



Arkansas State Police Retirement System

Annual Comprehensive Financial Report
for Fiscal Year 2022

**Arkansas State Police Retirement System
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For Fiscal Year 2022

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ASPRS

ARKANSAS STATE POLICE
RETIREMENT SYSTEM

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Introduction

A Brief History of ASPRS

System Highlights

Troop Headquarters

Letter of Transmittal

Board of Trustees

Senior Staff

Professional Service Providers



A Brief History of ASPRS

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

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, 2021, through June 30, 2022, 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

(for the fiscal year ended June 30, 2022)

Active Members *(excludes DROP participants)*

	Tier I	Tier II
Number	14	457
Average Age	51.5	38.8
Average Years' Service	25.7	10.5
Average Annual Salary	\$ 86,803	\$ 60,201

Inactive Vested Members

Number	115
--------	-----

Members Who Retired or Entered DROP in Fiscal 2022

	Age & Service	Disability
Retired Members	39	2
Average Age	56.12	37.5
Average Credited Years' Service	22.35	11
Average Monthly Benefit	\$ 3,293	\$1,874

Total Retirees & Beneficiaries *(includes DROP participants, disability recipients, and death-in-service beneficiaries)*

Retired Members and Beneficiaries	764
Average Monthly Benefit	\$ 3,325

Troop Headquarters

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

Troop "B" 870-523-2701
3200 Highway 367 North, 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 David Williams - Commander

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

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

Troop "H" 479-783-5195
5728 Kelley Highway, Fort Smith, AR 72914
Captain Chris Goodman - 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 Scott Joe - Commander

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



May 2, 2023

Dear ASPRS Members:

We are pleased to present the *Arkansas State Police Retirement System Annual Comprehensive Financial Report for Fiscal 2022*. The report is designed to provide a clear and concise picture of the financial conditions of the Arkansas State Police Retirement System (ASPRS or the system). The report includes the following six sections:

- The Introduction contains the administrative organization and the executive letter;
- 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.

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 11 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 11 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,



Scott Joe, Chair
Arkansas State Police Retirement System
Board of Trustees



Amy Fecher, Executive Secretary
Arkansas State Police Retirement System
Board of Trustees

Board of Trustees

Lieutenant Scott Joe - Chair

Hot Springs, Active Tier II Member
Expiration of Term - July 1, 2026

Mr. Phillip Milligan - Vice Chair

Fort Smith, Citizen-at-Large
Expiration of Term - July 1, 2025

Ms. Denise Bugos

Bentonville, Citizen-at-Large
Expiration of Term - July 1, 2026

Mr. Donny Underwood

Marion, Citizen-at-Large
Expiration of Term - July 1, 2021

Captain Kyle Drown

Clarksville, Active Tier I Member
Expiration of Term - July 1, 2029

Dr. John Shelnett

Little Rock, Designee of the Chief Fiscal Officer
for the State of Arkansas
Expiration of Term - Ex-Officio

Mr. John Allison

Conway, State Police Commissioner
Expiration of Term - July 1, 2024

Senior Staff

Amy Fecher

Executive Secretary

Allison Woods

Deputy Director of Benefits

Carlos Borromeo

Deputy Director of Investments and Finance

Jason Willett

Chief Fiscal Officer

Laura Gilson

General Counsel

Phillip Norton

Director of Information Technology

Jennifer Taylor

Director of Benefits Administration

Patty Shipp

Assurance Officer

Jon Aucoin

Communications Manager

Jacobia Bates

Education Services Manager

Cheryl Wilburn

Benefits Operations Manager

Tammy Shadwick

Human Resources Manager

Shelly George

Employer Reporting Manager

Professional Service Providers

Custodian Bank

The Bank of New York Mellon
Pittsburgh, PA 15258

Actuary

Gabriel, Roeder, Smith & Co.
Southfield, MI 48076

Investment Consultant

Callan Associates, Inc.
Chicago, IL 60602

Investment Managers

Acadian Asset Management
Boston, MA 02110

AQR Capital Management
Greenwich, CT 06830

Artisan Partners
Milwaukee, WI 53202

Baillie Gifford Overseas Ltd.
Edinburgh, Scotland

Blackstone Alternative Asset Management, LP
New York, NY 10154

CastleArk Management, LLC
Chicago, IL 60606

DoubleLine Capital
Los Angeles, CA 90071

Franklin Templeton Institutional
Coral Gables, FL

Harrison Street Real Estate Partners
Chicago, IL 60606

Heitman America Real Estate
Chicago, IL 60606

Horrell Capital Management
Little Rock, AR 72211

INTECH
West Palm Beach, FL 33401

International Farmland Corporation
Kinston, NC 28504

Invesco Real Estate
Dallas, TX 75240

LaSalle Investment Management
San Francisco, CA 94111

Lazard Asset Management
New York, NY 10020

LSV Asset Management
Chicago, IL

MacKay Shields
New York, NY 10105

Mellon Capital
Pittsburgh, PA 15258

Newton Capital Management
New York, NY 10166-0005

PGIM U.S. Agriculture
San Francisco, CA 94111

Pinnacle Forest Investments, LLC
Little Rock, AR 72211

PGIM, Inc.
Newark, NJ 07102

SSI Investment Management
Beverly Hills, CA 90210

Starwood Management LLC
Los Angeles, CA 90025

Stephens Investment Management Group
Houston, TX 77046

TA Associates Realty
Boston, MA 02109

Wellington Management Company
Boston, MA 02210



Financial

Management's Discussion and Analysis

Basic Financial Statements

Statement of Fiduciary Net Position

Statement of Changes in Fiduciary Net Position

Notes to the Financial Statements

Note 1: Plan Description

Note 2: Summary of Significant Accounting Policies

Note 3: Deposits and Investments

Note 4: Legally Required Reserves

Note 5: Net Pension Liability

Note 6: Deferred Retirement Option Plan

Required Supplementary Information

Schedule of Employer Contributions

Schedule of Net Pension Liability

Schedule of Investment Returns

Schedule of Changes in Net Pension Liability and

Related Ratios



Management's Discussion and Analysis

This discussion and analysis of the Arkansas State Police Retirement System (ASPRS or the system) provides an overview of the system's financial activities for the fiscal year ended June 30, 2022 (FY22). It is intended to be used in conjunction with the executive letter and ASPRS financial statements and notes, which begin on page 16 of this report.

This comprehensive financial report reflects the activities of ASPRS as reported in the Statement of Fiduciary Net Position (page 14) and the Statement of Changes in Fiduciary Net Position (page 15). These statements are presented on an accrual basis and reflect all trust fund activities as incurred. The Notes to Financial Statements are an integral part of the financial statements and include additional information essential to understanding the basic financial statements. The Required Supplementary Information following the Notes to the Financial Statements provide historical information and additional details considered useful in evaluating the condition of the plan. Investment data in the Financial Section is presented at fair value. See the Actuarial Section of this report for a detailed discussion of the actuarial value of assets and liabilities and the funded ratio.

Financial Highlights

ASPRS' net position restricted for pension benefits decreased by \$52.9 million during FY2022. On June 30, 2022, total plan assets were \$406 million. These assets exceeded total liabilities of \$23.7 million, resulting in a net position restricted for pension benefits of \$381.9 million.

- Total additions for the system decreased by \$147.8 million in FY2022. The primary reason for this large decrease in FY2022 additions was the decrease in net investment income of \$147.7 million. ASPRS had a disappointing year with investments with a return of -10.51% in FY2022.
- Benefit payments increased approximately \$1.8 million in FY2022 due to the number of retirees and beneficiaries increasing slightly in FY2022.

The Statement of Fiduciary Net Position

The Statement of Fiduciary Net Position (see page 14) reports the pension trust fund's assets, liabilities, and resulting net position at the end of

the fiscal year such that

$$\text{assets} - \text{liabilities} = \text{net position.}$$

It is a snapshot of the financial position of the pension trust fund at that specific time.

The Statement of Changes in Fiduciary Net Position

The Statement of Changes in Fiduciary Net Position (see page 15) reports the pension trust fund's financial transactions that have occurred during the fiscal year such that

$$\text{additions} - \text{deductions} = \text{net change in net position.}$$

It supports the change that has occurred to the prior year's net position value on the Statement of Fiduciary Net Position.

Notes to the Financial Statements

The notes to the financial statements are provided as an integral component of the financial statements to help explain in narrative form some of the more complex or less obvious elements to the statements. Further, the notes 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 and investment risk.
- 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.

Basic Financial Statements

Statement of Fiduciary Net Position *(as of June 30, 2021 and 2022)*

ASSETS	2022	2021
Cash and Cash Equivalents	\$15,005,884	\$17,440,903
Receivables	2,622,201	3,098,957
Investments, At Fair Value		
Government Securities	13,165,826	10,562,922
Corporate Securities	157,334,515	197,260,494
International Securities	94,631,629	120,574,158
Core Plus Bond Fund	23,979,117	22,048,098
Real Estate	55,179,029	44,752,914
Diversified Strategies	18,375,047	19,148,880
Timberland	3,834,064	2,924,756
Commercial Loans	168,717	322,563
Total Investments at Fair Value	<u>366,667,945</u>	<u>417,594,785</u>
Securities Lending Collateral Investments, At Fair Value	21,388,235	29,850,220
TOTAL ASSETS	<u>405,684,265</u>	<u>467,984,865</u>
LIABILITIES		
Accounts Payable and Accrued Expenses	581,403	599,978
Investment Purchases Payable	1,705,835	2,606,756
Securities Lending Liability	21,456,278	29,905,050
TOTAL LIABILITIES	<u>23,743,516</u>	<u>33,111,784</u>
NET POSITION RESTRICTED FOR PENSION BENEFITS	<u>\$381,940,750</u>	<u>\$434,873,081</u>

Statement of Changes in Fiduciary Net Position *(for years ended June 30, 2021 and 2022)*

ADDITIONS	2022	2021
Contributions		
Employer	\$8,908,482	\$7,706,274
Plan Member	140,796	40,919
Supplemental	6,165,687	7,139,013
Court	449,777	284,840
Drivers' License Reinstatement Fees	1,793,447	2,361,709
Motor Vehicle Title Fees	5,235,756	5,250,891
Total Contributions	22,693,944	22,783,645
Investment Income		
Interest	2,638,437	1,560,447
Dividends	4,154,510	3,467,318
Investment Gain/Loss	(53,592,043)	96,529,154
Security Lending Income	92,501	1,675,760
Real Estate Income	2,612,484	1,362,562
Other Investment Income	-	21,478
Total Investment Income	(44,094,110)	104,616,718
Less: Investment Expense	2,153,379	3,201,564
Net Investment Income	(46,247,489)	101,415,154
Other Additions	69	68
Total Additions	(23,553,475)	124,198,867
DEDUCTIONS		
Benefit Payments	29,149,508	27,294,080
Administrative Expenses	229,348	215,384
Total Deductions	29,378,856	27,509,464
NET INCREASE (DECREASE)	(52,932,331)	96,689,403
Net Position Restricted for Pension Benefits		
Beginning of Year	434,873,081	338,183,678
End of Year	\$381,940,750	\$434,873,081

Notes to the Financial Statements

Note 1: Plan Description

General Information

ASPRS 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 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 Arkansas 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.

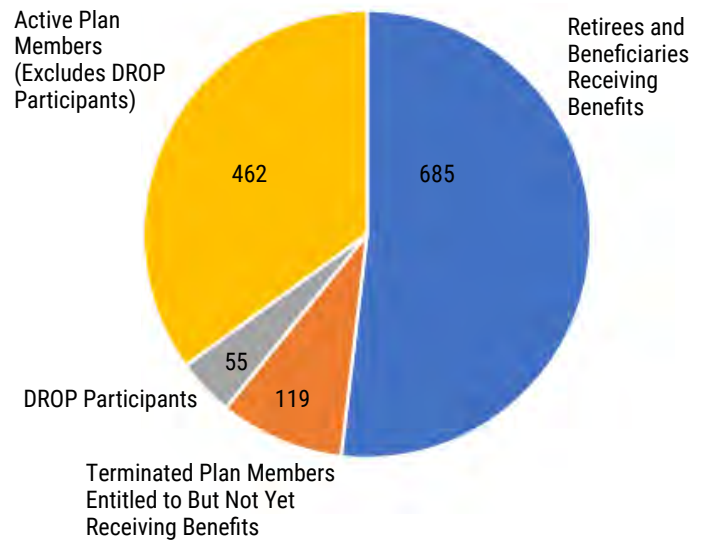
The members of the ASPRS Board are listed on page 10 of this report.

Membership

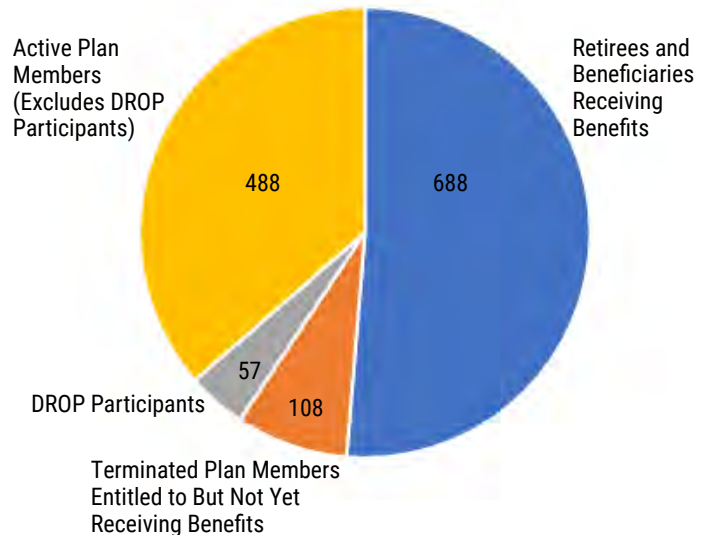
The membership as of the June 30 end of fiscal years 2021 and 2022 were as follows:

Members	2022	2021
Retirees and Beneficiaries Receiving Benefits	716	688
Terminated plan members entitled to but not yet receiving benefits	115	108
DROP Participants	48	57
Active Plan Members (Excludes DROP Participants)	471	488
	1,350	1,341

2022 Membership



2021 Membership



Contributions

As of June 30 in both 2021 and 2022, there were no contributory members of ASPRS. Plan member contributions presented in the financial statements are related to service purchase payments. Contribution provisions are established by state law and may be amended only by the Arkansas General Assembly. Beginning with fiscal year 2022, the statutory employer contribution rate was increased to 26% by Act 415 of the 2021 legislative session.

Additional Revenue

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 \$6.17 million of Act 1071 funds in fiscal year 2022 and \$7.14 million in fiscal year 2021. Additional funds are collected from motor vehicle title fees in accordance with Act 718 of 2011. The ASPRS fund received \$5.24 million of Act 718 funds in fiscal year 2022 and \$5.25 million in fiscal year 2021.

Plan Administration

The costs of administering the system 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, short-term investment funds, and petty cash. As of June 30, 2022, these totals were \$18,906, \$527,627, and \$14,459,351 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, 2022, the system’s only deposits exposed to potential custodial credit risk were those holding its foreign currency balance of \$862,808. The system holds foreign currency in banks outside the United States as a result of transactions by international investment managers.

Investments

Arkansas Code Annotated §§ 24-2-601 – 24-2-619 authorize the 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 fees, custodial fees, and all other significant investment-related costs.

Arkansas Code Annotated § 24-2-608 also states that the system shall seek to invest not less than 5% nor more than 10% of the system’s portfolio in Arkansas-related investments. APERS recognizes a legal responsibility to seek to invest in the Arkansas economy while realizing that 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.”

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 the following page reflects the fair value of investments.

Statement of Invested Assets

(Assets by type at fair value in dollars as of June 30, 2022)

Category	Base Market Value	ASPRS	APERS
Government Securities	\$353,175,906	\$13,165,826	\$340,010,080
Corporate Securities	4,220,529,782	157,334,515	4,063,195,267
International Securities	2,538,512,359	94,631,629	2,443,880,730
Core Plus Bond Fund	643,244,615	23,979,117	619,265,497
Real Estate	1,480,188,477	55,179,029	1,425,009,448
Diversified Strategies	492,914,307	18,375,047	474,539,260
Timberland	102,849,541	3,834,064	99,015,477
Commercial Loans	4,525,879	168,717	4,357,162
	<u>9,835,940,867</u>	<u>366,667,945</u>	<u>9,469,272,922</u>
Securities Lending Collateral Investments, at Fair Value:			
Commercial Paper	32,298,611	1,204,041	31,094,571
Repurchase Agreements	80,386,030	2,996,663	77,389,367
Floating Rate Notes	444,700,288	16,577,715	428,122,573
Asset Backed Securities	16,358,458	609,817	15,748,641
	<u>573,743,387</u>	<u>21,388,235</u>	<u>552,355,151</u>
	<u>\$10,409,684,254</u>	<u>\$388,056,181</u>	<u>\$10,021,628,073</u>

Totals may not add due to rounding

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 does address 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, 2022, 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 schedule on the following page indicates the system's exposure to credit risk for investments.

Financial

The System's Exposure to Credit Risk

Moody's Quality Ratings (in dollars as of June 30, 2022)

Moody's Rating	Aaa	Aa	A	Baa	Ba	B	Caa or below	Not Rated	Base Market Value
Government Securities	\$329,613,097	0	\$520,598	0	0	0	0	\$4,251,750	\$334,385,445
Corporate Securities	16,454,298	18,456,708	71,282,463	228,649,673	64,442,895	30,299,805	19,699,344	472,490,576	921,775,762
International Securities	2,844,523	1,723,413	22,897,566	67,903,210	22,586,513	3,150,202	1,269,223	52,694,343	175,068,992
Floating Rate Fund	0	0	0	0	0	0	0	28,305,730	28,305,730
Core Plus Bond Fund	0	0	0	0	0	0	0	643,244,615	643,244,615
Commercial Loans	0	0	0	1,225,741	0	2,956,339	343,800	0	4,525,879
Municipal Bonds	0	1,431,649	0	0	0	0	0	0	1,431,649
Co-Mingled Funds	0	0	0	0	0	0	0	5,870,639	5,870,639
High Yield Income Fund	0	0	0	0	0	0	0	48,299,115	48,299,115
	\$348,911,917	\$21,611,769	\$94,700,627	\$297,778,624	\$87,029,408	\$36,406,345	\$21,312,367	\$1,255,156,769	\$2,162,907,827

All figures are APERS and ASPRS combined.

S&P's Quality Ratings (in dollars as of June 30, 2022)

S&P Rating	AAA	AA	A	BBB	BB	B	CCC or below	Not Rated	Base Market Value
Government Securities	0	\$329,613,097	0	0	0	0	0	\$4,772,348	\$334,385,445
Corporate Securities	6,497,721	6,709,531	63,695,264	263,914,421	66,673,148	33,135,336	18,835,345	462,314,995	921,775,762
International Securities	1,099,468	1,362,256	21,647,802	63,360,712	25,686,834	7,029,318	1,010,993	53,871,610	175,068,992
Floating Rate Fund	0	0	0	0	0	0	0	28,305,730	28,305,730
Core Plus Bond Fund	0	0	0	0	0	0	0	643,244,615	643,244,615
Commercial Loans	0	0	0	1,225,741	0	2,956,339	343,800	0	4,525,879
Municipal Bonds	0	1,431,649	0	0	0	0	0	0	1,431,649
Co-Mingled Funds	0	0	0	0	0	0	0	5,870,639	5,870,639
High Yield Income Fund	0	0	0	0	0	0	0	48,299,115	48,299,115
	\$7,597,189	\$339,116,534	\$85,343,066	\$328,500,874	\$92,359,981	\$43,120,993	\$20,190,138	\$1,246,679,052	\$2,162,907,827
Securities Lending Collateral	\$15,699,362	\$208,465,454	\$205,892,916	0	0	0	\$659,096	\$143,026,559	\$573,743,387

All figures are APERS and ASPRS combined.

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 system has a formal investment policy for concentration of credit risk. None of the system's 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 monthly. 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, 2022, the system had the following debt security investments and maturities:

Debt Security Investments and Maturities *(in dollars as of June 30, 2022)*

	Market Value	Less than 1	1 - 5	6 - 10	More than 10	Fund - No Maturities
Government Securities	\$334,385,445	\$8,999,511	\$48,417,806	\$44,451,437	\$232,516,691	0
Corporate Securities	921,775,762	69,030,300	334,582,979	210,301,782	307,860,701	0
International Securities	175,068,992	7,342,611	49,307,658	63,226,582	55,192,141	0
Floating Rate Fund	28,305,730	0	0	0	0	28,305,730
Core Plus Bond Fund	643,244,615	0	0	0	0	643,244,615
Commercial Loans	4,525,879	0	1,433,900	3,091,980	0	0
Municipal Bonds	1,431,649	0	0	0	1,431,649	0
Co-Mingled Funds	5,870,639	0	0	0	0	5,870,639
High Yield Income Fund	48,299,115	48,299,115	0	0	0	0
	<u>2,162,907,827</u>	<u>133,671,537</u>	<u>433,742,343</u>	<u>321,071,781</u>	<u>597,001,182</u>	<u>677,420,984</u>
Securities Lending Collateral	573,469,724	548,126,029	24,684,598	0	659,096	
	<u>\$2,736,377,550</u>	<u>\$681,797,566</u>	<u>\$458,426,942</u>	<u>\$321,071,781</u>	<u>\$597,660,278</u>	<u>\$677,420,984</u>

All figures are APERS and ASPRS combined.

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.

Foreign Currency Risk (as of June 30, 2022)

Currency	Percentage	Equities	Cash	Forward Contracts	Fair Value
Australian Dollar	0.61%	\$8,759,601	\$0	\$0	\$8,759,601
Brazilian Real	0.81	11,663,439	0	0	11,663,439
British Pound Sterling	15.17	215,913,132	2,146,070	(5,481)	218,053,721
Canadian Dollar	6.67	95,846,031	60,883	0	95,906,914
Chinese Yuan Renminbi	6.88	98,910,150	0	0	98,910,150
Euro Currency	36.39	523,077,974	401	(4,997)	523,073,378
Hong Kong Dollar	2.39	33,625,253	660,471	28	34,285,752
Indian Ruphia	0.17	2,453,833	0	0	2,453,833
Israeli Shekel	1.45	20,905,463	0	0	20,905,463
Japanese Yen	10.30	147,579,498	53,661	366,121	147,999,279
Liberian Dollar	0.20	2,839,089	0	0	2,839,089
Malaysian Ringgit	0.00	0	0	0	0
Mauritian Rupee	0.14	2,062,412	0	0	2,062,412
Mexican New Peso	0.59	8,529,803	0	0	8,529,803
Norwegian Krone	0.06	825,985	0	0	825,985
New Zealand Dollar	0.39	5,580,789	0	0	5,580,789
Papua New Guinea Kina	0.00	0	0	0	0
Philippines Peso	0.00	0	0	0	0
Russian Ruble	0.00	0	0	0	0
Singapore Dollar	1.14	16,418,519	0	0	16,418,519
South African Rand	0.00	0	0	0	0
South Korean Won	3.20	46,015,522	0	0	46,015,522
Swedish Krone	2.35	33,516,128	253,143	0	33,769,272
Swiss Franc	9.58	137,733,696	0	0	137,733,696
Taiwan Dollar	1.38	19,781,503	0	0	19,781,503
Thailand Baht	0.14	1,985,100	0	0	1,985,100
	100.00%	\$1,434,022,919	\$3,174,628	\$355,672	\$1,437,553,219

All figures are APERS and ASPRS combined.

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 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, prepayment risk, and extension risk.

A collateralized mortgage obligation (CMO) is an MBS that comprises classes of bonds created by prioritizing the cash flows of the underlying mortgage pool. 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.

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 \$647,675,792 invested in international pooled funds.

Securities Lending

Arkansas Code Annotated § 24-2-602 and the 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.

U.S. securities are loaned versus collateral valued at 102.56% of the market value of the securities plus any accrued interest for domestic loans. Non-U.S. securities are loaned versus collateral valued at 111.42% of the market value of the securities plus any accrued interest. Collateral is marked-to-market daily if price movements exceed certain minimal thresholds.

As of June 30, 2022, the cash collateral investments had an average weighted maturity of one day, whereas the weighted average loan maturity was two days. Investments with cash collateral were approximately \$573.5 million (market value).

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, can hold such instruments.

APERS does comply with *GASB No. 53* and will disclose its exposure to derivative instruments if there is exposure. APERS had no exposure to any *GASB No. 53* derivative instruments at June 30, 2022.

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

Financial

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.

Foreign Currency Forwards *(in dollars as of June 30, 2022)*

	Pay	Receive	Notional Value	Market Value	Unrealized G/L
Swiss Franc	CHF	USD	\$(82,170)	\$(81,924)	\$245
Euro currency	EUR	USD	(688,319)	(687,860)	458
British Pound	GBP	USD	(2,150,568)	(2,155,967)	(5,399)
Hong Kong dollar	HKD	USD	(309,203)	(309,175)	28
Japanese Yen	JPY	USD	(7,786,268)	(7,383,779)	402,489
Swedish Krona	SEK	USD	(312,418)	(310,159)	2,259
U.S.Dollar	USD	CHF	89,733	89,368	(365)
U.S.Dollar	USD	KRW	95,349	95,262	(86)
U.S.Dollar	USD	GBP	53,569	53,413	(156)
U.S.Dollar	USD	JPY	630,328	593,960	(36,368)
U.S.Dollar	USD	EUR	1,071,393	1,065,938	(5,455)
U.S.Dollar	USD	GBP	90,661	90,734	73
			<u>\$(9,297,913)</u>	<u>\$(8,940,189)</u>	<u>\$357,724</u>

All figures are APERS and ASPRS combined.

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.

Financial Futures *(in dollars as of June 30, 2022)*

Futures Contract	Expiration	Notional Value	Fair Value	Unrealized Gain/(Loss)
U.S. 2-year Treasury Note	Sept 2022	\$21,494,418	\$21,421,594	\$(72,824)
U.S. 5-year Treasury Note	Sept 2022	16,041,215	15,939,500	(101,715)
U.S. 10-year Treasury Note	Sept 2022	45,684,188	45,753,063	68,875
U.S. 10-year Ultra Treasury Note	Sept 2022	26,868,972	27,003,500	134,528
U.S. Long Bond Treasury	Sept 2022	(5,412,875)	(5,545,000)	(132,125)
U.S. Ultra Bond Treasury	Sept 2022	20,173,119	20,682,063	508,943
		<u>\$124,849,036</u>	<u>\$125,254,719</u>	<u>\$405,683</u>

All figures are APERS and ASPRS combined.

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 system 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 leveling 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

(in dollars as of June 30, 2022)

	Fair Value	Level 1	Level 2	Level 3
Investments At Fair Value				
U.S Domestic Equities	\$95,786,162	\$95,786,162		
Convertible Securities	12,482,270	1,760,982	10,721,288	
Preferred Securities	120,826		120,826	
International Equities	57,749,472	57,749,472		
Convertible Securities	1,183,749		1,183,749	
Preferred Securities	715,371	715,371		
Fixed Income	5,364,727		5,364,727	
Domestic Fixed Income				
Global Bond Fund	218,848	218,848		
Floating Rate Fund	1,055,192	1,055,192		
U.S. Government Securities	6,933,734	6,933,734		
Futures	15,123	15,123		
Corporate Bonds	27,961,217		27,961,217	
Loans	168,718			168,718
Total Investments	209,755,410	164,234,885	45,351,807	168,718
Securities Lending Collateral Investments, at Fair Value				
Repo	2,996,663		2,996,663	
Commercial Paper	1,204,041		1,204,041	
Asset Backed Securities	609,817		609,817	
Floating Rate Securities	16,577,715		16,577,715	
Total Securities Lending Collateral	21,388,235		21,388,235	
Total Investments Measured at Fair Value	\$231,143,645	\$164,234,885	\$66,740,043	\$168,718
Investments Measured at the Net Asset Value (NAV)				
High Yield Core Fund	36,454			
Defensive Bond Fund	1,764,060			
Domestic Equity Index Funds	22,214,765			
Core Plus Bond Fund	23,979,130			
Timberland	3,141,692			
Global Equity Pooled Funds				
MCM REIT Index	4,288,024			
MCM ACWI ex-US Index	20,023,250			
Acadian	6,298,161			
Franklin Templeton	5,193,740			
Core Real Estate				
Invesco Core	23,830,734			
Heitman Core	15,182,631			
Value AddReal Estate				
Heitman Value Add	2,585,330			
TA Fund X	1,069			
TA Fund XI	2,080,853			
TA Fund XII	4,254,714			
LaSalle Fund Fund VI	303,647			
LaSalle Fund Fund VII	1,511,837			
Harrison Street VIII	1,140,219			
Starwood SOF XII	614,474			
Agriculture/Farmland				
PGIM Agricutture	77,900			
Diversified Strategies				
AQR Global Risk Premium	5,431,642			
Newton Global Real Return	5,168,738			
Blackstone	7,774,676			
Total Investments Measured at the NAV	\$156,897,741			

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

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 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 (in dollars as of June 30, 2022)

	Fair Value	Strategy Type	Fund Life of Non-redeemable mandates	Unfunded Commitments
High Yield Core Fund	\$36,454	Active High Yield Fixed Income	N/A	none
Defensive Bond Fund	1,764,060	Income Oriented	N/A	none
Domestic Equity Index Funds	22,214,765	S & P 500 Index	N/A	none
Core Plus Bond Fund	23,979,130	Active Global Fixed Income	N/A	none
Timberland	3,141,692	Timber	N/A	none
International Equity Pooled Funds				
MCM REIT Index	4,288,024	Global Real Estate securities	N/A	none
MCM ACWI ex-US Index	20,023,250	International Equities	N/A	none
Acadian	6,298,161	International Equities	N/A	none
Franklin Templeton	5,193,740	International Equities	N/A	none
Core Real Estate				
Invesco	23,830,734	Core Real Estate	N/A	none
Heitman	15,182,631	Core Real Estate	N/A	none
Value Add Real Estate				
Heitman Value Partners IV	2,585,330	Value Add Real Estate	N/A	215,225
TA Fund X	1,069	Value Add Real Estate	N/A	none
TA Fund XI	2,080,853	Value Add Real Estate	N/A	none
TA Fund XII	4,254,714	Value Add Real Estate	N/A	0
TA Fund XIII	0	Value Add Real Estate	N/A	2,795,880
LaSalle Fund Fund VI	303,647	Value Add Real Estate	N/A	
LaSalle Fund Fund VII	1,511,837	Value Add Real Estate	N/A	
Harrison Street Fund VIII	1,140,219	Value Add Real Estate	N/A	778,626
Starwood SOF XII	614,474	Value Add Real Estate	N/A	2,236,704
Clarion LIT Fund	0	Value Add Real Estate	N/A	3,168,664
Principal Enhanced Fund	0	Value Add Real Estate	N/A	3,168,664
Carlyle Property	0	Value Add Real Estate	N/A	3,168,664
Agriculture/Farmland				
PGIM Agriculture	77,900	Agriculture/Farmland	N/A	1,786,020
International Farmland	0	Agriculture/Farmland	N/A	1,863,920
Diversified Strategies:				
AQR Global Risk Premium	5,431,642	Risk Premia	N/A	none
Newton Global Real Return	5,168,738	Global Real Return	N/A	none
Blackstone	7,774,676	Fund of Funds	N/A	none
Total	\$156,897,741			\$15,951,812

Redemption Frequency (if currently eligible)	Redemption Notice Period	Other Redemption Restrictions	Restriction Time Remaining
monthly	T + 3	N/A	N/A
daily	T + 1	N/A	N/A
daily	T + 3	N/A	N/A
daily	T + 3	N/A	N/A
none	N/A	N/A	partnership terminates in December 2027
daily	T + 1	N/A	N/A
daily	T + 1	N/A	N/A
daily w 10day notice	T + 1	N/A	N/A
daily	T + 1	N/A	N/A
quarterly	T + 45	N/A	N/A
quarterly	T + 90	N/A	N/A
7-year lock up	N/A	N/A	the lock up period starts on the day of the last capital call
7-year lock up	N/A	N/A	currently in capital redistribution phase
7-year lock up	N/A	N/A	currently in capital redistribution phase
7-year lock up	N/A	N/A	the lock up period starts on the day of the last capital call
7-year lock up	N/A	N/A	the lock up period starts on the day of the last capital call
7-year lock up	N/A	N/A	currently in capital redistribution phase
7-year lock up	N/A	N/A	currently in capital redistribution phase
7-year lock up	N/A	N/A	the lock up period starts on the day of the last capital call
7-year lock up	N/A	N/A	the lock up period starts on the day of the last capital call
7-year lock up	N/A	N/A	the lock up period starts on the day of the last capital call
7-year lock up	N/A	N/A	the lock up period starts on the day of the last capital call
7-year lock up	N/A	N/A	the lock up period starts on the day of the last capital call
open end w/ 2-year lock up	N/A	N/A	the lock up period starts on the day of the last capital call
open end w/ 2-year lock up	N/A	N/A	the lock up period starts on the day of the last capital call
weekly and monthly	T + 2	N/A	N/A
daily	T + 3	N/A	N/A
last day of each quarter	1yr; 2yrs; 3yrs; >3yrs	55% liquidity; then 20%; then 15%; then 10%	N/A

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 a Standard and Poor's 500 (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.

International Equity Pooled Funds

- The Bank of New York Mellon Employee Benefit Daily Valued Non-Securities Lending Real Estate Investment Trust 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.
- Bank of New York Mellon All Country World Index ex-US – The MSCI ACWI ex-US Index captures large and mid-cap representation across 22 of 23 Developed Markets (DM) countries (excluding the U.S.) and 24 Emerging Markets (EM) countries. With 2,166 constituents, the index covers approximately 85% of the global equity opportunity set outside the U.S.
- Acadian All Country World ex-US Small Cap – The Acadian All Country World ex-US Small Cap strategy employs a combination of top-down and bottom-up multi-factor models to construct the strategy. The top-down consists of value, growth, momentum, volatility, and macro factors. The bottom up drives 80% of the process.

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.

Core Real Estate

- 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.

Value Added Real Estate

- 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.
- TA Realty Funds X, XI, XII and XIII – TA Realty has managed value-add, commingled real estate funds for approximately 30 years. They have investments in 35 markets, and four 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 focused upon are office, multifamily, retail, industrial, and specialty.
- Harrison Street Fund VIII – The Fund acquires, develops, and/or redevelops assets in the education, healthcare, life science, and storage sectors. The majority of the return is anticipated to be generated through appreciation.
- Starwood Distressed Opportunity Fund XII – The strategy pursues distressed investment opportunities which are expected to arise from economic disruptions. Investments will be made across multiple sectors, including multifamily, affordable housing, hotels, office, and industrial. The Fund will invest primarily in the United States and Europe. The fund

will pursue both debt and equity investments, including the acquisition of distressed or non-performing loans.

- Clarion Partners Lion Industrial Trust – This is a \$26 billion open-end industrial fund. It is one of the largest private industrial funds in the U.S. and one of the few “pure-play.” The strategy is to invest in warehouse/distribution facilities that appeal to companies focused on e-commerce, logistics, and supply-chain management, with an emphasis on large core industrial markets throughout the United States.
- Principal Enhanced Property Fund – This is an open-end, commingled fund sponsored and managed by Principal Real Estate Investors. The features and objectives of the Fund include: pursues a nationally diversified portfolio of high-quality assets, pursues an “enhanced” or “core plus” investment strategy, and provides market competitive total return.
- Carlyle Property Investors – This U.S. focused core-plus fund has its focus on sectors where accelerating demographic trends drive demand. The fund objectives: target investments with a Core+ return profile, seek attractive property rent and NOI growth, seek to generate attractive levels of income and quarterly distributions, and construct a highly diversified portfolio by sector and geography.

Agriculture / Farmland

- PGIM U.S. Agriculture Fund – PGIM manages \$2 billion in assets and over 173,000 acres under management. PGIM began investing on behalf of investors in 1989. PGIM seeks to build diversified portfolios of assets with good quality soils and water security located in microclimates with favorable growing conditions. Targeted investments typically fall within one of the following investment themes: healthier lifestyles, Farm Tech Efficacies and Higher productivity, competitive advantage/scale, and opportunistic.
- International Farm Corporation Core Farmland Fund - This fund seeks to generate stable income and attractive risk-adjusted financial returns. The strategy has a lower correlation to other asset classes, has a lease strategy that reduces risk, and seeks long-term appreciation. The strategy may enable food sourcing solutions for core fund and IFC growers as well.

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 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, 2022, 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.

Reserve Balances* (as of June 30, 2022)

Member Deposit Account Reserve	\$ 578,259
MDA Interest Reserve	(1,314)
Employer Accumulation Account	64,938,764
Retirement Reserve Account	302,326,634
DROP Reserve Account	9,232,870
Deferred Annuity Reserve	4,864,443
Outlawed Warrants Reserve	1,095
TOTAL	\$ 381,940,750

* 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 at June 30, 2022 were as follows:

Total Pension Liability	\$504,594,302
Fiduciary Net Position	\$381,940,750
Net Pension Liability	\$122,653,552
Fiduciary Net Position as a Percentage of Total Pension Liability	75.69%

Long-Term Expected Return on Plan Assets

The system’s policy in regard to the allocation of its 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 price inflation. Best estimates of arithmetic real rates of return for the 10-year period

from 2020 to 2029 were based upon capital market assumptions provided by the plan’s investment consultant(s). For each major asset class that is included in the pension plan’s asset allocation as of June 30, 2020, these best estimates are summarized in the following table:

Asset Class	Current Allocation	Long-Term Expected Real Rate of Return
Broad Domestic Equity	37%	6.22%
International Equity	24%	6.69%
Real Estate	16%	4.81%
Absolute Return	5%	3.05%
Domestic Fixed	18%	0.57%
Total	100%	
Total Real Rate of Return		4.93%
Plus: Price Inflation - Actuary’s Assumption		2.50%
Less: Investment Expenses (Passive)		0.00%
Net Expected Return		7.43%

For the year ended June 30, 2022, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was a negative 10.82%. 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%
\$182,389,404	\$122,653,552	\$73,099,094

Note 6: Deferred Retirement Option Plan

A Deferred Retirement Option Plan (DROP) is available to members of the system as authorized by A.C.A. 24-4-801 – 24-4-806. In lieu of terminating employment and accepting a retirement benefit under the system, any member who has at least 28 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 chosen benefit is deposited into an account that accrues interest at a rate of 3.25% annually. The system had a balance of \$9,232,870 in the DROP reserve as of June 30, 2022..

Required Supplementary Information

Schedule of Employer Contributions *(dollars in millions)*

Years Ended June 30	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Employee Payroll	Actual Contributions as a % of Covered Payroll
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%
2020	16.9	21.9	(5.0)	33.3	65.77%
2021	16.7	22.8	(6.1)	33.6	67.86%
2022	\$ 15.9	\$ 22.7	\$ (6.8)	\$ 32.8	69.21%

Schedule of the Net Pension Liability

FY Ending June 30	Total Pension 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
2014	\$385,645,392	\$277,201,968	\$108,443,424	71.88%	\$28,548,873	\$379.85%
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
2020	476,569,897	338,183,678	138,386,219	70.96	33,311,093	415.44
2021	495,913,550	434,873,081	61,040,469	87.69	33,585,266	181.75
2022	\$504,594,302	\$381,940,750	\$122,653,552	75.69%	\$32,757,302	374.43%

Schedule of Investment Returns

(annual money-weighted rate of return, net of investment expense, for years ended June 30)

2014	18.75%
2015	2.26%
2016	(0.08)%
2017	11.82%
2018	9.82%
2019	5.36%
2020	2.03%
2021	30.59%
2022	(10.82)%

Schedule of Changes in the Net Pension Liability and Related Ratios

(for years ended June 30)

	2022	2021
TOTAL PENSION LIABILITY		
Service Cost	\$7,194,124	\$6,536,818
Interest	34,672,914	33,332,676
Benefit Changes	0	9,589,716
Differences Between Expected and Actual Experience	(4,036,777)	(2,821,477)
Assumption Changes	0	0
Benefit Payments	(29,149,509)	(27,294,080)
NET CHANGE IN TOTAL PENSION LIABILITY	8,680,752	19,343,653
TOTAL PENSION LIABILITY, BEGINNING OF YEAR	495,913,550	476,569,897
TOTAL PENSION LIABILITY, END OF YEAR (a)	504,594,302	495,913,550
FIDUCIARY NET POSITION		
Contributions - Employer	22,693,976	22,783,661
Contributions - Member	0	0
Net Investment Income	(46,247,450)	101,415,206
Benefit Payments	(29,149,509)	(27,294,080)
Administrative Expense	(229,348)	(215,384)
Other	0	0
NET CHANGE IN FIDUCIARY NET POSITION	(52,932,331)	96,689,403
FIDUCIARY NET POSITION, BEGINNING OF YEAR	434,873,081	338,183,678
FIDUCIARY NET POSITION, END OF YEAR (b)	381,940,750	434,873,081
NET PENSION LIABILITY, END OF YEAR (a) - (b)	\$122,653,552	\$61,040,469
FIDUCIARY NET POSITION AS A PERCENTAGE OF THE TOTAL PENSION LIABILITY	75.69%	87.69%
COVERED - EMPLOYEE PAYROLL	\$32,757,302	\$33,585,266
NET PENSION LIABILITY AS A PERCENTAGE OF COVERED - EMPLOYEE PAYROLL	374.43%	181.75%

2020	2019	2018	2017	2016	2015	2014
\$5,861,499	\$6,691,528	\$6,577,148	\$5,473,626	\$5,488,445	\$6,101,608	\$4,866,199
31,967,469	31,299,758	30,678,211	30,322,786	29,469,678	29,218,802	28,558,511
997,533	0	0	0	0	0	0
7,543,752	(1,805,446)	467,389	(3,052,763)	1,757,687	(3,107,531)	(454,349)
0	0	(4,529,133)	15,875,267	0	8,703,080	8,970,858
(27,934,141)	(24,930,275)	(24,185,418)	(24,631,787)	(26,035,466)	(23,358,801)	(21,688,239)
18,436,112	11,255,565	9,008,197	23,987,129	10,680,344	17,557,158	20,252,980
458,133,785	446,878,220	437,870,023	413,882,894	403,202,550	385,645,392	365,392,412
476,569,897	458,133,785	446,878,220	437,870,023	413,882,894	403,202,550	385,645,392
21,873,425	21,254,010	21,003,650	19,961,066	19,713,295	19,784,130	19,501,684
0	0	0	0	0	94,814	0
6,700,845	17,031,467	28,823,333	31,484,250	(210,045)	6,131,684	43,307,746
(27,934,141)	(24,930,275)	(24,185,419)	(24,631,787)	(26,035,466)	(23,358,801)	(21,688,239)
(195,463)	(554,441)	(228,430)	(208,424)	(205,342)	(196,231)	(189,658)
0	0	0	0	0	6	0
444,666	12,800,761	25,413,134	26,605,105	(6,737,558)	2,455,602	40,931,533
337,739,012	324,938,251	299,525,117	272,920,012	279,657,570	277,201,968	236,270,435
338,183,678	337,739,012	324,938,251	299,525,117	272,920,012	279,657,570	277,201,968
\$138,386,219	\$120,394,773	\$121,939,969	\$138,344,906	\$140,962,882	\$123,544,980	\$108,443,424
70.96%	73.72%	72.71%	68.41%	65.94%	69.36%	71.88%
\$33,311,093	\$30,287,691	\$29,593,145	\$29,076,764	\$29,448,593	\$29,929,358	\$28,548,873
415.44%	397.50%	412.05%	475.79%	478.67%	412.79%	379.85%



Investments

Investment Overview

Capital Markets Commentary

Investment Results

Domestic Equity

International Equity

Fixed Income

Diversified Strategies

Real Assets

Schedule of Comparative Investment Results by Year

Schedule of Comparative Annualized Investment
Results

Schedule of Manager Distribution

Schedule of Brokerage Commissions

Schedule of Investment Fees



Investment Overview

Investment returns play an important role in the funded ratio of the APERS Trust Fund. The Board of Trustees of the Arkansas Public Employees Retirement System has adopted an Investment Policy Statement whose purpose is the exclusive benefit of the participants and beneficiaries of the system and whose objective is maximizing the total rate of return on investments within prudent risk parameters. The overall goal is to achieve an annualized rate of return which, when combined with employee and employer contributions, will meet or exceed the benefit and administrative requirements of the system.

The system's investments are managed by professional investment management firms based upon statutory investment authority as well as the investment policies adopted by the Board. The investment staff coordinates and monitors the investment of the trust fund's assets and assists in the formulation and implementation of investment policies and long-term investment strategy.

The net investment portfolio fair values shown in this section, and used for the basis of calculating investment returns, may differ from those shown in other sections of this report. The values shown in this section are the appropriate industry standard basis for investment return calculation.

Asset Allocation and Diversification

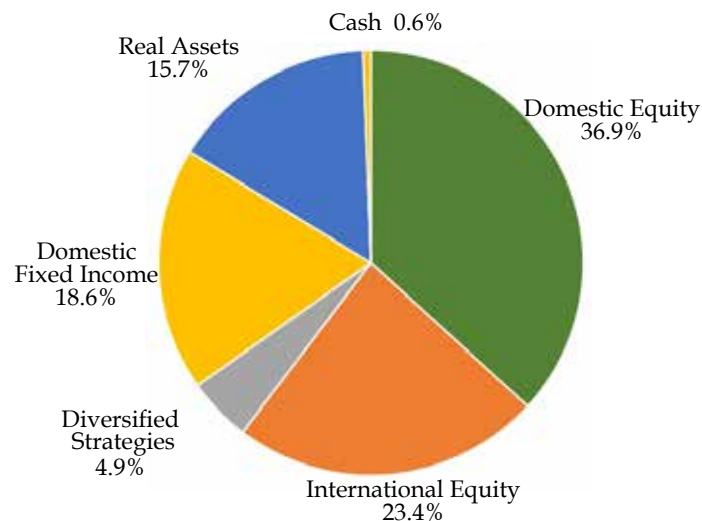
Asset allocation is a process which is designed to construct an optimal long-term asset mix which achieves a specific set of investment objectives. The Investment Policy Statement establishes the system's asset allocation policy as designed to meet those objectives.

The system's asset allocation policy has been adopted to provide diversification. The goal is to maximize the investment return as well as to be consistent with prudent levels of market and economic risks. The most important decision is the determination of asset allocation targets.

The pie chart illustrates the actual asset allocation to each type of investment as of June 30, 2022.

Summary of Investments by Asset Class

as of June 30, 2022



Due to rounding, chart may not equal 100%

Risk is further diversified by utilizing active and passive management as well as by retaining multiple investment management firms with varying investment styles.

The system also places restrictions on the investment managers. APERS has investment guidelines that manage the risk of high concentrations in a particular sector, industry, or security.

Capital Markets Commentary

As fiscal year 2021 ended, the markets had recovered from the COVID-19 collapse. FY2021 posted an amazing return of 31.49%.

September 30, 2021

September 2021 (Q1 of FY2022) lived up to its reputation as the cruelest month of the year for stock returns based on data going back as far as 1928. Stock prices capitulated to a series of obstacles. As the Federal Reserve Bank moved closer to tapering their bond purchases, surging energy prices, a Chinese property giant that was failing, continued standoff over the U.S. debt ceiling, the \$3.5 trillion climate and social stability bill, and the ongoing COVID-19 health crisis all weighed on the markets

Investments

during the quarter.

The Standard and Poor (S&P 500) posted its worse monthly performance in September 2021. The bullet points for 3Q21:

- Slowing economic growth
- Inflationary pressure
- Monetary policy
- Decreased risk appetite

In the U.S., the gross domestic product (GDP) growth slipped to 2% in 3Q after a 6.7% gain in 2Q. Consumers grew cautious as the COVID Delta variant fueled a pandemic surge which softened consumer and business spending.

Internationally, China's GDP rose less than 1% annualized in 3Q21 as renewed pandemic restrictions and supply chain issues challenged growth.

The 3Q U.S. GDP fell dramatically from 6.7% in 2Q to 2.00%.

Interest rates: The 10-year treasury closed 3Q at 1.488%.

December 31, 2021

The fourth quarter of 2021 was able to recover some of the third quarter's loss. Economic data in 4Q recovered but tight labor markets and a mismatch between jobs and job seekers, confused employers. Inflation spiked to a record 7% for the first time in decades. But in the background, the markets continue to be nervous about supply chain issues, the end of fiscal stimulus, the Omicron variant, and the Fed tapering.

The S&P 500 posted a strong +11.0% gain in 4Q21. Large Cap growth was the top performer as persistent inflation pushed investors into the perceived safety of the largest stocks during the quarter.

The international markets shifted back to the COVID favorites, boosting information technology stocks. Similar to the S&P 500, large cap stocks were favored, and the emerging markets struggled as China experienced significant pressure from economic slowdown and regulatory crackdown.

The 4Q GDP hit a robust 6.9%.

Interest rates: The 10-year treasury finished 2021 at 1.518%.

March 30, 2022

The month of March did see a "buy-the-dip" rally, but it couldn't lift the S&P 500 enough. The S&P 500 closed 1Q22 -4.60%. The escalation between Russia and Ukraine caused a lot of unease. Hawkish rhetoric from the Federal Reserve, warning of more aggressive rate hikes to combat inflation, and a surge in COVID cases in China, South Korea, and the United Kingdom all weighed on the markets.

Equity and Fixed Income markets all traded sharply lower following the Russian invasion of Ukraine. After the invasion, Russia faced condemnation and sanctions that crippled its stocks, bonds, and currency, thereby shocking the global markets. The invasion exacerbated inflationary concerns and led energy prices to surge as Russia is the second largest natural gas provider and the third largest oil producer in the world.

Inflation: CPI for 1Q22, +8.5%

The 1Q22 GDP fell 1.4% from almost 7% in the previous quarter.

Interest rates: The 10-year treasury closed the quarter at 2.351%.

There was nowhere to hide. For the quarter:

- S&P 500 -4.60%
- Russell 2000 -7.53%
- Russell 3000 -5.28%
- MSCI ex US -4.81%
- MSCI ACWI xUS -6.52%
- Bloomberg Agg -5.93%

June 30, 2022

Inflationary pressures, a determined Federal Reserve, and escalating fears of a recession were the dominant issues of 2Q22.

By June 13, 2022, the S&P 500 Index had officially entered bear market territory, down -21.82% from the January 3rd peak. For the June 30 fiscal year end, the S&P 500 was down -16.10% for the quarter, and -10.62% for the fiscal year.

Usually one would expect bonds to offset that

loss. Over the past 100 years, stocks and bonds have only been down together about 10% of the time. Nevertheless, bonds went down as well. The Bloomberg Agg fell -4.69% for the quarter, and -10.29% for the fiscal year.

The 2Q22 GDP fell 0.9% after dropping 1.6% in 1Q22. Forecasters have cut growth estimates for 2022 to 0%, or lower, and to 1.5% for 2023.

Interest rates: The 10-year treasury closed the quarter at 3.015%.

Investment Portfolio Assets

At the close of FY2022, the APERS’ investment portfolio had a fair value of \$10.098 billion which was a decrease of \$1.503 billion from the \$11.603 billion investment value from June 30, 2021.

Dow Jones Industrial Average



S&P 500 INDEX



Investment Results

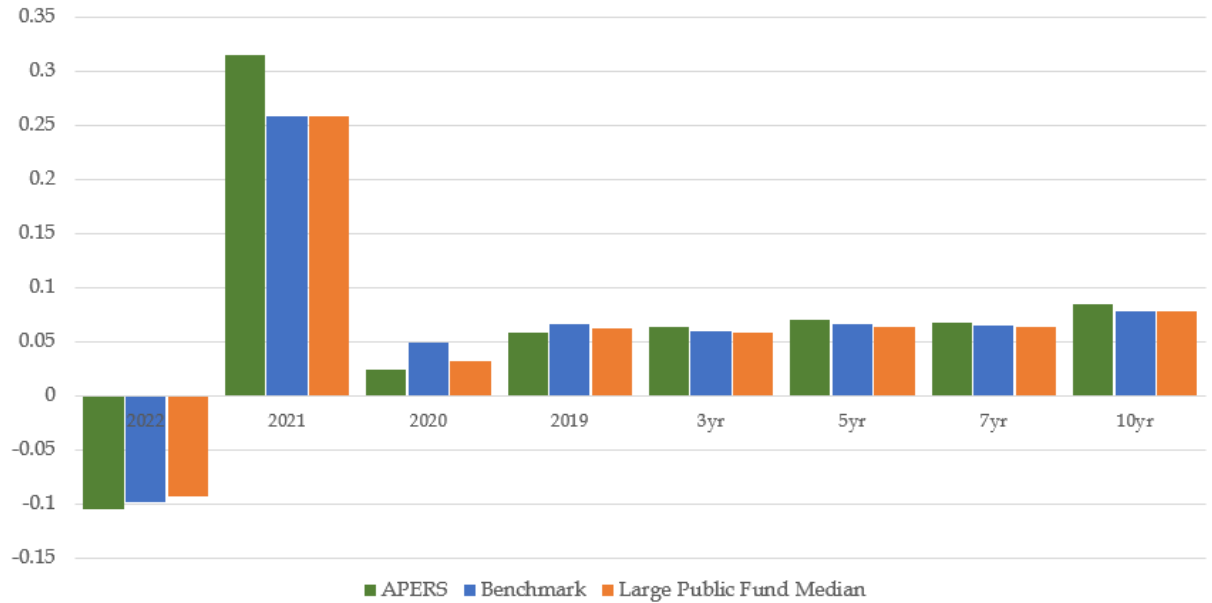
For the fiscal year ending June 30, 2022, APERS realized a total portfolio investment return of -10.54%. The return underperformed the -9.88% return of the APERS' policy benchmark, a set of market indexes and weightings to those indexes that reflect APERS' asset class targets. Outperformance was aided by active investment management, especially in the international equity allocation.

APERS' -10.54% return severely missed the actuarial assumed rate of return of 7.15%.

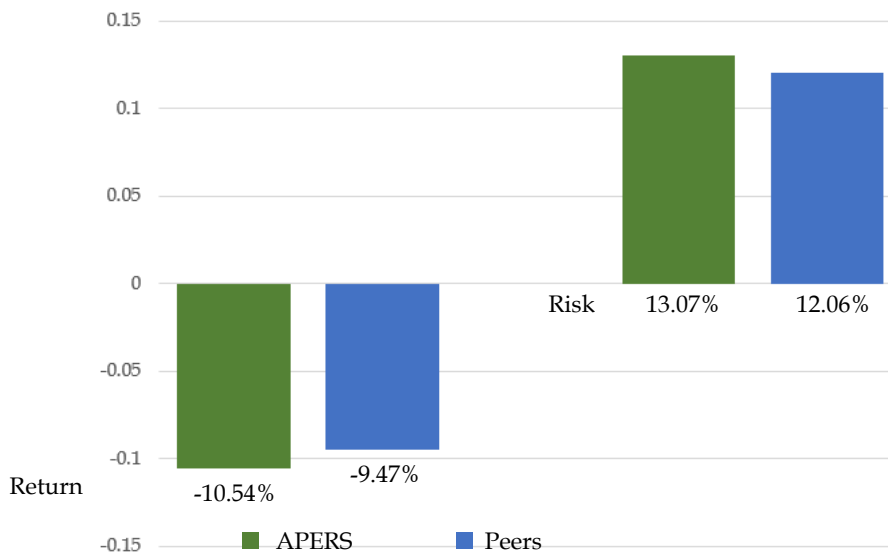
The following graphs and tables provide a historical perspective of APERS' investment returns and performance over the past few years. APERS' investment returns are shown for the total portfolio as well as for each asset class over various time periods. The benchmark or target for each asset class is also shown.

At the November 2021 meeting, the board hired two new farmland/agriculture investment managers and committed capital to a new asset class within real assets.

Investment Performance Summary



Risk vs. Total Return

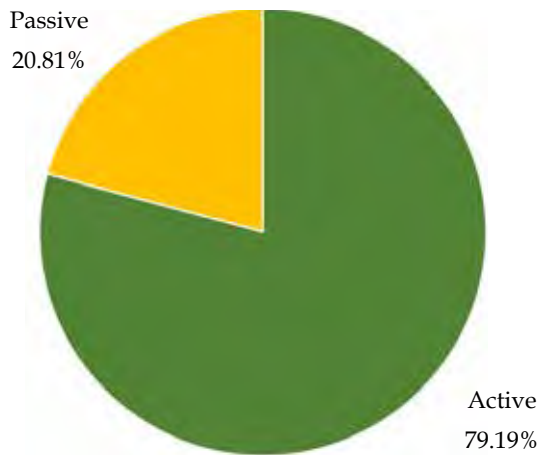


Domestic Equity

As of June 30, 2022, 37.09% of the APERS portfolio was invested in domestic equities (U.S. stocks). The fair value of the domestic equity portfolio was \$3.724 billion.

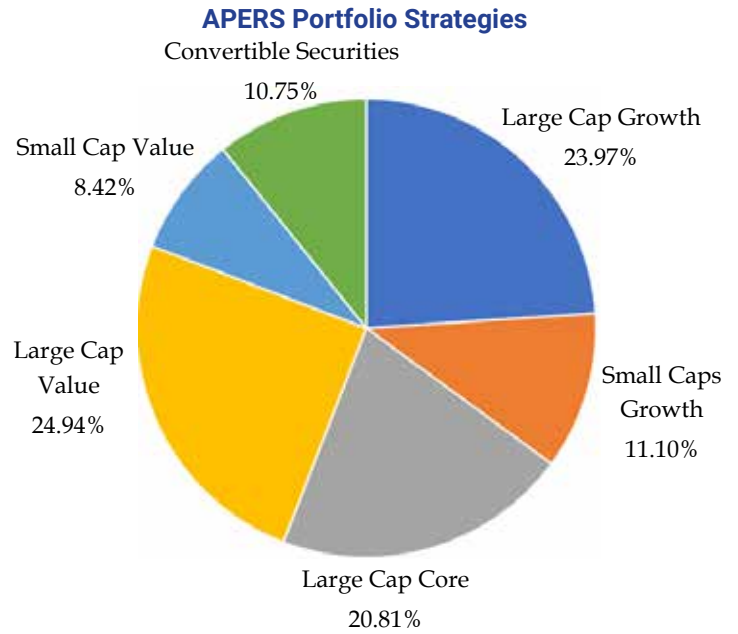
The portfolio takes an active management approach to the U.S. stock markets with 79.19% invested with active investment managers.

Active vs. Passive Potfolio Assets



The passive component is primarily an S&P 500 Index fund. It constitutes an efficient, low-cost means of obtaining market exposure and provides liquidity should it be needed for benefit payments.

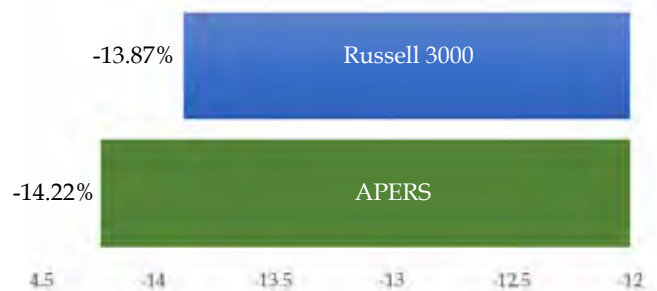
APERS utilizes active management in small, mid, and large capitalization stock strategies. The portfolio is also invested in strategies that focus on different investment styles: a value portfolio which focuses on companies undervalued relative to their prospective dividend and earnings growth; a growth portfolio which focuses on companies whose earnings are expected to grow at rates which exceed the general economy; and a core portfolio which seeks to add value across all sectors through stock selection.



The portfolio is widely diversified across various equity market sectors and industries.

Results

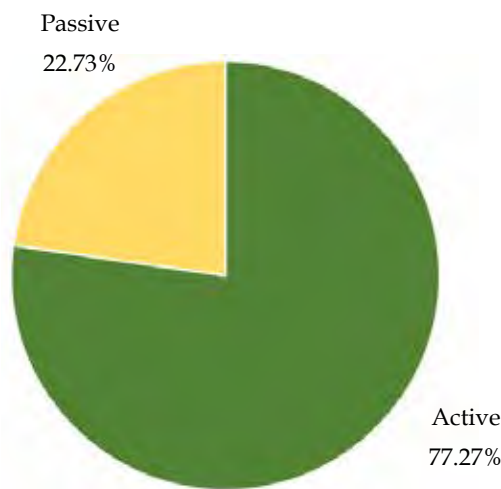
The domestic equity portfolio returned -14.22% for the fiscal year. APERS' benchmark, the Russell 3000 Index returned -13.87%.



International Equity

As of June 30, 2022, 23.53% of the APERS portfolio was invested in international equities (Non-U.S. stocks). The fair value of the international equity portfolio was \$2.362 billion.

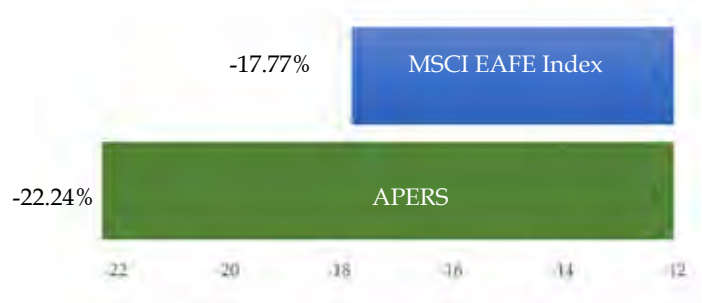
The portfolio takes an active management approach to international markets with approximately 78% invested with active investment managers. The international portfolio assets are allocated across developed and emerging markets. APERS utilizes the MSCI EAFE (Europe, Asian, and Far East) Index as its benchmark for the international equity index.



The passive component is an ACWI ex-US Index Fund. Similar to the S&P 500 Index Fund, it constitutes an efficient, low-cost means of obtaining market exposure and provides liquidity should it be needed for benefit payments.

Results

The international equity portfolio returned -22.24% for the fiscal year. APERS' benchmark, the MSCI EAFE Index returned -17.77%.

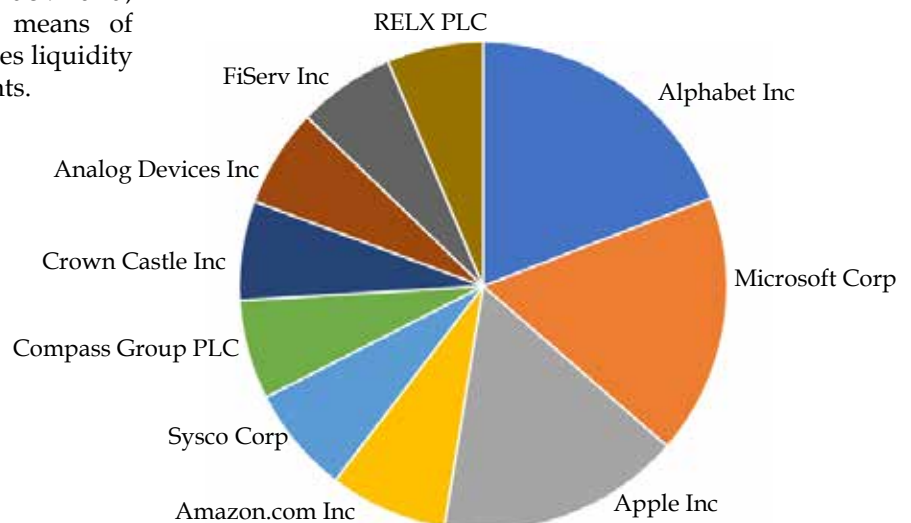


Top 10 Holdings

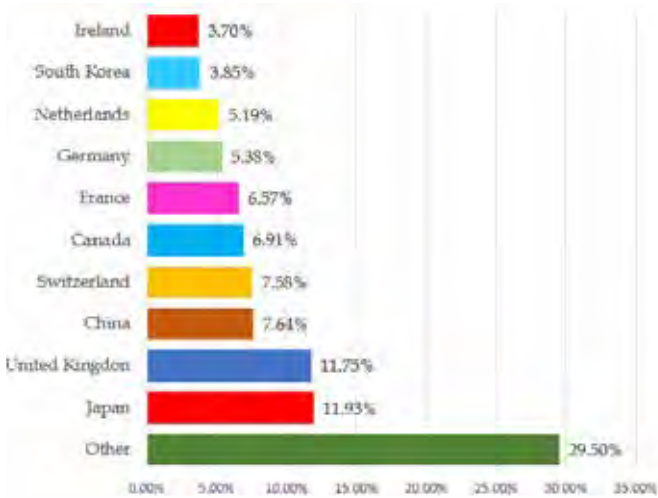
The top 10 holdings within the public equity portfolio (domestic and international combined) as of June 30, 2022.

Holding	Market Value*
1 Alphabet Inc.	\$94,974,330
2 Microsoft Corp.	85,577,554
3 Apple Inc.	80,182,862
4 Amazon.com Inc.	38,754,436
5 Sysco Corp.	35,314,328
6 Compass Group PLC	32,729,026
7 Crown Castle Inc.	32,554,252
8 Analog Devices Inc.	32,399,256
9 FiServ Inc.	31,989,075
10 RELX PLC	\$31,681,013

*Figures are APERS and ASPRS combined



Public Equity Distribution by Country



Fixed Income

As of June 30, 2022, 18.68% of the APERS portfolio was invested in fixed income securities which was slightly overweight of the asset allocation target of 18%. The fair value of the international equity portfolio was \$1.876 billion.

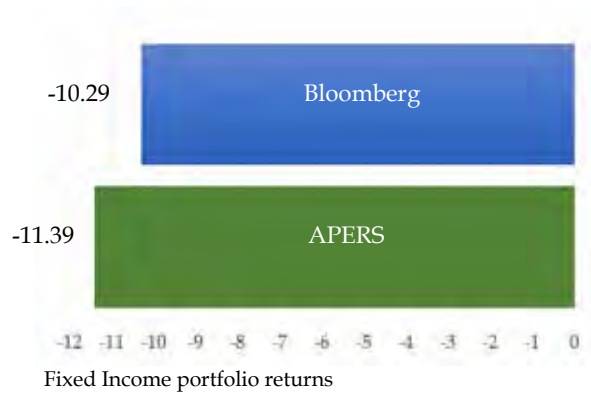
Core-Plus Fixed Income

The APERS fixed income portfolio is invested in core-plus fixed income strategies. The objective is to generate a return above the return of a core fixed income investment. The fixed income portfolio is 100% invested in core plus and is 100% actively managed.

The core-plus portfolio is a diversified portfolio of fixed income securities, utilizing cash and cash equivalents, forward foreign exchange contracts, swaps, currency options, financial futures, government and government agency bonds, Eurobonds, nondollar bonds, nonconvertible preferred stock, options on fixed income instruments, mortgage-backed bonds, corporate bonds, commercial mortgage-backed securities, private placement corporate bonds, and asset-backed securities.

Results

The fixed income portfolio returned -11.39% for the fiscal year. APERS' benchmark, the Bloomberg Aggregate Index returned -10.29%.



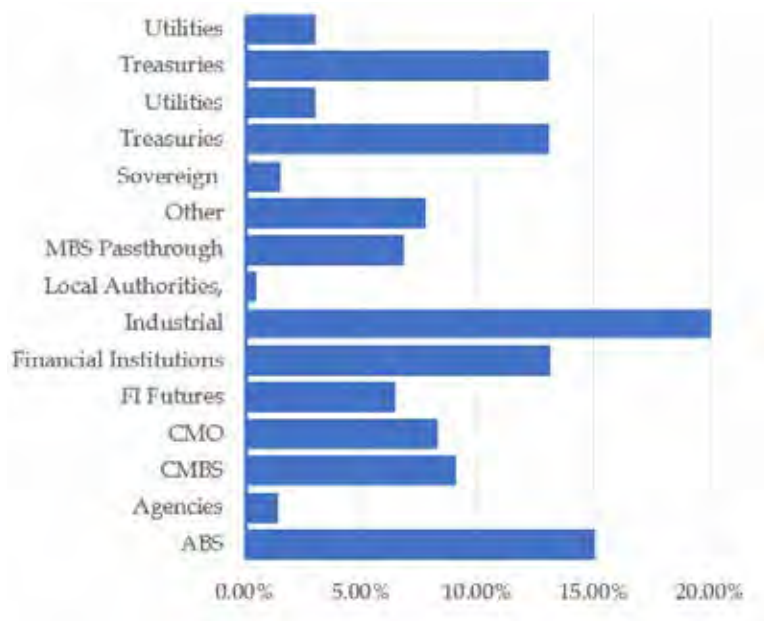
Top 10 Holdings

The top 10 holdings within the fixed income portfolio as of June 30, 2022.

Holdings	Market Value*
1 U.S. Treasury Bond 1.25% 5/15/2050	\$31,072,316
2 U.S. Treasury Bond 3.25% 5/15/2042	31,002,594
3 U.S. Treasury Bond 2.875% 5/15/2052	25,951,265
4 U.S. Treasury Bond 3.25% 6/30/2027	12,161,243
5 U.S. Treasury Bond 2.875% 6/15/2025	10,328,402
6 U.S. Treasury Bond 3.00% 6/30/2024	10,013,300
7 U.S. Treasury Bond 2.50% 4/30/2024	9,524,256
8 U.S. Treasury Bond 3.25% 6/30/2029	9,296,088
9 U.S. Treasury Bond 2.875% 5/15/2032	9,287,458
10 FNMA 4.00% 5/01/2052	9,066,798

*Figures are APERS and ASPRS combined

Fixed Income Distribution



Diversified Strategies

As of June 30, 2022, 4.91% of the APERS portfolio was invested in diversified strategies. This asset class has the smallest allocation target. The fair value of the portfolio was \$492.9 million.

The Diversified Strategies allocation provides diversification to the total portfolio and strives to reduce total fund volatility while also enhancing the total return of the portfolio.

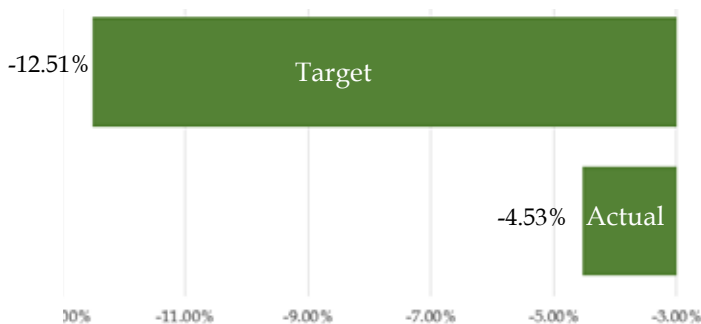
One of the strategies is a Risk Premium Tactical Fund. It seeks to efficiently deliver exposure to a broadly diversified set of global risk premia. Rather than diversifying by capital, this strategy seeks to diversify based on risk across global equities, global nominal bonds, inflation sensitive assets, and credit/default related assets.

The Global Real Return strategy is an actively managed, unconstrained, multi-asset strategy, which aims to achieve a return of one-month USD LIBOR +4% over rolling five-year periods.

The Fund-of-Funds strategy invests in hedge funds. The total number of funds varies as does the types of strategies. On June 30, 2022, 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.

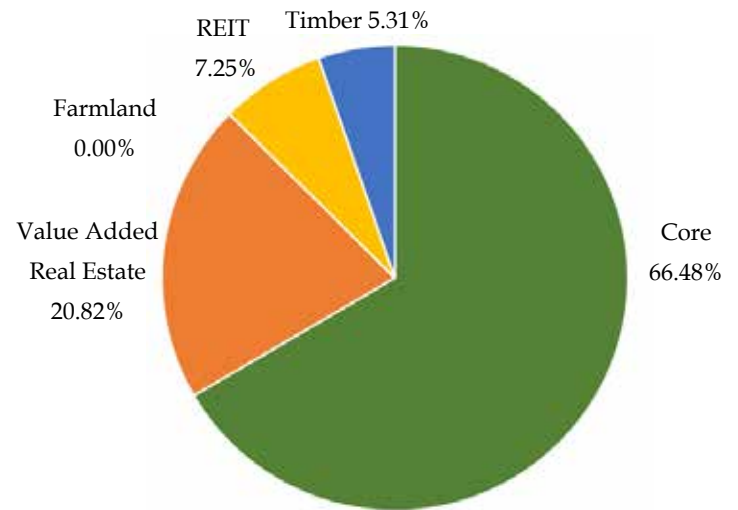
Results

The Diversified Strategies portfolio returned -4.53% for the fiscal year. The APERS target returned -12.51% which is not a benchmark because a benchmark does not exist. The target comprises 60% of the MSCI World Index and 40% of the Bloomberg Aggregate Index.



As of June 30, 2022, 15.80% of the APERS portfolio was invested in real assets. The fair value of the portfolio was \$1.586 billion.

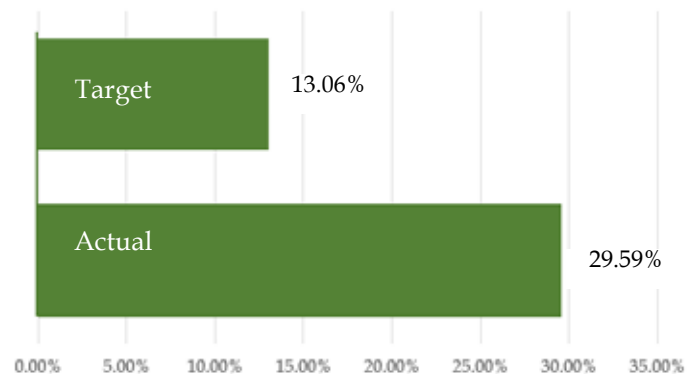
The asset allocation comprises five different sub-categories: core real estate, value add real estate, timber, agriculture, and a passive REIT index.



Results

The Real Assets portfolio returned 29.59% for the fiscal year. The APERS target returned 13.06% which is not a benchmark because a benchmark does not exist. The target comprises CPI-U +4%

Core Real estate returned 29.54% for the fiscal year, Value Add Real Estate returned 55.47%, Timber returned 15.52%, and REITs returned -6.07%.



Schedule of Comparative Investment Results by Year

	2022	2021	2020	2019	2018	2017	2016
Total Fund							
APERS	(10.54)%	31.49%	2.41%	5.78%	10.25%	12.30%	0.30%
APERS Benchmark	(9.88)%	25.82%	4.91%	6.68%	8.40%	12.90%	0.27%
Actuarial Assumed Investment Return	7.15%	7.15%	7.15%	7.15%	7.15%	7.15%	7.50%
Domestic Equities							
APERS	(14.22)%	43.65%	6.06%	8.12%	16.27%	17.52%	(0.38)%
Russell 3000 Index	(13.87)%	44.16%	6.53%	8.98%	14.78%	18.51%	2.14%
International Equities							
APERS	(22.24)%	41.35%	(1.45)%	1.98%	7.22%	18.39%	(6.88)%
MSCI - EAFE Index	(17.77)%	32.35%	(5.13)%	1.08%	6.84%	20.27%	(10.16)%
Fixed Income							
APERS	(11.39)%	4.32%	6.81%	8.57%	0.79%	3.04%	5.06%
Bloomberg Aggregate Index	(10.29)%	(0.33)%	8.74%	7.87%	(0.40)%	(0.31)%	6.00%
Diversified Strategies							
APERS	(4.53)%	17.26%	(1.17)%	10.20%	6.43%	5.51%	2.86%
Diversified Strategy Target	(12.51)%	22.15%	6.45%	7.41%	6.40%	10.51%	0.82%
Real Assets							
APERS	29.59%	18.52%	(4.37)%	1.72%	11.34%	3.27%	8.29%
Consumer Price Index - U + 4%	13.06%	9.39%	4.65%	5.65%	6.87%	5.63%	5.01%

Schedule of Comparative Annualized Investment Results

	3-year	5-year	7-year	10-year
Total Fund				
APERS	6.40%	7.03%	6.77%	8.43%
APERS Benchmark	5.95%	6.58%	6.53%	7.87%
Actuarial Assumed Investment Return	7.15%	7.15%		
Domestic Equities				
APERS	9.33%	10.44%	9.79%	12.00%
Russell 3000 Index	9.77%	10.60%	10.43%	12.57%
International Equities				
APERS	2.70%	3.44%	3.88%	6.72%
MSCI - EAFE Index	1.07%	2.20%	2.70%	5.40%
Fixed Income				
APERS	(0.42)%	1.56%	2.26%	2.76%
Bloomberg Aggregate Index	(0.93)%	0.88%	1.42%	1.54%
Diversified Strategies				
APERS	3.43%	5.35%	5.01%	6.02%
Diversified Strategy Target	4.39%	5.39%	5.44%	6.56%
Real Assets				
APERS	13.67%	10.71%	9.27%	8.93%
Consumer Price Index - U + 4%	8.98%	7.88%	7.14%	6.59%

Schedule of Manager Distribution

(for the year ended June 30, 2022)

Asset Allocation	Total	ASPRS	APERS
Domestic Equity			
SSI Investment Management	\$400,497,007	\$14,929,888	\$385,567,120
Lazard Asset Management	446,078,745	16,629,102	429,449,643
Wellington	482,686,719	17,993,789	464,692,931
CastleArk Management	477,660,827	17,806,431	459,854,396
Intech	415,117,893	15,474,931	399,642,962
Stephens	413,473,252	15,413,621	398,059,631
LSV Asset Management	313,736,339	11,695,589	302,040,750
Horrell Capital (Passive)	179,158,757	6,678,752	172,480,005
MCM EB DV Stock Index	595,915,258	22,214,767	573,700,490
Domestic Fixed Income			
Mackay CP II (Pareto)	635,684,108	23,697,286	611,986,821
Doubleline Capital	597,382,409	22,269,460	575,112,949
Prudential Investments	643,244,615	23,979,130	619,265,485
International Equity			
MCM ACWI Ex-US Index Fund	537,127,453	20,023,252	517,104,201
Acadian Asset Management	168,949,351	6,298,161	162,651,189
Franklin Templeton	139,323,031	5,193,740	134,129,291
Manning & Napier	267,071	9,956	257,115
Lazard Asset Management	495,550,969	18,473,347	477,077,621
Artisan Partners	557,439,071	20,780,437	536,658,634
Baillie Gifford	464,042,789	17,298,773	446,744,016
Diversified Strategies			
AQR Capital Management	145,704,816	5,431,642	140,273,174
Newton Capital Management	138,652,368	5,168,738	133,483,629
Blackstone	208,557,123	7,774,676	200,782,447
Real Assets			
CastleArk (Global Energy)	14,909	556	14,353
PGIM Agriculture	2,089,693	77,900	2,011,793
Harrison Street Fund VIII	30,586,588	1,140,219	29,446,369
Starwood SOF XII	16,483,367	614,474	15,868,893
Invesco Realty (Core Fund)	644,061,218	24,009,572	620,051,646
Heitman Value Fd IV	64,547,775	2,406,238	62,141,537
Ta Associates Realty - Fund X	28,682	1,069	27,613
Ta Associates Realty - Fund XI	55,819,275	2,080,853	53,738,422
Ta Associates Realty - Fund XII	114,133,481	4,254,714	109,878,767
Lasalle Investment Management - Fund VI	8,145,379	303,647	7,841,732
Lasalle Investment Management - Fund VII	40,555,299	1,511,837	39,043,463
Heitman Real Estate	410,610,512	15,306,903	395,303,609
Pinnacle Forest Investments	84,276,481	3,141,692	81,134,789
MCM EB DV Non St Rt	115,027,044	4,288,024	110,739,019
Short-term Investment Fund	56,240,859	7,283,014	48,957,845
TOTAL FUND	<u>\$10,098,870,531</u>	<u>\$381,656,180</u>	<u>\$9,717,214,351</u>

Schedule of Brokerage Commissions

(for the year ended June 30, 2022)

Brokerage firm	Total Commission	ASPRS	APERS
Morgan Stanley & Co.	\$709,772	\$26,459	\$683,313
Merrill Lynch	118,790	4,428	114,362
J P Morgan Securities	117,816	4,392	113,424
Citigroup Global Markets	110,391	4,115	106,276
Credit Suisse	100,247	3,737	96,510
Goldman Sachs & Co.	96,691	3,604	93,087
UBS	71,644	2,671	68,973
Virtu Americas LLC, New York	61,593	2,296	59,297
Piper Jaffray & Co., Jersey City	54,783	2,042	52,741
Liquidnet Inc.	43,092	1,606	41,485
All others	630,494	23,504	606,991
	<u>\$2,115,313</u>	<u>\$78,855</u>	<u>\$2,036,458</u>

Schedule of Investment Fees

(for the year ended June 30, 2022)

	Combined Fees	ASPRS	APERS
Domestic Equity	\$14,683,947	\$547,394	\$14,136,553
International Equity	10,039,576	374,259	9,665,317
Fixed Income	3,930,859	146,536	3,784,323
Real Assets	24,792,456	924,223	23,868,233
Diversified Strategies	3,958,879	147,581	3,811,298
The Bank of New York Mellon*	532,406	19,847	512,559
Callan Associates†	338,680	12,625	326,054
Total Investment Service Fees	<u>\$58,276,802</u>	<u>\$2,172,466</u>	<u>\$56,104,336</u>

*Custodian bank

† Investment consultant

Actuarial

Actuary's Certification Letter
Summary of Actuarial Assumptions
Supplementary Information

Actuarial Data

Active Members in Actuarial Valuation
Tier One and Tier Two Participants
Single Life Retirement Values
Separations from Active Employment Before
Retirement
Probabilities of Retirement for Members Eligible to
Retire

Short Condition Test

Ten-Year Comparative Statement

Derivation of Experience (Gain/Loss)

Gains/Losses by Risk Area



Actuary's Certification Letter



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November 14, 2022

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, 2022. The purpose of the June 30, 2022 annual actuarial valuation was to determine the contribution requirement for the fiscal year ending June 30, 2023 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 30 years. The most recent valuations were completed based upon population data, asset data, and plan provisions as of June 30, 2022. In addition, a separate report was issued (dated November 3, 2022) 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 Annual Comprehensive 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

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Board of Trustees
Arkansas State Police Retirement System
November 14, 2022
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, 2022 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 48.52% of covered payroll for the year beginning July 1, 2022. Actual revenues were greater than the statutory requirement for the last 16 years. ASPRS' ongoing 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 17 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 reports were prepared using our proprietary valuation model and related software which, in our professional judgment, has the capability to provide results that are consistent with the purposes of the valuation, and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

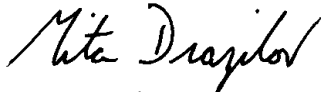


Board of Trustees
Arkansas State Police Retirement System
November 14, 2022
Page 3


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.

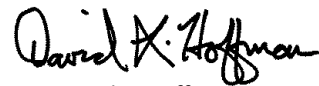
Respectfully submitted,
Gabriel, Roeder, Smith & Company



Mita D. Drazilov, ASA, FCA, MAAA



Heidi G. Barry, ASA, FCA, MAAA



David L. Hoffman

MDD/HGB/DLH:dj



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, 2021, 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.

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 and interest) which are level percent-of-payroll contributions.

Present assets (cash and 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).

*The data referenced in this section is taken from the actuary’s report, Arkansas State Police Retirement System Actuarial Valuation and Experience Gain/(Loss) Analysis June 30, 2022, prepared by Gabriel Roeder Smith & Co. A PDF copy of the report is available for download at www.apers.org.

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, 2022
Actuarial Cost Method	Entry Age Normal Cost
Amortization Method	Level Percent-of-Payroll
Remaining Amortization Period	17-Year Closed
Asset Valuation Method	4-Year Smoothed Market
Actuarial Assumptions:	
Investment Rate of Return	7.15%
Projected Salary Increases Including Wage Inflation at Cost-of-Living Adjustments	3.55% - 7.75% 3.25% 3.0% Annual Compound Increases
Retirees and Beneficiaries Receiving Benefits	716
Terminated Plan Members Entitled to But Not Yet Receiving Benefits	115
DROP Members	48
Active Plan Members	471
Total	<u>1,350</u>

Actuarial Data

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) 2022 *	
	Men	Women	Men	Women	Men	Women
40	\$ 156.24	\$ 160.06	\$ 229.85	\$ 239.48	41.26	44.94
45	151.16	156.10	216.93	228.14	36.35	39.96
50	144.75	150.78	202.11	214.61	31.59	35.04
55	136.82	143.70	185.37	198.62	27.01	30.19
60	127.07	134.79	166.63	180.41	22.63	25.52
65	115.36	123.93	146.13	160.24	18.51	21.10
70	101.57	110.73	124.07	138.02	14.68	16.93
75	85.72	95.09	100.89	114.12	11.18	13.07
80	68.46	77.57	77.70	89.65	8.09	9.62
85	51.31	59.65	56.31	66.54	5.55	6.74

* Applicable to calendar year 2022. Life expectancies and rates in future years are determined by the fully generational MP-2017 projection scale.

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

Active Members in Actuarial Valuation (for fiscal years ended June 30)

June 30	No. #	Group Averages		
		Age	Service	Pay
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
2020	541	40.9	12.5	61,573
2021	545	41.1	12.6	61,624
2022	519	40.8	12.6	63,116

Includes DROP participants.

Tier One and Tier Two Participants (as of June 30, 2022)

	No.	Group Averages		
		Age	Vesting Service	Pay
Tier One	14	51.5 yrs.	25.7 yrs.	\$86,803
Tier Two	457	38.8	10.5	60,201
Tier One - DROP	41	57.1	28.5	85,488
Tier Two - DROP	7	54.6	30.4	75,038
Total	519	40.8	12.6	\$63,116

Separations from Active Employment Before Retirement (as of June 30, 2022)

Sample Ages	Percent of Active Members Separating Within the Next Year				Pay Increase Assumptions for Active Members		
	Death		Disability	Other	Merit & Seniority	Base (Economic)	Increase Next Year
	Male	Female					
20	0.05%	0.02%	0.06%	5.50%	4.50%	3.25%	7.75%
25	0.06%	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	0.22%	0.13%	0.67%	0.55%	0.80%	3.25%	4.05%
55	0.37%	0.22%	0.79%	0.00%	0.60%	3.25%	3.85%

Probabilities of Retirement for Members Eligible to Retire (as of June 30, 2022)

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%	-	28	20%
49	1%	-	29	10%
50	8%	1%	30	10%
51	8%	1%	31	10%
52	8%	1%	32	10%
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 age 50 with 28 years of service (Tier One), or at any age with 28 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 28 or more years of service at the beginning of a year, the percentages shown for service based retirement (28 or more years) take precedence over the percentages associated with age based retirement.

For purposes of modeling, Tier Two members who are eligible to retire under the service based condition are assumed to have one year of credited service in addition to the credited service that is reported for valuation purposes.

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

Short Condition Test

The ASPRS 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

1. Member accumulated contributions;
2. The liabilities for future benefits to present retired lives; and

3. The employer financed portion of liabilities for service already rendered by non-retired 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

Valuation Date	Entry Age Accrued Liability			Valuation Assets	Portion of Present Values Covered By Valuation Assets			
	(1) Active Members Contr.	(2) Retirees and Benef.	(3) Active Member (Employer Financed Portion)		(1)	(2)	(3)	Total
June 30								
	(\$ in Millions)							
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%
2020#	0.65	301.96	170.31	352.08	100%	100%	29%	74%
2021#	0.61	305.18	185.72	387.54	100%	100%	44%	79%
2022	0.58	319.89	179.80	403.30	100%	100%	46%	81%

@ After changes in actuarial assumptions and/or methods.

After legislated changes in benefit provisions.

* (1) was estimated based on reported member contribution balances on data received by the actuary from ASPRS.

Derivation of Experience (Gain/Loss)

Actual experience will not (except by coincidence) coincide exactly with 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.

(1) UAAL * at start of year	\$ 103,972
(2) Normal cost from last valuation	8,262
(3) Employer contributions	22,694
(4) Interest accrual: $(1) \times 0.0715 + ((2) - (3)) \times 0.03575$	6,918
(5) Expected UAAL before changes: $(1) + (2) - (3) + (4)$	96,459
(6) Change for revised actuarial assumptions and/or valuation methods	0
(7) Change from benefit changes	0
(8) Expected UAAL after changes: $(5) + (6) + (7)$	96,459
(9) Actual UAAL at end of year	96,971
(10) Gain/loss: $(8) - (9)$	\$ (512)
<hr/>	
(11) Gain/loss as percent of actuarial accrued liabilities at start of year	(0.1%)

* *Unfunded actuarial accrued liability.*

Gains/Losses by Risk Area (for the fiscal year ended June 30, 2022)

Type of Risk Area	Gain/Loss in Period	
	\$ Millions	Percent of Liabilities
ECONOMIC RISK AREAS ...		
<i>Pay Increases.</i> If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	\$(0.5)	(0.1)%
<i>Investment Return.</i> If there is greater recognized investment return than assumed, there is a gain. If less return, a loss.	(5.0)	(1.0)%
NON-ECONOMIC RISK AREAS ...		
<i>Age & Service Retirements.</i> If members retire at older ages or with lower final average pays than assumed, there is a gain. If younger ages or higher average pays, a loss.	0.2	0.0 %
<i>Disability Retirements.</i> If there are fewer disabilities than assumed, there is a gain. If more, a loss.	0.0	0.0 %
<i>Death-in-Service Benefits.</i> If more liabilities are released by deaths-in-service, there is a gain. If smaller releases, a loss.	(0.3)	(0.1)%
<i>Withdrawal.</i> If more liabilities are released by other separations than assumed, there is a gain. If smaller releases, a loss.	0.4	0.1 %
Actuarial Gain/Loss	\$(5.2)	(1.1)%
<i>Other.</i> Gains and losses resulting from group size change, data adjustments, timing of financial transactions, and retiree mortality.	4.7	1.0 %
TOTAL GAIN (OR LOSS) DURING PERIOD	\$(0.5)	(0.1)%



Statistical

The System

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- Chart of Revenues by Source
- Schedule of Investment Return Rate
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The System

Schedule of Revenues by Source

(for fiscal years ended June 30)

	Employer Contributions	Court & Driver's License Reinst. Fees	Insurance Premium Tax	Motor Vehicle Title Fees	Investment Income	Other Income	Total
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
2020	7,205,047	2,114,797	7,705,096	4,754,635	6,700,847	93,849	28,574,271
2021	7,706,274	2,646,549	7,139,013	5,250,891	101,415,154	40,986	124,198,867
2022	\$8,908,482	\$2,243,224	\$6,165,687	\$5,235,756	\$(46,247,489)	\$140,865	\$(23,553,475)

Chart of Revenues by Source

(for fiscal years ended June 30)



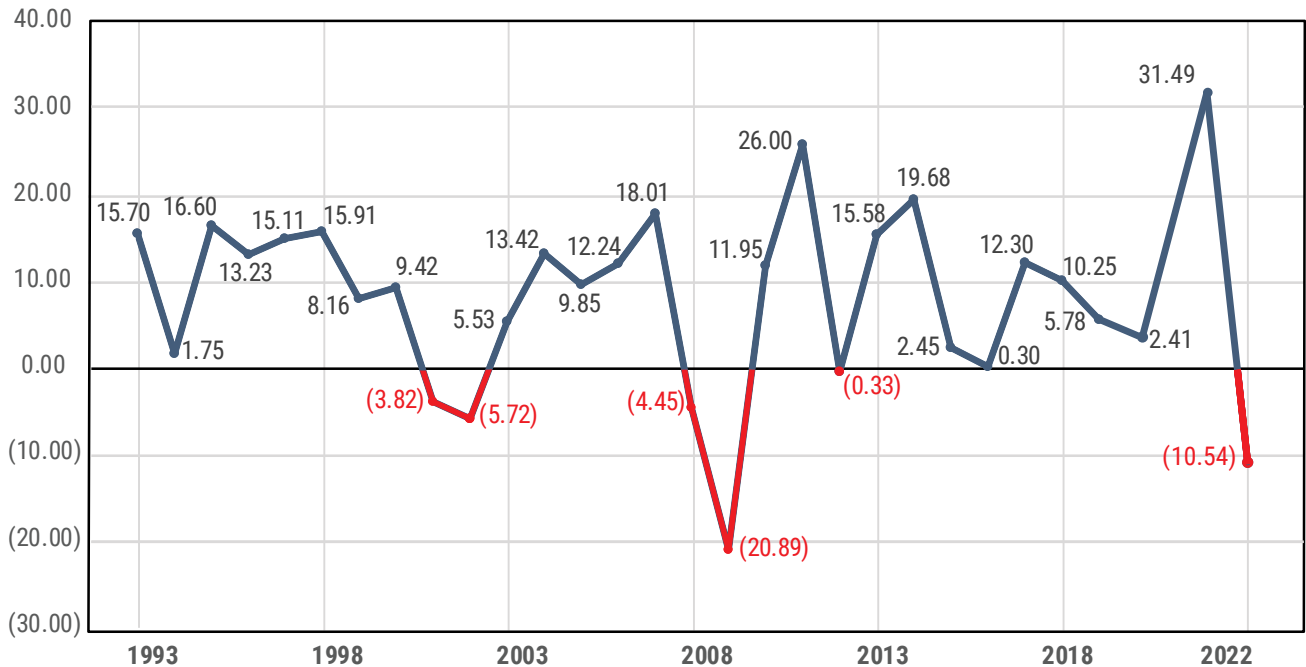
Schedule of Investment Return Rate

(for fiscal years ended June 30)

Year	Rate	Year	Rate
1993	15.70%	2008	(4.45)%
1994	1.75	2009	(20.89)
1995	16.60	2010	11.95
1996	13.23	2011	26.00
1997	15.11	2012	(0.33)
1998	15.91	2013	15.58
1999	8.16	2014	19.68
2000	9.42	2015	2.45
2001	(3.82)	2016	0.30
2002	(5.72)	2017	12.30
2003	5.53	2018	10.25
2004	13.42	2019	5.78
2005	9.85	2020	2.41
2006	12.24	2021	31.49
2007	18.01%	2022	(10.54)%

Chart of Investment Return Percentage Rate

(for fiscal years ended June 30)



Schedule of Expenses by Type

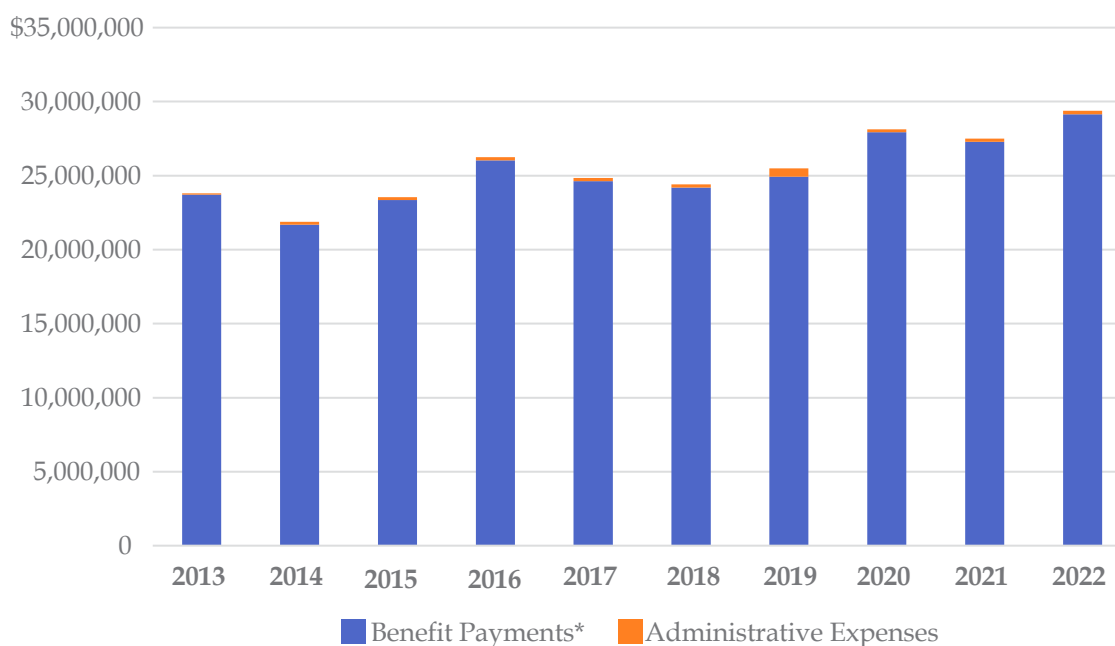
(for fiscal years ended June 30)

Year Ended June 30	Benefit Payments*	Administrative Expenses	Total
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
2020	27,934,142	195,463	28,129,605
2021	27,294,080	215,384	27,509,464
2022	\$ 29,149,508	\$ 229,348	\$ 29,378,856

*Includes DROP and PAW distribution.

Chart of Expenses by Type

(for fiscal years ended June 30)



Schedule of Benefit Expenses by Type *

(for fiscal years ended June 30)

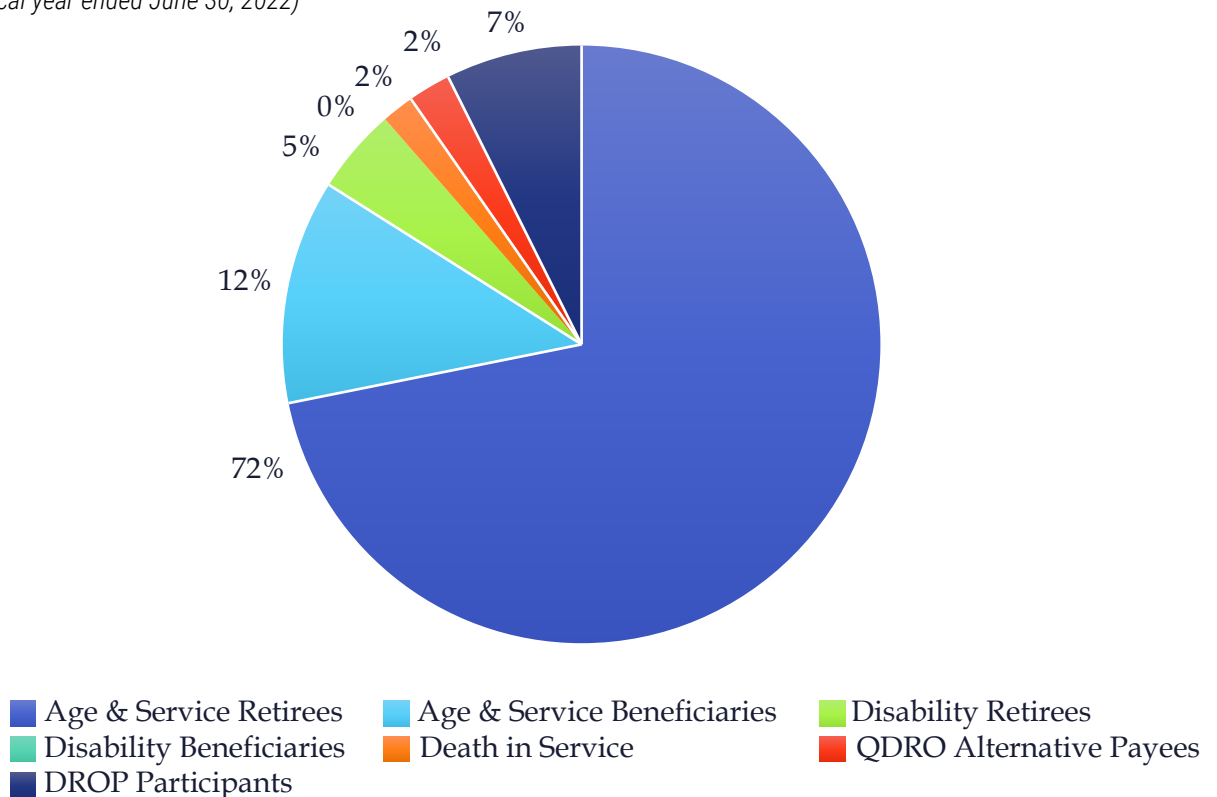
	Age & Service Retirees	Age & Service Beneficiaries	Disability Retirees	Disability Beneficiaries**	Death in Service**	QDRO Alternative Payees	DROP Participants
2013	\$16,901,590	\$1,950,945	\$26,158,872		\$93,828		
2014	17,368,858	2,034,215	27,648,624		74,640		
2015	17,963,207	2,325,900	1,016,556	13,944	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
2020	20,318,260	3,229,236	1,442,208	0	527,664	687,097	3,477,012
2021	20,799,930	3,312,885	1,461,060	0	500,460	687,593	3,387,900
2022	\$21,352,320	\$3,600,540	\$1,372,704	0	\$518,928	\$685,068	\$2,188,500

*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.

Chart of Benefit Expenses by Type (Percentages)

(for the fiscal year ended June 30, 2022)



* Figures in chart are rounded thus do not equal 100 percent.

Membership

The Arkansas State Police Retirement System includes active members in a two tier program, retired members, beneficiaries, participants in the Deferred Retirement Option Plan (DROP), and deferred members.

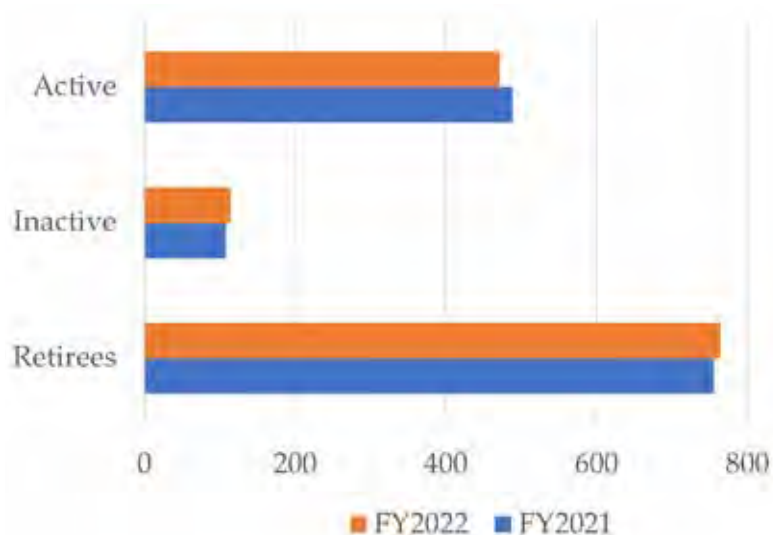
Members

(for fiscal years ended June 30)

	2022	2021
Retirees and Beneficiaries Receiving Benefits (includes DROP participants)	764	755
Terminated Plan Members Entitled to But Not Yet Receiving Benefits	115	108
Active Plan Members	471	488

Chart of Memberships by Type (Percentages)

(for fiscal years ended June 30)



Schedule of Retired Members by Type of Benefit

(for the fiscal year ended June 30, 2022)

Type of Benefit Being Paid	Number	Annual Pensions	Actuarial Acquired Liability
Age & Service Retirees			
Life	41	\$1,060,788	\$15,095,053
B-50	416	20,291,532	241,270,211
Totals	457	21,352,320	256,365,264
Beneficiaries of Age & Service Retirees			
B-50	138	3,600,540	32,860,934
Total Age & Service Retirees	595	24,952,908	289,226,198
Disability Retirees			
Life	22	406,908	5,183,009
B-50	33	965,796	11,578,805
Total Disability Retirees	55	1,372,704	16,761,815
Beneficiaries of Disability Retirees	0	0	0
Total Disability Retirees & Beneficiaries	55	1,372,704	16,761,815
Death-in-Service Beneficiaries	24	518,928	5,617,445
QDRO Alternate Payees	42	658,068	8,288,264
Total Retirees & Beneficiaries	716	27,529,560	319,893,722
DROP Participants (excluding DROP reserve)	48	2,188,500	46,426,751
Total Retirees, Beneficiaries, and DROP Participants	764	\$29,718,060	\$366,320,473

Chart of Retired Members and Beneficiaries by Type of Benefit (Percentages)

(for the fiscal year ended June 30, 2022)

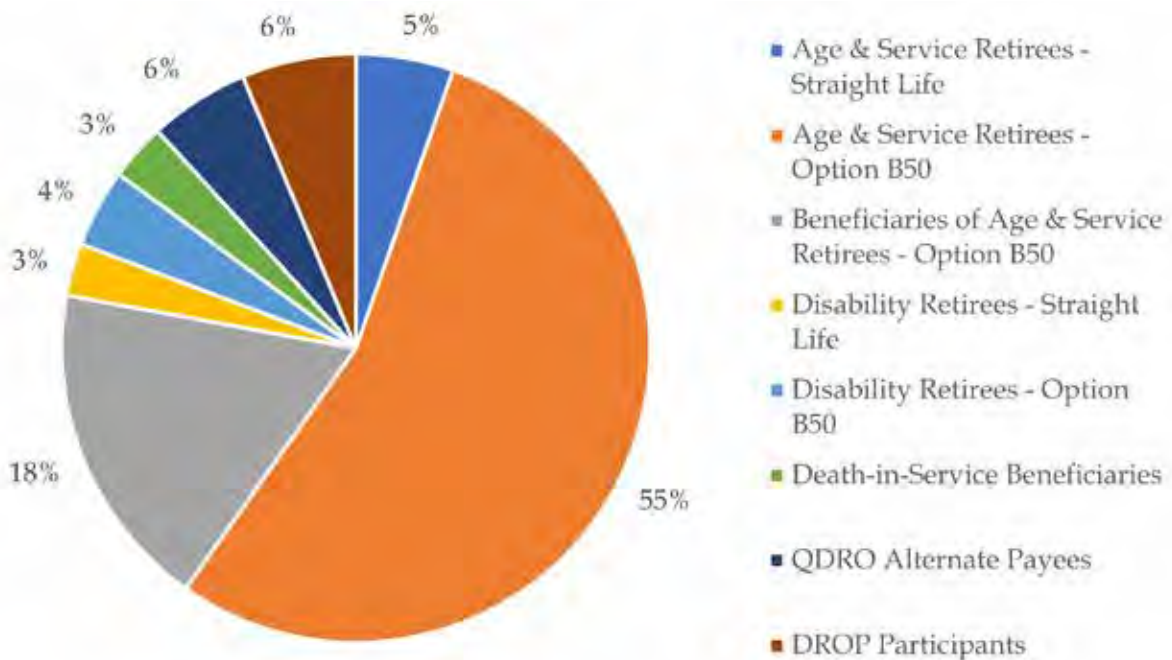
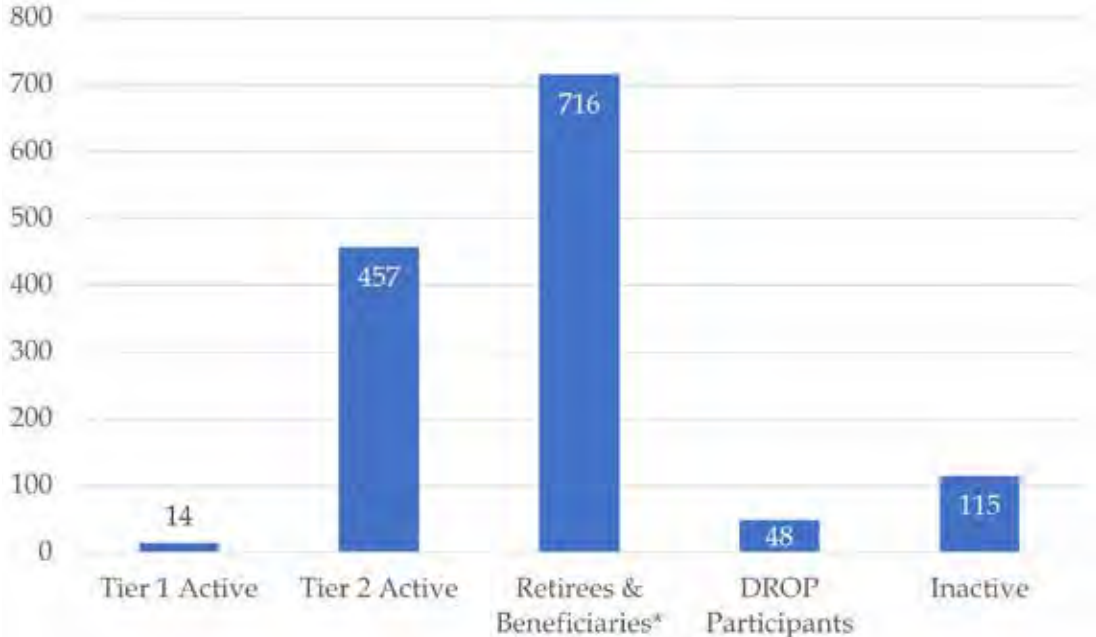


Chart of Members by Status in System

(for the fiscal year ended June 30, 2022)



* Includes Death-in-Service Beneficiaries and Disability Recipients



A publication of the Arkansas State Police Retirement System