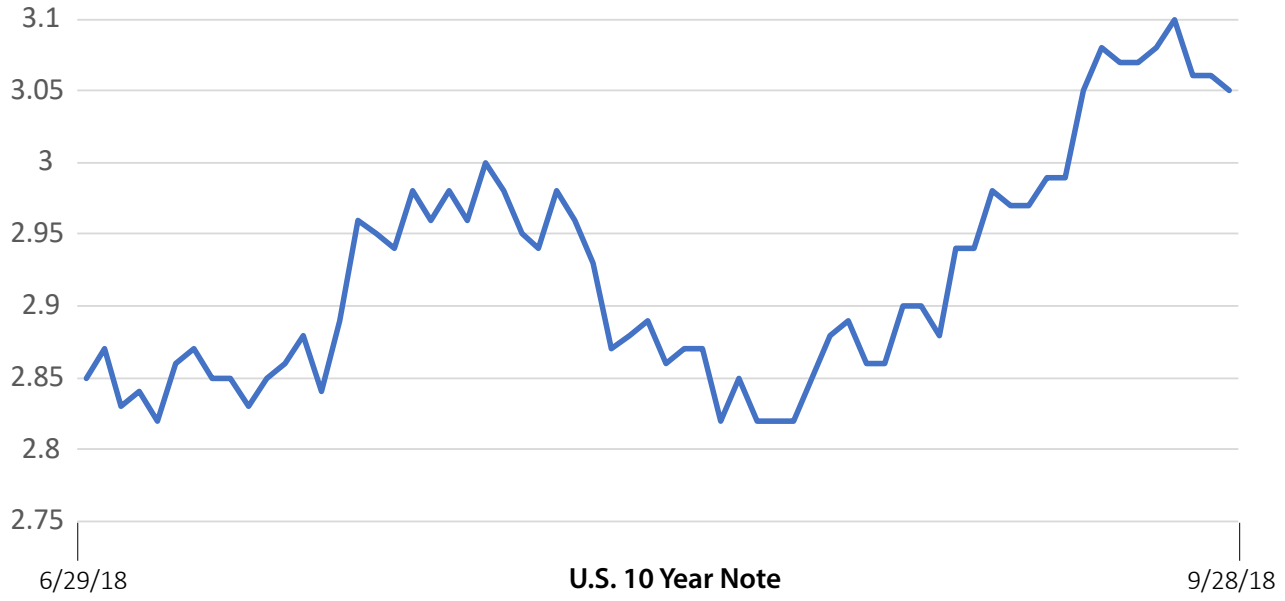
Fiscal Year 2018-2019 Global Financial Market Recap

Last year I wrote that the final quarter of fiscal year 2018 (2Q of 2018) could have been called a lot of things, but, boring was not one of them. If you recall, the potential for a trade war between China and the United States heated up as President Trump continued to threaten tariffs on a range of imports from China, Mexico, Canada, and Europe. China then responded by issuing the same magnitude of tariffs on American exports. There were political elections in Italy along with divisions within Germany's ruling coalition government that further rattled market sentiment as populist anti-establishment, anti-immigrations movements threatened the stability of the Euro. Mexico elected Lopez Obrador in a landslide vote. Turkey saw President Erdogan consolidate power and the markets braced for authoritarian rule. Domestically, the Federal Reserve raised rates by 25bps again, to 2.00% and maintained a hawkish stance.

I also wrote that the first quarter of fiscal year 2019 (3Q of 2018) was a strong quarter for domestic equities. The markets continued to receive favorable economic indicators and encouraging corporate earnings reports. However, towards the end of September there was a new round of reciprocal tariffs. Neither the U.S. or China was ready to flinch, so there's an economic stand-off between the two largest economies in the world. The U.S. imposed an additional $200 billion in tariffs on Chinese goods and in return, China imposed $60 billion in tariffs on U.S. products. The stock market reacted in kind.



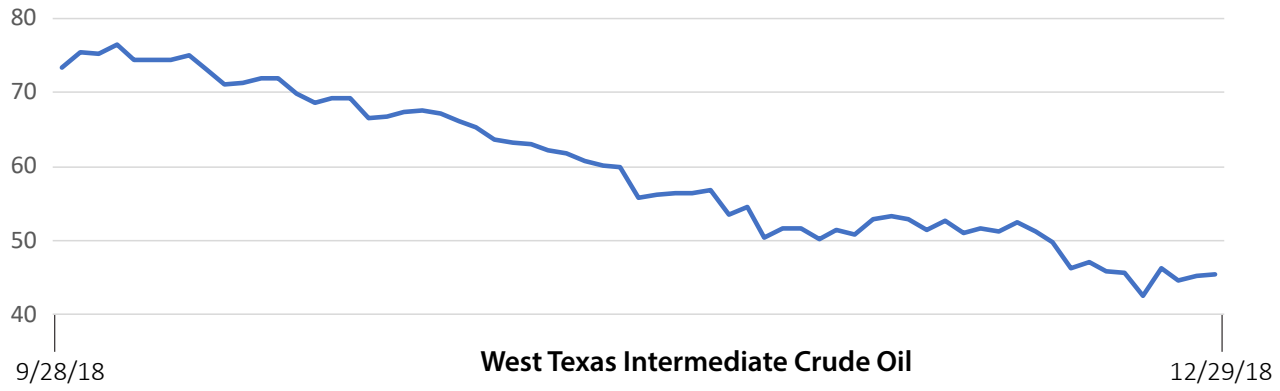
Interest rates continue to move higher as the debt load adds pressure, as well as views on inflation, and the economy. The 2-year Treasury rose 29bps to 2.82% and the benchmark 10-year note rose 21bps to 3.06%.



Commodity prices pushed higher led by strength in crude oil. The European Central Bank (ECB) announced that it would remain committed to ending its bond purchases by the end of 2018 although it was more reticent towards raising the target interest rate. The Bank of Japan (BOJ) signaled that is ultra-accommodative monetary policy would remain intact but it will allow flexibility around it's 0% target on the 10-year JGB. Italian elections added to global market volatility as Italy announced an aggressive budget deficit target which lead to a sharp sell-off in the Italian government bond market. Italy's debt level of over 130% of GDP is currently the second highest in the European Union, behind Greece at 180% of GDP. As the quarter closed, the upcoming November mid-term elections in the U.S. were the focus. Significant policy measures such as fiscal reform, trade, regulation, and policy measures were all hanging in balance.

The second quarter of the fiscal year (4Q of 2018) was a bit calmer. Fed Chairman Powell made comments that suggested that interest rates were "just below" the range for the neutral rate, where as only a month earlier he had communicated that interest rates were "a long way" from neutral. The markets interpreted his statement as a signal for a potential "pause" on interest rate hikes in 2019. However, the Federal Reserve did hike rates 25bps, from 2.25% to 2.50%. This was the ninth rate hike dating back to December 2015. US Treasuries rallied significantly in the fourth quarter while credit and equities sold off on fears of weaker global growth and restrictive US Fed policy. Specifically, slower growth in China, Japan, and the European Union. Also helping treasuries rally were public criticism of the Federal Reserve and Fed Chairman Powell from the US Administration, concerns about a trade war with China, Brexit negotiation uncertainty, mid-term elections, and the potential for a US government shutdown. US 10-year treasury fell almost 60bps from its mid-November high to close the year at 2.65%.

More disconcerting was the inversion of the front-end of the yield curve. Granted the inversion seemed to be driven by strong technicals which are associated with flight-to-quality, but it is worth mentioning that an inverted yield curve has historically been a strong indicator of an economic slowdown. Crude oil prices fell roughly $40 to close the year at $45.41.

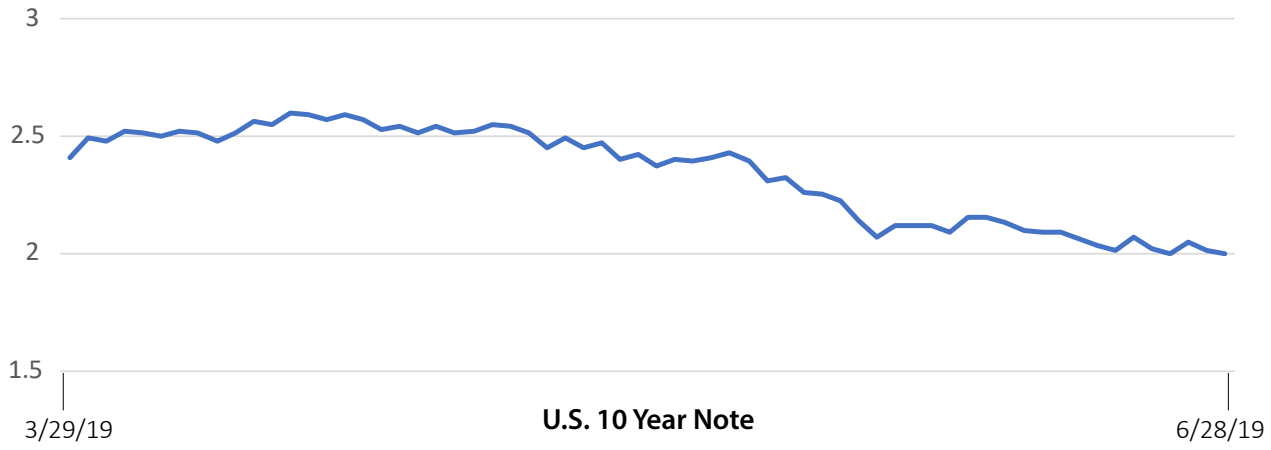


The third quarter of the fiscal year (1Q 2019) saw US treasuries continuing to rally, along with the credit markets. The S&P 500 had one of its strongest starts to the year with a 13.1% return. The US 10-year treasury fell 28bps to 2.41%.

During the quarter the yield curve inverted between the 3-month treasure bill out to the 10-eyar note, the first time since 2007. The Federal Reserve adopted a dovish stance in March. Chairman Powell cited the risks of a slowing economy over the next few years and waning fiscal stimulus from tax cuts. First quarter GDP was revised lower to 2.1% from the initial estimates of 2.6%, while inflation fell from 2.0% to 1.8%. Weak manufacturing Purchasing Managers' Index (PMI) in Europe fueled growth concerns and propelled sovereign bond yields into negative territory.

By the end of the quarter, approximately $9.7 trillion in global debt was yielding negative interest rates. The European Central Bank (ECB) lowered its growth forecast in March and provided dovish forward guidance. The ECB also announced the launch of a new quarterly TLTRO (targeted longer-term refinancing operations) to provide liquidity to the markets. The term of the financing will be 2 years at a rate indexed to the refinancing rate, and it will commence in September 2019 through March 2021. The original Brexit date was extended to April 12th by the European Union to allow the UK Parliament to either approve Prime Minister Theresa May's withdrawal agreement or "indicate a way forward." If a deal was accepted the new Brexit date would have been May 22.

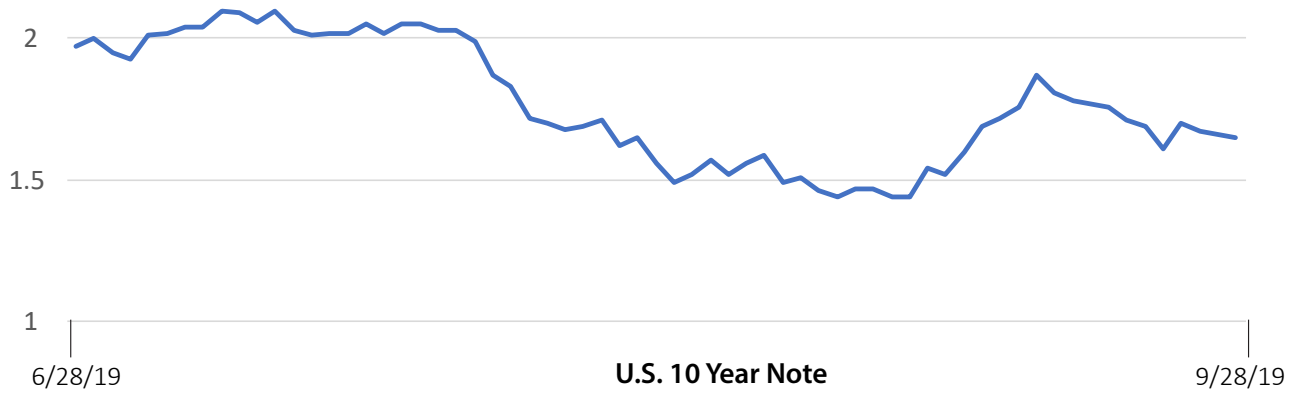
The fourth quarter of the fiscal year (2Q 2019) saw the US economic expansion break the previous streak of 120 consecutive months of economic growth from March 1991 to March 2001. US Treasures rallied during the second quarter of the year and the yield curve inverted. The 3-month rate fell 29bps to 2.10%. The 2-year, 5-year, and 10-year rates all fell between 41 and 43bps. The 10-year closed the quarter at 2.01%.



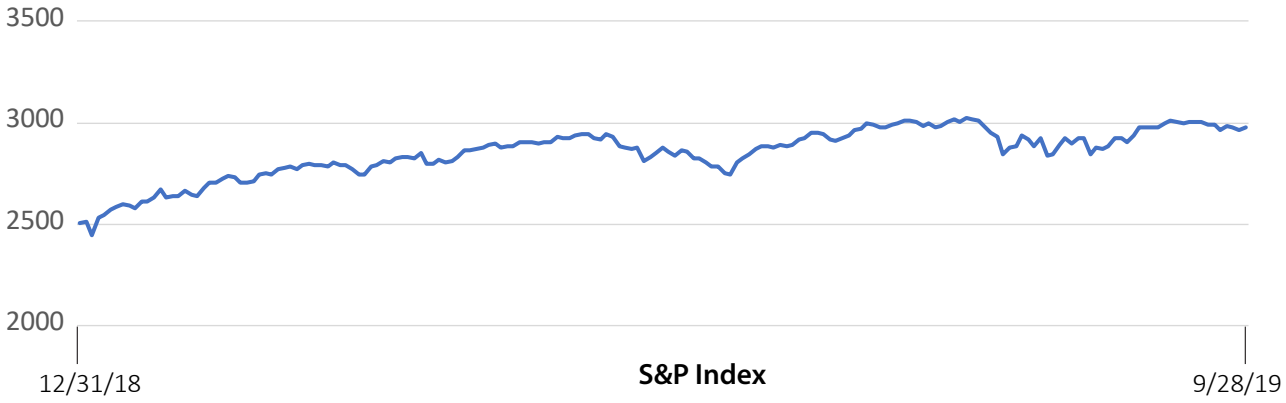
US equity markets gained 4.3% during the quarter, bringing the year-to-date return up to 18.5%, helped by accommodative monetary policy and positive sentiment regarding the US-China trade talks. Crude oil prices rose amid the extension of production cuts between Russia and Saudi Arabia. Crude rose to $65.06. In Europe, U.K. and Italian 10-year yields fell while German yields remained negative. Theresa May resigned, and Britain's Conservative Party Leader Boris Johnson was positioned to become the next U.K. Prime Minister. Mr. Johnson was supportive of a "no-deal" Brexit, which left uncertainty for preparations to leave the European Union. Meanwhile, the Bank of Japan (BoJ), Bank of Canada (BoC), Reserve Bank of Australia (RBA), and the

Reserve Bank of New Zealand (RBZ) all turned to more accommodative policy, which further corroborated the global central banks' shift towards easy monetary policies, setting up a potential coordinated global rate cut campaign during the second half of 2019.

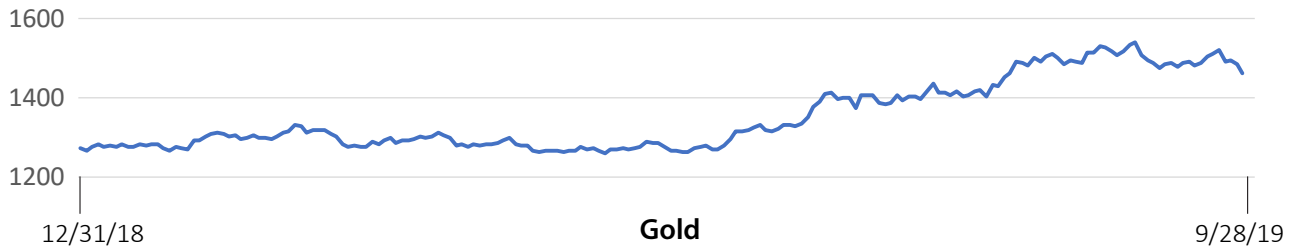
As I write my CIO letter, the third quarter of 2019 has closed. The Federal Reserve lowered the Fed funds rate target to the 1.75 – 2.00% range. U.S. Treasury rates fell across all maturities. Just in the third quarter, the 10-year yield fell 33bps and the 30-year yield dropped 41bps.



Despite the Fed funds rate cuts, the yield curve remained inverted during the quarter. The S&P 500 Index returned 1.70% for the quarter, which brings the year-to-date return to an impressive 20.55% despite volatility.



U.S. crude oil and global Brent crude oil prices fell. Gold broke $1,500 during the quarter as investors sought traditional safe-haven assets amid the global economic uncertainty.



The U.S. labor markets added 430,000 nonfarm payroll jobs to the economy in the third quarter which showed job growth but at a continuingly slow rate. Outside of the U.S., signals of a global growth slowdown continued through the quarter. Manufacturing in Europe continued to contract and ended the quarter at nearly a seven-year low. Uncertainty ahead of a "no deal Brexit" weighed on the global markets as did the frenzied tariff war between the U.S. and China. Negotiations that began in the quarter were unproductive. Both sides increased tariffs in August, and in September there were reports that the U.S. would target Chinese companies on the U.S. exchanges. Negotiations were expected to continue into the last quarter of the year. With no deal in sight, and increased tariffs still in place, the prolonged trade tensions will continue to be a major factor.

I would like to thank each of the Trustees, the ultimate fiduciaries of APERS, for embracing the current investment structure that allowed APERS to achieve strong results for our members and the Arkansas taxpayers. APERS' staff is committed to placing the system in the best position to continue to face the challenges of the global financial markets and to ensure that the APERS assets are positioned to provide long-term financial stability for you, the members.

Respectfully yours,

Carlos Borromeo
Chief Investment Officer

INVESTMENT POLICY SUMMARY

The investment objective of the Arkansas Public Employees Retirement System (APERS) shall be to

1. to protect the the fund so that its assets are preserved for providing benefits to participants and their beneficiaries, and
2. to maximize total return - either in the form of income or capital appreciation or both - in a manner that is consistent with prudent risk taking on the amounts available to provide such benefits.

For this purpose, short-term fluctuations in value shall be considered secondary to long-term investment results. The long-term return objective for the fund shall be to achieve a real rate of return of 4.5%. This is the return over the rate of inflation (as measured by the Consumer Price Index). This objective is not to be a goal from year to year but is intended as a long-term guideline to those involved in investing the fund's assets.

An additional overall investment objective will be to achieve a total fund return of at least the actuarial rate of 7.15%. The investments of the fund shall be so diversified as to minimize the risk of large losses, unless under particular circumstances it is clearly prudent not to do so. Investments will be further diversified by hiring an appropriate number of managers whose investment styles are varied enough to provide a balance to the overall risk of the fund.

ASSET ALLOCATION

To avoid extreme exposure to investment risk, the following percentages represent the minimum and maximum portion at market of the portfolio that may be invested by types:

Market Value Exposure

Asset Allocation	Target	Lower and Upper Limits
Equities	37%	32% - 42%
International Equities	24%	19% - 29%
Fixed Income	18%	13% - 23%
Diversified Strategies	5%	0% - 10%
Real Assets	16%	11% - 21%
	100%	

The Board of Trustees of the Arkansas Public Employees Retirement System (the APERS Board) shall review its asset allocation at least annually to determine if the asset allocation is consistent with an acceptable level of risk and volatility.

Review of Investment Process

1. On a timely basis, at least twice a year, the APERS Board will review actual results achieved by the investment managers (with a perspective toward a three to five-year period or a peak-to-peak or trough-to-trough market cycle) to determine whether their performance

    a. followed the APERS' investment philosophy and policy guidelines,

    b. achieved the investment objectives, and

    c. compared satisfactorily with the performance of other similarly managed funds.

2. In addition to reviewing each investment manager's results, the APERS Board will periodically re-evaluate its progress in achieving its objectives for the total fund and its equity, fixed-income, and international equity segments.
3. The periodic re-evaluation will also consider the continuing appropriateness of

    a. the manager structure,

    b. the allocation of assets among the managers, and

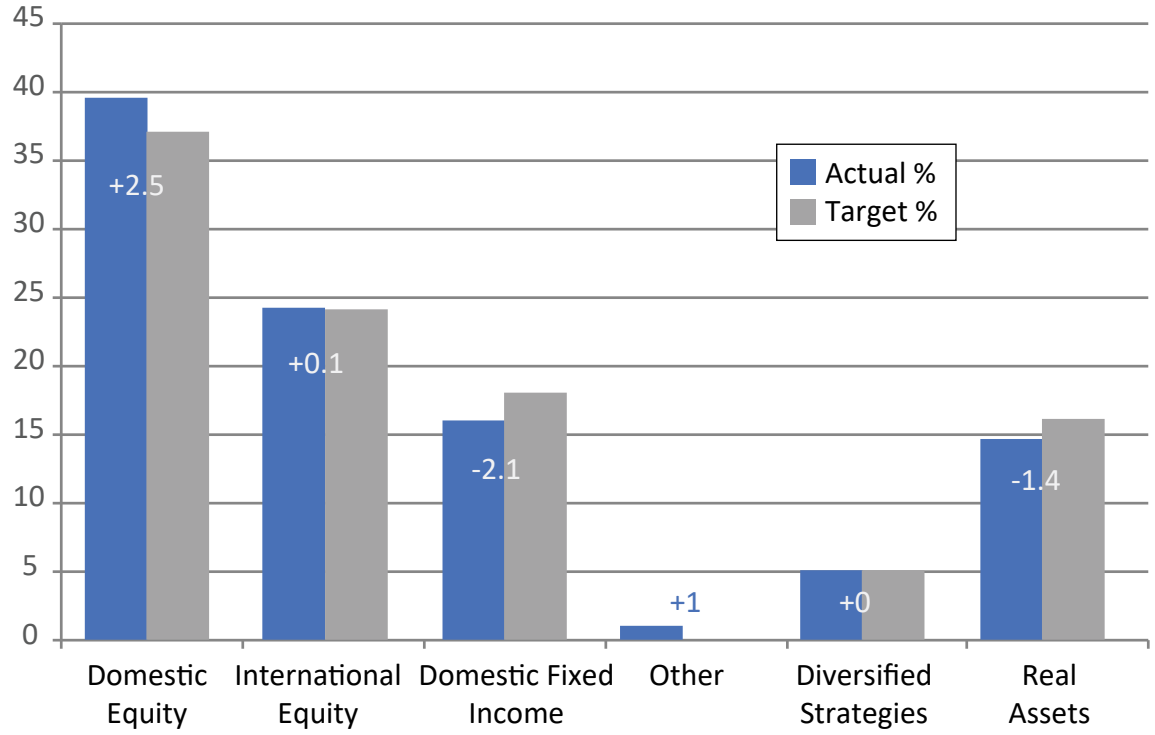
    c. the investment objectives for the fund's assets.

4. The APERS Board may appoint investment consultants to assist in the ongoing evaluation process. These consultants are expected to be familiar with the investment practices of other similar retirement plans and will be responsible for suggesting appropriate changes in the fund's investment program over time.

ASSET ALLOCATION

Actual vs. Target Allocation (as of June 30, 2019)

The current target and new target are as follows:

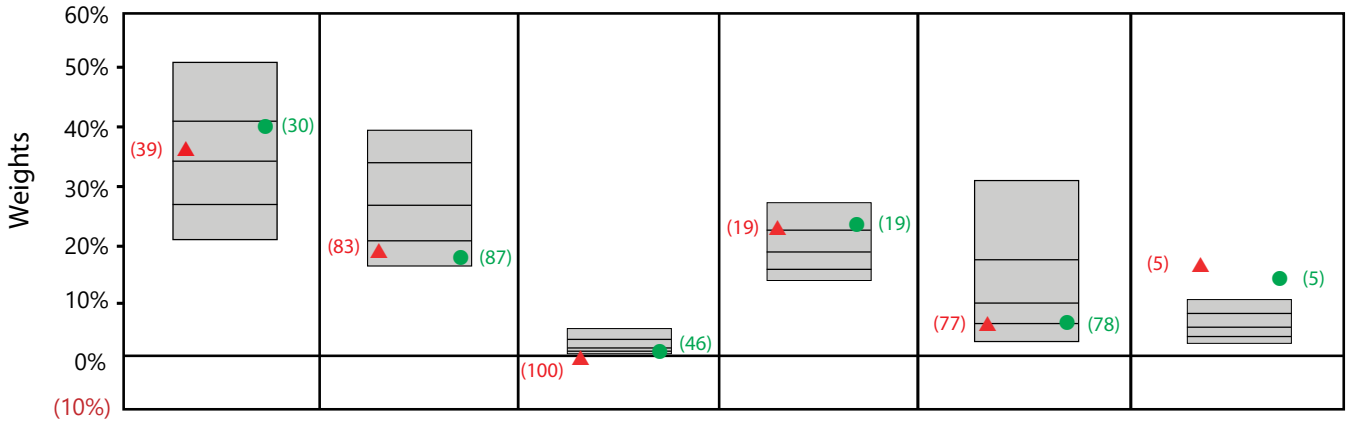


Asset Class	$000s Actual	ASPRS	Actual	Target	Difference	$000s Difference	ASPRS Difference
Domestic Equity	$ 3,617,493	$ 130,803	39.5%	37.0%	2.5%	$ 230,838	$ 8,347
Int'l Equity	2,204,717	79,719	24.1	24.0	0.1	7,968	288
Domestic Fixed Income	1,454,998	52,611	15.9	18.0	(2.1)	(192,564)	(6,963)
Other	87,103	3,150	1.0	0.0	1.0	87,103	3,150
Diversified Strategies	453,153	16,385	5.0	5.0	0.0	(4,503)	(163)
Real Assets	1,335,658	48,295	14.6	16.0	(1.4)	(128,841)	(4,659)
Total	$ 9,153,122	$ 330,963	100%	100%			

Asset Class	$000s Actual	APERS	Actual	Target	Difference	$000s Difference	APERS Difference
Domestic Equity	$ 3,617,493	$ 3,486,690	39.5%	37.0%	2.5%	$ 230,838	$ 222,491
Int'l Equity	2,204,717	2,124,998	24.1	24.0	0.1	7,968	7,680
Domestic Fixed Income	1,454,998	1,402,387	15.9	18.0	(2.1)	(192,564)	(185,601)
Other	87,103	83,953	1.0	0.0	1.0	87,103	83,953
Diversified Strategies	453,153	436,768	5.0	5.0	0.0	(4,503)	(4,340)
Real Assets	1,335,658	1,287,363	14.6	16.0	(1.4)	(128,841)	(124,182)
Total	$ 9,153,122	$ 8,822,159	100%	100%			

Totals may not add due to rounding.

The illustration below shows the average percentage of asset allocations by asset type for the Public Plan Sponsor Database. Due to different asset allocations of public plans, percentages will not equal 100%.



	Domestic Equity	Domestic Fixed-Income	Other	Intl Equity	Other Alternatives	Real Assets
10th Percentile	50.92	37.99	4.68	26.17	31.67	10.81
25th Percentile	40.68	33.23	2.11	23.40	17.58	8.48
Median	34.23	26.55	0.91	19.71	10.07	5.10
75th Percentile	26.52	19.85	0.37	16.02	5.13	3.17
90th Percentile	21.12	14.70	0.05	12.73	2.06	1.93
Fund ●	39.52	15.90	0.95	24.09	4.95	14.59
Target ▲	37.00	18.00	0.00	24.00	5.00	16.00
% Group Invested	98.56%	97.12%	78.42%	96.40%	40.56%	24.46%

SCHEDULE OF MANAGER DISTRIBUTION

As of June 30, 2019

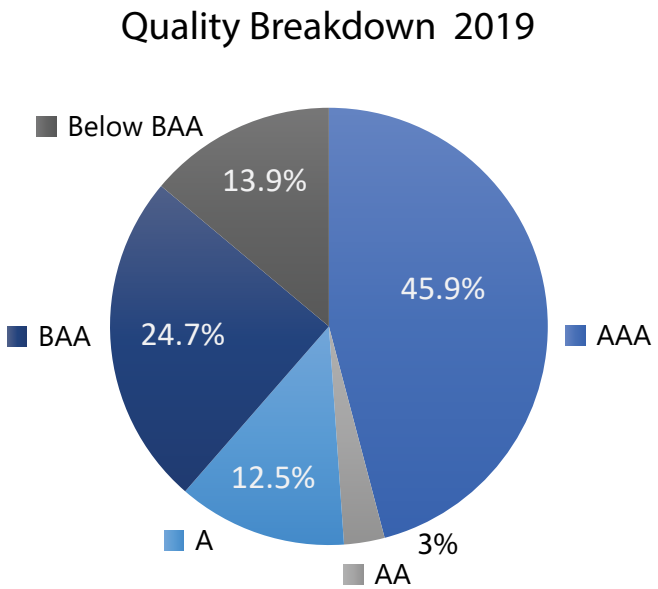
Asset Allocation	Market Value	Percent of Total	ASPRS	APERS
Domestic Equity				
MCM S&P 500 Index Fund	$ 448,167,755	4.90%	$ 16,205,074	$ 431,962,681
LSV Asset Management	251,494,446	2.75	9,093,662	242,400,784
CastleArk Management	570,170,692	6.23	20,616,517	549,554,175
Golden Capital Management	205,269,013	2.24	7,422,220	197,846,793
INTECH	517,124,040	5.65	18,698,430	498,425,610
Wellington Management Co.	437,884,023	4.78	15,833,229	422,050,794
Westwood Management	0	0.00	0	0
Lazard Asset Management	382,427,748	4.18	13,828,014	368,599,734
SSI Investment Management	306,415,010	3.35	11,079,507	295,335,503
Horrell Capital Management	130,106,814	1.42	4,704,467	125,402,347
Stephens Investment Management Group	368,433,388	4.03	13,321,999	355,111,389
	$ 3,617,492,929	39.52%	$ 130,803,118	$ 3,486,689,811
International Equity				
Mellon ACWI ex-US Fund	$ 794,473,323	8.68%	$ 28,726,964	$ 765,746,359
Lazard Asset Management	483,986,185	5.29	17,500,214	466,485,971
Artisan Partners	459,294,397	5.02	16,607,396	442,687,001
Baillie Gifford	465,890,062	5.09	16,845,886	449,044,176
Manning & Napier	1,072,794	0.01	38,791	1,034,003
Fidelity	0	0.00	0	0
	$ 2,204,716,761	24.09%	$ 79,719,251	$ 2,124,997,510
Fixed Income				
Doubleline Capital	$ 461,936,239	5.05%	$ 16,702,921	$ 445,233,318
MacKay Shields	487,126,183	5.32	17,613,752	469,512,431
Prudential Investments	505,935,513	5.53	18,293,869	487,641,644
	$ 1,454,997,935	15.90%	$ 52,610,543	$ 1,402,387,392
Real Assets				
INVESCO Real Estate	$ 468,192,067	5.12%	$ 16,929,123	$ 451,262,944
MCM REIT Index Fund	156,782,271	1.71	5,669,012	151,113,259
TA Associates Realty Fund X	14,029,938	0.15	507,302	13,522,636
TA Associates Realty Fund XI	52,058,140	0.57	1,882,344	50,175,796
CastleArk Management	44,939,735	0.49	1,624,953	43,314,782
CastleArk Management Global Energy Fund	128,955,419	1.41	4,662,835	124,292,584
Pinnacle Forest Investments	90,836,191	0.99	3,284,500	87,551,691
Heitman Real Estate Trust LP	320,985,082	3.51	11,606,339	309,378,743
Heitman Value Partners	14,529,422	0.16	525,362	14,004,060
LaSalle Inc. & Growth VI LP	11,429,954	0.12	413,290	11,016,664
LaSalle Inc. & Growth VII LP	32,919,815	0.36	1,190,331	31,729,484
	$ 1,335,658,034	14.59%	$ 48,295,391	$ 1,287,362,643
Diversified Strategies				
AQR Capital	$ 144,106,639	1.57%	$ 5,210,680	$ 138,895,959
Blackstone Hedge	186,771,753	2.04	6,753,386	180,018,367
Newton Capital	122,274,593	1.34	4,421,266	117,853,327
	$ 453,152,985	4.95%	$ 16,385,332	$ 436,767,653
Short-term Investment Fund	$ 87,103,142	0.95%	$ 9,703,721	$ 77,399,421
Composite Fund	$ 9,153,121,786	100%	$ 337,517,356	$ 8,815,604,430

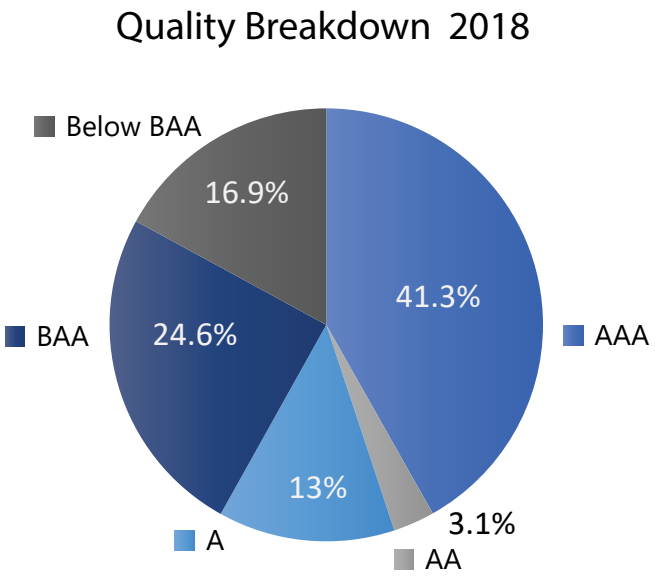
Totals may not add due to rounding.

PORTFOLIO CHARACTERISTICS

(for fiscal years ended June 30, 2018 - 2019)

	2019	2018
Selected Bond Characteristics		
Yield to Maturity (Market)	3.15%	4.03%
Current Yield	3.53%	3.40%
Average Coupon Rate	3.73%	3.69%
Average Maturity	7.41 yrs.	7.86 yrs.
Quality Breakdown		
AAA (includes Govts & Agencies)	45.9%	41.34%
AA	3%	3.06%
A	12.5%	13.03%
BAA	24.7%	24.56%
Below BAA	13.9%	16.86%
Selected Stock Characteristics		
Average P/E Ratio	23.8x	24.90x
Estimated Earnings Growth Rate (Next 5 Years)	14.82%	17.38%
Current Yield	1.52%	1.51%





SCHEDULE OF COMPARATIVE INVESTMENT RESULTS BY YEAR

(for fiscal years ended on June 30, 2014 - 2019)

	2019	2018	2017	2016	2015	2014
Total Fund						
Arkansas Public Employees Retirement System	5.78%	10.25%	12.30%	0.30%	2.67%	19.68%
Callan Total Public Fund Median	6.19	8.23	12.42	0.54	3.24	16.30
Inflation (Consumer Price Index)	1.65	2.87	1.50	0.64	(0.38)	2.04
Equities						
Arkansas Public Employees Retirement System	8.12%	16.27%	17.52%	(0.38)%	7.25%	24.48%
Callan Total Equity Database Median	7.73	15.02	19.48	(1.58)	7.17	25.26
Russell 3000 Index	8.98	14.78	18.51	2.14	7.29	25.22
International Equities						
Arkansas Public Employees Retirement System	1.98%	7.22%	18.39%	(6.88)%	(2.38)%	24.43%
Callan Total Non-U.S. Equities Database Median	0.57	8.05	20.86	(8.20)	(1.80)	23.34
MSCI-EAFE Index	1.08	6.84	20.27	(10.16)	(4.22)	23.57
Fixed Income						
Arkansas Public Employees Retirement System	8.57%	0.79%	3.04%	5.06%	1.32%	7.03%
Callan Total Fixed Income Database Median	7.34	0.26	1.16	4.48	1.59	5.54
Bloomberg Aggregate Index	7.87	(0.40)	(0.31)	6.00	1.86	4.37
Diversified Strategies						
Arkansas Public Employees Retirement System	10.20%	6.43%	5.51%	2.86%	1.97%	13.91%
Callan Int'l/Global Balanced Database Median	2.31	6.53	7.54	(1.73)	0.59	13.59
Real Assets						
Arkansas Public Employees Retirement System	1.72%	11.34%	3.27%	8.29%	0.19%	14.51%
Consumer Price Index - U + 4%	5.65	6.87	5.63	5.01	4.13	6.07

SCHEDULE OF COMPARATIVE ANNUALIZED INVESTMENT RESULTS

(for the fiscal year ended June 30, 2019 and the preceding 3-year and 5-year rates of return)

	2019	3-Year Annualized	5-Year Annualized
Total Fund			
Arkansas Public Employees Retirement System	5.78%	9.41%	6.16%
Callan Total Public Fund Median	6.19	8.91	5.96
Inflation (Consumer Price Index)	1.65	2.05	1.45
Equities			
Arkansas Public Employees Retirement System	8.12%	13.89%	9.56%
Callan Total Equity Database Median	7.73	13.81	9.73
Russell 3000 Index	8.98	14.02	10.19
International Equities			
Arkansas Public Employees Retirement System	1.98%	8.98%	3.31%
Callan Total Non-U.S. Equities Database Median	0.57	9.74	3.03
MSCI-EAFE Index	1.08	9.11	2.25
Fixed Income			
Arkansas Public Employees Retirement System	8.57%	4.08%	3.72%
Callan Total Fixed Income Database Median	7.34	3.07	3.20
Bloomberg Aggregate Index	7.87	2.31	2.95
Diversified Strategies			
Arkansas Public Employees Retirement System	10.20%	7.36%	5.35%
Callan International/Global Balanced Database Median	7.41	8.09	5.29
Real Assets			
Arkansas Public Employees Retirement System	1.72%	5.36%	4.88%
Consumer Price Index - U + 4%	5.65	6.05	5.45

Source: Callan Associates Inc. (CAI database contains returns of over 115 Public retirement funds.)
Returns are reported gross of fees.

TEN LARGEST HOLDINGS*
(as of June 30, 2019)

Domestic Fixed Income Holdings	Par Value	Market Value	ASPRS	APERS
U.S. Treasury 3.000% 02/15/2049	$ 26,892,483	$ 29,087,946	$ 1,051,776	$ 28,036,169
U.S. Treasury 4.375% 11/15/2039	9,866,268	11,441,294	413,700	11,027,594
FNMA 2.500% 07/01/2046	9,679,281	10,100,253	365,210	9,735,043
U.S. Treasury TIP 0.875% 01/15/2029	9,314,819	9,638,833	348,526	9,290,307
FHLMC 3.000% 03/01/2042	8,307,022	8,481,725	306,686	8,175,038
FNMA 3.000% 05/01/2043	6,933,770	7,075,972	255,857	6,820,115
FHLMC 3.500% 11/01/2046	6,784,318	6,799,276	245,852	6,553,424
Washington Mutual Var Rate 08/25/2036	6,526,495	6,757,236	244,332	6,512,904
Shellpoint Var Rate 04/25/2047	6,089,846	6,044,132	218,547	5,825,585
Soundview Home Var Rate 08/25/2037	5,703,696	6,030,789	218,064	5,812,725
Total		$ 101,457,455	$ 3,668,549	$ 97,788,906

Domestic Equity Holdings	Shares	Market Value	ASPRS	APERS
Microsoft Corp.	488,514	$ 65,441,335	$ 2,366,261	$ 63,075,075
Amazon.Com Inc.	25,463	48,217,501	1,743,472	46,474,028
Cisco Systems Inc.	729,039	39,900,304	1,442,735	38,457,569
The Coca-Cola Co.	754,409	38,414,506	1,389,011	37,025,495
Baxter International Inc.	423,783	34,707,828	1,254,983	33,452,845
The Boeing Corp.	95,153	34,636,644	1,252,409	33,384,234
Adobe Inc.	97,245	28,653,239	1,036,058	27,617,181
Alphabet Inc. Class A Shares	24,901	26,962,803	974,935	25,987,868
Analog Devices Inc.	228,019	25,736,505	930,593	24,805,911
Intuit Inc.	96,083	25,109,370	907,917	24,201,453
Total		$ 367,780,035	$ 13,298,374	$ 354,481,661

International Equity Holdings	Shares	Market Value	ASPRS	APERS
Medtronic PLC	680,570	$ 66,280,712	$ 2,396,611	$ 63,884,101
Samsung Electronics Co. Ltd.	684,712	27,871,175	1,007,780	26,863,395
Compass Group PLC	1,118,562	26,863,216	971,334	25,891,882
Cie Financiere Richemont SA	278,009	23,620,785	854,092	22,766,693
Arch Capital Group Ltd.	632,476	23,452,210	847,997	22,604,213
Relx PLC	937,722	22,788,714	824,006	21,964,708
Novartis AG	237,820	21,757,481	786,718	20,970,763
ABB Ltd.	1,079,936	21,698,406	784,582	20,913,825
Vivendi SA	713,746	19,678,226	711,535	18,966,690
Allergan PLC	116,985	19,586,799	708,229	18,878,569
Total		$ 273,597,724	$ 9,892,883	$ 263,704,841

*By market value.
Totals may not add due to rounding.

SCHEDULE OF BROKERAGE COMMISSIONS

for the fiscal year ended of June 30, 2019)

Brokerage Firm	Number of Shares Traded	Total Commission	Commission Per Share	ASPRS	APERS
Goldman Sachs & Co., NY	5,584,223	$ 140,140	$ 0.03	$ 5,067	$ 135,072
Credit Suisse, New York	4,572,360	96,734	0.02	3,498	93,236
Deutsche Bank Securities, NY	3,231,281	92,195	0.03	3,334	88,861
BMO Capital Markets, NY	2,853,374	82,538	0.03	2,984	79,554
J.P. Morgan Securities, NY	2,878,556	76,028	0.03	2,749	73,279
Jefferies & Co. Inc., NY	3,175,568	72,550	0.02	2,623	69,926
Morgan Stanley & Co. Inc., NY	5,478,107	63,688	0.01	2,303	61,385
Merrill Lynch Pierce Fenner Smith Inc., NY	4,856,401	59,413	0.01	2,148	57,265
Investment Tech Group Inc., NY	2,363,916	56,380	0.02	2,039	54,341
Weeden & Co. Inc., NY	3,713,418	50,967	0.01	1,843	49,124
Citigroup Global Markets Inc., NY	1,851,474	49,822	0.03	1,801	48,021
ITG Inc., NY	1,290,450	46,339	0.04	1,676	44,663
ISI Group Inc., NY	1,460,279	42,989	0.03	1,554	41,435
Instinet Corporation, NY	1,149,111	42,329	0.04	1,531	40,799
Credit Suisse (Europe), London	2,670,431	40,634	0.02	1,469	39,164
Merrill Lynch International, London	2,886,844	40,598	0.01	1,468	39,130
UBS Securities LLC, Stamford	2,349,379	38,456	0.02	1,390	37,065
Instinet Clearing Services Inc., NY	1,976,900	38,410	0.02	1,389	37,021
Sanford Bernstein & Company, NY	2,612,322	35,122	0.01	1,270	33,852
J.P. Morgan Securities Ltd., London	3,698,782	29,008	0.01	1,049	27,959
Robert W Baird & Co. Inc., Milwaukee	879,338	28,683	0.03	1,037	27,646
Barclays Capital Inc., New Jersey	2,088,143	26,954	0.01	975	25,980
Liquidnet Inc., NY	1,332,309	25,942	0.02	938	25,004
Guzman and Company, NY	1,269,813	25,396	0.02	918	24,478
Cowen and Company, Jersey City	1,080,085	25,382	0.02	918	24,464
Others (including 154 brokerage firms)	34,504,411	670,046	0.02	24,228	645,818
	101,807,275	$ 1,996,740		$ 72,199	$ 1,924,541

Totals may not add due to rounding.

SCHEDULE OF INVESTMENT FEES

(as of June 30, 2019)

	Market Value	Fee	Basis Points	ASPRS Market Value	ASPRS Fee	APERS Market Value	APERS Fee
Domestic Equity							
MCM S&P 500 Index Fund	$ 448,167,755	$ 73,884	0.02	$ 16,205,074	$ 2,672	$ 431,962,681	$ 71,212
MCM RU2000 Value Fund	0	0		0	0	0	0
LSV Asset Mgmt.	251,494,446	1,383,254	0.55	9,093,662	50,016	242,400,784	1,333,238
CastleArk Mgmt.	570,170,692	1,736,096	0.30	20,616,517	62,775	549,554,175	1,673,322
Golden Capital Mgmt.	205,269,013	441,192	0.21	7,422,220	15,953	197,846,793	425,239
INTECH	517,124,040	1,828,203	0.35	18,698,430	66,105	498,425,610	1,762,097
Wellington Mgmt. Co.	437,884,023	1,193,861	0.27	15,833,229	43,168	422,050,794	1,150,693
* Westwood Mgmt.	0	146,345		0	5,292	0	141,053
Lazard Asset Mgmt.	382,427,748	1,061,900	0.28	13,828,014	38,397	368,599,734	1,023,503
SSI Investment Mgmt.	306,415,010	1,161,454	0.38	11,079,507	41,996	295,335,503	1,119,458
Horrell Capital Mgmt.	130,106,814	212,634	0.16	4,704,467	7,689	125,402,347	204,946
Stephens Inv. Mgmt. Group	368,433,388	2,275,950	0.62	13,321,999	82,295	355,111,389	2,193,655
	$ 3,617,492,929	$ 11,514,773		$ 130,803,118	$ 416,357	$ 3,486,689,811	$ 11,098,416
International Equity							
Mellon ACWI ex-US Fund	$ 794,473,323	$ 310,884	0.04	$ 28,726,964	$ 11,241	$ 765,746,359	$ 299,643
Lazard Asset Mgmt.	483,986,185	1,457,557	0.30	17,500,214	52,703	466,485,971	1,404,854
Artisan Partners	459,294,397	2,387,819	0.52	16,607,396	86,340	442,687,001	2,301,479
Baillie Gifford	465,890,062	1,789,027	0.38	16,845,886	64,689	449,044,176	1,724,339
*# Manning & Napier	1,072,794	0	0.00	38,791	0	1,034,003	0
*# Fidelity	0	532,444		0	19,252	0	513,192
	$ 2,204,716,761	$ 6,477,731		$ 79,719,251	$ 234,225	$ 2,124,997,510	$ 6,243,506
Fixed Income							
Doubleline Capital	$ 461,936,239	$ 785,452	0.17	$ 16,702,921	$ 28,401	$ 445,233,318	$ 757,052
MacKay Shields CP II	487,126,183	927,390	0.19	17,613,752	33,533	469,512,431	893,857
Prudential Investments	505,935,513	947,950	0.19	18,293,869	34,276	487,641,644	913,673
	$ 1,454,997,935	$ 2,660,792		$ 52,610,543	$ 96,210	$ 1,402,387,392	$ 2,564,582
Real Assets							
INVESCO Real Estate	$ 468,192,067	$ 1,564,049	0.33	$ 16,929,123	$ 56,554	$ 451,262,944	$ 1,507,496
*# INVESCO Global REITs	0	0		0	0	0	0
MCM REIT Index Fund	156,782,271	79,847	0.05	5,669,012	2,887	151,113,259	76,960
+ TA Associates Realty Fund X	14,029,938	801,851	5.72	507,302	28,994	13,522,636	772,857
+ TA Associates Realty Fund XI	52,058,140	1,396,286	2.68	1,882,344	50,488	50,175,796	1,345,798
++ TA Associates Realty Fund XII	0	283,334	n/a	0	10,245	0	273,089
CastleArk Mgmt. Global Energy Fund	44,939,735	468,913	1.04	1,624,953	16,955	43,314,782	451,958
CastleArk Mgmt. Global Energy Plus	128,955,419	1,506,824	1.17	4,662,835	54,485	124,292,584	1,452,340
Pinnacle Forest Investments	90,836,191	836,652	0.92	3,284,500	30,252	87,551,691	806,400
Heitman Real Estate Trust LP	320,985,082	2,245,677	0.70	11,606,339	81,200	309,378,743	2,164,477
+ Heitman Value Partners	14,529,422	132,642	0.91	525,362	4,796	14,004,060	127,846
+ LaSalle Inc & Growth VI LP	11,429,954	125,694	1.10	413,290	4,545	11,016,664	121,149
+ LaSalle Inc & Growth VII LP	32,919,815	443,837	1.35	1,190,331	16,048	31,729,484	427,788
	$ 1,335,658,034	$ 9,885,606		$ 48,295,391	$ 357,449	$ 1,287,362,643	$ 9,528,157
Diversified Strategies							
AQR Capital	$ 144,106,639	$ 861,408	0.60	$ 5,210,680	$ 31,147	$ 138,895,959	$ 830,261
Blackstone Hedge	186,771,753	1,811,441	0.97	6,753,386	65,499	180,018,367	1,745,942
Newton Capital	122,274,593	718,893	0.59	4,421,266	25,994	117,853,327	692,899
	$ 453,152,985	$ 3,391,742		$ 16,385,332	$ 122,640	$ 436,767,653	$ 3,269,102
Other Investment Service Fees							
Bank of New York Mellon (Custodian)		$ 504,279			$ 18,234		$ 486,045
Callan Associates (Consultant)		301,085			10,887		290,198
Total Investment Service Fees		$ 34,736,009			$1,256,002		$ 33,480,007

* Terminated manager / # terminated strategy / + management fee is base fee plus performance fee. / ++ management fee accrued- new account to be funded

ACTUARIAL

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ACTUARY'S CERTIFICATE LETTER

800.521.0498 | P: 248.799.9000 | F: 248.799.9020 | www.grsconsulting.com

November 22, 2019

Board of Trustees
Arkansas State Police Retirement System
Little Rock, Arkansas

Dear Board Members:

The basic financial objective of the Arkansas State Police Retirement System (ASPRS) as provided in the Arkansas Code is to establish and receive contributions which, expressed as percents of active member payroll, will remain approximately level from generation to generation of Arkansas citizens and when combined with present assets and future investment return will be sufficient to meet the financial obligations of ASPRS to present and future benefit recipients. The progress towards meeting this financial objective is illustrated in the Schedule of Funding Progress and the Schedule of Employer Contributions.

We performed an actuarial valuation and issued an actuarial valuation report for ASPRS as of June 30, 2019. The purpose of the June 30, 2019 annual actuarial valuation was to determine the contribution requirement for the fiscal year ending June 30, 2020 and to measure the System's funding progress. The actuarial valuation report should not be relied upon for any other purpose. The valuation process develops contribution rates that are sufficient to fund the plan's normal cost (i.e., the cost assigned by the valuation method to the year of service about to be rendered) as well as to fund unfunded actuarial accrued liabilities as a level percent of active member payroll over a period of up to thirty years. The most recent valuations were completed based upon population data, asset data, and plan provisions as of June 30, 2019. In addition, a separate report will be issued to provide actuarial information for GASB Statement No. 67 and GASB Statement No. 68.

The ASPRS administrative staff provides the actuary with data for the actuarial valuation. The actuary relies on the data after reviewing it for internal and year-to-year consistency. The actuary summarizes and tabulates population data in order to analyze longer term trends. We are not responsible for the accuracy or completeness of the data provided by staff.

The actuarial valuation report and GASB Statement Nos. 67 and 68 report contain the following supporting schedules for use in the Actuarial and Financial Sections of the Comprehensive Annual Financial Report:

Actuarial Section

- Summary of Assumptions Used
- Summary of Actuarial Methods and Assumptions
- Active Member Valuation Data
- Short Condition Test
- Analysis of Financial Experience
- Analysis of Financial Experience – Gains and Losses by Risk Area

One Towne Square | Suite 800 | Southfield, Michigan 48076-3723

Board of Trustees
November 22, 2019
Page 2

Financial Section

Schedule of Funding Progress
Schedule of Changes in Net Pension Liability and Related Ratios
Schedule of the Net Pension Liability
Schedule of Contributions
Notes to Schedule of Contributions

For actuarial valuation purposes, assets are valued on a market related basis that recognizes each year's difference between actual and assumed investment return over a closed four-year period.

Actuarial valuations are based upon assumptions regarding future activity in specific risk areas including the rates of investment return and payroll growth, eligibility for the various classes of benefits, and longevity among retired lives. These assumptions are adopted by the Board after considering the advice of the actuary and other professionals. The assumptions and the methods comply with the requirements of the Actuarial Standards of Practice. Each actuarial valuation takes into account all prior differences between actual and assumed experience in each risk area and adjusts the contribution rates as needed. The June 30, 2019 valuations were based upon assumptions that were recommended in connection with a study of experience covering the period 2012-2017. The investment return assumption was changed for the June 30, 2017 valuation and the demographic assumptions were changed for the June 30, 2018 valuation.

The computed employer contribution rate to satisfy the statutory funding requirements set forth in Section 24-6-209 of the Arkansas Code is 50.69% of covered payroll for the year beginning July 1, 2019. Actual revenues were greater than the statutory requirement for the last 10 years. ***ASPRS' on-going ability to satisfy statutory funding requirements is dependent upon its access to sufficient annual transfers from the remainder of insurance premium taxes enumerated in A.C.A.19-6-301(27) to finance unfunded actuarial accrued liabilities over a closed period of 20 years.***

Future actuarial measurements may differ significantly from those presented in the annual valuations due to such factors as experience differing from that anticipated by actuarial assumptions, or changes in plan provisions, actuarial assumption/methods or applicable law. Due to the limited scope of the assignment, we did not perform an analysis of the potential range of future measurements.

The signing individuals are independent of the plan sponsor.

Mita D. Drazilov and Heidi G. Barry are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,

Mita D. Drazilov, ASA, FCA, MAAA

Heidi G. Barry, ASA, FCA, MAAA

David L. Hoffman

SUMMARY OF ACTUARIAL ASSUMPTIONS*

Economic Assumptions

The investment return assumption used in making the valuation was 7.15% per year, compounded annually (net after investment expenses). The assumed real rate of return is the portion of investment return which is more than the wage inflation rate. Considering assumed wage inflation of 3.25%, the 7.15% investment return rate translates to an effective assumed real rate of return of 3.90%. The wage inflation assumption was revised for the June 30, 2015 valuation and the investment return assumption was revised for the June 30, 2017 valuation.

Pay increase assumptions for individual active members are shown on page D-5. Part of the assumption for each age is for a merit and/or seniority increase, and the other 3.25% recognizes wage inflation. The wage inflation assumption consists of 2.5% for price inflation and 0.75% for real wage growth. The pay increase assumption for individual active members was revised for the June 30, 2018 valuation.

Total active member payroll is assumed to increase 3.25% a year, which is the portion of the individual pay increase assumptions recognizing wage inflation.

The number of active members is assumed to continue at the present number.

Non-Economic Assumptions

The mortality tables used to measure retired life mortality were the RP-2006 Healthy Annuitant benefit weighted generational mortality tables for males and females. The disability post-retirement mortality tables used were the RP-2006 Disabled Retiree benefit weighted generational mortality tables for males and females. The death-in-service mortality tables used were the RP-2006 Employee benefit weighted generational mortality tables for males and females. Mortality rates are multiplied by 135% for males and 125% for females and are adjusted for fully generational mortality improvements using Scale MP-2017. This assumption was first used for the June 30, 2018 valuation.

The probabilities of retirement for members eligible to retire are shown on page D-4. The assumption was revised for the June 30, 2018 valuation.

The probabilities of death-in-service, disability and withdrawal from service are shown for sample ages on page D-5. The assumption for death-in-service was revised for the June 30, 2018 valuation.

The individual entry-age normal actuarial cost method of the valuation was used in determining liabilities and normal cost.

*The data referenced in this section is taken from the actuary's report, *Arkansas State Police Retirement System Actuarial Valuation and the Gain/(Loss) Analysis of Experience, June 30, 2019*, prepared by Gabriel Roeder Smith & Co. A PDF copy of the report is available for download at www.apers.org.

Differences in the past between assumed experience and actual experience ("actuarial gains and losses") become part of actuarial accrued liabilities.

Unfunded actuarial accrued liabilities are amortized to produce contribution amounts (principal & interest) which are level percent-of-payroll contributions.

Present assets (cash & investments) were valued on a market related basis in which differences between actual and assumed returns are phased-in over a four-year period.

The data about persons now covered and about present assets was furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the Actuary.

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (MAAA).

SUPPLEMENTARY INFORMATION

The information presented in the required supplementary schedules was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest valuation date follows:

Valuation Date	June 30, 2019
Actuarial Cost Method	Entry Age Normal Cost
Amortization Method	Level Percent-of-Payroll
Remaining Amortization Period	20-Year Closed
Asset Valuation Method	4-Year Smoothed Market
Actuarial Assumptions:	
Investment Rate of Return	7.15%
Projected Salary Increases	3.55% - 7.75%
Including Wage Inflation at	3.25%
Cost-of-Living Adjustments	3.0% Annual Compound Increases
Retirees and Beneficiaries Receiving Benefits	679
Terminated Plan Members Entitled to But Not Yet Receiving Benefits	102
DROP Members	56
Active Plan Members	473
Total	1,310

SINGLE LIFE RETIREMENT VALUES

Sample Attained Ages	Present Value of $1.00 Monthly for Life		Present Value of $1.00 Monthly for Life Increasing 3% Annually		Future Life Expectancy (Years)	
	Men	Women	Men	Women	Men	Women
40	$ 155.95	$ 159.83	$ 229.08	$ 238.82	40.95	44.65
45	150.79	155.81	216.05	227.39	36.05	39.68
50	144.25	150.39	201.04	213.71	31.29	34.76
55	136.19	143.20	184.15	197.58	26.72	29.92
60	126.37	134.24	165.39	179.36	22.37	25.28
65	114.67	123.34	144.96	159.19	18.29	20.89
70	100.85	110.01	122.95	136.86	14.49	16.73
75	84.87	94.21	99.71	112.84	11.01	12.88
80	67.56	76.68	76.54	88.45	7.95	9.47
85	50.51	58.87	55.34	65.57	5.44	6.62

Sample Attained Ages	$100 Benefit Increasing 3% Yearly
55	$ 100.00
60	115.93
65	134.39
70	155.79
75	180.60
80	209.36

SEPARATIONS FROM ACTIVE EMPLOYMENT BEFORE AGE AND SERVICE RETIREMENT AND INDIVIDUAL PAY INCREASES

(as of June 30, 2019)

Sample Ages	Percentage of Active Members Separating Within the Next Year				Pay Increase Assumptions for Active Members		
	Death						
	Men	Women	Disability	Other	Merit & Seniority	Base (Economic)	Increase Next Year
20	0.05%	0.02%	0.06%	5.50%	4.50%	3.25%	7.75%
25	0.07	0.02	0.09	5.50	3.90	3.25	7.15
30	0.07	0.03	0.19	5.50	2.90	3.25	6.15
35	0.08	0.04	0.31	4.18	1.90	3.25	5.15
40	0.09	0.06	0.43	2.64	1.38	3.25	4.63
45	0.13	0.08	0.55	1.43	1.10	3.25	4.35
50	0.23	0.14	0.67	0.55	0.80	3.25	4.05
55	0.38%	0.22%	0.79%	0.00%	0.60%	3.25%	3.85%

PROBABILITIES OF RETIREMENT FOR MEMBERS ELIGIBLE TO RETIRE

(as of June 30, 2019)

Retirement Ages	Percent of Eligible Active Members Retiring Within Next Year		Years of Service	Percent of Eligible Active Members Retiring Within Next Year
	Tier One	Tier Two		Tier Two
47	1%			
48	1			
49	1			
50	6	1%	30	25%
51	6	1	31	15
52	8	1	32	15
53	8	6	33	20
54	8	6	34	35
55	10	25	35	40
56	10	20	36 & Over	100%
57	10	18		
58	25	18		
59	40	20		
60	50	25		
61	60	30		
62	80	100		
63	80	100		
64	100	100		
65	100%	100%		

A member is assumed to be eligible to retire at age 52 (55 for Tier Two) with 17 years of service, or at any age with 30 years of service (Tier Two). A member is assumed to be eligible to retire early at age 47 (50 for Tier 2) with 17 years of service. For a Tier 2 member with 30 or more years of service at the beginning of a year, the percentages shown for service based retirement (30 or more years) take precedence over the percentages associated with age based retirement.

It was assumed that members eligible to enter the DROP will do so to maximize the value of their benefits.

ACTIVE MEMBERS IN ACTUARIAL VALUATION
(as of June 30, 2019)

		Group Averages		
June 30	Number*	Age	Service	Pay
2010	545	42.0	14.3	$ 52,318
2011	530	42.0	14.4	52,950
2012	534	41.6	13.9	53,236
2013	525	41.6	13.9	53,344
2014	530	41.6	13.9	53,866
2015	558	41.0	13.0	53,637
2016	554	40.9	13.1	53,156
2017	528	41.7	13.8	55,070
2018	528	41.4	12.7	56,048
2019	529	41.0	12.5	$ 57,255

* Includes DROP participants.

TIER ONE AND TIER TWO PARTICIPANTS
(as of June 30, 2019)

		Group Averages		
	Number	Age	Service	Pay
Tier One	31	50.2	22.8	$ 73,823
Tier One - DROP	56	56.3	28.3	76,832
Tier Two	442	38.5	9.8	53,612
Total	529	41.0	12.5	$ 57,255

SHORT CONDITION TEST

The Arkansas SPRS funding objective is to meet long-term benefit promises through contributions that remain approximately level from year-to-year as a percent of member payroll. If the contributions to the System are level in concept and soundly executed, the System will pay all promised benefits when due -- the ultimate test of financial soundness. Testing for level contribution rates is the long-term test.

A short condition test is one means of checking a system's progress under its funding program. In a short condition test, the system's present assets (cash and investments) are compared with

- Member accumulated contributions;
- The liabilities for future benefits to present retired lives; and
- The employer financed portion of liabilities for service already rendered by nonretired members.

In a system that has been following the discipline of level percent-of-payroll financing, active member contributions (liability 1) and the liabilities for future benefits to present retired lives (liability 2) will be fully covered by valuation assets (except in rare circumstances). In addition, the liabilities for service already rendered by active members (liability 3) will be partially covered by the remainder of valuation assets. The larger the funded portion of liability 3, the stronger the condition of the system.

Ten-Year Comparative Statement
(dollars in millions)

Valuation Date: June 30	Entry Age Accrued Liability (1) Active Member Contributions	(2) Retirees and Beneficiaries	(3) Active Members (Employer Financed Portion)	Valuation Assets	Portion of Present Values Covered By Valuation Assets (1)	(2)	(3)	Total
	($ in Millions)							
2010	$ 0.35	$ 179.38	$ 153.87	$ 211.07	100%	100%	20%	63%
2011	0.28	205.40	137.53	208.05	100	100	2	61
2012	0.31	217.64	137.35	215.01	100	99	0	61
2013@	0.53	227.80	133.13	233.15	100	100	4	65
2014@	0.50	237.17	144.19	259.46	100	100	15	68
2015*	0.37	252.79	145.80	274.83	100	100	15	69
2016	0.57	260.49	147.68	297.91	100	100	19	71
2017@	0.57	273.86	154.62	305.85	100	100	20	71
2018	0.62	284.61	157.70	319.79	100	100	22	72
2019	$ 0.57	$ 296.12	$ 157.93	$ 335.97	100%	100%	25%	74%

@ After changes in actuarial assumptions and/or methods
* (1) was estimated based on reported member contribution balances received by the actuary from ASPRS.

DERIVATION OF EXPERIENCE GAIN/(LOSS)
(as of June 30, 2019)

Actual experience will not (except by coincidence) match assumed experience. Gains and losses often cancel each other over a period of years, but sizable year-to-year fluctuations are common. Detail on the derivation of the experience gain/loss is shown below.

		(dollar figures in 1000's)
1.	UAAL* at Start of Year (after adoption of new assumptions)	$ 123,140
2.	Normal Cost from Last Valuation	6,644
3.	Employer Contributions	21,254
4.	Interest accrual: (1) x 0.0715 + ((2) - (3)) x 0.03575	8,282
5.	Expected UAAL Before Changes: (1) + (2) - (3) + (4)	116,812
6.	Change for Revised Actuarial Assumptions and/or Valuation Methods	0
7.	Change from Benefit Changes	0
8.	Expected UAAL After Changes: (5) + (6) + (7)	116,812
9.	Actual UAAL at End of Year	118,646
10.	Gain/loss: (8) - (9)	$ (1,834)
11.	Gain/Loss as Percentage of Actuarial Accrued Liabilities at Start of Year	(0.4)%

* Unfunded Actuarial Accrued Liability

ANALYSIS OF EXPERIENCE - GAINS/(LOSSES) BY RISK AREA

(during the period July 1, 2018 to June 30, 2019)

Type of Risk Area	Gain/Loss in Period: Total ($ in millions)	Gain/Loss in Period: % of Accrued Liabilities
Economic Risk Areas		
Pay Increases: If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	$ (0.4)	(0.1)%
Investment Return: If there is greater recognized investment return than assumed, there is a gain. If less return, a loss.	(2.3)	(0.5)
Non-Economic Risk Areas		
Age & Service Retirements: If members retire at older ages or with lower final average pays than assumed, there is a gain. If they retire at younger ages or higher average pays, a loss.	(0.1)	(0.0)
Disability Retirements: If there are fewer disabilities than assumed, there is a gain. If more, a loss.	0.1	0.0
Death-in-Service Benefits: If there are fewer claims than assumed, there is a gain. If more, a loss.	(0.3)	0.1
Withdrawal: If more liabilities are released by other separations than assumed, there is a gain. If smaller releases, a loss.	0.1	0.0
Actuarial Gains/(Losses)	$ (2.9)	(0.7)
Other (gains and losses resulting from group size change, data adjustments, timing of financial transactions, and retiree mortality)	1.1	0.3
Total Actuarial Gains/Losses	$ (1.8)	(0.4)%

STATISTICAL

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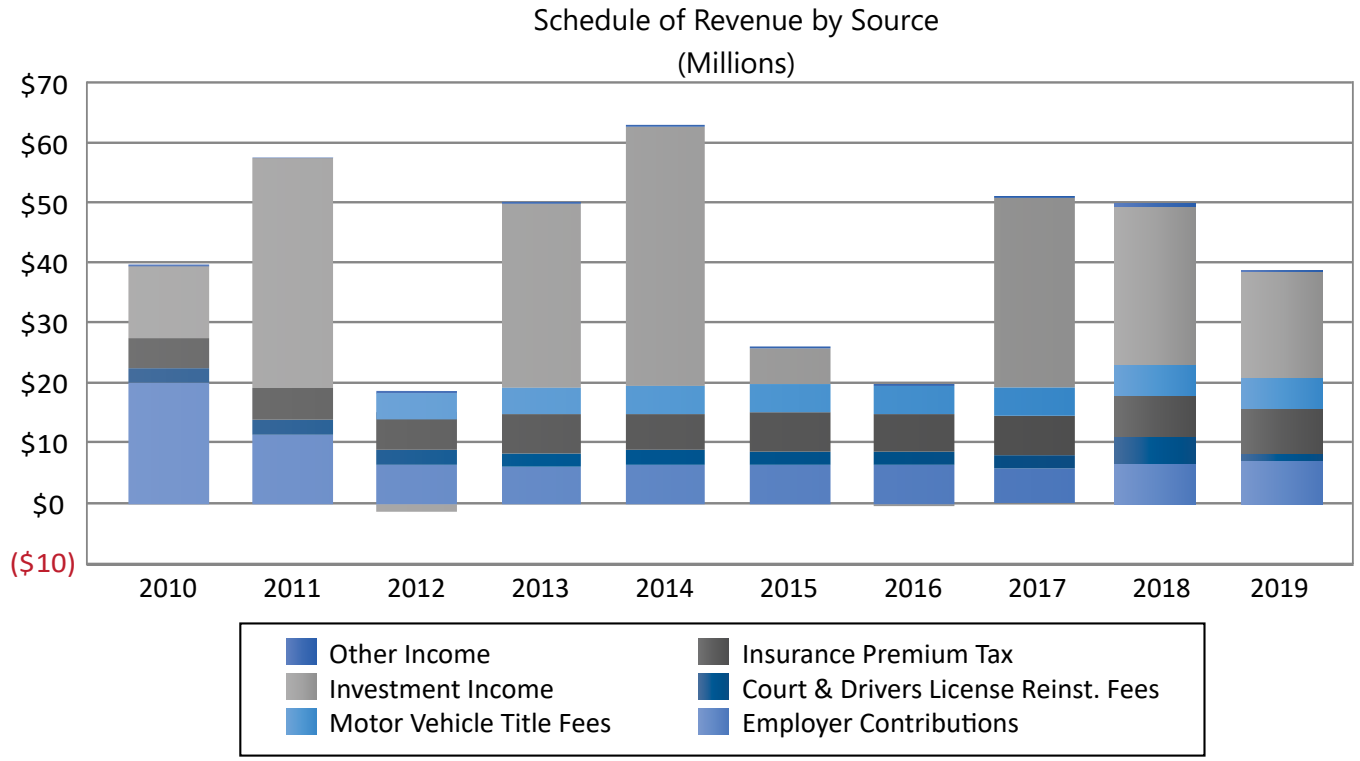
SCHEDULE OF REVENUES BY SOURCE

(for the fiscal year ended June 30, 2019)

	Employer Contributions	Court & Driver's License Reinst. Fees	Insurance Premium Tax	Motor Vehicle Title Fees	Investment Income	Other Income	Total
2010	$ 20,547,457	$ 2,682,529	$ 5,285,153	$ 0	$ 15,965,604	$ 63,621	$ 39,259,211
2011	11,434,257	2,675,335	5,232,634	0	43,395,542	18,470	57,523,604
2012	6,525,196	2,525,594	6,250,117	4,246,637	(1,302,063)	118,334	18,363,815
2013	6,183,721	2,111,570	6,697,200	4,356,659	30,531,555	124,067	50,004,772
2014	6,405,887	2,657,952	5,957,541	4,442,806	43,307,745	37,499	62,809,430
2015	6,409,752	2,234,350	6,574,376	4,565,652	6,131,684	94,820	26,010,634
2016	6,581,580	2,206,082	6,233,769	4,661,683	(210,045)	30,181	19,503,250
2017	6,416,736	2,139,475	6,693,915	4,667,895	31,484,250	43,045	51,445,316
2018	6,515,063	2,580,695	7,109,703	4,664,315	28,823,333	133,871	49,826,982
2019	$ 6,727,409	$ 1,864,132	$ 8,035,962	$ 4,598,976	$ 17,031,466	$ 27,532	$ 38,285,476

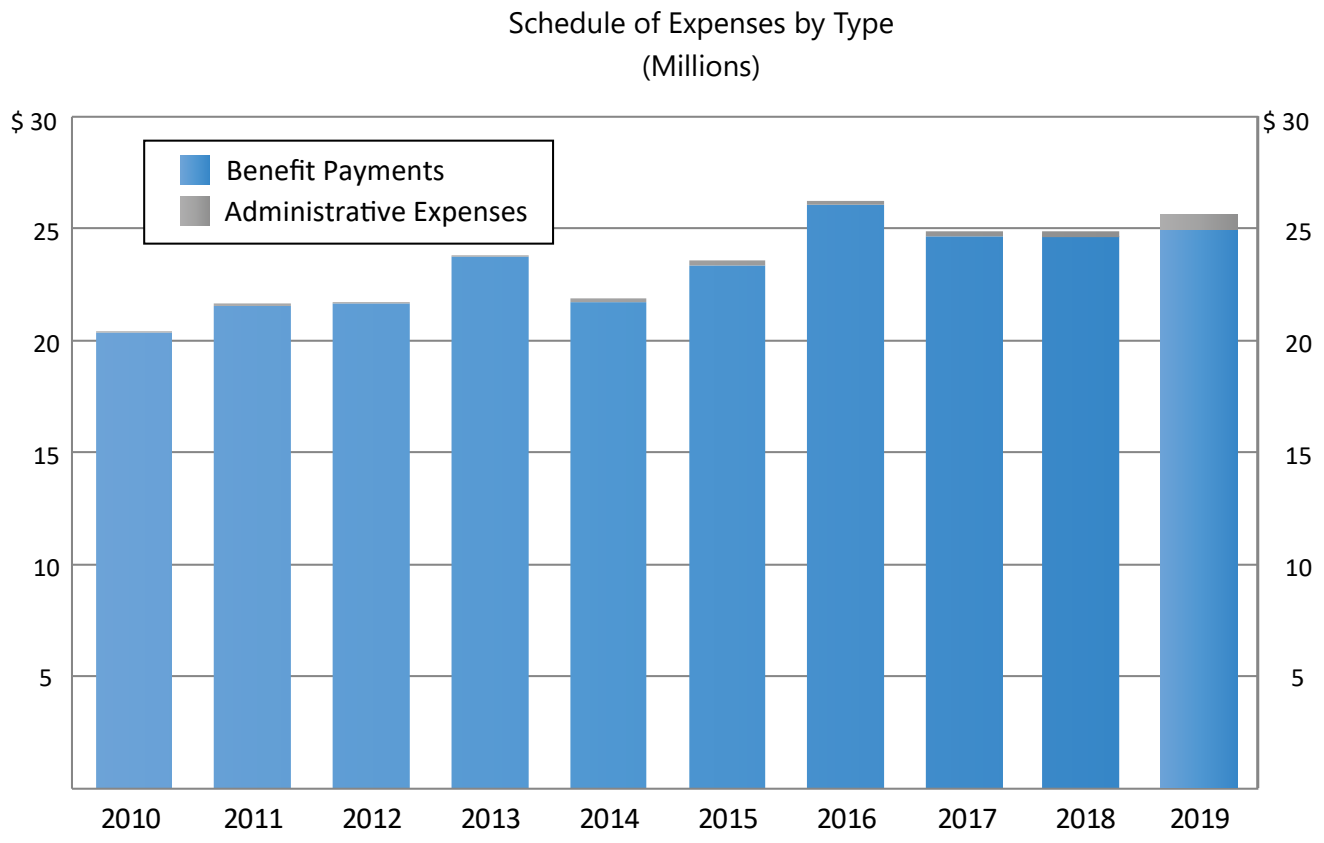


SCHEDULE OF EXPENSES BY TYPE

(for the fiscal year ended June 30, 2019)

Year Ended June 30	Benefit Payments*	Administrative Expenses	Total
2010	$ 20,319,683	$ 79,878	$ 20,399,561
2011	21,560,127	83,234	21,643,361
2012	21,649,158	80,842	21,730,000
2013	23,717,503	97,181	23,814,684
2014	21,688,239	189,658	21,877,896
2015	23,358,801	196,231	23,555,032
2016	26,035,466	205,342	26,240,808
2017	24,631,787	208,424	24,840,211
2018	24,185,419	228,430	24,413,849
2019	$ 24,930,274	$ 554,441	$ 25,484,715

*Includes DROP and PAW distributions.

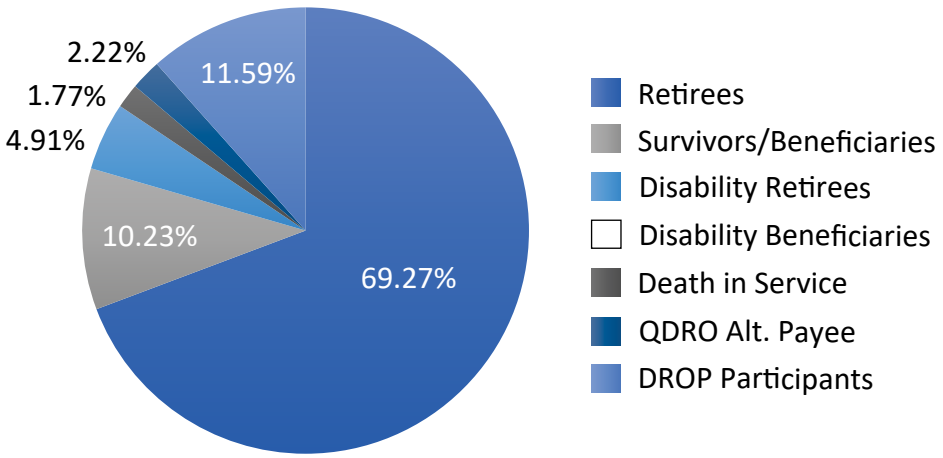


SCHEDULE OF BENEFIT EXPENSES BY TYPE*

(for the fiscal year ended June 30, 2019)

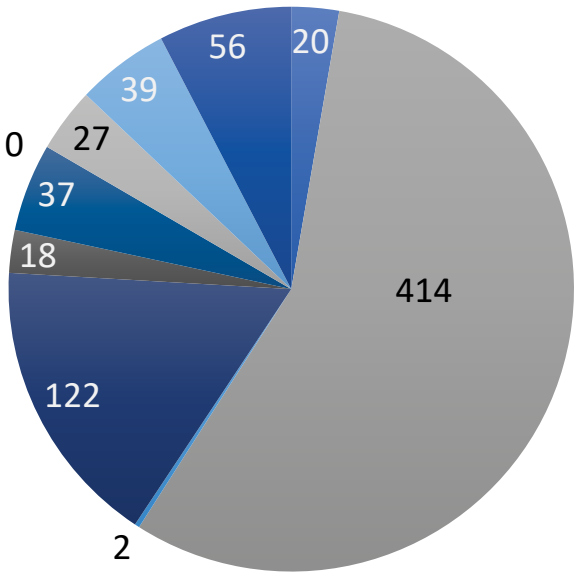
Year Ended June 30	Age and Service		Disability				
	Retirees	Beneficiaries	Retirees	Beneficiaries**	Death in Service**	QDRO Alternative Payees	DROP Participants
2010	$ 13,646,899	$ 1,113,108	$ 18,793,560	$	$ 90,312		$
2011	14,905,638	1,708,748	20,302,152		93,024		
2012	16,106,010	1,803,169	21,950,568		91,092		
2013	16,901,590	1,950,945	26,158,872		93,828		
2014	17,368,858	2,034,215	27,648,624		74,640		
2015	17,963,207	2,325,900	1,016,556	13,944	76,872	471,880	3,126,156
2016	18,805,319	2,355,686	1,064,772	14,364	79,188	532,792	3,434,940
2017	18,769,461	2,320,702	1,350,504	7,140	491,004	607,318	3,281,616
2018	19,037,338	2,702,300	1,400,784	7,368	508,092	634,167	3,630,132
2019	$ 19,922,625	$ 2,942,626	$ 1,413,720	$ 0	$ 510,120	$ 637,202	$ 3,334,908

*Expenses are based on annualized June 30 benefits amounts.
**Prior to 2015, disability beneficiaries were reported in the same category as death-in-service beneficiaries.



SCHEDULE OF RETIRED MEMBERS BY TYPE OF BENEFIT
(as of June 30, 2019)

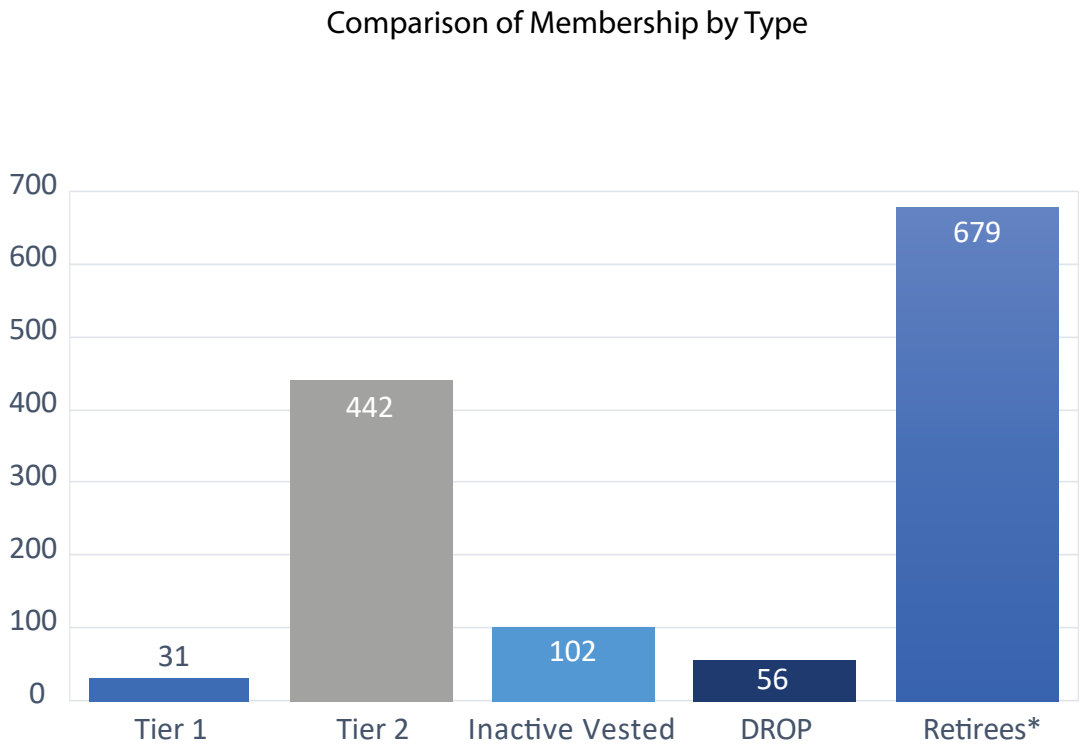
Type of Benefit Being Paid	Number	Annual Pensions	Actuarial Accrued Liability
Age & Service Retirees			
Life	20	$ 423,960	$ 5,893,638
B-50	414	19,485,729	233,110,612
B-75	2	12,936	193,857
Totals	436	19,922,625	239,198,107
Beneficiaries of Age & Service Retirees			
B-50	122	2,942,626	26,505,948
Total Age & Service Retirees	558	22,865,251	265,704,055
Disability Retirees			
Life	18	292,056	3,684,877
B-50	37	1,121,664	13,207,335
Totals	55	1,413,720	16,892,212
Beneficiaries of Disability Retirees	0	0	0
Total Disability Retirees & Beneficiaries	55	1,413,720	16,892,212
Death-in-Service Beneficiaries	27	510,120	5,374,399
QDRO Alternate Payees	39	637,202	8,145,914
Total Retirees & Beneficiaries	679	25,426,293	296,116,580
DROP Participants (excluding DROP reserve)	56	3,334,908	53,479,946
Total Retirees, Beneficiaries and DROP Participants	735	$ 28,761,201	$ 349,596,526



- Age & Service Retirees: STRAIGHT LIFE
- Age & Service Retirees: B-50 OPTION
- Age & Service Retirees: B-75 OPTION
- Age & Service Ret-Beneficiaries: B-50
- Disability Retirees: STRAIGHT LIFE
- Disability Retirees: B-50
- Disability Ret-Beneficiaries (0)
- Death-in-Service Beneficiaries
- QDRO Alternate Payees
- DROP Participants*

**Not including DROP reserves*

STATISTICAL GRAPHS



**Including Disability Recipients and Death-in-Service Beneficiaries*