
Missouri State Employees' Retirement System
*A Component Unit of the State of Missouri*
Comprehensive Annual Financial Report
*Fiscal Year Ended June 30, 2013*

MOSERS®
WE ARE HERE FOR YOUR BENEFIT.

# Retirement

The concept . . . TIMELESS

The experience . . . UNIQUE

Gary Findlay
*Executive Director*

Gary Irwin
*Chief Finance Officer*

Missouri State Employees' Retirement System
*A Component Unit of the State of Missouri*

Comprehensive Annual Financial Report
*Fiscal Year Ended June 30, 2013*

## Introductory Section



## Financial Section



## Investment Section

## Actuarial Section



## Statistical Section



** Missouri State Employees' Plan*

MOSERS®

WE ARE HERE FOR YOUR BENEFIT.

## Mission

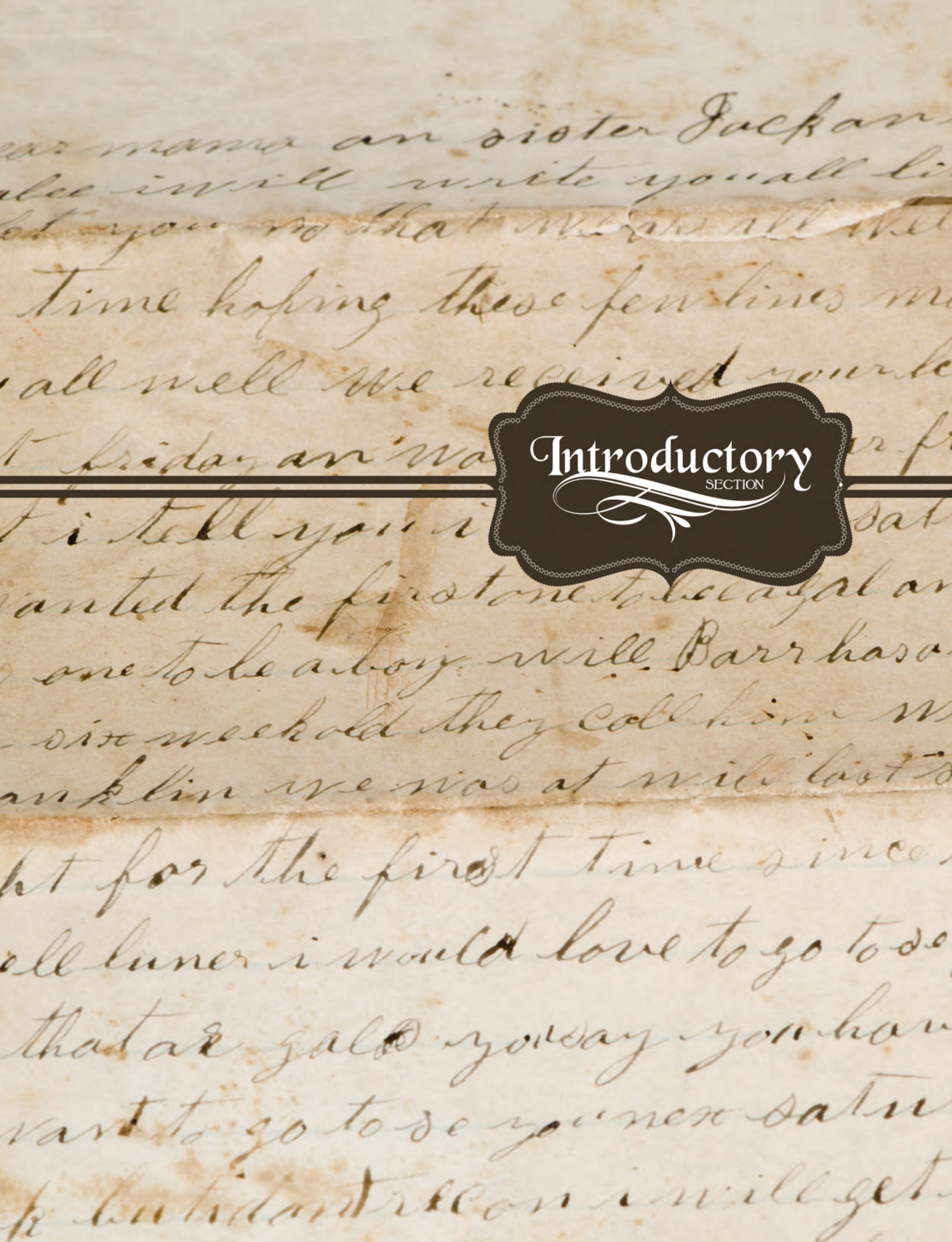
MOSERS exists to advance the financial security of its members.

## Vision

We endeavor to:
Exceed customer expectations
Educate stakeholders
Ensure sound investment practices
Encourage responsible
funding of the plan
through a commitment to
EXCELLENCE ALWAYS.

## Values

Quality • Respect • Integrity • Openness • Accountability



# Introductory
SECTION

# Introductory Section



## Professional Awards

### Certificate of Achievement for Excellence in Financial Reporting

*MOSERS' Comprehensive Annual Financial Report* for the fiscal year ended June 30, 2012, was awarded the Certificate of Achievement for Excellence in Financial Reporting by the Government Finance Officers Association of the United States and Canada (GFOA). This was the 24th consecutive year that MOSERS has received this prestigious award. The Certificate of Achievement is the highest form of recognition for excellence in state and local government financial reporting.

To be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized comprehensive annual financial report (CAFR). The CAFR must satisfy generally accepted accounting principles, applicable legal requirements and GFOA reporting standards.

### Public Pension Standards Award

MOSERS also received the Public Pension Coordinating Council (PPCC), Public Pension Standards Award in 2012, in recognition of meeting the professional standards for plan design and administration as set forth in the Public Pension Standards. This award is presented by the PPCC, a confederation of the National Association of State Retirement Administrators (NASRA), the National Conference on Public Employee Retirement Systems (NCPERS), and the National Council on Teacher Retirement (NCTR).

# LETTER OF TRANSMITTAL

Missouri State Employees' Retirement System
Mailing Address: PO Box 209, Jefferson City, MO 65102-0209
Phone: (573) 632-6100 • (800) 827-1063 | Fax: (573) 632-6103
MO Relay: 7-1-1 (Voice) • (800) 735-2966 (TTY)
Website: *www.mosers.org* | Email: *mosers@mosers.org*
*Visit us at 907 Wildwood Drive, Jefferson City, MO*

MOSERS
WE ARE HERE FOR YOUR BENEFIT.

October 15, 2013

The Board of Trustees
Missouri State Employees' Retirement System
907 Wildwood Drive
Jefferson City, MO 65109

Dear Board Members:

It is my pleasure to submit the 2013 comprehensive annual financial report (CAFR) of the Missouri State Employees' Retirement System (MOSERS). In the public retirement fund universe, change at a rapid pace has been the norm rather than the exception. In order to manage this change, it is important to prepare for and execute plans that will help us sustain success into the future. Measuring performance and results is also a large part of managing change and has served us well in our commitment to quality service in a cost-effective manner for our stakeholders. Setting the bar high and raising it on an ongoing basis is ingrained within the MOSERS culture. The primary purpose of this report is to look at a point in time snapshot of the last fiscal year as it provides useful measurements of how we got to where we are. It is important, however, to not only understand where we are and how we got here, but also our purpose in doing so. At MOSERS, our mission highlights this purpose: "MOSERS exists to advance the financial security of its members."

In FY13, MOSERS' investments generated approximately $780 million or a return of 10.4% (net of fees) on behalf of our members and Missouri taxpayers. The total fund return exceeded its policy benchmark by 2.2%. The incremental return (actual return vs. policy benchmark) resulted in an additional $165 million for the fund this year.

## Report Contents and Structure

This CAFR is designed to satisfy the reporting requirements of state law as stipulated in Sections 104.480, 104.1006, and 105.661 of the Revised Statutes of Missouri (RSMo), as amended. Management has prepared the basic financial statements of MOSERS and is responsible for the integrity and fairness of the information presented. Some amounts included in the financial statements and elsewhere may be based on estimates and judgments. These estimates and judgments were products of the best business practices available. The accounting policies followed in preparing the basic financial statements conform with U.S. generally accepted accounting principles. Financial information presented throughout the CAFR is consistent with that which is displayed in the basic audited financial statements.

Ultimate responsibility for the CAFR and the basic financial statements rests with the board of trustees. The executive director and the rest of the MOSERS staff assist board members in fulfilling their responsibilities. Systems of internal controls and supporting procedures are maintained to provide assurances that transactions are authorized, assets are safeguarded, and proper records are maintained. These controls include standards in the hiring and training of employees, the establishment of an organizational structure, and the communication of policies and guidelines throughout the organization. Internal controls are reviewed through internal audit programs and all internal audit reports are submitted to the board of trustees. The concept of reasonable assurance recognizes that the cost of a control should not exceed the benefits likely to be derived and the valuation of cost and benefits requires estimates and judgments by management.

The system's external auditor, Williams-Keepers LLC, conducted an independent audit of the basic financial statements in accordance with U.S. generally accepted auditing standards. This audit is described in the *Independent Auditors' Report* on page 19 in the *Financial Section*. Management has provided the external auditors with full and unrestricted access to MOSERS' staff to discuss their audit and related findings, to facilitate independent validation of the integrity of the plan's financial reporting, and the adequacy of the internal controls in place.

The *Financial Section* also contains the *Management Discussion and Analysis* that serves as an introduction to and overview of the financial statements. MOSERS is considered a component unit of the state of Missouri for financial reporting purposes and, as such, the financial statements in this report are also included in the *State of Missouri's Comprehensive Annual Financial Report*.

## Profile of MOSERS

MOSERS is a body corporate and an instrumentality of the state of Missouri that was established in 1957 by state law, under the management of a board of trustees, for the purpose of providing retirement benefits to most state employees. MOSERS provides for those retirement benefits through pension trust funds, in keeping with the fiduciary responsibilities of the board members and staff.

Subsequent to its creation, MOSERS was further assigned the task of providing most members of the retirement system with term life and long-term disability insurance. MOSERS operates an internal service fund for the state of Missouri and contracts with insurance companies to provide those benefits through insured defined benefit plans. MOSERS maintains membership information on those eligible for the insurance coverage and collects and remits the premiums to the insurance company. Currently, the life and long-term disability insurance plans are insured through The Standard insurance company.

The State of Missouri's Deferred Compensation Plan is accounted for as an internal service fund and is administered by MOSERS through the use of ICMA-RC as a third-party record keeper. Investment options are made available to participants who retain responsibility for the investment of their individual accounts.

## Strategic Planning

During FY13, a new strategic planning initiative was implemented which included an in-depth SWOT (strengths, weaknesses, opportunities, threats) and an external trends analysis that led to the identification of six pathways to excellence. These pathways direct staff goals which include leadership evolution, customer service, workload demands, internal communications, stakeholder communications, and asset guardianship. This initiative also resulted in a new mission and vision statement that incorporates the core values presently in place for staff.

## Budgeting

The MOSERS Board of Trustees annually approves the administrative expense budgets for MOSERS' operations and investment departments. MOSERS' governance policy requires an exception report to the board of trustees by the executive director if expenses are expected to exceed budgeted amounts by 10% and to seek board approval in advance for any unscheduled salary increases or staff expansions not included in the budget approved by the board before the beginning of the fiscal year. There were no budget exceptions to report for the year. New budgeting software was implemented during FY13 and will be used in the next budgeting cycle to increase efficiency and effectiveness of the process.

### Succession Planning

Succession planning strategies have been in place since FY10 with an emphasis on employee development and retention, as well as ways in which institutional knowledge could be captured. This program includes a selection process for high potential employees who are interested in preparing for higher level positions at MOSERS. The program was designed to capitalize on the experience that current staff already possesses and prepare them to move into higher level positions. In addition to training and job shadowing, each participant is required to initiate and complete an individual capstone project that would be of benefit to MOSERS. The fourth year of succession planning includes one employee who is continuing to work through a development plan. The fifth group will be recruited during the first half of FY14. The importance of this type of program becomes clear when considering the fact that MOSERS presently has 13 employees who are eligible to retire and an additional 15 who will become eligible to retire between now and September 1, 2018, representing in total, over one-third of our workforce.

### Risk Management Enhancements

Risk management is a critical component of the investment management program. Charlesworth & Associates, MOSERS' insurance risk management consultant, has reported that insurance coverage has been designed around the risks to which the system is exposed and the philosophy regarding funding of potential loss. The insurance risk management consultant helps us ensure that coverage is consistent with industry standards and that the best rates available are in place. Additionally, it is the consultant's opinion that MOSERS continues to excel in risk management and there have been no asset protection exceptions during the year.

### Business Continuity Plan Implementation

MOSERS business continuity plans are the first line of defense in the aftermath of a business interruption. This year, MOSERS' business continuity steering committee (BCSC) developed and implemented a budget to fund training requirements, business continuity exercises, maintenance and upgrades of contracts, and business continuity related purchases, which improves readiness in the event of a business interruption. Additional steps were taken to improve business continuity by adding a new committee member to the BCSC who is working towards business continuity planning certification and upgrading the telephone infrastructure to voice over IP (VoIP) to allow for remote voice communications and improved overall system flexibility. In addition, the point-to-point wireless connectivity between MOSERS and the warm-site was upgraded. The new system provides ten times the bandwidth which helps ensure that systems stay synchronized. As part of MOSERS' business continuity plan, two exercises were conducted this year focusing on the decision-making process and functional procedures.

### Deferred Compensation and College and University Retirement Plans

MOSERS is responsible for oversight of the State of Missouri Deferred Compensation Plan (The Plan) and the College and University Retirement Plan (CURP), which includes, but is not limited to, contracting with record keepers, plan administrators and investment managers, providing communications and ensuring that the plans are in compliance with federal and state law. Deferred compensation plan participation is voluntary, for eligible members, including college and university employees. An automatic enrollment feature was added for new employees into the State of Missouri Deferred Compensation Plan starting after July 1, 2012.

As of June 30, 2013, there were 55,651 participants (35,885 active and 19,766 terminated/retired) in the State of Missouri Deferred Compensation Plan. Of those employees eligible, 57% (includes college and university employees) participate in the plan. Plan assets total $1,637,496,636. ICMA-RC is the plan record keeper. The plan consists of 13 custom-designed target date investment options, a stable income fund, a MOSERS Investment Portfolio (MIP), a brokerage window, and 30 closed legacy mutual fund options (consisting of a variety of domestic equity, international equity, fixed income, and lifestyle/balanced mutual funds).

Active employee plan participation was up 4.9% from FY12. Total participants (both active and terminated) increased by 2,617 during the fiscal year. This increase is a direct result of the automatic enrollment.

The Plan added the MIP fund option to the line-up on July 1, 2012. This option gives plan participants the ability to purchase units of the MOSERS investment portfolio. Assets in the MIP as of June 30, 2013, total $2,015,286 held by 79 investors; 57 of those participants have also set up future allocations to the MIP.

The board also has responsibility for oversight of the College and University Retirement Plan (CURP). CURP is a 401(a) defined contribution plan for education employees hired after June 30, 2002, by the regional colleges and universities that participate in MOSERS. The employer contribution rate is 1% of payroll less than the normal cost of the defined benefit plan for general state employees. TIAA-CREF is responsible for third-party administration and for providing investment products and education of members in the plan. Current plan assets total $44,226,328 with 1,996 participants.

## Technology Updates

To increase building security this year, MOSERS implemented an automated employee notification system, which enables MOSERS' leadership to disseminate real-time messages, alerts and mass voice and text notifications across phone, SMS text and email. In addition, the MOSERS website was updated to enhance service to members and an intranet re-write was completed. The new intranet site is more user-friendly and incorporates dynamic content utilizing our content management system, including a customizable dashboard that allows MOSERS employees to track up-to-date member statistics and trends.

## Cost Effectiveness Measurement (CEM)

Customer service is a critical element in MOSERS' performance objectives. One of the ways MOSERS measures overall performance is through the Cost Effectiveness Measurement, Inc. (CEM) pension administration benchmarking analysis. CEM evaluated 61 leading pension systems, including systems in the United States, Canada, United Kingdom, Denmark and the Netherlands. MOSERS' peer group included 11 U.S. public pension plans that are identified as the most relevant peer group based on membership size and system assets. This year, the CEM results indicated that MOSERS' service ranked number one again in the peer group and was the second highest in CEM's global universe of 61 plans. MOSERS' service score was 91, well above the peer median of 80 and the all CEM average of 75. In an effort to keep costs down and enhance our processing time, we continue to implement changes that simplify processes, eliminate programs, and/or provide enhanced security.

CEM measures the cost of service on an annual per participant basis (including active members and benefit recipients). We have 90,000 such participants while the median number within our peer group is 149,000 and the peer average is 128,000. Our cost of $71 per active member and annuitant was below the peer median of $74 and well below the peer average of $121. In addition, our overall complexity score remains below the peer average (with simplicity being viewed as a positive).

## Summary of Financial Information

The following schedule is a comparative summary of the pension trust funds' additions and deductions for the years ended June 30, 2013, and June 30, 2012.

| | Pension Trust Funds | |
|---|---|---|
| | **Year Ended June 30, 2013** | **Year Ended June 30, 2012** |
| Additions | $1,108,047,038 | $460,966,483 |
| Deductions | (684,725,496) | (646,164,323) |
| Net change | $ 423,321,542 | $(185,197,840) |

The following schedule is a comparative summary of the revenues and expenses of the *Internal Service Funds* (insurance and deferred compensation activity) for the years ended June 30, 2013, and June 30, 2012.

| | Internal Service Funds | |
|---|---|---|
| | **Year Ended June 30, 2013** | **Year Ended June 30, 2012** |
| Operating revenues | $ 29,441,757 | $46,686,989 |
| Operating expenses | (29,767,094) | (46,857,332) |
| Nonoperating revenue | 12,075 | 11,068 |
| Net change | $ (313,262) | $ (159,275) |

Additional financial information can be found in the *Management Discussion and Analysis Report*, the financial statements, and schedules included in the *Financial Section* of this report.

## Investments

MOSERS' investments generated a return of 10.4% (net of fees) for FY13 up from 2.2% in FY12. Additional information regarding the investments of the pension trust funds can be found in the *Investment Section* of this report.

In December 2012, a new organizational structure went into effect for the investment department creating staff teams that are focused on specific components of the portfolio. Each of these teams are led by a managing director responsible for managerial and investment decision-making tasks. To accommodate this departmental change as well as the ongoing development of the investment internship program, the board approved the investment department relocating to leased space within close proximity of the Wildwood facility, which occurred in the spring of 2013.

The new portfolio structure shifts from a return-driven process towards a risk-driven process. The risk-based allocation approach focuses on fundamental economic factors like growth and inflation as well as other factors with expected return premia such as credit, carry, and illiquidity. In order for the portfolio to generate similar expected returns to the equity-centric portfolio, modest leverage must be utilized on some risk factors in order for them to pull their share of the weight from a return perspective. The portfolio is being transitioned as opportunities present themselves.

## Plan Financial Condition

The funding objective of MOSERS' pension trust funds is to meet long-term benefit promises through contributions that remain approximately level as a percent of member payroll over decades of time. Historical information relating to progress in meeting this objective is presented on pages 49-52. During the year ended June 30, 2013, the funded ratio of the Missouri State Employees' Plan, which covers 109,808 participants, decreased from 73.2% to 72.7%, primarily the result of the unfavorable investment market experience in previous years and the strengthening of demographic assumptions. Funding of the Judicial Plan, which covers 930 participants, began on July 1, 1998. During the year ended June 30, 2013, the funded ratio of the Judicial Plan increased from 24.7% to 25.5%. Additional information regarding the financial condition of the pension trust funds can be found in the *Actuarial Section* of this report.

## Awards

MOSERS was awarded the Certificate of Achievement for Excellence in Financial Reporting by the Government Finance Officers Association of the United States and Canada (GFOA) for its comprehensive annual financial report for the fiscal year ended June 30, 2012. This was the 24th consecutive year that MOSERS has received this prestigious award. In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized comprehensive annual financial report. The report must satisfy generally accepted accounting principles and applicable legal requirements. A Certificate of Achievement is valid for a period of one year only. We believe that our current comprehensive annual financial report continues to meet the Certificate of Achievement Program's requirements and we are submitting it to the GFOA to determine its eligibility for another certificate.

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

These prestigious awards recognize MOSERS for financial and professional standards of excellence. These notable awards can be viewed on page 5.

In FY13, MOSERS received the first place award from the National Association of Government Communicators (NAGC) for the 2012 Comprehensive Annual Financial Report (CAFR). The NAGC Blue Pencil & Gold Screen Awards competition salutes superior communications efforts of government agencies and recognizes the people who create them. The NAGC is a national not-for-profit professional network of federal, state and local government employees who disseminate information within and outside government. NAGC awards underscore the association's high standards of professionalism in public service.

GFOA also presented MOSERS with an Award for Outstanding Achievement in Popular Annual Financial Reporting for our summary annual report. This was the 17th year that MOSERS received this award.

These awards are gratifying to MOSERS' staff and increase MOSERS' stature as an industry leader.

### Conclusion

This report is a product of the combined efforts of MOSERS' staff and advisors functioning under your leadership. It is intended to provide complete and reliable information that facilitates the management decision making process, serves as a means for determining compliance with legal requirements, and allows for the evaluation of responsible guardianship of system funds. As in the past, MOSERS received an unqualified opinion from our independent auditor on the financial statements included in this report. The opinion of the independent auditor is on page 19.

Copies of this report are provided to the Governor, State Auditor, the Joint Committee on Public Employee Retirement of the General Assembly, and all state agencies that form the link between MOSERS and its members. Their cooperation contributes significantly to the success of MOSERS.

I would like to take this opportunity to express my gratitude to you, the staff, the advisors, and other people who have worked so diligently to assure the continued successful operation of the system. Thank you for assisting the system in raising the bar with the realization that retirement as a concept is timeless, but here at MOSERS we strive to deliver benefit services in a way that makes the experience…unique.

Respectfully submitted,

Gary Findlay

Gary Findlay
Executive Director

# LETTER FROM THE BOARD CHAIR

**Missouri State Employees' Retirement System**
Mailing Address: PO Box 209, Jefferson City, MO 65102-0209
Phone: (573) 632-6100 • (800) 827-1063 | Fax: (573) 632-6103
MO Relay: 7-1-1 (Voice) • (800) 735-2966 (TTY)
Website: *www.mosers.org* | Email: *mosers@mosers.org*
*Visit us at 907 Wildwood Drive, Jefferson City, MO*

MOSERS
WE ARE HERE FOR YOUR BENEFIT

October 15, 2013

Dear Members:

On behalf of the board of trustees, I am pleased to present the *MOSERS Comprehensive Annual Financial Report* for the fiscal year ended June 30, 2013. While the focus of this report is on information related to the financial status of your retirement system, it also highlights other changes that occurred during the year. The *Financial Section* of this report is prepared in accordance with generally accepted accounting principles and is appropriately attested to by the system's independent certified public accountants.

MOSERS' investments generated a return of 10.4%, or approximately $780 million, net of fees, for FY13. The total fund return exceeded its policy benchmark by 2.2%, adding nearly $165 million more than if the portfolio had been invested passively in the same asset allocation mix.

Your retirement system continues to achieve high marks in the delivery of customer service to our members. One of the ways operational performance is measured is through the Cost-Effectiveness Measurement, Inc. (CEM) pension administration benchmarking analysis. CEM evaluated 61 leading pension systems, including systems in the U.S., Canada, Australia, the Netherlands, and Denmark. MOSERS' peer group included 11 U.S. public pension plans that are identified as our most relevant peer group based on membership size and system assets. This year, the CEM results indicated that MOSERS' service ranked number one again in our peer group with lower than average costs and was ranked the second highest in CEM's global universe of 61 plans.

I'm pleased to report that the Executive Director of MOSERS, Gary Findlay, was the recipient of the 2012 Institutional Investor's Money Management Letter Lifetime Achievement Award. This *Institutional Investor News* award is considered to be the standard setter for excellence in the financial services industry. In the 18 years since Mr. Findlay became director of MOSERS, the fund's assets have compounded at an annualized rate of 9% net of fees, outperforming the fund's benchmark by 1.2% annually, and placing MOSERS' performance among the very best. Information regarding this prestigious award can be accessed on MOSERS' website. Also last fall *aiCIO*, an investor publication by Asset International, presented their list of the 100 most influential chief investment officers (CIOs) in the world. That listing included 19 public retirement fund CIOs in the United States. Our CIO, Rick Dahl, ranked 27$^{th}$ in total and 4$^{th}$ among the other U.S. public fund CIOs selected. He was the most mentioned by his peers as deserving the recognition.

The board experienced some turnover this year. On behalf of the board and staff, I would like to thank Marty Drewel for his hard work and contributions while serving as a trustee to the system. Trustees devote many hours in fulfilling their fiduciary duties and serve with no remuneration.

I wish to thank the board of trustees for their contributions this year and to MOSERS' staff for maintaining the high level of expertise and professionalism required in the pursuit of excellence in all of the activities in which we are involved. Lastly, I wish to express my gratitude to you, our members, for continuing your public service during these difficult budgetary times. Your dedication and commitment to providing services to Missouri citizens is greatly appreciated. Both the board of trustees and staff look forward to serving your future needs. If you have any questions regarding this report or any other aspect of MOSERS, please contact us at MOSERS, P.O. Box 209, Jefferson City, Missouri 65102 or call (800) 827-1063. Our website can also be visited at *www.mosers.org*.

Sincerely,

Antwaun Smith

Antwaun Smith, Chair
Board of Trustees

## BOARD OF TRUSTEES

**Antwaun Smith - Chair**
*Governor Appointed Member*

**Lori Neidel - Vice Chair**
*Governor Appointed Member*

**Laura Davis**
*Elected Active Member*

**Representative Caleb Jones**
*House Appointed Member*

**Senator Joe Keaveny**
*Senate Appointed Member*

**Senator John Lamping**
*Senate Appointed Member*

**Representative Mike Leara**
*House Appointed Member*

**Donald Martin**
*Elected Retired Member*

**Commissioner of Administration**
**Doug Nelson**
*Ex-Officio Member*

**State Treasurer**
**Clint Zweifel**
*Ex-Officio Member*

**Vacant**
*Elected Active Member*

## ADMINISTRATIVE ORGANIZATION

### Gary Findlay - *Executive Director*

Greg Beck - *Chief Auditor*

Judy Delaney - *Legislative & Policy Coordinator*

Jake McMahon - *Chief Counsel*

Lisa Verslues - *Human Resources Coordinator*

### Karen Stohlgren - *Deputy Executive Director*
*Chief Operations Officer (COO)*

Stacy Gillmore - *Manager of Information Technology*

Gary Irwin - *Chief Finance Officer*

Lori Leeper - *Operations Project Coordinator/Board Secretary*

JoAnn Looten - *Manager of Records & Facility*

Krista Myer - *Manager of Communications*

Pam Palmquist - *Manager of Benefit Services*

### Rick Dahl - *Deputy Executive Director*
*Chief Investment Officer (CIO)*

Shannon Davidson - *Managing Director – Investment Risk & Operations*

Seth Kelly - *Managing Director – Beta Balanced Strategies*

Jim Mullen - *Manager – Derivatives & Internal Management*

Pat Neylon - *Manager – Liquid Alpha Strategies*

Scott Peppard - *Manager – Illiquid Alpha Strategies*

Christine Rackers - *Manager – Investment Policy & Communications*

Cindy Rehmeier - *Manager – Defined Contribution Plans*

Tricia Scrivner - *Managing Director – Alpha Strategies*

# ABOUT MOSERS

## Purpose

MOSERS was established September 1, 1957, and is governed by laws of the state of Missouri.

MOSERS provides retirement, survivor, and disability benefits, as well as life insurance and deferred compensation plan management to its members.

MOSERS administers retirement benefits for most state employees, including members of the Missouri General Assembly, elected state officials, and judges. MOSERS is responsible for administering the law in accordance with the expressed intent of the Missouri General Assembly and bears a fiduciary obligation to the state employees who are its members and beneficiaries.

## Administration

State law provides that responsibility for the administration of MOSERS is vested in an 11-member board of trustees. The board is comprised of:

- Two members of the Senate appointed by the President Pro Tem of the Senate.
- Two members of the House of Representatives appointed by the Speaker of the House.
- Two members appointed by the Governor.
- The State Treasurer.
- The Commissioner of Administration.
- Three other system members: two active members elected by the active and terminated-vested members, and one retiree elected by the retired members.

The day-to-day management of MOSERS is delegated to the executive director who is appointed by the board and serves at its pleasure. The executive director acts as advisor to the board on all matters pertaining to the system, contracts for professional services, and employs the remaining staff needed to manage the system.

### Organization

The executive director, COO, and CIO are responsible for planning, organizing, and administering the operations of the system under the broad policy guidance and direction of the board. MOSERS' office is divided into seven administrative sections that perform specific functions for the system.

### Executive Services

The executive services team provides administrative support by assisting the executive director, COO, and CIO in the major legal, operational, and oversight functions of the retirement, benefit, and communication programs.

### Accounting

Accounting is responsible for all financial records of the programs administered by MOSERS, including the preparation of financial and statistical reports. Accounting performs the purchasing functions for MOSERS and interfaces with the investment custodian, Office of Administration accounting, various payroll and personnel departments, life insurance companies, actuaries, banks, and the IRS on all accounting-related issues.

### Benefit Services

Benefit services is responsible for contact with the members regarding the benefit programs directly administered by MOSERS, which include retirement, life insurance, and long-term disability.

### Communications

Communications is responsible for providing clearly written and attractively designed publications, and conducting educational seminars to inform members about benefit programs administered by MOSERS. Communications and the information technology section are jointly responsible for MOSERS' website.

### Information Technology

Information technology is responsible for establishing and maintaining the automated systems that support MOSERS' daily operations. MOSERS takes full advantage of technology to automate and integrate almost every aspect of the business. Key technologies include a document imaging system, a custom-built benefits management system and a computer-based telephone system.

### Investments

The primary function of the investment department is to provide internal investment management and consulting services to the board and the executive director. Other functions include hiring and terminating external investment managers, making strategic allocation decisions, analyzing the overall asset allocation, rebalancing the portfolio, and informing and advising the board and executive director on financial and economic developments which may affect the system. The investment staff also works with the general asset consultant, the hedge fund asset consultant and the executive director in selecting and monitoring external money managers. Information regarding the investment professional service providers can be found in the *Investment Section.*

### Records and Facility Management

Records and facility management is responsible for establishing and maintaining all membership records including maintenance of the data on the electronic imaging system, balancing payroll deductions for insurance, and entering the payroll, service, and leave data into the system's retirement database. This section is also responsible for mail services and general building maintenance.

# OUTSIDE PROFESSIONAL SERVICES

## Actuary
- Gabriel, Roeder, Smith & Co.

## Actuarial Audit
- Cavanaugh Macdonald Consulting, LLC

## Auditor
- Williams-Keepers, LLC

## Legal Counsel
- Thompson Coburn, LLP

## Master Custodian
- Bank of New York Mellon

## Investment Management Consultants
- Blackstone Alternative Asset Management, LP
  *Hedge Fund Asset Consultant*
- Summit Strategies Group
  *General Asset Consultant*
- TimberLink Consulting, LLC
  *Timberland Consultant*

## Risk Management Consultant
- Charlesworth & Associates, LC

## Third-Party Administrators
- ICMA-RC
  *Deferred Compensation Plan*
- The Standard
  *Disability and Life Insurance*
- TIAA-CREF
  *College & University Retirement Plan*

## Securities Lending Advisor
- Deutsche Bank AG, New York Branch

## Information Technology Consulting
- Avtex Solutions, Inc.
- Huber & Associates, Inc.
- Qflow Systems, LLC

## Investment Risk Management
- MSCI BarraOne

## Investment Advisors
- Actis Capital, LLP
- Alinda Capital Partners, LLC
- Alliance Bernstein Defined Contribution Investments
- American Industrial Partners
- AQR Capital Management, LLC
- Ashmore Investment Management, Ltd.
- Axiom Asia Private Capital
- Axxon Management, Ltda.
- Bayview Asset Management, LLC
- BlackRock Financial Management, Inc.
- Blackstone Alternative Asset Management, LP
- Blackstone Real Estate Advisors
- Blakeney Management
- Brevan Howard Capital Management, Ltd.
- Bridgepoint Capital, Ltd.
- Bridgewater Associates, LP
- CarVal Investors, LLC
- Catalyst Capital Group, Inc.
- Catterton Partners
- Claren Road Asset Management, LLC
- COMAC Capital, LLP
- CQS, Cayman, LP
- Davidson Kempner Capital Management, LLC

*Outside Professional Services continued on page 18*

*Outside Professional Services continued from page 17*

- DDJ Capital Management, LLC
- Development Partners International
- Diamondback Capital Management, LLC
- DRI Capital, Inc.
- Elliott International Capital Advisors, Inc.
- Eminence Capital
- Empyrean Capital Partners, LP
- Eton Park Capital Management, LP
- Farallon Capital Management, LLC
- Fortress Investment Group, LLC
- Glenview Capital Management, LLC
- Global Forest Partners, LP
- Grantham, Mayo, Van Otterloo & Co., LLC
- Harvest Fund Advisors, LLC
- HBK Investments, LP
- ING Investment Management
- JLL Partners
- King Street Capital Management, LP
- Linden Capital Partners, LLC
- Mast Capital Management, LLC
- Merit Energy Company
- MHR Fund Management, LLC
- Millennium Technology Ventures, LP
- Morant Wright Management, Ltd.
- Nephila Capita, Ltd.
- New Mountain Capital, LLC
- Nippon Value Investors
- NISA Investment Advisors, LLC
- Oaktree Capital Management, LP
- Pacific Alternative Asset Management Company, LLC
- Pershing Square Capital Management, LP
- Pharo Global Advisors Ltd.
- Resource Management Service, LLC
- Silchester International Investors
- Silver Creek Capital Management, LLC
- Silver Lake Partners
- Silver Point Capital, LP
- SIRIS Partners, LP
- Stepstone Group
- State Street Global Advisors
- Stone Harbor Investment Partners, LP
- The Campbell Group, LLC
- TPG Credit Management, LP
- TPG-Axon Capital Management, LP
- Veritas Capital Fund Management, LLC
- Viking Global Investors, LP
- Visium Asset Management, LP

# Financial
SECTION

# Financial Section

# INDEPENDENT AUDITORS' REPORT

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The Board of Trustees
Missouri State Employees' Retirement System

We have audited the accompanying financial statements of the pension trust and internal service funds of the Missouri State Employees' Retirement System (MOSERS), a component unit of the State of Missouri, as of and for the year ended June 30, 2013, and the related notes to the financial statements, which collectively comprise the MOSERS' basic financial statements as listed in the table of contents.

## Management's Responsibility for the Financial Statements

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

## Auditors' Responsibility

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

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

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

## Opinions

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the pension trust and internal service funds of MOSERS as of June 30, 2013, and the respective changes in financial position and, where applicable, cash flows thereof for the year then ended in conformity with U.S. generally accepted accounting principles.

American Institute of Certified Public Accountants
Missouri Society of Certified Public Accountants
PKF North American Network

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## Other Matters

***Required Supplementary Information***

U.S. generally accepted accounting principles require that the management's discussion and analysis on pages 21-25 and the schedules of funding progress and employer contributions on pages 49 and 50 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context.

We have applied certain limited procedures to the required supplementary information in accordance with U.S. generally accepted auditing standards, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

***Other Information***

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise MOSERS' basic financial statements. The *Introductory, Investment, Actuarial* and *Statistical Sections* and the additional information presented on pages 53-60 are presented for purposes of additional analysis and are not a required part of the financial statements.

The additional information presented on pages 53-60 is the responsibility of management and was derived from and relate directly to the underlying accounting and other records used to prepare the financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with U.S. generally accepted auditing standards. In our opinion, the additional information presented on pages 53-60 is fairly stated in all material respects in relation to the basic financial statements as a whole.

The introductory, investment, actuarial and statistical sections have not been subjected to the auditing procedures applied in the audit of the basic financial statements and, accordingly, we do not express an opinion or provide any assurance on them.

Williams Keepers LLC

October 15, 2013

# MANAGEMENT DISCUSSION AND ANALYSIS

The management of the Missouri State Employees Retirement System (MOSERS or the system) offers readers of the financial statements this narrative overview of the financial activities of MOSERS for the years ended June 30, 2013 and 2012. This narrative is intended to supplement the system's financial statements. Readers are encouraged to consider the information presented here in conjunction with the financial statements that begin on page 26.

GASB 63 introduces and defines the elements of deferred inflows and outflows as an acquisition or consumption of net assets that is applicable to a future reporting period. MOSERS implemented this standard in 2013. However, because MOSERS does not currently have deferred inflow or outflow transactions, the implementation is reflected as a redefinition of the term "Net Assets" to "Net Position" in the *Pension Trust Fund Financial Statements*.

During FY13, MOSERS' trust was converted to a master trust and began unitizing investments for the purpose of allowing participants in the state of Missouri Deferred Compensation Plan the option to invest in units of MOSERS investment portfolio (MIP). For financial reporting purposes, investments throughout this CAFR are reported in whole and include .03% or $2,015,286 of the units invested in the MIP by Deferred Compensation Plan participants.

The basic financial statements contained in this section of the comprehensive annual financial report consist of:

The *Statements of Fiduciary Net Position* which report the pension trust funds' assets, liabilities, and resulting net position where Assets – Liabilities = Net Position held in trust for pension benefits available at the end of the fiscal year. It is a snapshot of the financial position of the pension trust funds at that specific point in time.

The *Statements of Changes in Fiduciary Net Position* which summarize the pension trust funds' financial transactions that have occurred during the fiscal year where Additions – Deductions = Net Change in Net Position. It supports the change that has occurred to the prior year's net position on the *Statements of Fiduciary Net Position*.

The *Balance Sheet* of the internal service funds is similar to the *Statements of Fiduciary Net Position* in that it is also a snapshot of the financial position of the internal service funds where Net Position + Liabilities = Assets.

The *Statements of Revenues, Expenses, and Changes in Net Position* of the internal service funds is similar to the *Statements of Changes in Fiduciary Net Position* in that it also reports a summary of the financial activity that occurred over the period of the fiscal year where Revenues – Expenses = Net Revenue and supports the change to the prior year's net position.

The *Statements of Cash Flows* of the internal service funds report the financial transactions of the fiscal year of the internal service funds on a cash basis. It is similar to the *Statements of Revenues, Expenses and Changes in Net Position*; however, the focus of this statement is on the change to cash balances with accrued income and expense items eliminated.

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

The required supplementary *Management Discussion and Analysis* information, the *Required Supplementary Information*, and *Additional Financial Information* following the *Notes to the Financial Statements* provide detailed historical information considered useful in evaluating the condition of the plans administered by MOSERS.

## Financial Highlights

MOSERS' overall pension fund financial condition improved during the fiscal year ended June 30, 2013 (FY13). Pension fund net position increased by $423,321,542 during the fiscal year, primarily as result of a increase in investment values and their associated income. The investments of the pension trust funds generated a 10.4% return (net of fees) for the year, up from the prior year's return of 2.2%.

The MSEP experienced a decrease in its funded status from 73.2% to 72.7% and the Judicial Plan experienced a increase in its funded status from 24.7% to 25.5%. In July 2012, the board voted to reduce the nominal investment return assumption from 8.5% to 8% and to adopt assumptions for wage inflation and price inflation of 3% and 2.5%, respectively. In June 2013, the board approved a change to reduce the amortization period from an open 30 years to a closed 30 years beginning July 1, 2014, and will be reduced by one year for each subsequent annual valuation until the period reaches one year and will be reexamined in conjunction with the 2030 actuarial valuation to determine if it should be reduced below 15 years or changed to an open 15 years. Also at the June 2013 meeting, the board approved a change related to the smoothing method to determine the actuarial value of assets using the investment gains or losses, relative to what would have been earned at the assumed rate on the actuarial value of assets, and combine that amount with any previously unrecognized investment gains or losses. One-third of that total amount would then be recognized in the current year with two-thirds deferred for future recognition. In no event would the actuarial value of assets as of the valuation date be more than 125% or less than 80% of the market value of assets.

The internal service fund's net position decreased by $263,950. The goals of the internal service funds are to maintain the funds at a level that enables it to meet its obligations of contracting the premiums for the life and long-term disability insurance benefits for state employees; maintain the membership data necessary to track the premiums due from the state and its employees and payable to the insurance carrier; and manage the state employees deferred compensation program.

The following schedules present summary comparative financial statements of the pension trust funds and internal service funds for FY13 and FY12. For each schedule there is a brief summary of the significant changes noted in those schedules.

### *Pension Trust Funds*

### Summary Comparative Statements of Fiduciary Net Position

The largest components of the net position of the pension trust funds are the investments, cash and short-term investments, and securities lending collateral.

The increase in the fair value of investments is primarily attributable to the favorable market conditions experienced during FY13, as evidenced by a increase in MOSERS' total investment return from 2.2% last year to 10.4% this year, adding an additional $147.6 million to the fund in FY13. MOSERS invests in a portfolio that has large allocations to high cost asset classes that are predominately actively managed but remains low cost within the investment style. Detailed information regarding MOSERS' investment portfolio is included in the *Investment Section* of this report.

Investment income payable increased and investment purchases payable decreased as a result of the timing of investment purchases.

The decrease in securities lending collateral is primarily attributable to lower lendable assets in the lending portfolio at fiscal year end. Margins were lower than the previous fiscal year resulting in lower income generation. As of fiscal year end, approximately 3% of the collateral received has been invested in asset-backed and corporate bonds, up slightly from 2% the prior year. The invested collateral went from $2 million above the liability at the end of last fiscal year to $7 million above the liability in FY13.

Cash and short-term investments increased due to multiple factors including the timing of investment funding and additional cash necessary to fund the derivative investments within the new investment strategy from a return-driven investment process towards a risk-driven process.

## Summary Comparative Statements of Changes in Fiduciary Net Position

The slight increase in contributions received is primarily attributable to an increase in the contribution rate for the general employees group from 13.97% to 14.45%.

The increase in investment income in FY13 from FY12 is attributable to the generally favorable market conditions experienced by the investments of the fund. The slight decrease in securities lending income is primarily due to decreased utilization rates due to less lendable assets in the lending portfolio at fiscal year end. Margins were lower than the previous fiscal year resulting in lower income generation. The *Investment Section* of this report contains additional information regarding investments and securities lending activity.

The total benefit payments increase is due to a net increase in the number of benefit recipients plus cost-of-living adjustments provided to existing benefit recipients. Detailed schedules of these changes can be viewed on pages 114-119 of the *Actuarial Section* of this report.

Service transfers are dependent on the number of members electing to transfer their service out of MOSERS. Refunds are dependent on the number of members of the MSEP 2011 tier who have terminated employment and are eligible to request a refund, and members prior to September 1, 1972 that MOSERS locates who have contributions remaining in the system. In FY13, service transfers and refunds increased due to a greater number of non-vested MSEP 2011 participants choosing to receive a refund. In FY13, 41 members elected to transfer their service out of MOSERS.

### *Pension Trust Funds* — Summary Comparative Statements of Fiduciary Net Position

| | As of June 30, 2013 | As of June 30, 2012 | Amount of Change | Percentage Change |
|---|---|---|---|---|
| Cash and short-term investments | $1,202,548,184 | $ 891,202,655 | $311,345,529 | 34.94% |
| Receivables | 46,416,125 | 59,162,673 | (12,746,548) | (21.54) |
| Investments | 6,922,334,141 | 6,757,240,840 | 165,093,301 | 2.44 |
| Invested securities lending collateral | 461,766,766 | 692,476,483 | (230,709,717) | (33.32) |
| Capital assets | 3,554,938 | 3,064,311 | 490,627 | 16.01 |
| Other assets | 105,201 | 41,772 | 63,429 | 151.85 |
| **Total assets** | 8,636,725,355 | 8,403,188,734 | 233,536,621 | 2.78 |
| Administrative expense payable | 2,337,560 | 1,674,515 | 663,045 | 39.60 |
| Investment purchase payable | 11,485,382 | 12,932,642 | (1,447,260) | (11.19) |
| Investment income payable | 49,527,001 | 0 | 49,527,001 | 100.00 |
| Securities lending collateral | 454,384,699 | 690,440,025 | (236,055,326) | (34.19) |
| Other liabilities | 11,934,319 | 16,421,986 | (4,487,667) | (27.33) |
| MOSERS investment portfolio liability (MIP) | 2,015,286 | 0 | 2,015,286 | 100.00 |
| **Total liabilities** | 531,684,247 | 721,469,168 | (189,784,921) | (26.31) |
| **Net positions held in trust for pension benefits** | $8,105,041,108 | $7,681,719,566 | $423,321,542 | 5.51 |

### *Pension Trust Funds* — Summary Comparative Statements of Changes in Fiduciary Net Position

| | Year Ended June 30, 2013 | Year Ended June 30, 2012 | Amount of Change | Percentage Change |
|---|---|---|---|---|
| Contributions | $ 318,818,502 | $ 300,348,132 | $ 18,470,370 | 6.15% |
| Investment income - investing activities | 787,712,220 | 158,626,338 | 629,085,882 | 396.58 |
| Investment income - securities lending activities | 1,020,380 | 1,537,701 | (517,321) | (33.64) |
| Miscellaneous income | 495,936 | 454,312 | 41,624 | 9.16 |
| **Total additions** | 1,108,047,038 | 460,966,483 | 647,080,555 | 140.37 |
| Benefits | 674,511,179 | 638,343,863 | 36,167,316 | 5.67 |
| Service transfers and refunds | 2,534,006 | 711,889 | 1,822,117 | 255.96 |
| Administrative expenses | 7,680,311 | 7,108,571 | 571,740 | 8.04 |
| **Total deductions** | 684,725,496 | 646,164,323 | 38,561,173 | 5.97 |
| **Net increase (decrease)** | 423,321,542 | (185,197,840) | 608,519,382 | 328.58 |
| **Net position beginning of year** | 7,681,719,566 | 7,866,917,406 | (185,197,840) | (2.35) |
| **Net positions held in trust for pension benefits** | $8,105,041,108 | $7,681,719,566 | $423,321,542 | 5.51 |

## *Internal Service Funds*

### Summary Comparative Balance Sheets Analysis

The increase in premiums receivable is attributable to normal fluctuations in the month-end balance of life and long-term disability insurance premiums receivable during the year, which are dependent on the number of members participating and amount of their coverage.

The decrease in investments is attributable to normal fluctuations in the investment in overnight repurchase agreements of the funds held pending transmission to the life and long-term disability insurance company.

The increase in premiums payable is attributable to normal fluctuations in the month-end balances of premiums payable for the year, similar to the fluctuations of the premiums receivable.

Other liabilities decreased primarily as a result of the timing of reimbursements due to the pension trust funds for the internal service fund's portion of shared expenses which had not been transferred at year end.

### Summary Comparative Statements of Revenues, Expenses, and Changes in Net Position Analysis

Premium receipts and premium disbursements increased slightly due to normal fluctuations in the amount of optional life insurance coverage selected by state employees.

The decrease in deferred compensation receipts and disbursements is attributable to a change in the collection process where the third-party administrator now collects deferred compensation contributions directly from employers instead of passing collections through MOSERS. Total participants (both active and terminated) increased by 2,617 during the fiscal year as a result of the automatic enrollment feature in place for new employees hired July 1, 201,2 and after. The state of Missouri has not contributed an employer match since March 2010.

Miscellaneous income decreased as a result of a change in the way revenue sharing is done between the third-party administrator and MOSERS. MOSERS will receive income upon request in the future from the third-party administrator as the residual fund balance is depleted. Premium refunds increased slightly as a result of timing differences resulting from changes in insurance coverage.

Administrative expenses increased primarily as a result of the increase in reimbursements to the pension trust funds for the internal service fund's portion of shared expense and increased expenses related to State of Missouri Deferred Compensation Plan.

### Summary Comparative Statements of Cash Flows Analysis

The decrease in cash flows from operating activities is primarily attributable to a decrease in cash payments received from employers and members over that of FY12 and increased payments to outside carriers for premium disbursements.

The increase in cash flows from noncapital financing activities is primarily attributable to an increase in the amount of life and long-term disability premium refund checks that remained outstanding at year end.

The increase in cash flows from investing activities is attributable to several factors including the decrease in outflows for net purchase and maturities of overnight repurchase agreements of $362,935, the increase of $1,007 in investment income from higher rates and the purchase of capital assets for the deferred compensation plan of $2,296.

### Request for Information

This financial report is designed to provide a general overview of the system's finances for all those interested in the system. Questions concerning any of the information provided in this report or request for additional information should be addressed to MOSERS at P.O. Box 209, Jefferson City, MO 65102 or by email at *mosers@mosers.org*.

*Internal Service Funds* — Summary Comparative Balance Sheets

| | As of June 30, 2013 | As of June 30, 2012 | Amount of Change | Percentage Change |
|---|---|---|---|---|
| Premiums receivable | $ 970,466 | $ 959,003 | $ 11,463 | 1.20% |
| Investments | 3,258,256 | 3,532,260 | (274,004) | (7.76) |
| Fixed assets net of accumulated depreciation | 3,617 | 5,026 | (1,409) | (28.03) |
| **Total assets** | 4,232,339 | 4,496,289 | (263,950) | (5.87) |
| Premiums payable | 3,639,910 | 3,346,314 | 293,596 | 8.77 |
| Other liabilities | 115,029 | 359,313 | (244,284) | (67.99) |
| **Total liabilities** | 3,754,939 | 3,705,627 | 49,312 | 1.33 |
| Unrestricted net position | 477,400 | 790,662 | (313,262) | (39.62) |
| **Total liabilities and net position** | $4,232,339 | $4,496,289 | $(263,950) | (5.87) |

*Internal Service Funds* — Summary Comparative Statements of Revenues, Expenses, and Changes in Net Position

| | Year Ended June 30, 2013 | Year Ended June 30, 2012 | Amount of Change | Percentage Change |
|---|---|---|---|---|
| Premium receipts | $28,961,637 | $28,578,326 | $ 383,311 | 1.34% |
| Deferred compensation receipts | 0 | 17,500,476 | (17,500,476) | (100.00) |
| Miscellaneous income | 480,120 | 608,187 | (128,067) | (21.06) |
| **Total operating revenue** | 29,441,757 | 46,686,989 | (17,245,232) | (36.94) |
| Premium disbursements | 28,930,950 | 28,556,036 | 374,914 | 1.31 |
| Deferred compensation disbursements | 0 | 17,500,476 | (17,500,476) | (100.00) |
| Premium refunds | 30,687 | 22,291 | 8,396 | 37.67 |
| Administrative expenses | 805,457 | 778,529 | 26,928 | 3.46 |
| **Total operating expenses** | 29,767,094 | 46,857,332 | (17,090,238) | (36.47) |
| **Net operating income (loss)** | (325,337) | (170,343) | (154,994) | (90.99) |
| Investment income | 12,075 | 11,068 | 1,007 | 9.10 |
| **Net revenues over expenses** | (313,262) | (159,275) | (153,987) | (96.68) |
| **Net position beginning of year** | 790,662 | 949,937 | (159,275) | (16.77) |
| **Net position end of year** | $ 477,400 | $ 790,662 | $ (313,262) | (39.62) |

*Internal Service Funds* — Summary Comparative Statements of Cash Flows

| | Year Ended June 30, 2013 | Year Ended June 30, 2012 | Amount of Change | Percentage Change |
|---|---|---|---|---|
| Cash flows from operating activities | $(289,369) | $81,794 | $(371,163) | (453.78)% |
| Cash flows from noncapital financing activities | 5,585 | 1,086 | 4,499 | 414.27 |
| Cash flows from investing activities | 283,784 | (82,888) | 366,672 | 442.37 |
| **Net change in cash** | 0 | (8) | 8 | |
| **Cash balances beginning of year** | 0 | 8 | (8) | |
| **Cash balances end of year** | $ 0 | $ 0 | $ 0 | |

## Statements of Fiduciary Net Position

*Pension Trust Funds - As of June 30, 2013*

| | MSEP | Judicial Plan | Total |
|---|---|---|---|
| **Assets** | | | |
| Cash and short-term investments | $1,186,197,360 | $ 16,350,824 | $1,202,548,184 |
| Receivables | | | |
| State contributions | 11,285,702 | 1,170,162 | 12,455,864 |
| Investment sales | 33,397,778 | 460,363 | 33,858,141 |
| Other | 100,731 | 1,389 | 102,120 |
| Total receivables | 44,784,211 | 1,631,914 | 46,416,125 |
| Investments at fair value | | | |
| U.S. treasury securities | 585,684,418 | 8,073,212 | 593,757,630 |
| Corporate bonds | 34,104,695 | 470,107 | 34,574,802 |
| Convertible bonds | 645,557 | 8,899 | 654,456 |
| Government bonds & gov't mortgage-backed securities | 69,055,858 | 951,882 | 70,007,740 |
| Common stock | 372,578,946 | 5,135,716 | 377,714,662 |
| Limited partnerships | 4,804,739,651 | 66,229,663 | 4,870,969,314 |
| Bank loans | 97 | 1 | 98 |
| Collateralized mortgage obligations | 27,978,810 | 385,667 | 28,364,477 |
| Foreign currency | 7,755,666 | 106,906 | 7,862,572 |
| International equities | 920,738,869 | 12,691,681 | 933,430,550 |
| U.S. dollar-denominated international corporate bonds | 4,929,885 | 67,955 | 4,997,840 |
| Total investments | 6,828,212,452 | 94,121,689 | 6,922,334,141 |
| Invested securities lending collateral | 455,488,209 | 6,278,557 | 461,766,766 |
| Capital assets | | | |
| Land | 263,652 | 3,634 | 267,286 |
| Building and building improvements | 4,004,971 | 55,205 | 4,060,176 |
| Furniture, fixtures, and equipment | 1,677,492 | 23,123 | 1,700,615 |
| Software | 257,679 | 3,552 | 261,231 |
| Total capital assets | 6,203,794 | 85,514 | 6,289,308 |
| Accumulated depreciation | (2,697,191) | (37,179) | (2,734,370) |
| Net capital assets | 3,506,603 | 48,335 | 3,554,938 |
| Prepaid expenses | 103,771 | 1,430 | 105,201 |
| Total assets | 8,518,292,606 | 118,432,749 | 8,636,725,355 |
| **Liabilities** | | | |
| Administrative expense payable | 2,305,777 | 31,783 | 2,337,560 |
| Investment purchases payable | 11,329,217 | 156,165 | 11,485,382 |
| Securities lending collateral | 448,206,515 | 6,178,184 | 454,384,699 |
| Investment income payable | 48,853,592 | 673,409 | 49,527,001 |
| Investment incentive fees payable | 10,776,072 | 148,540 | 10,924,612 |
| Employee vacation and overtime liability | 995,978 | 13,729 | 1,009,707 |
| MOSERS investment portfolio liability (MIP) | 1,987,885 | 27,401 | 2,015,286 |
| Total liabilities | 524,455,036 | 7,229,211 | 531,684,247 |
| **Net Position** | | | |
| Net investment in capital assets | 3,506,603 | 48,335 | 3,554,938 |
| Unrestricted | 7,990,330,967 | 111,155,203 | 8,101,486,170 |
| Net positions held in trust for pension benefits | $7,993,837,570 | $111,203,538 | $8,105,041,108 |

See accompanying *Notes to the Financial Statements*.

## Statements of Changes in Fiduciary Net Position

*Pension Trust Funds - For Year Ending June 30, 2013*

| | MSEP | Judicial Plan | Total |
|---|---|---|---|
| **Additions** | | | |
| Contributions | | | |
| State contributions | $ 274,655,284 | $ 28,330,649 | $ 302,985,933 |
| Employee contributions | 9,698,883 | 211,936 | 9,910,819 |
| Member purchases of service credit | 3,475,123 | 0 | 3,475,123 |
| Service transfer contributions | 2,446,627 | 0 | 2,446,627 |
| Total contributions | 290,275,917 | 28,542,585 | 318,818,502 |
| Investment income | | | |
| *From investing activities:* | | | |
| Investing activity income: | | | |
| Net appreciation in fair value of investments | 744,745,953 | 10,265,754 | 755,011,707 |
| Interest | 25,616,671 | 353,106 | 25,969,777 |
| Dividends | 16,127,814 | 222,310 | 16,350,124 |
| Swap income | 84,548,307 | 1,165,434 | 85,713,741 |
| Other | 44,352,758 | 611,369 | 44,964,127 |
| Total investing activity income | 915,391,503 | 12,617,973 | 928,009,476 |
| Investing activity expenses: | | | |
| Management fees | (132,037,948) | (1,820,042) | (133,857,990) |
| Custody fees | (480,065) | (6,617) | (486,682) |
| Consultant fees | (710,982) | (9,800) | (720,782) |
| Performance measurement fees | (469,086) | (6,466) | (475,552) |
| Internal investment activity expenses | (4,691,580) | (64,670) | (4,756,250) |
| Total investing activity expenses | (138,389,661) | (1,907,595) | (140,297,256) |
| Net income from investing activities | 777,001,842 | 10,710,378 | 787,712,220 |
| *From securities lending activities:* | | | |
| Securities lending income | 1,722,200 | 23,739 | 1,745,939 |
| Securities lending expenses: | | | |
| Borrower rebates | (485,363) | (6,690) | (492,053) |
| Management fees | (230,331) | (3,175) | (233,506) |
| Total securities lending activities expenses | (715,694) | (9,865) | (725,559) |
| Net income from securities lending activities | 1,006,506 | 13,874 | 1,020,380 |
| Total net investment income | 778,008,348 | 10,724,252 | 788,732,600 |
| Miscellaneous income | 489,193 | 6,743 | 495,936 |
| Total additions | 1,068,773,458 | 39,273,580 | 1,108,047,038 |
| **Deductions** | | | |
| Benefits | 580,649,266 | 27,802,871 | 608,452,137 |
| BackDROP & lump sum benefits | 66,059,042 | 0 | 66,059,042 |
| Service transfer payments | 1,911,665 | 0 | 1,911,665 |
| Contribution refunds | 622,341 | 0 | 622,341 |
| Administrative expenses | 7,575,883 | 104,428 | 7,680,311 |
| Total deductions | 656,818,197 | 27,907,299 | 684,725,496 |
| Net increase (decrease) in net position | 411,955,261 | 11,366,281 | 423,321,542 |
| Net positions held in trust for pension benefits: | | | |
| Beginning of year | 7,581,882,309 | 99,837,257 | 7,681,719,566 |
| End of year | $7,993,837,570 | $111,203,538 | $8,105,041,108 |

See accompanying *Notes to the Financial Statements*.

## Balance Sheets

***Internal Service Funds - As of June 30, 2013***

| | Life & LTD | Deferred Compensation | Total |
|---|---|---|---|
| **Assets** | | | |
| Premiums receivable | $ 970,466 | $ 0 | $ 970,466 |
| Due to/(due from) | (513,472) | 513,472 | 0 |
| Investments at fair value | 3,258,256 | 0 | 3,258,256 |
| Fixed assets | 0 | 7,772 | 7,772 |
| Accumulated depreciation | 0 | (4,155) | (4,155) |
| Total assets | $3,715,250 | $517,089 | $4,232,339 |
| **Liabilities and net position** | | | |
| *Liabilities* | | | |
| Premiums payable | $3,639,910 | $ 0 | $3,639,910 |
| Checks outstanding net of deposits | 8,211 | 0 | 8,211 |
| Other | 106,818 | 0 | 106,818 |
| Total liabilities | 3,754,939 | 0 | 3,754,939 |
| *Unrestricted net position (deficit)* | (39,689) | 517,089 | 477,400 |
| Total liabilities and net position | $3,715,250 | $517,089 | $4,232,339 |

See accompanying *Notes to the Financial Statements*.

## Statements of Revenues, Expenses, and Changes in Net Position

***Internal Service Funds - For Year Ending June 30, 2013***

| | Life & LTD | Deferred Compensation | Total |
|---|---|---|---|
| **Operating revenues** | | | |
| Premium receipts | $28,961,637 | $ 0 | $28,961,637 |
| Miscellaneous income | 480,120 | 0 | 480,120 |
| Total operating revenues | 29,441,757 | 0 | 29,441,757 |
| **Operating expenses** | | | |
| Premium disbursements | 28,930,950 | 0 | 28,930,950 |
| Premium refunds | 30,687 | 0 | 30,687 |
| Administrative expenses | 472,792 | 332,665 | 805,457 |
| Total operating expenses | 29,434,429 | 332,665 | 29,767,094 |
| Operating revenues over (under) operating expenses | 7,328 | (332,665) | (325,337) |
| **Non-operating revenues** | | | |
| Investment income | 12,075 | 0 | 12,075 |
| Net revenues over (under) expenses | 19,403 | (332,665) | (313,262) |
| Net position (deficit) July 1, 2012 | (59,092) | 849,754 | 790,662 |
| Net position (deficit) June 30, 2013 | $ (39,689) | $ 517,089 | $ 477,400 |

See accompanying *Notes to the Financial Statements*.

## Statements of Cash Flows

***Internal Service Funds - Year Ended June 30, 2013***

| | Life & LTD | Deferred Compensation | Total |
|---|---|---|---|
| **Cash flows from operating activities** | | | |
| Cash received from employer and members | $ 29,430,414 | $ 0 | $ 29,430,414 |
| Payments to outside carriers | (28,637,355) | 0 | (28,637,355) |
| Refunds of premiums to members | (30,687) | 0 | (30,687) |
| Cash payments to employees for services | (190,576) | (233,052) | (423,628) |
| Cash payments to other suppliers of goods and services | (863,461) | 235,348 | (628,113) |
| Net cash provided (used) by operating activities | (291,665) | 2,296 | (289,369) |
| **Cash flows from noncapital financing activities** | | | |
| Implicit funding of checks outstanding net of deposits | 8,211 | 0 | 8,211 |
| Implicit repayment of prior years checks outstanding net of deposits | (2,626) | 0 | (2,626) |
| Net cash provided by noncapital financing activities | 5,585 | 0 | 5,585 |
| **Cash flows from investing activities** | | | |
| Purchase of investment securities | (892,024,960) | 0 | (892,024,960) |
| Proceeds from sale and maturities of investment securities | 892,298,965 | 0 | 892,298,965 |
| Cash received from investment income | 12,075 | 0 | 12,075 |
| Purchase of fixed assets | 0 | (2,296) | (2,296) |
| Net cash provided (used) by investing activities | 286,080 | (2,296) | 283,784 |
| Net increase (decrease) in cash | 0 | 0 | 0 |
| Cash balances June 30, 2012 | 0 | 0 | 0 |
| Cash balances June 30, 2013 | $ 0 | $ 0 | $ 0 |
| **Reconciliation of operating revenues under operating expenses to net cash provided by operating activities** | | | |
| Operating revenues over (under) operating expenses | $ 7,328 | $(332,665) | $ (325,337) |
| *Adjustments to reconcile operating revenues over (under) operating expenses to net cash provided (used) by operating activities* | | | |
| Depreciation expense | 0 | 3,705 | $3,705 |
| Change in position and liabilities: | | | |
| (Increase) decrease in operational accounts receivable | (342,719) | 331,256 | (11,463) |
| Increase in operational accounts payable | 43,726 | 0 | 43,726 |
| Total adjustments | (298,993) | 334,961 | 35,968 |
| Net cash provided (used) by operating activities | $ (291,665) | $ 2,296 | $ (289,369) |

See accompanying *Notes to the Financial Statements*.

# NOTES TO THE FINANCIAL STATEMENTS

*Year Ended June 30, 2013*

## (1) PLAN DESCRIPTIONS AND CONTRIBUTION INFORMATION

### Missouri State Employees' Plan (MSEP)

The MSEP is a single-employer, public employee retirement plan with two benefit structures known as the MSEP (closed plan) and MSEP 2000, which are administered by the Missouri State Employees' Retirement System (MOSERS) in accordance with Sections 104.010 and 104.312 to 104.1215 of the Revised Statutes of Missouri (RSMo). As established under Section 104.320, RSMo, MOSERS is a body corporate and an instrumentality of the state. In the system are vested the powers and duties specified in Sections 104.010 and 104.312 to 104.1215, RSMo and such other powers as may be necessary or proper to enable it, its officers, employees, and agents to carry out fully and effectively all the purposes of Sections 104.010 and 104.312 to 104.1215, RSMo.

Responsibility for the operation and administration of the system is vested in the MOSERS Board of Trustees. Due to the nature of MOSERS' reliance on funding from the state of Missouri and the overall control of the plan document by the legislative and executive branches of state government, the MSEP is considered a component unit of the state of Missouri financial reporting entity and is included in the state's financial reports as a pension trust fund.

The board intends to follow a financing pattern which computes and requires contribution amounts which, expressed as a percent of active member payroll, will remain approximately level from year-to-year and from one generation of citizens to the next generation.

In July 2012, the board voted to reduce the nominal investment return assumption from 8.5% to 8% and to adopt assumptions for wage inflation and price inflation of 3% and 2.5%, respectively. See the *Actuarial Section* for detail in change in assumptions.

Complete recognition of the year-to-year swings in the market value of system assets would produce contribution rate changes that would run counter to the "approximately level" goal. To address that issue, a common actuarial practice referred to as asset smoothing is used. At the June 2013 meeting, the board approved a change related to the smoothing method used in determining the actuarial value of assets. This change requires investment gains or losses, relative to what would have been earned at the assumed rate on the actuarial value of assets, to be added to any previously unrecognized gains or losses and one-third of that total amount to be recognized beginning in FY14, with two-thirds deferred for future recognition. In no event may the actuarial value of assets as of the valuation date be more than 125% or less than 80% of the market value of assets on that date.

At any point in time, the ratio of actuarial to market value of assets will be more or less than the market value but, if the smoothing method is prudent and properly constructed, those values will converge over time. As of June 30, 2013, and 2012, the ratio of actuarial to market value of assets was 101% and 104%, respectively for the MSEP.

Generally, all full-time state employees hired before July 2000, who were not covered under another state-sponsored retirement plan, are eligible for membership in the MSEP (closed plan). Full-time state employees hired after July 2000, and before January 2011, are eligible for membership in the MSEP 2000. Employees hired for the first time on or after January 2011 are eligible for membership in the MSEP 2011 tier of the MSEP 2000. MOSERS participates as an employer in the MSEP and MSEP 2000. The MSEP provides retirement, survivor, and disability benefits.

| As of the June 30, 2013 valuation, membership* in the MSEP consisted of the following: | | |
|---|---|---|
| Retirees and beneficiaries currently receiving benefits | | 39,139 |
| Terminated employees entitled to, but not yet receiving benefits | | 18,550 |
| **Active** | | |
| Vested | 35,501 | |
| Nonvested | 15,332 | 50,833 |
| Total membership | | 108,522 |

* *Excludes 209 members on leave of absence and 1,077 members on long-term disability.*

***MSEP (closed plan)***

General state employees are fully vested for benefits upon receiving 5 years of credited service. Under the MSEP (closed plan), general employees may retire with full benefits upon the earliest of attaining:

- Age 65 and active with 4 years of service;
- Age 65 with 5 years of service;
- Age 60 with 15 years of service; or
- Age 48 with age and service equaling 80 or more - "Rule of 80."

General employees may retire early at age 55 with at least 10 years of service with reduced benefits.

The base benefit in the general employee plan is equal to 1.6% multiplied by the final average pay multiplied by years of credited service.

For members hired prior to August 28, 1997, cost-of-living adjustments (COLAs) are provided annually based on 80% of the percentage increase in the average consumer price index (CPI) from one year to the next, with a minimum rate of 4% and maximum rate of 5% until the cumulative amount of COLAs equals 65% of the original benefit. Thereafter, the 4% minimum rate is eliminated. For members hired on or after August 28, 1997, COLAs are provided annually based on 80% of the percentage increase in the average CPI from one year to the next, up to a maximum rate of 5%.

Qualified, terminated-vested members may make a one-time election to receive the present value of their benefit in a lump sum payment. To qualify, a member must have terminated with at least 5, but less than 10 years of service, be less than age 60, and have a benefit present value of less than $10,000.

Contributions are determined through annual actuarial valuations. Administration of the MSEP is financed through contributions to this plan from the state of Missouri and investment earnings.

***MSEP 2000***

General state employees are fully vested for benefits upon receiving 5 years of credited service. Under the MSEP 2000, general employees may retire with full benefits upon the earliest of attaining:

- Age 62 with 5 years of service; or
- Age 48 with age and service equaling 80 or more - "Rule of 80."

General employees may retire early at age 57 with at least 5 years of service with reduced benefits.

The base benefit in the general employee plan is equal to 1.7% multiplied by final average pay multiplied by years of credited service.

For those retiring under "Rule of 80," an additional temporary benefit equivalent to 0.8% multiplied by final average pay multiplied by years of credited service is payable until age 62.

COLAs are provided annually based on 80% of the percentage increase in the average CPI from one year to the next, up to a maximum rate of 5%.

Contributions are determined through annual actuarial valuations. Administration of the MSEP 2000 is financed through contributions to this plan from the state of Missouri and investment earnings.

The state of Missouri is required to make all contributions to the MSEP. Prior to September 1, 1972, contributions by members were required. Accumulated employee contributions made prior to that time, plus interest through August 28,1997, are refundable to the member or designated beneficiaries upon request.

For a more detailed summary of benefits for general employees and a description of benefits available to legislators and elected officials under the MSEP (closed plan) and the MSEP 2000, refer to the *Summary of Plan Provisions* contained in the *Actuarial Section* of this report.

### *MSEP 2011 Tier*

On July 19, 2010, an additional tier defined benefit plan was signed into law for members of the Missouri State Employees' Retirement System (MOSERS) and the MoDOT and Patrol Employees' Retirement System (MPERS). This tier (MSEP 2011) includes all new employees first hired on or after January 1, 2011.

Under the MSEP 2011, general employees may retire with full benefits upon the earliest of attaining:

- Age 67 with 10 years of service; or
- Age 55 with age and service equaling 90 or more - "Rule of 90."

General employees may retire early at age 62 with at least 10 years of service with reduced benefits.

The base benefit in the general employee plan is equal to 1.7% multiplied by final average pay multiplied by years of credited service.

For those retiring under "Rule of 90," an additional temporary benefit equivalent to 0.8% multiplied by final average pay multiplied by years of credited service is payable until age 62.

COLAs are provided annually based on 80% of the percentage increase in the average CPI from one year to the next, up to a maximum rate of 5%.

Member contributions are 4% of pay. Employer contributions are determined through annual actuarial valuations. Administration of the MSEP 2000 is financed through contributions to this plan from the member, state of Missouri, and investment earnings.

For a more detailed summary of benefits for general employees and a description of benefits available to legislators and elected officials under the MSEP 2011 tier, refer to the *Summary of Plan Provisions* in the *Actuarial Section* of this report.

The MSEP 2011 does not impact employees employed by the state prior to January 1, 2011.

**Service Transfer Contributions**

On July 8, 2011, HB 282 was enacted which allowed MOSERS and MPERS to transfer funds between the two systems in connection with service credit transfers occurring on or after September 1, 2011. The legislation also included provisions that made any full-time employee of the Missouri Development Finance Board (MDFB) who is employed on or after September 1, 2011, a state employee and member of MOSERS. Provisions further allowed MDFB employees to purchase credited service toward retirement based on their employment with MDFB prior to September 1, 2011.

### *Judicial Plan*

The Judicial Plan is a single-employer, public employee retirement plan administered in accordance with Sections 476.445 to 476.690, RSMo. Responsibility for the operation and administration of the Judicial Plan is vested in the MOSERS Board of Trustees. Due to the nature of MOSERS' reliance on funding from the state of Missouri and the overall control of the plan document by the legislative and executive branches of state government, the Judicial Plan is considered a component unit of the state of Missouri financial reporting entity and is included in the state's financial reports as a pension trust fund.

Judges and commissioners of the supreme court or the court of appeals, judges of the circuit court, probate court, magistrate court, court of common pleas, court of criminal corrections, justices of the peace, or commissioners or deputy commissioners of the circuit court appointed after February 29, 1972, commissioners of the juvenile division of the circuit court appointed pursuant to Section 211.023, RSMo, commissioners of the drug court pursuant to Section 478.466, RSMo, or commissioners of the family court are eligible for membership in the Judicial Plan. The Judicial Plan provides retirement, survivor, and disability benefits. Members are immediately eligible for benefits.

| As of the June 30, 2013 valuation, membership* in the Judicial Plan consisted of the following: | | |
|---|---|---|
| Retirees and beneficiaries currently receiving benefits | | 497 |
| Terminated employees entitled to, but not yet receiving benefits | | 31 |
| **Active** | | |
| Vested | 400 | |
| Nonvested | 0 | 400 |
| Total membership | | 928 |

* *Excludes 1 member on leave of absence and 1 member on long-term disability.*

Under the Judicial Plan, members may retire with full benefits upon the earliest of attaining:

- Age 62 with 12 years of service;
- Age 60 with 15 years of service; or
- Age 55 with 20 years of service.

Employees may retire early at age 62 with less than 12 years of service or age 60 with less than 15 years of service with a reduced benefit that is based upon years of service relative to 12 or 15 years.

In the Judicial Plan, the base benefit for members with 12 or more years of service is equivalent to 50% of compensation on the highest court served.

For members hired prior to August 28, 1997, COLAs are provided annually based on 80% of the percentage increase in the average CPI from one year to the next, with a minimum rate of 4% and maximum rate of 5% until the cumulative amount of COLAs equals 65% of the original benefit. Thereafter, the 4% minimum rate is eliminated. For members hired on or after August 28, 1997, COLAs are provided annually based on 80% of the percentage increase in the average CPI from one year to the next, up to a maximum rate of 5%.

Qualified, terminated-vested members may make a one-time election to receive the present value of their benefit in a lump sum payment. To qualify, a member must have terminated with at least 5, but less than 10 years of service, be less than age 60, and have a benefit present value of less than $10,000.

Funding of the Judicial Plan on an actuarial basis began on July 1, 1998. Contributions are determined through annual actuarial valuations. The state of Missouri is required to make all contributions to the Judicial Plan. Administration of the Judicial Plan is financed through contributions to this plan from the state of Missouri and investment earnings.

***Judicial 2011 Tier***

On July 19, 2010, an additional tier defined benefit plan was signed into law for members of the Judicial Plan. This tier (Judicial Plan 2011) includes all new judicial members first hired on or after January 1, 2011.

Under the Judicial Plan 2011, members may retire with full benefits upon the earliest of attaining:

- Age 67 with 12 years of service; or
- Age 62 with 20 years of service; or

Judicial members may retire early at age 67 with less than 12 years of service with reduced benefits; or age 62 with less than 20 years of service with a reduced benefit based on years of service.

In July 2012, the board voted to reduce the nominal investment return assumption from 8.5% to 8% and to adopt assumptions for wage inflation and price inflation of 3% and 2.5%, respectively. See the *Actuarial Section* for detail in change in assumptions.

In the Judicial Plan, the base benefit for members with 12 or more years of service is equivalent to 50% of compensation on the highest court served. For a more detailed summary of benefits for members of the Judicial Plan, refer to the *Summary of Plan Provisions* in the *Actuarial Section* of this report.

### Schedule of Funded Status

| | Actuarial Valuation Date | Actuarial Value of Assets (a) | Actuarial Accrued Liability (AAL) Entry Age (b) | Unfunded AAL (UAAL) (b-a) | Percent Funded (a/b) | Annual Covered Payroll (c) | UAAL Percentage of Covered Payroll ((b-a)/c) |
|---|---|---|---|---|---|---|---|
| MSEP | 06/30/2013 | $8,096,436,929 | $11,134,637,484 | $3,038,200,555 | 72.7% | $1,880,212,950 | 161.6% |
| Judges | 06/30/2013 | 111,140,339 | 435,378,358 | 324,238,019 | 25.5 | 48,697,726 | 665.8 |

| | MSEP | Judicial Plan |
|---|---|---|
| Valuation date | 6/30/2013 | 6/30/2013 |
| Actuarial cost method | Entry age normal | Entry age normal |
| Amortization method | Level percent | Level percent |
| Remaining amortization period | 30 years open | 30 years open |
| Asset valuation method | 3-year rolling smoothed +25/-20% market corridor | 3-year rolling smoothed +25/-20% market corridor |
| *Actuarial assumptions:* | | |
| Investment rate of return | 8.00% | 8.00% |
| Projected salary increases | 3.0-6.9% | 3.0-5.2% |
| Rate of payroll growth | 3.0% | 3.0% |
| COLAs | 4%* | 4%** |
| Price inflation | 2.50% | 2.50% |

* *On a compound basis, 4% for the first 12 years, 3.06% for the 13th year, and 2.0% per year thereafter.*
** *On a compound basis, 4% for the first 12 years, 3.06% for the 13th year, and 2.0% per year thereafter.*

Multi-year trend information related to the table above demonstrates whether the actuarial value of plan assets are increasing or decreasing over time relative to the actuarial accrued liabilities for benefits can be found in the required supplementary information following the *Notes to the Financial Statements*.

### Change in Demographic Assumptions

In June 2012, based on the experience study provided by the retained actuary, the board adopted strengthened mortality tables and revised rates of withdrawal and retirement to better reflect recent experience for both MSEP and Judges plans. Other minor changes in demographic assumptions were also adopted.

### Missouri State Insured Defined Benefit Insurance Plan

The Missouri State Insured Defined Benefit Insurance Plan is accounted for as an internal service fund of the state of Missouri and is administered by MOSERS. It provides basic life insurance in an amount equal to one times annual salary while actively employed (with a $15,000 minimum) to eligible members of the MSEP, MSEP 2000 (except employees of the Missouri Department of Conservation and certain state colleges and universities), MSEP 2011, Judicial Plan, and certain members of the Public School Retirement System.

The plan also provides duty-related death benefits, optional life insurance for active employees and retirees who are eligible for basic coverage, and a long-term disability plan for certain eligible members. For a more detailed description of insurance benefits, refer to the *Summary of Plan Provisions - Life Insurance Plans* in the *Actuarial Section* of this report.

Due to the nature of MOSERS' reliance on funding from the state of Missouri and the overall control of the plan document by the legislative and executive branches of state government, the Missouri State Insured Defined Benefit Insurance Plan is considered a component unit of the state of Missouri financial reporting entity and is included in the state's financial reports as an internal service fund. Administration of the Missouri State Insured Defined Benefit Insurance Plan is financed through contributions to this plan from the state of Missouri.

### State of Missouri's Deferred Compensation Plan

The State of Missouri's Deferred Compensation Plan is accounted for as an internal service fund and is administered by MOSERS.

The record keeping of individual accounts and the management of investment options are handled by external providers and paid from charges to the participants and investment option reimbursement arrangements. Participants in the plan manage individual accounts by choosing investment options from the available fund lineup. MOSERS' role is to oversee the plan, choose external providers and investment options, and develop communication to plan participants. The State of Missouri Deferred Compensation Plan receives reimbursements from the plan's investment option managers which are used to cover plan administration costs and a portion of participant fees. In FY13, a total of $2,379,705 was collected from a combination of $1,726,435 in investment option reimbursements and $653,270 in participant fees.

Effective July 1, 2012, new permanent full-time and part-time employees are automatically enrolled at 1% of pay into the State of Missouri Deferred Compensation Plan.

A new investment option was added to the plan's core line-up in FY13. This addition is the MOSERS Investment Portfolio (MIP) fund option and it offers participants the ability to purchase units of MOSERS investments. As a result, participants own units of MOSERS investments but not specific assets. As of June 30, 2013, participants invested $2,015,286 in the MIP.

Audited financial statements for the State of Missouri Deferred Compensation Plan can be viewed on MOSERS' website at *www.mosers.org*.

## (2) SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND PLAN ASSET MATTERS

### Basis of Accounting

The financial statements of the MSEP, the Judicial Plan, the Missouri State Insured Defined Benefit Insurance Plan and State of Missouri's Deferred Compensation Plan were prepared using the accrual basis of accounting. The accompanying financial statements are prepared in accordance with accounting principles generally accepted in the United States of America that apply to governmental accounting for fiduciary funds including the Governmental Accounting Standards Board (GASB) Statements numbers 25, 28, 34, 37, 40, 43, 50, 53, and 63.

Contributions are recognized as revenues when due, pursuant to statutory requirements. Benefits and refunds are recognized when due and payable and expenses are recorded when the corresponding liabilities are incurred, regardless of when contributions are received or payment is made. The direct method of reporting cash flows is used.

### Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the U.S. requires management to make estimates and assumptions that affect the reported amounts of net assets held in trust for pension benefits at June 30, 2013. Actual results could differ from those estimates.

### Method Used to Value Investments

Section 104.440, RSMo allows the board of trustees to invest the trust fund assets in accordance with the prudent person rule. Investments of the pension trust funds and the internal service funds are reported on the basis of fair market value. During FY13, MOSERS began unitizing investments for the purpose of allowing participants in the State of Missouri Deferred Compensation Plan the option to invest in units of MOSERS investment portfolio (MIP). For financial reporting purposes, investments throughout this CAFR are reported in whole and include .03% or $2,015,286 of the units invested in the MIP by Deferred Compensation participants. The schedule on page 43 provides a summary of the fair values of the investments as reported on the *Statements of Fiduciary Net Position* of the pension trust funds and balance sheet of the internal service funds. Fair values for the equity real estate investments are based on appraisals. Fair values of the limited partnership investments are based on valuations of the underlying companies of the limited partnerships as reported by the general partner. Certain limited partnerships reflect values and related performance on a quarter lag basis due to the nature of those investments and the time it takes to value them. Fair value of the commingled funds is determined based on the underlying asset values. The remaining assets are primarily valued by the system's master custodian, BNY Mellon using the last trade price information supplied by various pricing data vendors.

## Cash

Custodial credit risk for cash deposits and investments is the risk that, in the event of a bank failure, the system and plan deposits may not be returned to them. The board adopted the following policy on June 18, 2009:

*The executive director shall require that banks managing demand deposit accounts for any retirement plan associated with MOSERS (MOSERS' defined benefit plan and the deferred compensation plan/state incentive compensation plan) to hold, at minimum, collateral security in either MOSERS' name or the state of Missouri Deferred Compensation Plan and in an amount equal to or more than the amount on deposit that exceeds the Federal Deposit Insurance Corporation (FDIC) insured amount. The types of collateral security shall be included on a list maintained by the State Treasurer's office in accordance with Section 30.270 RSMo, but in no case may a bank pledge collateral that does not specifically allow MOSERS to release the collateral or pledge collateral that represents securities of the pledging banks.*

Cash balances represent both demand deposit accounts held at the bank and investment cash on deposit with the investment custodian. To maximize investment income, the float caused by outstanding checks is invested in an internally managed short-term investment account, thus causing a possible negative book balance. Negative book balances are reflected in the liabilities section of the balance sheet of the internal service fund and included in the cash and short-term investments on the *Statements of Fiduciary Net Position* of the pension trust funds.

The table below is a schedule of the aggregate book and bank balances of all cash accounts.

Under the repurchase agreement the bank does not have a right to substitute other appropriate securities. Central Trust Bank pledged the following securities to MOSERS on June 30, 2013, as collateral for overnight repurchase agreements:

- $6,000,000 Federal Home Loan Mortgage Corporation | *maturity date - 11/27/2015 / fair value - $5,983,260*
- $3,750,000 Federal Farm Credit Bank | *maturity date - 04/25/2016 / fair value - $3,716,400*
- $6,000,000 Federal Home Loan Mortgage Corporation | *maturity date - 06/06/2016 / fair value - $5,955,960*

### Aggregate Book and Bank Balances

| | Cash Balances | |
|---|---|---|
| | **Book** | **Bank/Investment Custodian** |
| Pension Trust Funds - investment custodian | $10,289,755 | $10,289,755 |
| Pension Trust Funds - demand deposits | (10,515,710) | 30,754 |
| Internal Service Fund - insurance plan demand deposits | (8,211) | 104 |

## Investments

### *Credit Risk*

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations to MOSERS. As of June 30, 2013, MOSERS' fixed income assets that are not government guaranteed represented 57% of the fixed income portfolio. In preparing this report, credit risk associated with all fixed income holdings including collateral for repurchase agreements and securities lending collateral has been included. The tables below summarize MOSERS' fixed income portfolio exposure levels and credit qualities.

As a matter of practice, there are no overarching limitations for credit risk exposures within the overall fixed income portfolio. Each individual portfolio within fixed income is managed in accordance with operational guidelines that are specific as to permissible credit quality ranges, exposure levels within individual quality tiers, and average credit quality. MOSERS is notified by the investment manager when an investment with a quality rating of CC or lower is purchased and in those circumstances of downgrades subsequent to purchase, in which case the investment manager has been given permission to hold the security, usually due to mitigating circumstances such as a very short maturity or a much higher rating from one of the other ratings agencies but may include situations in which the investment manager believes that worst case recovery values exceed market pricing.

Credit risk for derivative instruments held by the system results from counterparty risk assumed by MOSERS. This is essentially the risk that the counterparty to a MOSERS transaction will be unable to meet its obligation. Information regarding MOSERS' credit risk related to derivatives can be viewed in the derivatives disclosures on pages 40-41 of these notes.

Policies related to credit risk pertaining to MOSERS' securities lending program are found under the securities lending disclosures found on page 42 of these notes.

#### Average Credit Quality and Exposure Levels of Nongovernment Guaranteed Securities

| Fixed Income Security Type | Market Value June 30, 2013 | Percent of all Fixed Income Assets | Weighted Average Credit Quality | Ratings Dispersion Requiring Further Disclosure |
|---|---|---|---|---|
| Collateralized mortgage obligations | $ 31,564,474 | 1.3% | CCC- | See table below |
| Non-U.S. sovereign | 76,467,087 | 3.3 | BBB+ | See table below |
| Asset backed securities | 12,223,122 | 0.5 | AA- | See table below |
| Corporate bonds | 97,858,369 | 4.2 | AA+ | See table below |
| Bank loans | 266,033 | 0.0 | B+ | See table below |
| Bank deposits | 400,090,001 | 17.0 | FDIC Insured | None |
| Repurchase agreements | 625,000,000 | 26.6 | Not Rated | None |
| Pooled investments | 95,433,280 | 4.1 | AAA | None |
| Total nongov't guaranteed securities | $1,338,902,366 | 57.0% | | |
| Total fixed income securities | $2,347,252,823 | | | |

#### Ratings Dispersion Detail Market Value

| Credit Rating Level | Collateralized Mortgage Obligations | Non-U.S. Sovereign | Asset Backed Securities | Corporate Bonds | Bank Loans |
|---|---|---|---|---|---|
| Agency | $ 1,352,070 | | $ 8,928,064 | $68,199,430 | |
| AAA | | $ 1,441,189 | | | |
| AA | | | | 10,368,038 | |
| A | | 14,314,012 | 121,523 | 15,451,891 | |
| BBB | | 56,031,615 | | 3,839,010 | |
| BB | 238,519 | 4,680,271 | 688,278 | | |
| B | 4,045,636 | | 833,880 | | $265,926 |
| CCC | 6,856,239 | | 1,648,395 | | |
| CC | 13,864,303 | | | | |
| C | 694,507 | | | | |
| D | 4,513,200 | | | | |
| Not Rated | | | 2,982 | | 107 |
| | $31,564,474 | $76,467,087 | $12,223,122 | $97,858,369 | $266,033 |

### *Concentration of Credit Risk*

Concentration of credit risk is the risk of loss that may be attributed to the magnitude of an investment in a single-issuer. There is no single-issuer exposure within MOSERS' portfolio that comprises 5% or more of the overall portfolio. Therefore, there is no concentration of credit risk.

### *Interest Rate Risk*

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. This risk is managed by using the effective duration or option adjusted methodology. It is widely used in the management of fixed income portfolios by quantifying the risk of interest rate changes. This methodology takes into account optionality on bonds and scales the risk of price changes on bonds depending upon the degree of change in rates and the slope of the yield curve. Within the investment policy, operational guidelines specify the degree of interest rate risk taken within the system's fixed income portfolios, with the exception of some portfolios in which credit risk is the predominant factor and is also controlled by specific guidelines. It is believed that the reporting of effective duration found in the tables below quantifies to the fullest extent possible the interest rate risk of the system's fixed income assets.

MOSERS invests in mortgage-backed securities, which are reported at fair value in the *Statement of Fiduciary Net Position* of the pension trust funds. Such securities have embedded within them the risk of being called, whereby the issuer has the option to keep the debt outstanding in rising interest rate environments or repay the debt in declining interest rate environments, a factor that advantages the issuer. MOSERS invests in these securities to diversify the portfolio with high quality and liquid investments, which capture a significant yield premium that is intended to compensate for the call risk. This risk is incorporated within the effective duration calculation used in the interest rate risk analysis.

#### Effective Duration of Fixed Income Assets by Security Type

| Fixed Income Security Type | Market Value June 30, 2013 | Percent of all Fixed Income Assets | Weighted Average Effective Duration (Years) | Interest Rate Risk Requiring Further Disclosure |
|---|---|---|---|---|
| U.S. treasuries | $ 596,619,136 | 25.4% | 6.3 | See below |
| Collateralized mortgage obligations | 31,564,474 | 1.3 | 0.2 | None |
| Non-U.S. sovereign | 76,467,087 | 3.3 | 5.1 | None |
| Asset backed securities | 12,223,122 | 0.5 | 0.0 | None |
| Corporate bonds | 97,858,369 | 4.2 | 0.3 | None |
| Bank loans | 266,033 | 0.0 | 0.0 | None |
| Bank deposits | 400,090,001 | 17.0 | 0.0 | None |
| Repurchase agreements | 1,036,731,321 | 44.2 | 0.0 | None |
| Pooled investments | 95,433,280 | 4.1 | 0.0 | None |
| | $2,347,252,823 | 100.0% | 1.8 | |

#### Effective Duration Analysis of U.S. Treasuries

| Maturity | Market Value June 30, 2013 | Average Effective Duration of the Security Type | Contribution to Effective Duration |
|---|---|---|---|
| Less than 1 year to maturity | $ 81,091,841 | 0.8 | 0.1 |
| 1- to 10-year maturities | 426,910,635 | 5.9 | 4.2 |
| Long coupon treasuries | 88,616,660 | 13.5 | 2.0 |
| | $ 596,619,136 | | 6.3 |

#### Repurchase Agreements by Collateral Type

| Collateral Type | Market Value of Collateral June 30, 2013 | Market Value of Repurchase Agreement June 30, 2013 | Percent Over Collateralized |
|---|---|---|---|
| U.S. treasuries | $ 419,958,427 | $ 411,721,964 | 2.0% |
| Money market instruments | 64,741,837 | 60,000,000 | 7.9 |
| Investment grade corporates | 26,251,330 | 25,000,000 | 5.0 |
| Common stock | 583,450,000 | 540,000,000 | 8.0 |
| | $1,094,401,594 | $1,036,721,964 | 5.6% |

## Repurchase Agreements

Repurchase agreements (repos) are a secured loan with the collateral held at a custodian bank. Typical collateral for repos include treasury securities, agency securities, mortgage-backed securities, investment grade corporate bonds, commercial paper, and common stock. Repos are typically done for an overnight term, however, they can be done for a longer term. MOSERS enters into repo transactions to earn interest on short-term funds.

### *Foreign Currency Risk*

Foreign currency risk is the risk that changes in exchange rates will adversely impact the fair value of an investment. MOSERS' currency risk exposures, or exchange rate risk, primarily reside within MOSERS' international equity investment holdings. MOSERS' implementation policy is to allow external managers to decide what action to take regarding their respective portfolio's foreign currency exposures using currency forward contracts. MOSERS' exposure to foreign currency risk in U.S. dollars as of June 30, 2013, is highlighted in the table below:

Currency Exposures by Asset Class

| Currency | Cash & Cash Equivalents | Equities | Fixed Income | Alternatives | Total |
|---|---|---|---|---|---|
| Brazilian Real | $ 66,098 | $ 26,406,406 | $ 9,864,507 | | $ 36,337,011 |
| Canadian Dollar | 12,407 | | | | 12,407 |
| Chilean Peso | 371 | 3,021,966 | 174,461 | | 3,196,798 |
| Czech Koruna | 101,131 | 2,133,953 | | | 2,235,084 |
| Danish Krone | | 4,688,699 | | | 4,688,699 |
| Egyptian Pound | 1,705 | 1,333,551 | | | 1,335,256 |
| Euro | 5,147,590 | 198,154,113 | | $93,542,409 | 296,844,112 |
| Hong Kong Dollar | 265,016 | 78,164,892 | | | 78,429,908 |
| Hungarian Forint | | 529,547 | 3,345,589 | | 3,875,136 |
| Indian Rupee | 121,814 | 15,378,524 | | | 15,500,338 |
| Indonesian Rupiah | 45,675 | 12,998,708 | 6,358,826 | | 19,403,209 |
| Israeli Shekel | | 12 | | | 12 |
| Japanese Yen | 2,481,826 | 269,497,980 | | | 271,979,806 |
| Malaysian Ringgit | 36,722 | 8,950,196 | 7,127,012 | | 16,113,930 |
| Mexican Peso | 37,059 | 14,023,799 | 9,307,121 | | 23,367,979 |
| Peruvian New Sol | 95 | | 106,427 | | 106,522 |
| Philippine Peso | 25,319 | 3,321,857 | | | 3,347,176 |
| Polish Zloty | 3,902 | 4,729,629 | 6,880,717 | | 11,614,248 |
| Russian Ruble | 75,607 | 1,475,453 | 7,405,568 | | 8,956,628 |
| Singapore Dollar | 208 | 24,351,721 | | | 24,351,929 |
| South African Rand | 78,558 | 14,494,471 | 7,997,427 | | 22,570,456 |
| South Korean Won | 116,701 | 49,485,393 | 1,969,450 | | 51,571,544 |
| Sri Lankan Rupee | 20,875 | 22,893 | | | 43,768 |
| Swedish Krona | | 5,792,578 | | | 5,792,578 |
| Swiss Franc | | 102,383,906 | | | 102,383,906 |
| Taiwan New Dollar | 228,163 | 36,027,867 | | | 36,256,030 |
| Thai Baht | 41,212 | 18,919,108 | 4,819,302 | | 23,779,622 |
| Turkish Lira | 1,311 | 5,539,055 | 7,813,650 | | 13,354,016 |
| British Pound Sterling | 58 | 106,279,221 | | | 106,279,279 |
| Chinese Renminbi | 536,179 | 1,157,605 | | | 1,693,784 |
| Colombian Peso | | 1,594,782 | 3,718,483 | | 5,313,265 |
| Venezuelan Bolivar | 36,601 | | | | 36,601 |
| Moroccan Dirham | 90 | 159,475 | | | 159,565 |
| Ukrainian Hryvnia | | 57 | | | 57 |
| Norwegian Krone | | 7,452,852 | | | 7,452,852 |
| Nigerian Naira | 869,021 | 49,771 | 311,332 | | 1,230,124 |
| Romanian New Leu | | | 113,888 | | 113,888 |
| Vietnamese Dong | 9,857 | | | | 9,857 |
| | $10,361,171 | $1,018,520,040 | $77,313,760 | $93,542,409 | $1,199,737,380 |

## Derivatives

Derivative instruments are financial contracts whose values depend on the values of one or more underlying assets, reference rates, or financial indexes. They include futures contracts, swap contracts, options contracts, and forward foreign currency exchange. For accounting purposes, all derivative instruments are considered to be investments and not hedges. The tables below summarize the various contracts in the portfolio as of June 30, 2013.

While the board has no formal policy specific to derivatives, the MOSERS investment implementation program, through its external managers, holds investments in futures contracts, swap contracts, and forward foreign currency exchange. MOSERS enters into these certain derivative instruments primarily to enhance the performance and reduce the volatility of its portfolio. It enters swaps and futures contracts to gain exposure to certain markets and to manage interest rate risk and enters into forward foreign exchange contracts primarily to hedge foreign currency exposure.

The notional values associated with these derivative instruments are generally not recorded on the financial statements; however, the amounts for the exposure on these instruments are recorded in the *Statement of Fiduciary Net Position* and the total changes in fair value for the year are included as investment income in the *Statement of Changes in Fiduciary Net Position*. For the year ending June 30, 2013, the change in fair value in the swap contracts resulted in $85.7 million of investment income. The change in fair value in the future contracts resulted in $49.9 million of investment income and the change in fair value of the foreign exchange contracts resulted in a loss of $6.1 million of investment income. MOSERS does not anticipate additional significant market risk from the swap arrangements.

MOSERS could be exposed to risk if the counterparties to the contracts are unable to meet the terms of the contracts. MOSERS' investment managers seek to control this risk through counterparty credit evaluations and approvals, counterparty credit limits, and exposure monitoring procedures. MOSERS anticipates that the counterparties will be able to satisfy their obligations under the contracts. Investments in limited partnerships and commingled funds may include derivatives that are not shown in the derivative totals.

### Futures Contracts

| Futures Contract | 2013 Expiration Date | Long/Short | Notional/Fair Value | Exposure |
|---|---|---|---|---|
| U.S. long treasury bond | September | Long | $ 23,772,656 | $ 0 |
| U.S. 10-year treasury notes | September | Long | 156,178,125 | (107,891) |
| U.S. 2-year treasury notes | September | Long | 119,240,000 | (19,141) |
| U.S. Ultra Bond | September | Long | 727,134,500 | 5,904,688 |
| S&P 500 eMini index | September | Long | 734,878,350 | (3,531,065) |
| Gold 100 oz | August | Long | 38,791,290 | 383,570 |
| Total | | | $1,799,994,921 | $ 2,630,161 |

### Foreign Currency Forward Contracts at June 30, 2013

| Currency | Net Notional Long/(Short) | Exposure |
|---|---|---|
| Brazilian Real | $ 93,398 | $ (662) |
| Columbian Peso | (246,089) | 742 |
| Euro | (69,625,677) | (1,671,453) |
| Hungarian Forint | 0 | 6,849 |
| Japanese Yen | 0 | 1,857,890 |
| Peruvian Nuevo Sol | 381,021 | 1,021 |
| Romanian Leu | 303,259 | (5,493) |
| Thai Baht | (41,670) | (174) |
| Turkish Lira | 3,854 | 1 |
| U.S. Dollar | 69,320,625 | 0 |
| Foreign currency forward contract asset (liability) | $ 188,721 | $ 188,721 |

Swap Contracts

| MOSERS Receives | Maturity Date | Notional Value | Exposure | Index Counterparty | Counterparty Credit Rating* |
|---|---|---|---|---|---|
| S&P 500 Financials | 10/2013 | $ 59,483,142 | $ 2,524,577 | Goldman Sachs | Aa3/A- |
| S&P 500 Consumer Discretionary Total Return | 1/2014 | (70,999,930) | (2,595,503) | Goldman Sachs | Aa3/A- |
| S&P 100 Technology Total Return | 10/2013 | 80,828,320 | (29,077) | JP Morgan Chase | Aa3/A+ |
| S&P 100 Consumer Staples Total Return | 10/2013 | 85,275,165 | (3,180,554) | JP Morgan Chase | Aa3/A+ |
| S&P 100 Health Care Total Return | 10/2013 | 92,148,116 | (322,934) | JP Morgan Chase | Aa3/A+ |
| S&P 100 Energy Total Return | 10/2013 | 104,201,910 | 164,566 | JP Morgan Chase | Aa3/A+ |
| Dow Jones U.S. Select REIT Total Return | 8/2013 | 0 | (2,050,015) | Goldman Sachs | Aa3/A- |
| MSCI EAFE Total Return | 9/2013 | 76,634,904 | 140,109 | Deutsche Bank | A2/A+ |
| MSCI EAFE Total Return | 9/2013 | (76,634,904) | 4,789,627 | Deutsche Bank | A2/A+ |
| MSCI EAFE ex-Japan Total Return | 10/2013 | 16,548,132 | (318,761) | Deutsche Bank | A2/A+ |
| MSCI EAFE ex-Japan Total Return | 12/2013 | 92,753,878 | (4,947,569) | Goldman Sachs | A2/A+ |
| MSCI EAFE ex-Japan Total Return | 8/2013 | 66,857,905 | (6,845,186) | Deutsche Bank | A2/A+ |
| MSCI EAFE ex-Japan Total Return | 10/2013 | 78,897,821 | (1,519,781) | Deutsche Bank | A2/A+ |
| Barclays 1-10 Yr. TIPS Total Return | 11/2013 | 177,194,964 | (5,038,682) | Goldman Sachs | Aa3/A- |
| Barclays 1-10 Yr. TIPS Total Return | 8/2013 | 174,766,876 | (4,958,458) | Barclays | A2/A+ |
| Barclays 1-10 Yr. TIPS Total Return | 8/2013 | 190,784,979 | (5,402,242) | Goldman Sachs | Aa3/A- |
| Barclays 1-10 Yr. TIPS Total Return | 3/2014 | 188,945,209 | (11,193,111) | Goldman Sachs | Aa3/A- |
| Barclays 1-10 Yr. TIPS Total Return | 4/2014 | 186,647,832 | (11,037,695) | Goldman Sachs | Aa3/A- |
| Barclays 1-10 Yr. TIPS Total Return | 11/2013 | 266,412,674 | (7,541,575) | Goldman Sachs | Aa3/A- |
| Barclays 1-10 Yr. TIPS Total Return | 9/2013 | 178,000,000 | 0 | Goldman Sachs | Aa3/A- |
| Deutsche Bank Intermediate TIPS Total Return | 7/2013 | 75,039,042 | (2,154,599) | Goldman Sachs | Aa3/A- |
| Barclays 10+ Yr. TIPS Total Return | 1/2014 | 123,900,000 | 0 | Goldman Sachs | Aa3/A- |
| S&P GSCI Total Return | 1/2014 | 51,068,694 | 95,307 | JP Morgan Chase | Aa3/A+ |
| S&P GSCI Total Return | 8/2013 | 131,124,025 | 290,842 | JP Morgan Chase | Aa3/A+ |
| S&P GSCI Total Return | 11/2013 | 44,543,756 | 98,631 | JP Morgan Chase | Aa3/A+ |
| S&P GSCI Total Return | 3/2014 | 25,436,308 | 56,711 | JP Morgan Chase | Aa3/A+ |
| S&P GSCI Total Return | 6/2014 | 46,000,000 | 0 | JP Morgan Chase | Aa3/A+ |
| S&P GSCI Total Return | 4/2014 | 51,345,555 | 114,674 | Goldman Sachs | Aa3/A- |
| S&P GSCI Total Return | 5/2014 | 70,765,238 | 158,045 | Goldman Sachs | Aa3/A- |
| S&P GSCI Total Return | 1/2014 | 105,155,669 | 251,209 | JP Morgan Chase | Aa3/A+ |
| CDX.NA.HY | 6/2017 | 15,840,000 | 1,058,789 | Deutsche Bank | A2/A+ |
| Three-Month LIBOR Quarterly | 12/2014 | (10,000,000) | (316,486) | Deutsche Bank | A2/A+ |
| Three-Month LIBOR Quarterly | 6/2014 | (10,000,000) | (158,401) | Deutsche Bank | A2/A+ |
| Total | | $2,688,965,280 | $(59,867,542) | | |

** Ratings obtained from Moody's/S&P.*

### Securities Lending Program

The board of trustees' investment policy permits the pension trust funds to participate in a securities lending program. Fixed income, international equity and domestic equity securities of the pension trust funds are loaned to participating brokers who provide collateral in the form of cash, U.S. Treasury or government agency securities, or letters of credit issued by approved banks. Collateral must be provided in the amount of 102% of market value for domestic loans and 105% of market value for international loans. MOSERS does not have the authority to pledge or sell collateral securities, without borrower default. Securities on loan at fiscal year end for cash collateral and on loan for noncash collateral are presented in the schedule on the following page. On June 30, 2013, MOSERS had no credit risk exposure to borrowers because the collateral amounts received exceeded amounts out on loan.

As of June 30, 2013, Deutsche Bank AG, New York branch, served as the agent for the fixed income, domestic equity and international equity securities lending programs. In this capacity, MOSERS reduces credit risk by allowing Deutsche Bank to lend these securities to a diverse group of dealers on behalf of MOSERS. Indemnification against dealer default is provided by Deutsche Bank AG, an "A-rated" bank. With each of MOSERS' securities lending programs, a majority of loans are open loans and can be terminated on demand by either MOSERS or the borrower. Net income from the three lending programs is split on a 90/10 basis between MOSERS and Deutsche Bank, respectively.

Daily monitoring of securities that are on loan ensures proper collateralization levels and mitigates counterparty risk. Cash collateral from all three programs is commingled and invested in a separately managed short-term investment account for MOSERS. This cash collateral account is managed by Deutsche Bank. On June 30, 2013, the cash collateral account had a market value of $461,766,766 and a weighted average maturity of one day. For all of the securities lending operational services, the custodian is paid an annual fee, which is netted out against MOSERS' earnings in the securities lending programs managed by Deutsche Bank.

### Limited Partnerships

Many of MOSERS' alternative investments are organized in the form of limited partnerships. In these partnerships, the manager is the general partner and the limited partners are the investors. Investments in limited partnerships are accounted for on the equity method of accounting, and their earnings or losses for the period are included in investment income using the equity method. As of June 30, 2013, MOSERS had contracts with over 98 limited partnerships across various types of alternative investments. These partnerships collectively represent 60% of the total fund. A schedule of limited partnerships follows on pages 44-45.

Investments as of June 30, 2013

| | Pension Trust Funds | | Internal Service Funds | |
|---|---|---|---|---|
| | Investments at Cost Value | Investments at Fair Value | Investments at Cost Value | Investments at Fair Value |
| **Common stocks** | | | | |
| Out on loan | $ 40,489,285 | $ 62,772,588 | | |
| Not on securities loan | 277,426,912 | 314,942,074 | | |
| Total | 317,916,197 | 377,714,662 | | |
| **International equities** | | | | |
| Out on loan | 7,390,818 | 12,347,195 | | |
| Not on securities loan | 380,952,971 | 921,083,355 | | |
| Total | 388,343,789 | 933,430,550 | | |
| **Treasury bonds, notes and bills** | | | | |
| Out on loan | 334,330,698 | 336,251,916 | | |
| Not on securities loan | 262,834,032 | 257,505,714 | | |
| Total | 597,164,730 | 593,757,630 | | |
| **Corporate bonds** | | | | |
| Out on loan | 36,373,929 | 35,458,071 | | |
| Not on securities loan | 5,327,678 | 13,010,802 | | |
| Total | 41,701,607 | 48,468,873 | | |
| Convertible bonds | 439,637 | 654,456 | | |
| Government bonds and gov't mortgage backed securities | 78,249,453 | 70,007,740 | | |
| International corporate bonds | 28,845,542 | 4,997,840 | | |
| Repurchase agreements | 10,411,397 | 10,411,397 | $3,258,256 | $3,258,256 |
| Short-term investment funds | 1,640,210,461 | 1,640,210,461 | | |
| Collateralized mortgage obligations | 23,519,246 | 28,364,477 | | |
| Foreign currencies | 7,824,591 | 7,862,572 | | |
| Limited partnerships | 3,769,012,780 | 4,870,969,314 | | |
| Bank loans | 555,750 | 98 | | |
| **Total Investments** | | | | |
| Out on loan | 418,584,730 | 446,829,770 | | |
| Not on securities loan | 6,485,610,450 | 8,140,020,300 | 3,258,256 | 3,258,256 |
| Total | $6,904,195,180 | $8,586,850,070 | $3,258,256 | $3,258,256 |
| **Reconciliation to investments on *Statements of Fiduciary Net Position*** | | | | |
| Total from above | | $8,586,850,070 | | |
| Less short-term investments: | | | | |
| Repurchase agreements | | (10,411,397) | | |
| Short-term investment funds | | (1,192,337,766) | | |
| Less invested securities lending collateral: | | | | |
| Short-term investment funds | | (447,872,695) | | |
| Corporate bonds | | (13,894,071) | | |
| Investments on *Statements of Fiduciary Net Position* | | $6,922,334,141 | | |

Due to space limitations and printing costs, a detailed listing of the investment holdings and transactions could not be provided in this annual report; however, the detailed reports are available for review as an appendix to this report at the MOSERS office.

Limited Partnerships

| Partnership Name | Style | Investments at Fair Value as of June 30, 2013 |
|---|---|---|
| Actis Emerging Markets III | Emerging markets | $ 48,185,974 |
| Actis Global IV | Emerging markets | 1,631,698 |
| African Development Partners I, LLC | Emerging markets | 41,443,495 |
| Alinda Infrastructure Fund I, LP | Infrastructure | 28,805,719 |
| American Industrial Partners Capital Fund V, LP | Corporate buyout | 6,334,705 |
| AQR Absolute Return Institutional Fund, LP | Multi-strategy | 60,000,017 |
| AQR DELTA Sapphire Fund, LP | Multi-strategy | 236,371,482 |
| AQR Global Risk Premium Fund IV, LP | Beta balanced | 345,437,345 |
| Axiom Asia Private Capital Fund II, LP | Emerging markets | 22,106,707 |
| Axiom Asia Private Capital Fund III, LP | Emerging markets | 1,745,258 |
| Axxon Brazil Private Equity Fund II B, LP | Emerging markets | 10,088,692 |
| Bayview Opportunity Domestic, LP - high yield | Distressed real estate debt | 23,864,482 |
| Bayview Opportunity Domestic IIIb, LP - high yield | Distressed real estate debt | 30,275,124 |
| Blackstone Real Estate Partners IV | Active real estate | 46,513,422 |
| Blackstone Real Estate Partners V | Active real estate | 115,310,825 |
| Blackstone Real Estate Partners VI | Active real estate | 94,063,665 |
| Blackstone Real Estate Partners VII | Active real estate | 41,995,681 |
| Blackstone Topaz Fund, LP | Multi-strategy - fund-of-funds | 404,946,189 |
| Blakeney Onyx, LP | Emerging markets | 103,799,715 |
| Brevan Howard, LP | Global macro | 89,858,072 |
| Brevan Howard Emerging Markets Strategies Fund, LP | Global macro | 70,074,904 |
| Bridgepoint Europe III A, LP | Corporate buyout | 16,105,616 |
| Bridgepoint Europe IV B, LP | Corporate buyout | 34,190,684 |
| Bridgewater All Weather, LLC | Beta balanced | 415,212,445 |
| Bridgewater Associates - Diamond Ridge Fund, LLC | Global macro | 77,413,908 |
| Campbell Timber Fund II A, LP | Timberland | 43,050,929 |
| CarVal Investors CVI Global Value Fund A, LP - private debt | Distressed real estate debt | 29,100,000 |
| CarVal Investors CVI Global Value Fund A, LP - real estate | Distressed real estate debt | 29,100,000 |
| Catalyst Fund Limited Partnership III | Canadian distressed debt | 31,507,312 |
| Catalyst Fund Limited Partnership IV | Canadian distressed debt | 6,394,000 |
| Catterton Partners V, LP | Corporate buyout | 21,133,418 |
| Catterton Partners VI, LP | Corporate buyout | 31,989,377 |
| Catterton Partners VII, LP | Corporate buyout | 3,849,974 |
| Claren Road Credit Partners, LP | Long/short - credit | 110,663,922 |
| COMAC Global Macro Fund, LP | Global macro | 46,053,008 |
| CQS Feeder Fund, Ltd. | Long/short - credit | 91,609,310 |
| Davidson Kempner Institutional Partners, LP | Event driven | 94,780,135 |
| DDJ Capital Management - B IV Capital Partners, LP | Distressed debt | 3,558,507 |
| Diamondback Partners, LP | Long/short - equity | 2,252,410 |
| DRI Capital - LSRC | Intellectual property | 23,230,456 |
| DRI Capital - LSRC II | Intellectual property | 3,779,577 |
| EIG Energy Fund XIV, LP | Energy - mezzanine | 32,212,397 |
| EIG Energy Fund XV, LP | Energy - mezzanine | 35,300,627 |
| EIG Energy Co. - Investment I | Energy - infrastructure | 6,301,427 |
| Elliott International, Ltd. | Multi-strategy | 94,824,067 |
| Eminence Fund, Ltd. | Long/short - equity | 99,430,554 |
| Empyrean Capital Fund, LP | Event driven | 52,257,880 |
| Eton Park Fund, LP | Multi-strategy | 47,510,993 |
| Farallon Capital Institutional Partners, LP | Multi-strategy | 5,553,286 |

*Continued on page 45*

*Schedule of Investment Expenses continued from page 44*

Limited Partnerships

| Partnership Name | Style | Investments at Fair Value as of June 30, 2013 |
|---|---|---|
| Fortress Mortgage Opportunities Fund Series 2 | Distressed real estate debt | 35,554,098 |
| Garnet Sky Investors Company, Ltd. | Timberland | 92,400,025 |
| Gateway Energy & Resource Holdings, LLC | Energy - diversified | 30,131,034 |
| Glenview Institutional Partners, LP | Long/short - equity | 59,947,519 |
| Global Forest Partners GTI7 Institutional Investors Company, Ltd. | Timberland | 85,446,465 |
| HBK Offshore Fund, Ltd. | Multi-strategy | 92,241,892 |
| JLL Partners Fund V, LP | Corporate buyout | 26,663,872 |
| JLL Partners Fund VI, LP | Corporate buyout | 18,539,665 |
| King Street Capital, LP | Credit driven | 37,006,454 |
| King Street Capital, Ltd. | Credit driven | 796,406 |
| Linden Capital Partners II, LP | Corporate buyout | 12,170,944 |
| Linden Capital Partners Co - Invest, LP | Corporate buyout | 4,411,765 |
| Mast Credit Opportunities I, LP | Credit driven | 74,433,174 |
| Merit Energy Partners F-II, LP | Energy - oil & gas | 8,173,459 |
| MHR Institutional Partners II A, LP | Distressed debt | 43,560,227 |
| MHR Institutional Partners III, LP | Distressed debt | 59,450,485 |
| Millennium Technology Value Partners II, LP | Direct secondaries | 11,455,063 |
| Millennium Technology Value Partners Co-Investment | Direct secondaries | 5,436,872 |
| Moon Capital Global Equity Offshore Fund, Ltd. | Long/short - equity | 840,770 |
| Nephila Triton Fund, LP | Reinsurance | 50,158,757 |
| New Mountain Partners III, LP | Corporate buyout | 43,865,041 |
| Oaktree European Credit Opportunities Fund, LP | European loans | 1,802,615 |
| OCM Opportunities Fund IVB, LP | Distressed debt | 225,253 |
| OCM Opportunities Fund VIIb, LP | Distressed debt | 28,932,415 |
| OCM Opportunities Fund VIIIb, LP | Distressed debt | 24,446,713 |
| OCM Real Estate Opportunities Fund III, LP | Active real estate | 8,616,060 |
| OCM/GFI Power Opportunities Fund II, LP | Corporate buyout | 2,397,403 |
| OCM Power Opportunities Fund III, LP | Corporate buyout | 10,090,578 |
| PAAMCO - Newport Pioneer, LLC | Multi-strategy - fund-of-funds | 4,286,036 |
| Parish Capital Buyout Fund I, LP | Corporate buyout - fund-of-funds | 14,139,295 |
| Parish Capital Buyout Fund II, LP | Corporate buyout - fund-of-funds | 18,756,749 |
| Parish Opportunities Fund II, LP | Private equity co-investment | 4,225,182 |
| Perry Partners, LP | Multi-strategy | 101,461 |
| Pershing Square, LP | Long/short - equity | 34,030,182 |
| Pharo Macro Fund, Ltd. | Global macro | 85,755,694 |
| Resource Management Service - Wildwood Timberlands, LLC | Timberland | 121,847,125 |
| Silver Creek Special Opportunities Fund I, LP | Special situations - fund-of-funds | 29,324,059 |
| Silver Creek Special Opportunities Fund II, LP | Special situations - fund-of-funds | 35,577,993 |
| Silver Lake Partners II, LP | Corporate buyout | 15,018,777 |
| Silver Point Capital Fund, LP | Credit driven | 2,023,882 |
| SIRIS Partners II, LP | Corporate buyout | 3,579,138 |
| The Veritas Capital Fund III, LP | Corporate buyout | 31,963,545 |
| The Veritas Capital Fund IV, LP | Corporate buyout | 29,436,327 |
| TPG Airline Credit Opportunities II, LP | Special situations | 28,396,340 |
| TPG-Axon Partners (Offshore), Ltd. | Long/short - equity | 27,519,505 |
| Viking Global Equities III, Ltd. | Long/short - equity | 117,047,892 |
| Visium Balanced Fund, LP | Long/short - equity | 85,928,970 |
| Wellington Management - Spindrift Investors (Bermuda) | Long/short - equity | 877,612 |
| Other (each less than $1M) | Miscellaneous | 719,136 |
| | | $4,870,969,314 |

## Capital Assets

Office building, furniture, fixtures, and equipment costing $1,000 or more when acquired are recorded at cost at the time of acquisition and are reported net of accumulated depreciation. Improvements, which increase the useful life of the property, are also capitalized. Maintenance and repairs are charged to expense as incurred. Depreciation is computed using the straight-line method over the estimated useful life of the related assets according to the following schedule:

- 5 years for furniture, fixtures, and equipment
- 40 years for building
- 5 years for software and licensing

Below is a schedule of the capital asset account balances for the pension trust funds and the internal service funds – Deferred Compensation Plan as of June 30, 2012, and June 30, 2013, and changes to those account balances during the year ended June 30, 2013.

### Capital Asset Account - *Pension Trust Funds*

| Capital Assets | Land | Building and Building Improvements | Furniture, Fixtures, and Equipment | Software and Licensing | Total Capital Assets |
|---|---|---|---|---|---|
| Balances June 30, 2012 | $267,286 | $3,670,514 | $1,664,763 | $124,625 | $5,727,188 |
| Additions | 0 | 468,567 | 209,840 | 136,606 | 815,013 |
| Deletions | 0 | (78,905) | (173,988) | 0 | (252,893) |
| Balances June 30, 2013 | 267,286 | 4,060,176 | 1,700,615 | 261,231 | 6,289,308 |
| **Accumulated depreciation:** | | | | | |
| Balances June 30, 2012 | 0 | 1,181,520 | 1,460,242 | 21,115 | 2,662,877 |
| Depreciation expense | 0 | 97,850 | 122,355 | 24,435 | 244,640 |
| Deletions | 0 | 0 | (173,147) | 0 | (173,147) |
| Balances June 30, 2013 | 0 | 1,279,370 | 1,409,450 | 45,550 | 2,734,370 |
| Net capital assets June 30, 2013 | $267,286 | $2,780,806 | $ 291,165 | $215,681 | $3,554,938 |

### Capital Asset Account - *Internal Service Funds*

| Capital Assets | Furniture, Fixtures, and Equipment | Software and Licensing | Total Capital Assets |
|---|---|---|---|
| Balances June 30, 2012 | $2,828 | $2,648 | $5,476 |
| Additions | 2,296 | 0 | 2,296 |
| Deletions | 0 | 0 | 0 |
| Balances June 30, 2013 | 5,124 | 2,648 | 7,772 |
| **Accumulated depreciation:** | | | |
| Balances June 30, 2012 | 112 | 338 | 450 |
| Depreciation expense | 3,175 | 530 | 3,705 |
| Deletions | 0 | 0 | 0 |
| Balances June 30, 2013 | 3,287 | 868 | 4,155 |
| Net capital assets June 30, 2013 | $1,837 | $1,780 | $3,617 |

## (3) CONTRIBUTIONS AND RESERVES

The MSEP and the Judicial Plan are pension plans covering substantially all state of Missouri employees, administrative law judges and legal advisors in the Division of Workers' Compensation, and judges. The state of Missouri is obligated by state law to make required contributions to the plans. The required contributions are expressed as a level percentage of covered payroll and are actuarially determined using an individual entry-age normal actuarial cost method. The unfunded accrued liabilities are amortized over an open 30-year period for FY13. MSEP 2011 employees are required to contribute 4% of their pay. Costs of administering the plans are financed from the contributions to the pension trust funds and investment earnings.

### Prospective Changes to Amortization Period

In June 2013, the board approved a change to the period over which unfunded actuarial accrued liabilities are amortized. The change reduced the amortization period from an open 30 years to a closed 30 years beginning July 1, 2014, and will continue to reduce by one year for each subsequent annual valuation, until the period reaches one year. The board intends to reexamine the amortization period in connection with the 2030 actuarial valuation to determine whether or not it should be reduced below 15 years.

## (4) OTHER POSTEMPLOYMENT BENEFITS (OPEB)

In addition to the retirement benefits provided through MOSERS, the state of Missouri also funds, either partially or in its entirety, OPEB for eligible retirees as follows:

### Retiree Life Insurance

Members who retire on or after October 1, 1985, are eligible for $5,000 of state-sponsored basic life insurance coverage if they retire directly from active employment. As of June 30, 2013, 21,818 retirees were eligible and participating in the program. This insured defined benefit coverage is financed on a percent of payroll (.115%) and is purchased as a group policy through competitive bids and is currently administered through The Standard insurance company. The cost for year ended June 30, 2013, was $1,833,753. Premiums are contributed entirely by the state as provided for by Section 104.515, RSMo.

Retirees of the Department of Labor and Industrial Relations (DOLIR), who retired prior to January 1, 1996, are eligible for state-sponsored insured defined benefit insurance coverage in the same amount of coverage they were receiving through the DOLIR. As of June 30, 2013, 285 retirees were eligible and participating in the program. The coverage for this closed group is purchased as a group policy through competitive bids at a current cost of $2.07 per thousand dollars of coverage, per month, per eligible participant ($34,804 for the year ended June 30, 2013). Premiums are paid entirely by the DOLIR as provided for by Section 228.225, RSMo. Retirees of the DOLIR who retired on or after January 1, 1996, are eligible for $5,000 of state-sponsored life insurance coverage if they retire directly from active employment. They are included in the group described in the preceding paragraph.

### Long-Term Disability Insurance

MOSERS also provides long-term disability coverage for eligible members. Membership generally includes those active members of MOSERS' retirement plans who do not have other disability coverage and are not yet eligible to receive normal (unreduced) retirement benefits. As of June 30, 2013, 34,768 members were eligible and covered under the program. This insured defined benefit coverage is financed on a percentage of covered payroll (.55%) and is purchased as group policy through competitive bids and is currently administered through The Standard insurance company. The cost for the year ended June 30, 2013, was $7,930,941. Premiums are contributed by the state as provided for by Section 104.515, RSMo.

### Postemployment Retiree Health Care

MOSERS participates in a cost-sharing multiple-employer defined benefit post-employment health care plan administered by the Missouri Consolidated Health Care Plan (MCHCP). The plan provides medical benefits to retirees of participating governmental entities. Retirees who had medical insurance coverage for six months immediately prior to termination or state-sponsored medical coverage since the effective date of the last enrollment period (or since first eligible), before they are eligible to retire, may continue coverage into retirement.

MCHCP issues a publicly available financial report that includes financial statements and required supplementary information for the postemployment health care plan. The report may be obtained by calling (800) 487-0771 or writing to MCHCP, 832 Weathered Rock Court, P.O. Box 104355, Jefferson City, MO 65110-4355.

Plan funding requests are actuarially determined, approved by the MCHCP Board of Trustees, and subject to appropriation by the Missouri General Assembly. MOSERS contributed $240,307 in FY11, $233,820 in FY12 and $236,012 in FY13 in accordance with the state's funding policy toward the annual required contributions for postemployment retiree health care, which equaled MOSERS' required contribution each year.

## (5) PLAN TERMINATION

MOSERS and its related plans are administered in accordance with Missouri statutes. Plans can only be terminated by an amendment to these statutes by the Missouri legislature.

On April 26, 2005, Senate Bill 202 was enacted, which terminated the Administrative Law Judges and Legal Advisors' Plan (ALJLAP) for new hires only. Under this legislation, individuals who assume a position after April 26, 2005, who would have otherwise been covered by the ALJLAP, will instead participate in the MSEP or the MSEP 2000, depending on when they initially became state employees. For fiscal years 2005 and after, all liabilities and assets of the ALJLAP were transferred and combined with the MSEP. Membership totals for ALJLAP members are combined with the MSEP in all relevant sections of this report.

## (6) COMMITMENTS

As of June 30, 2013, MOSERS has $540,611,486 and €16,407,503 unfunded commitments in the alternative investments asset class.

## (7) CONTINGENCIES

The Internal Revenue Service (IRS) audited the tax qualified status of MOSERS. In a discussion draft dated August 9, 2007, the IRS raised two qualification issues but no further action has been taken by the IRS on those matters. MOSERS does not anticipate material liability for any taxes or penalties.

## Schedules of Funding Progress

*Pension Trust Funds - Last Six Years*

### MSEP

| Actuarial Valuation Date | Actuarial Value of Assets (a) | Actuarial Accrued Liability (AAL) Entry Age (b) | Unfunded AAL (UAAL) (b-a) | Percent Funded (a/b) | Annual Covered Payroll (c) | UAAL Percentage of Covered Payroll [(b-a)/c] |
|---|---|---|---|---|---|---|
| 6/30/2008 | $7,838,495,768 | $ 9,128,347,470 | $1,289,851,702 | 85.9% | $1,916,527,398 | 67.3% |
| 6/30/2009 | 7,876,079,342 | 9,494,806,715 | 1,618,727,373 | 83.0 | 2,002,402,087 | 80.8 |
| 6/30/2010 | 7,923,377,393 | 9,853,155,445 | 1,929,778,052 | 80.4 | 1,945,095,321 | 99.2 |
| 6/30/2011 | 8,022,481,408 | 10,123,544,043 | 2,101,062,635 | 79.2 | 1,875,569,816 | 112.0 |
| 6/30/2012 | 7,897,167,203 | 10,793,651,577 | 2,896,484,374 | 73.2 | 1,864,069,493 | 155.4 |
| 6/30/2013 | 8,096,436,929 | 11,134,637,484 | 3,038,200,555 | 72.7 | 1,880,212,950 | 161.6 |

### Judicial Plan

| Actuarial Valuation Date | Actuarial Value of Assets (a) | Actuarial Accrued Liability (AAL) Entry Age (b) | Unfunded AAL (UAAL) (b-a) | Percent Funded (a/b) | Annual Covered Payroll (c) | UAAL Percentage of Covered Payroll [(b-a)/c] |
|---|---|---|---|---|---|---|
| 6/30/2008 | $ 73,194,379 | $354,796,453 | $281,602,074 | 20.6% | $44,542,530 | 632.2% |
| 6/30/2009 | 81,337,881 | 369,106,841 | 287,768,960 | 22.0 | 45,505,512 | 632.4 |
| 6/30/2010 | 88,976,738 | 382,012,773 | 293,036,035 | 23.3 | 46,112,730 | 635.5 |
| 6/30/2011 | 98,398,628 | 393,484,589 | 295,085,961 | 25.0 | 45,888,020 | 643.1 |
| 6/30/2012 | 102,266,706 | 413,332,538 | 311,065,832 | 24.7 | 45,835,501 | 678.7 |
| 6/30/2013 | 111,140,339 | 435,378,358 | 324,238,019 | 25.5 | 48,697,726 | 665.8 |

See *Notes to the Schedules of Required Supplementary Information*.

## Schedules of Employer Contributions

***Pension Trust Funds - Last Six Years***

### MSEP

| | Annual Required Contribution | | |
|---|---|---|---|
| Year Ended June 30 | Percent | Dollar Amount | Percentage Contributed |
| 2008 | 12.84% | $249,770,156 | 100% |
| 2009 | 12.53 | 252,105,008 | 100 |
| 2010 | 12.75 | 251,226,187 | 100 |
| 2011 | 13.81 | 263,418,048 | 100 |
| 2012 | 13.97 | 263,373,924 | 100 |
| 2013 | 14.45 | 274,655,284 | 100 |

### Judicial Plan

| | Annual Required Contribution | | |
|---|---|---|---|
| Year Ended June 30 | Percent | Dollar Amount | Percentage Contributed |
| 2008 | 58.65% | $26,215,309 | 100% |
| 2009 | 60.07 | 27,725,882 | 100 |
| 2010 | 58.48 | 27,029,198 | 100 |
| 2011 | 60.03 | 27,702,682 | 100 |
| 2012 | 57.30 | 26,324,526 | 100 |
| 2013 | 56.92 | 28,330,649 | 100 |

See *Notes to the Schedules of Required Supplementary Information*.

REQUIRED SUPPLEMENTARY INFORMATION

# NOTES TO THE SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

*Pension Trust Funds - Last Six Years*

## Actuarial Methods and Assumptions for Valuations Performed June 30, 2013

The entry-age actuarial cost method of valuation is 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 payments (principal and interest), which are expressed as a percent of payroll. An open 30-year amortization period was used for the June 30, 2013, valuations. The actuarial value of assets is based on a method that fully recognizes expected investment returns and averages unanticipated market returns over a 3-year period. The corridor limit is currently 80% to 125%.

The investment return rate assumption used was decreased from 8.5% to 8.0% per year, compounded annually (net of investment expenses) for June 30, 2013. The price inflation assumption used was decreased from 3.2% to 2.5% per year in 2012 and remains at 2.5% for 2013. Projected salary increase assumption decreased from 4% to 3% in 2012 and thereafter. The assumption used for annual post-retirement benefit increases (COLA) is 4% (on a compound basis) when a minimum COLA is in effect. When no minimum COLA is in effect, price inflation is assumed to be 2.5% and the annual COLA is assumed to be (80% of 2.5%), on a compound basis.

**2008** The actuarial valuations as of June 30, 2008, reflected the following changes to the computed contribution rates for fiscal year ending June 30, 2010.

| | Amount | Percent of Payroll |
|---|---|---|
| **MSEP** | | |
| Change in benefit assumptions or methods | $4,791,318 | 0.25% |
| Experience and nonrecurring items | (574,958) | (0.03) |
| **Judicial Plan** | | |
| Change in benefit assumptions or methods | (547,873) | (1.23) |
| Experience and nonrecurring items | (160,353) | (0.36) |

**2009** The actuarial valuations as of June 30, 2009, reflected the following changes to the computed contribution rates for fiscal year ending June 30, 2011.

| | Amount | Percent of Payroll |
|---|---|---|
| **MSEP** | | |
| State of Missouri general pay freeze | $ (4,405,285) | (0.22)% |
| Experience and nonrecurring items | 55,466,538 | 2.77 |
| Change in valuation asset corridor from +/- 20% to +/- 30% | (29,835,791) | (1.49) |
| **Judicial Plan** | | |
| State of Missouri general pay freeze | 350,392 | 0.77 |
| Experience and nonrecurring items | 496,010 | 1.09 |
| Change in valuation asset corridor from +/- 20% to +/- 30% | (141,067) | (0.31) |

**2010**

The actuarial valuations as of June 30, 2010, reflected the following changes to the computed contribution rates for fiscal year ending June 30, 2012.

| | Amount | Percent of Payroll |
|---|---|---|
| **MSEP** | | |
| State of Missouri general pay freeze | $ (2,528,624) | (0.13)% |
| Addition of new tier of benefits effective 1-1-2011 | (17,311,348) | (0.89) |
| Experience and nonrecurring items | 25,480,749 | 1.31 |
| Change in timing of contributions | (2,528,624) | (0.13) |
| **Judicial Plan** | | |
| State of Missouri general pay freeze | (308,955) | (0.67) |
| Addition of new tier of benefits effective 1-1-2011 | (493,406) | (1.07) |
| Experience and nonrecurring items | 438,071 | 0.95 |
| Change in timing of contributions | (894,587) | (1.94) |

**2011**

The actuarial valuations as of June 30, 2011, reflected the following changes to the computed contribution rates for fiscal year ending June 30, 2013.

| | Amount | Percent of Payroll |
|---|---|---|
| **MSEP** | | |
| State of Missouri general pay freeze | $ (6,376,937) | (0.34)% |
| Experience and nonrecurring items | 17,630,356 | 0.94 |
| Change in normal cost due to increased participants in MSEP 2011 | (2,250,684) | (0.12) |
| **Judicial Plan** | | |
| State of Missouri general pay freeze | (293,683) | (0.64) |
| Experience and nonrecurring items | 289,095 | 0.63 |
| Change in normal cost due to increased participants in MSEP 2011 | (169,786) | (0.37) |

**2012**

The actuarial valuations as of June 30, 2012, reflected the following changes to the computed contribution rates for fiscal year ending June 30, 2014.

| | Amount | Percent of Payroll |
|---|---|---|
| **MSEP** | | |
| Change in assumptions or methods | $21,623,206 | 1.16% |
| Experience and nonrecurring items | 25,537,752 | 1.37 |
| **Judicial Plan** | | |
| Change in assumptions or methods | 948,795 | 2.07 |
| Experience and nonrecurring items | 320,849 | 0.70 |

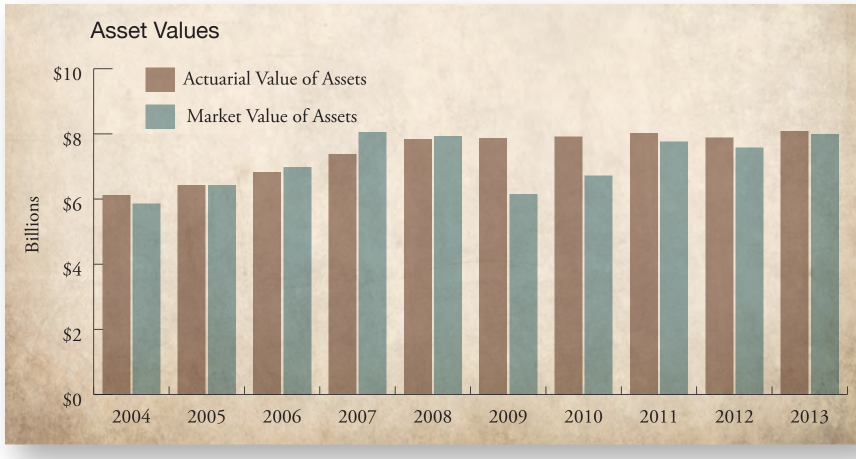
**2013**

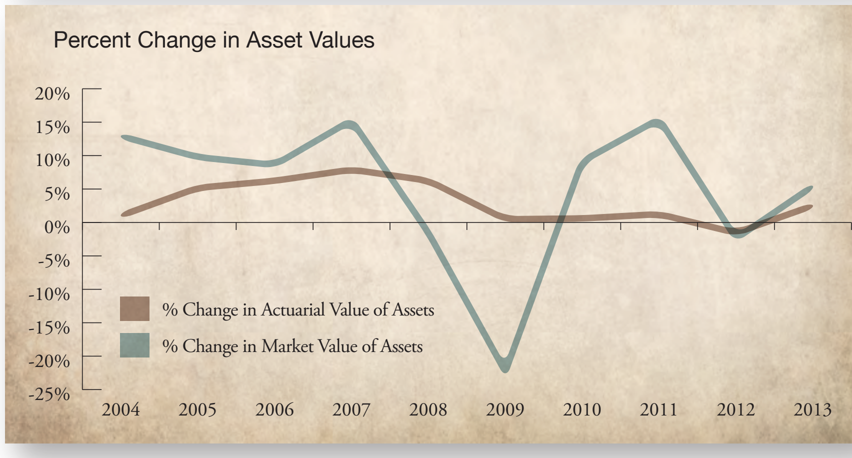
The actuarial valuations as of June 30, 2013, reflected the following changes to the computed contribution rates for fiscal year ending June 30, 2015.

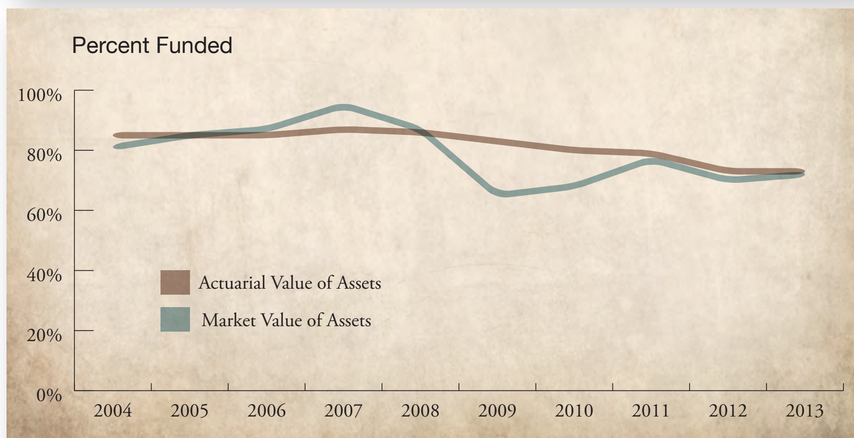
| | Amount | Percent of Payroll |
|---|---|---|
| **MSEP** | | |
| Change in benefit assumptions or methods | $18,990,151 | 1.01% |
| Experience and nonrecurring items | (376,043) | (0.02) |
| **Judicial Plan** | | |
| Change in benefit assumptions or methods | (603,852) | (1.24) |

*ADDITIONAL FINANCIAL INFORMATION*

## ACTUARIAL ASSET VALUE SMOOTHING




The financing objective of the vast majority of public retirement plans is to establish contribution rates and collect contributions which remain relatively level as a percent of active member payroll over decades of time. This concept is sometimes referred to as attempting to achieve intergenerational equity, meaning that future generations will not be expected to pay more or less (in inflation adjusted terms) than the present generation contributes to support the plan.

Some critics of smoothing the actuarial value of assets suggest that pension plans are not providing "transparency" in connection with operations. Actual practice suggests otherwise. The *Statements of Fiduciary Net Position and Changes in Fiduciary Net Position* in this section are prepared on the basis of market values. Beyond that, all information related to asset values and results of investment activity in the *Investment Section* of this report is prepared on the basis of market values. This is required by the accounting and reporting standards established by the Governmental Accounting Standards Board and by the Government Finance Officers Association's *Guidelines for the Preparation of a Comprehensive Annual Financial Report*. Both organizations have been long standing proponents of transparency in governmental accounting and reporting – public retirement plans commonly subscribe to the dictates of both.

Many public retirement plans have begun to emphasize use of asset classes that, by their nature, tend to be somewhat volatile in market value. This is being done with the objective of increasing long-term investment returns, thus providing increased benefit security for plan participants and lower contribution rates for taxpayers than would otherwise be the case. With market value accounting for contribution rate determination purposes, we could achieve more level contribution rates by employing lower volatility asset classes but the level contribution rate would be much higher than is the case with the higher return expectations we have as the result of taking on asset volatility risk.

When operating with a long-term time horizon, with contribution rate stability as a key objective, asset smoothing for actuarial purposes is simply a tool. Asset smoothing for actuarial purposes is a practical solution to responsibly achieving intergenerational equity, giving recognition to the fact that market cycles do not coincide with financial reporting periods. The use of the "market-related" value established through smoothing simply makes more sense for determining contribution rates than using market value. The charts above further illustrate the impact of smoothing volatility in actuarial computations.

## Schedules of Investment Expenses

***Pension Trust Funds - Year Ended June 30, 2013***

| Investing activity | MSEP | Judicial Plan | Total |
|---|---|---|---|
| **Investment management and administrative fees** | | | |
| Actis Emerging Markets III, IV - private equity | $ 1,549,419 | $ 21,359 | $ 1,570,778 |
| African Development Partners I, LLC - private equity | 567,759 | 7,826 | 575,585 |
| Alinda Infrastructure Fund I, LP - private equity | 545,987 | 7,526 | 553,513 |
| American Industrial Partners V - private equity | 680,619 | 9,382 | 690,001 |
| AQR Absolute Return Institutional Fund, LP - hedge funds | 534,913 | 7,373 | 542,286 |
| AQR DELTA Sapphire Fund, LP - hedge funds | 2,086,338 | 28,759 | 2,115,097 |
| AQR Global Risk Premium Fund, LP - beta balanced | 1,329,357 | 18,324 | 1,347,681 |
| Ashmore Investment Management, Ltd. - emerging markets | 361,613 | 4,985 | 366,598 |
| Axiom Asia Private Capital Fund II & III, LP - private equity | 636,446 | 8,773 | 645,219 |
| Axxon Group Brazil II - private equity | 590,622 | 8,141 | 598,763 |
| Baillie Gifford EAFE Plus - international equity | 443,700 | 6,116 | 449,816 |
| Bayview Opportunity Domestic, LP - high yield | 4,599,481 | 63,400 | 4,662,881 |
| Bayview Opportunity Domestic, LP III - real estate | 397,302 | 5,476 | 402,778 |
| BlackRock Financial Management Bank Loans - high yield | 103,512 | 1,427 | 104,939 |
| BlackRock Financial Management Mortgage Opportunity - high yield | 223,261 | 3,077 | 226,338 |
| Blackstone Real Estate Partners IV, V, VI, & VII - real estate | 11,209,180 | 154,510 | 11,363,690 |
| Blackstone Hedged Equity Fund, LP - domestic equity | 427,491 | 5,893 | 433,384 |
| Blackstone Topaz Fund, LP - hedge funds | 4,509,145 | 62,155 | 4,571,300 |
| Blakeney Onyx, LP - emerging markets | 2,097,549 | 28,913 | 2,126,462 |
| Brevan Howard, LP - hedge funds | 2,783,766 | 38,372 | 2,822,138 |
| Brevan Howard Emerging Markets Strategies Fund, LP - hedge funds | 2,397,325 | 33,045 | 2,430,370 |
| Bridgewater Associates Diamond Ridge Fund, LLC - hedge funds | 2,689,960 | 37,079 | 2,727,039 |
| Bridgewater All Weather, LLC - beta balanced | 1,026,844 | 14,154 | 1,040,998 |
| Bridgepoint Europe III A & IV B, LP - private equity | 744,654 | 10,264 | 754,918 |
| Campbell Timber Fund II - A, LP - timber | 339,550 | 4,680 | 344,230 |
| Catterton Partners V, VI, & VII, LP - private equity | 815,909 | 11,247 | 827,156 |
| CarVal Investors CVI Global Value Fund A, LP - real estate | 569,306 | 7,847 | 577,153 |
| CarVal Investors CVI Global Value Fund A, LP - private debt | 569,306 | 7,847 | 577,153 |
| Catalyst Fund Limited Partnership III & IV - private debt | 2,274,457 | 31,352 | 2,305,809 |
| Claren Road Credit Partners, LP - hedge funds | 3,702,143 | 51,031 | 3,753,174 |
| COMAC Global Macro Fund, LP - hedge funds | 1,140,611 | 15,722 | 1,156,333 |
| CQS ABS Feeder Fund Ltd. - hedge funds | 3,147,169 | 43,381 | 3,190,550 |
| Davidson Kempner Institutional Partners, LP - hedge funds | 2,716,799 | 37,449 | 2,754,248 |
| Diamondback Partners, LP - hedge funds | 1,123,911 | 15,492 | 1,139,403 |
| DRI Capital LSRC & LSRC II - private equity | 556,351 | 7,669 | 564,020 |
| Elliott International, Ltd. - hedge funds | 3,816,402 | 52,606 | 3,869,008 |
| Eminence Fund, Ltd. - domestic equity | 3,914,798 | 53,963 | 3,968,761 |
| Empyrean Capital Fund, LP - hedge funds | 904,406 | 12,467 | 916,873 |
| Eton Park Fund, LP - hedge funds | 2,805,579 | 38,673 | 2,844,252 |
| Garnet Sky Investors Company, Ltd. - timber | 1,817,185 | 25,049 | 1,842,234 |
| Glenview Institutional Partners, LP - hedge funds | 5,288,706 | 72,901 | 5,361,607 |
| Global Forest Partners GTI7 Institutional Investors Company, Ltd. - timber | 583,186 | 8,039 | 591,225 |
| Grantham, May and Van Otterloo & Co., LLC - emerging markets | 1,323,607 | 18,245 | 1,341,852 |
| Harvest Fund Advisors - real estate | 1,179,108 | 16,253 | 1,195,361 |
| HBK Offshore Fund, Ltd. - hedge funds | 2,422,570 | 33,393 | 2,455,963 |
| JLL Partners V & VI, LP - private equity | 742,106 | 10,229 | 752,335 |
| King Street Capital, Ltd. - hedge funds | 1,609,678 | 22,188 | 1,631,866 |
| Legg Mason Opportunity Trust - domestic equity | 60,044 | 828 | 60,872 |
| Leuthold Weeden Capital Management - domestic equity | 93,902 | 1,294 | 95,196 |
| Linden Capital Partners II - private equity | 218,940 | 3,018 | 221,958 |
| Mast Credit Opportunities I, LP - hedge funds | 1,352,155 | 18,638 | 1,370,793 |

*Continued on page 55*

*Schedule of Investment Expenses continued from page 54*

## Schedules of Investment Expenses

***Pension Trust Funds - Year Ended June 30, 2013***

| Investing activity | MSEP | Judicial Plan | Total |
|---|---|---|---|
| Merit Energy Partners F-II, LP - real estate | 103,072 | 1,421 | 104,493 |
| MHR Institutional Partners IIA & III, LP - private debt | 10,951,815 | 150,962 | 11,102,777 |
| Millennium Technology Partners II, LP - private equity | 488,776 | 6,737 | 495,513 |
| Morant Wright Investment Management - int'l developed equity | 947,082 | 13,055 | 960,137 |
| MOSERS Inc. - alpha pool | 138 | 2 | 140 |
| Nephila Capital Triton Master Fund, Ltd. - hedge funds | 74,635 | 1,029 | 75,664 |
| New Mountain Partners III, LP - private equity | 545,467 | 7,519 | 552,986 |
| Nippon Value Investors - int'l developed equity | 200,446 | 2,763 | 203,209 |
| NISA Investment Advisors, LLC - beta balanced | 1,793,474 | 24,722 | 1,818,196 |
| OCM Real Estate Opportunities Fund III, LP - real estate | (6,156,800) | (84,867) | (6,241,667) |
| OCM Opportunities Fund IVb, VIIb, VIII, LP - private debt | 894,091 | 12,324 | 906,415 |
| OCM/GFI Power Opportunities Fund II, III & IVB, LP - private equity | 6,358,071 | 87,641 | 6,445,712 |
| Parish Capital Buyout Fund I & II, LP - private equity | 273,691 | 3,773 | 277,464 |
| Parish Opportunities Fund II, LP - private equity | (116,341) | (1,604) | (117,945) |
| Pershing Square, LP - hedge funds | 2,419,726 | 33,354 | 2,453,080 |
| Pharo Macro Fund, Ltd. - hedge funds | 4,106,541 | 56,606 | 4,163,147 |
| Resource Management Service Wildwood Timberlands, LLC - timber | 620,455 | 8,552 | 629,007 |
| Silchester International Investors - int'l developed equity | 2,865,927 | 39,505 | 2,905,432 |
| Silver Lake Partners II, LP - private equity | (272,495) | (3,756) | (276,251) |
| SIRIS Partners II, LP - private equity | 939,331 | 12,948 | 952,279 |
| State Street Global Advisors - emerging markets | 146,311 | 2,017 | 148,328 |
| Stone Harbor Investment Partners, LP - emerging markets | 487,891 | 6,725 | 494,616 |
| TPG - Axon Partners (Offshore), Ltd. - hedge funds | 1,046,443 | 14,424 | 1,060,867 |
| TPG Airline Credit Opportunities - private equity | 1,335,282 | 18,406 | 1,353,688 |
| TCW Energy Partners XIV, XV, LLC - real estate | 2,025,258 | 27,917 | 2,053,175 |
| The Veritas Capital Fund III & IV, LP - private equity | 5,035,613 | 69,412 | 5,105,025 |
| Viking Global Equities III, Ltd. - hedge funds | 4,591,333 | 63,288 | 4,654,621 |
| Visium Balanced Fund, LP - hedge funds | 2,708,589 | 37,336 | 2,745,925 |
| Total investment management fees | 132,037,948 | 1,820,042 | 133,857,990 |
| | | | |
| **Other investment fees** | | | |
| Investment consultant fees | | | |
| Summit Strategies, Inc. | 688,390 | 9,489 | 697,879 |
| TimberLink Consulting | 22,592 | 311 | 22,903 |
| Investment custodial fees | | | |
| BNY Mellon | 480,065 | 6,617 | 486,682 |
| Performance and risk measurement fees | | | |
| Abel/Noser Corp. | 5,918 | 82 | 6,000 |
| Cost Effective Measurement Benchmarking, Inc. | 24,660 | 340 | 25,000 |
| BNY Mellon | 241,227 | 3,325 | 244,552 |
| Measurisk, LLC | 197,281 | 2,719 | 200,000 |
| Internal investment activity expenses | 4,691,580 | 64,670 | 4,756,250 |
| Total investing activity expenses | 138,389,661 | 1,907,595 | 140,297,256 |
| | | | |
| **Securities lending activity** | | | |
| Securities lending borrower rebates | 485,363 | 6,690 | 492,053 |
| Securities lending management fees | | | |
| BNY Mellon | 123,300 | 1,700 | 125,000 |
| Deutche Bank | 107,031 | 1,475 | 108,506 |
| Total securities lending activity expenses | 715,694 | 9,865 | 725,559 |
| Total investment expenses | $139,105,355 | $1,917,460 | $141,022,815 |

## Schedules of Internal Investment Activity Expenses

*Pension Trust Funds - Year Ended June 30, 2013*

| | MSEP | Judicial Plan | Total |
|---|---|---|---|
| **Personnel services** | | | |
| Salaries | $3,472,445 | $47,865 | $3,520,310 |
| Fringe benefits | 711,325 | 9,805 | 721,130 |
| Total personnel services | 4,183,770 | 57,670 | 4,241,440 |
| **Professional services** | | | |
| Attorney services | 117,210 | 1,616 | 118,826 |
| Consulting services | 640 | 9 | 649 |
| Total professional services | 117,850 | 1,625 | 119,475 |
| **Communications** | | | |
| Telephone | 5,380 | 74 | 5,454 |
| Total communications | 5,380 | 74 | 5,454 |
| **Facilities** | | | |
| Utilities | 1,348 | 19 | 1,367 |
| Lease expense | 28,050 | 387 | 28,437 |
| Facility maintenance | 2,527 | 35 | 2,562 |
| Vehicle maintenance & operation | 116 | 2 | 118 |
| Total facilities | 32,041 | 443 | 32,484 |
| **Software and equipment** | | | |
| Computer supplies and software | 2,727 | 38 | 2,765 |
| Total software and equipment | 2,727 | 38 | 2,765 |
| **Education, meetings and travel** | | | |
| Professional development including travel | 5,405 | 74 | 5,479 |
| MOSERS sponsored seminars | 910 | 13 | 923 |
| Due diligence travel | 64,237 | 885 | 65,122 |
| Tuition reimbursement | 12,823 | 177 | 13,000 |
| Total education, meetings and travel | 83,375 | 1,149 | 84,524 |
| **General administrative** | | | |
| Research and information services | 202,786 | 2,794 | 205,580 |
| Temporary staffing services | 2,713 | 37 | 2,750 |
| Insurance | 746 | 10 | 756 |
| Membership dues | 17,972 | 248 | 18,220 |
| Office supplies | 29,567 | 408 | 29,975 |
| Periodicals and publications | 12,653 | 174 | 12,827 |
| Total general | 266,437 | 3,671 | 270,108 |
| Total administrative expenses | $4,691,580 | $64,670 | $4,756,250 |

ADDITIONAL FINANCIAL INFORMATION

## Schedules of Administrative Expenses

*Pension Trust Funds - Year Ended June 30, 2013*

| | MSEP | Judicial Plan | Total |
|---|---|---|---|
| **Personnel services** | | | |
| Salaries | $3,621,611 | $ 49,921 | $3,671,532 |
| Fringe benefits | 1,375,883 | 18,965 | 1,394,848 |
| Total personnel services | 4,997,494 | 68,886 | 5,066,380 |
| **Professional services** | | | |
| Actuarial services | 229,663 | 3,166 | 232,829 |
| Attorney services | 126,095 | 1,738 | 127,833 |
| Auditing services | 47,841 | 659 | 48,500 |
| Banking services | 32,222 | 444 | 32,666 |
| Consulting services | 122,772 | 1,692 | 124,464 |
| Total professional services | 558,593 | 7,699 | 566,292 |
| **Communications** | | | |
| Video production | 3,199 | 44 | 3,243 |
| Telephone | 52,004 | 717 | 52,721 |
| Printing | 52,132 | 719 | 52,851 |
| Postage and mailing | 165,310 | 2,279 | 167,589 |
| Total communications | 272,645 | 3,759 | 276,404 |
| **Facilities** | | | |
| Depreciation | 96,521 | 1,330 | 97,851 |
| Utilities | 77,504 | 1,070 | 78,574 |
| Facility maintenance | 56,670 | 781 | 57,451 |
| Vehicle maintenance | 8,814 | 121 | 8,935 |
| Total facilities | 239,509 | 3,302 | 242,811 |
| **Software and equipment** | | | |
| Computer supplies and software | 133,359 | 1,838 | 135,197 |
| Depreciation | 144,795 | 1,996 | 146,791 |
| Maintenance agreements | 423,564 | 5,839 | 429,403 |
| Equipment rental | 140,871 | 1,942 | 142,813 |
| Loss on sale of equipment | (1,159) | (16) | (1,175) |
| Total software and equipment | 841,430 | 11,599 | 853,029 |
| **Education, meetings and travel** | | | |
| Board travel and meetings | 40,112 | 553 | 40,665 |
| Professional development including travel | 97,470 | 1,344 | 98,814 |
| MOSERS sponsored seminars | 71,100 | 980 | 72,080 |
| Due diligence travel | 1,330 | 18 | 1,348 |
| Tuition reimbursement | 159 | 2 | 161 |
| Total education, meetings and travel | 210,171 | 2,897 | 213,068 |
| **General administrative** | | | |
| Advertising | 9,227 | 127 | 9,354 |
| Research and information services | 84,052 | 1,159 | 85,211 |
| Temporary staffing services | 505 | 7 | 512 |
| Insurance | 128,211 | 1,767 | 129,978 |
| Membership dues | 43,467 | 599 | 44,066 |
| Business continuity | 65,586 | 904 | 66,490 |
| Office supplies | 59,807 | 824 | 60,631 |
| Periodicals and publications | 9,707 | 134 | 9,841 |
| Miscellaneous | 55,479 | 765 | 56,244 |
| Total general | 456,041 | 6,286 | 462,327 |
| Total administrative expenses | $7,575,883 | $104,428 | $7,680,311 |

## Schedules of Administrative Expenses

*Internal Service Funds - Year Ended June 30, 2013*

| | Life and LTD | Deferred Compensation | Total |
|---|---|---|---|
| **Personnel services** | | | |
| Salaries | $252,968 | $166,303 | $419,271 |
| Employee fringe benefits | 95,496 | 61,057 | 156,553 |
| Total personnel services | 348,464 | 227,360 | 575,824 |
| **Professional services** | | | |
| Attorney services | 219 | 26,083 | 26,302 |
| Auditing services | 3,342 | 35,500 | 38,842 |
| Banking services | 917 | 0 | 917 |
| Consulting services | 0 | 6,800 | 6,800 |
| Total professional services | 4,478 | 68,383 | 72,861 |
| **Communications** | | | |
| Telephone | 3,633 | 470 | 4,103 |
| Printing | 0 | 298 | 298 |
| Video production expense | 196 | 614 | 810 |
| Total communications | 3,829 | 1,382 | 5,211 |
| **Facilities** | | | |
| Utilities | 5,393 | 0 | 5,393 |
| Maintenance | 4,434 | 0 | 4,434 |
| Total facilities | 9,827 | 0 | 9,827 |
| **Software and equipment** | | | |
| Computer supplies and equipment | 9,299 | 1,050 | 10,349 |
| Depreciation | 0 | 3,705 | 3,705 |
| Equipment use charge | 22,251 | 0 | 22,251 |
| Equipment maintenance | 29,356 | 3,327 | 32,683 |
| Equipment rental | 9,840 | 0 | 9,840 |
| Total software and equipment | 70,746 | 8,082 | 78,828 |
| **Education, meetings and travel** | | | |
| Board travel and meetings | 2,802 | 0 | 2,802 |
| Professional development including travel | 6,749 | 5,357 | 12,106 |
| MOSERS sponsored seminars | 4,893 | 870 | 5,763 |
| Due diligence travel | (336) | 6,050 | 5,714 |
| Total education, meetings and travel | 14,108 | 12,277 | 26,385 |
| **General administrative** | | | |
| Advertising | 625 | 0 | 625 |
| Research and information services | 0 | 13,432 | 13,432 |
| Temporary staffing services | 35 | 0 | 35 |
| Insurance | 8,955 | 0 | 8,955 |
| Membership dues | 3,036 | 1,374 | 4,410 |
| Office supplies | 4,146 | 0 | 4,146 |
| Periodicals and publications | 668 | 375 | 1,043 |
| Miscellaneous | 3,875 | 0 | 3,875 |
| Total general | 21,340 | 15,181 | 36,521 |
| Total administrative expenses | $472,792 | $332,665 | $805,457 |

*ADDITIONAL FINANCIAL INFORMATION*

## Schedules Professional/Consultant Fees

***Year Ended June 30, 2013***

| | | Pension Trust Funds | | | Internal Service Funds | | |
|---|---|---|---|---|---|---|---|
| Professional/Consultant | Nature of Service | MSEP | Judicial Plan | Total | Life and LTD | Deferred Compensation | Total |
| **Operation administrative expenses** | | | | | | | |
| AT&T | Information technology consulting | $ 3,452 | $ 48 | $ 3,500 | $ 0 | $ 0 | $ 0 |
| Avtex Solutions, Inc. | Information technology consulting | 2,989 | 41 | 3,030 | 0 | 0 | 0 |
| Cavanaugh Macdonald Consulting | Actuarial audit | 54,252 | 748 | 55,000 | 0 | 0 | 0 |
| Central Bank | Banking | 30,492 | 420 | 30,912 | 742 | 0 | 742 |
| Charlesworth & Associates | Risk management consulting | 7,540 | 104 | 7,644 | 0 | 0 | 0 |
| Collector Solutions, Inc. | Banking | 1,730 | 24 | 1,754 | 175 | 0 | 175 |
| Corporate Renaissance Group | Information technology consulting | 82 | 1 | 83 | 0 | 0 | 0 |
| Decide Smart, LLC | Strategic planning consulting | 16,845 | 232 | 17,077 | 0 | 0 | 0 |
| Engineering Surveys & Services | Engineering | 1,297 | 18 | 1,315 | 0 | 0 | 0 |
| Gabriel, Roeder, Smith & Co. | Actuarial | 175,411 | 2,418 | 177,829 | 0 | 0 | 0 |
| Huber & Associates, Inc. | Information technology consulting | 4,270 | 59 | 4,329 | 0 | 0 | 0 |
| Marberry & Eagle | Compilation services | 0 | 0 | 0 | 0 | 6,800 | 6,800 |
| Qflow Systems, LLC | Information technology consulting | 11,049 | 152 | 11,201 | 0 | 0 | 0 |
| Simon Oswald Associates, Inc. | Architectural services | 74,802 | 1,031 | 75,833 | 0 | 0 | 0 |
| Stacy Smith | Peer group internal audit | 447 | 6 | 453 | 0 | 0 | 0 |
| Thompson Coburn, LLP | Legal counsel | 126,094 | 1,738 | 127,832 | 219 | 26,083 | 26,302 |
| Williams-Keepers, LLC | Financial audit | 47,841 | 659 | 48,500 | 3,342 | 35,500 | 38,842 |
| **Operation administrative expenses subtotal** | | 558,593 | 7,699 | 566,292 | 4,478 | 68,383 | 72,861 |
| **Internal investment administrative expenses** | | | | | | | |
| CT Corporation | Legal counsel | 640 | 9 | 649 | 0 | 0 | 0 |
| Purrington Moody Weil, LLP | Trading consultation | 8,641 | 119 | 8,760 | 0 | 0 | 0 |
| Thompson Coburn, LLP | Legal counsel | 108,569 | 1,497 | 110,066 | 0 | 0 | 0 |
| **Internal investment administrative expenses subtotal** | | 117,850 | 1,625 | 119,475 | 0 | 0 | 0 |
| **Total professional/consultant fees** | | $676,443 | $9,324 | $685,767 | $4,478 | $68,383 | $72,861 |

Information on investment management and consulting fees can be found in the *Schedule of Investment Expenses* on pages 54-55.

## Investment Summary

*Pension Trust Funds - Year Ended June 30, 2013*

| Type of Investment | June 30, 2012 Cost Value | June 30, 2012 Fair Value | Purchases and Capital Additions at Cost | Sales and Redemptions at Cost | June 30, 2013 Cost Value | June 30, 2013 Fair Value | Percent of Total Fair Value |
|---|---|---|---|---|---|---|---|
| **Fixed income** | | | | | | | |
| Treasury bonds, notes, and bills | $ 622,918,710 | $ 721,639,494 | $ 361,697,245 | $ (387,451,225) | $ 597,164,730 | $ 593,757,630 | 9% |
| Government bonds and gov't mortgage-backed securities | 67,897,364 | 65,071,631 | 14,401,918 | (4,049,829) | 78,249,453 | 70,007,740 | 1 |
| Corporate bonds | 101,451,287 | 101,340,739 | 55,282,846 | (121,544,530) | 35,189,603 | 34,574,802 | 1 |
| Convertible bonds | 4,470,783 | 4,094,788 | 145,814 | (4,176,960) | 439,637 | 654,456 | 0 |
| Collateralized mortgage obligations | 131,376,607 | 134,615,354 | 0 | (107,857,361) | 23,519,246 | 28,364,477 | 0 |
| International corporate bonds | 48,451,266 | 24,351,481 | 1,669,871 | (21,275,595) | 28,845,542 | 4,997,840 | 0 |
| Bank loans | 75,022,981 | 75,013,193 | 798,366 | (75,265,596) | 555,7501 | 98 | 0 |
| Total fixed income | 1,051,588,998 | 1,126,126,680 | 433,996,060 | (721,621,096) | 763,963,962 | 732,357,043 | 11 |
| **Common stock** | 555,769,983 | 622,476,004 | 21,155,636 | (259,009,422) | 317,916,197 | 377,714,662 | 5 |
| **Preferred stock** | 6,338,634 | 4,819,409 | 0 | (6,338,634) | 0 | 0 | 0 |
| **International investments** | | | | | | | |
| International equities | 766,364,171 | 1,168,440,869 | 12,856,556 | (390,876,938) | 388,343,789 | 933,430,550 | 14 |
| Foreign currency | 4,028,124 | 3,432,478 | 47,563,750 | (43,767,282) | 7,824,592 | 7,862,572 | 0 |
| Total int'l investments | 770,392,295 | 1,171,873,347 | 60,420,306 | (434,644,220) | 396,168,381 | 941,293,122 | 14 |
| **Real estate** | | | | | | | |
| Real estate investment trust | 4,668,314 | 5,012,592 | 0 | (4,668,314) | 0 | 0 | 0 |
| **Venture capital limited partnerships** | 2,899,946,070 | 3,826,932,808 | 1,310,143,905 | (441,077,196) | 3,769,012,779 | 4,870,969,314 | 70 |
| **Investments** (per *Statements of Fiduciary Net Position* page 26) | 5,288,704,294 | 6,757,240,840 | 1,825,715,907 | (1,867,358,882) | 5,247,061,319 | 6,922,334,141 | 100% |
| **Short-term investments** | | | | | | | |
| Short-term investment funds | 933,019,137 | 933,019,137 | 1,925,462,825 | (1,666,144,196) | 1,192,337,766 | 1,192,337,766 | |
| Repurchase agreements | 9,887,144 | 9,887,144 | 2,085,048,189 | (2,084,523,937) | 10,411,396 | 10,411,397 | |
| Total short-term investments | 942,906,281 | 942,906,281 | 4,010,511,014 | (3,750,668,133) | 1,202,749,162 | 1,202,749,163 | |
| **Invested securities lending collateral** | | | | | | | |
| Corporate bonds | 14,579,520 | 16,615,978 | 0 | (8,067,516) | 6,512,004 | 13,894,071 | |
| Short-term investment funds | 675,860,505 | 675,860,505 | 3,968,174,445 | (4,196,162,255) | 447,872,695 | 447,872,695 | |
| **Total invested securities lending collateral** | 690,440,025 | 692,476,483 | 3,968,174,445 | (4,204,229,771) | 454,384,699 | 461,766,766 | |
| **Total investments** | $6,922,050,600 | $8,392,623,604 | $9,804,401,366 | $(9,822,256,786) | $6,904,195,180 | $8,586,850,070 | |

## Investment Summary

*Internal Service Funds - Year Ended June 30, 2013*

| Type of Investment | June 30, 2012 Cost Value | June 30, 2012 Fair Value | Purchases and Capital Additions at Cost | Sales and Redemptions at Cost | June 30, 2013 Cost Value | June 30, 2013 Fair Value | Percent of Total Fair Value |
|---|---|---|---|---|---|---|---|
| Repurchase agreements | $3,532,260 | $3,532,260 | $892,024,960 | $(892,298,964) | $3,258,256 | $3,258,256 | 100% |

Note: Due to space limitations and printing costs, a detailed listing of the investment holdings and transactions could not be provided in this annual report; however, the detailed reports are available for review as an appendix to this report at the MOSERS office.

# Investment
SECTION

Investment Section

# Investment Section

# CHIEF INVESTMENT OFFICER'S REPORT

Missouri State Employees' Retirement System
Mailing Address: PO Box 209, Jefferson City, MO 65102-0209
Phone: (573) 632-6100 • (800) 827-1063 | Fax: (573) 632-6103
MO Relay: 7-1-1 (Voice) • (800) 735-2966 (TTY)
Website: *www.mosers.org* | Email: *mosers@mosers.org*
*Visit us at 907 Wildwood Drive, Jefferson City, MO*

MOSERS
WE ARE HERE FOR YOUR BENEFIT

October 15, 2013

Dear Members:

I am pleased to present the *Investment Section* of the *MOSERS Comprehensive Annual Financial Report* for the fiscal year ended June 30, 2013. A few highlights of the year follow:

- As of June 30, 2013, your pension fund had total assets of $8.1 billion.
- The investment portfolio generated approximately $780 million in net earnings during the year representing a return of 10.4%, net of all fees and expenses.
- The portfolio outperformed the policy benchmark by 2.2% during the year, contributing nearly $165 million of the $780 million in total earnings.
- Including this year, the portfolio has generated returns in excess of the policy benchmark in 12 of the last 15 years aggregating to nearly $2 billion in value added over that time frame.

## A Review – FY13

The markets entered the fiscal year with low expectations arising from a slowing U.S. economy, a difficult U.S. fiscal position, inflamed societies in the Middle East and Europe, and a historically large debt problem in the European Union. Following the U.S. presidential election, attention turned to the fiscal cliff – a set of events that would both raise taxes and reduce government spending simultaneously. Meanwhile, on the other side of the world, Cyprus was threatening to reignite the European debt crisis that the European Central Bank (ECB) had fought so hard to contain.

In the face of all this uncertainty it was surprising that risk assets continued their upward trend. Much of the confidence needed to see through the negatives came from the global central banks. Early in the first half of the year, the ECB committed to outright monetary transactions – the European version of quantitative easing. This action helped to lower yields and fiscal stress in the European block countries. Not long after the ECB's proclamation, the Federal Reserve entered the home mortgage market by buying $40 billion per month of agency mortgage backed debt in an effort to save the nascent housing recovery. Then by December, in an effort to offset the effects of a possible debt ceiling and fiscal cliff, the Federal Reserve increased bond purchases to $85 billion per month, split $45 billion in government debt, and $40 billion in agency mortgage-backed debt. Not to be left out of the party, Japan's Prime Minister announced a massive effort to weaken the yen and increase inflation through, among other things, massive money printing and central bank support for bank loans. As a result of large scale global stimulus by the last quarter of the fiscal year markets were ebullient.

However, interest rates had begun to rise on rumors the Federal Reserve was considering reducing the size of their bond purchase program. By mid-June these rumors were confirmed by Chairman Bernanke, causing an escalation in the rate at which interest rates increased through the end of June. Early in the quarter, risk assets performed well, however, following Bernanke's speech investors got worried about the impacts of higher interest rates on economic growth and risk assets turned negative. In the end, the losses in June were enough to cause most risk assets to post a negative quarter while at the same time U.S. Treasuries lost money. For several years running there had been a strong negative relationship between equities and U.S. Treasuries. When equities rose, Treasuries fell and visa-versa. The last quarter of fiscal year 2013 saw this trend reverse with both stocks and bonds posting negative returns.

The best performing sub-asset class in the portfolio for the year was domestic equities which advanced 27.1%. Other notable positive contributors were developed international equities at 23.6%, real estate at 21.6% and private investments at 13.9%. Sub-asset classes that detracted from the overall return included commodities up 1.1%, beta balanced down 5%, and inflation indexed bonds down 4.8%.

### Our Beliefs - Timeless

The foundation of our investment success is a set of fundamental beliefs that have guided our investment program for nearly two decades. Simply stated, our investment beliefs are:

- Portfolio management should first focus on an understanding of the economic drivers of investment risk and then should seek, as a starting point, a portfolio that is generally balanced to those risks.
- Diversification is critical because the future is unknown.
- Every investment should be examined in the context of its potential return from beta (market return) and alpha (value added return); while separation is not always possible, every effort should be made to distinguish the two distinct return components.
- Flexibility to opportunistically alter the portfolio away from policy is important because markets will be in or out of favor at different points in the economic cycle.

### Our Experience - Unique

In June 2002, the MOSERS Board of Trustees adopted an investment policy which at the time was considered leading edge among pension funds. The policy recognized (i) a broadly diversified asset allocation should contain asset classes which possess different return drivers such that some of these investments should be performing well regardless of the type of economic conditions that are being experienced at the time, (ii) the need to empower investment professionals to make strategic shifts in portfolio composition when market opportunities warrant and (iii) the importance of increasing active risk while reducing equity market risk in the portfolio, through efficient alpha strategies and manager implementation. The end result of the 2002 study was the plan to reduce public equity investments from 75% to 50%, while adding new asset classes including high yield bonds, timberland, private equity and debt, real estate and absolute return strategies. Beyond changes to the policy allocation, investment staff was given the latitude to make strategic shifts (increasing active risk) within ranges.

Five years later, in July 2007, another formal asset/liability study was completed and the decision was made to further enhance diversification with the goal of reduced contribution rate volatility. Changes to the asset allocation that took place at that time included reducing public equity from 50% to 45% and moving to a global equity benchmark thus eliminating the home country bias in our asset allocation. Additionally, alternative investments were increased from 20% to 25%, including an increase of 2.5% in private investments and 2.5% in the real assets category.

In 2012, in following with the board's policy to perform a formal asset liability study every five years, another asset/liability study was conducted. In the aggregate, the portfolio was expected to generate an annualized return of 7.25% over the next ten years. At that time, it became clear that (i) the policy allocation would need to be altered to produce higher returns or (ii) the assumed rate of return would need to be lowered from 8.5% to something more in-line with portfolio expectations or (iii) some combination of the previous two would need to be implemented.

The board decided to lower the assumed rate of return from 8.5% to 8% in recognition of the low interest rate environment and its impact of expected returns for capital markets. However, the board was also convinced that a risk-weighted allocation model would allow the system to achieve higher returns at similar levels of volatility when compared to the existing investment policy allocation. As a result, the MOSERS Board of Trustees, as it did in 2002, made the tough choice to head down a road less traveled in adopting a new risk-based approach to asset allocation.

At the highest level, the allocation calls for a beta balanced portfolio to pursue equal risk weights to four very liquid broad market betas and a fifth moderately liquid set of alternative betas typically found in today's hedge fund strategies. The risk weights were established based on long-term estimates of volatility and correlations except in those cases where history suggested negative correlation and in those instances our estimates were set at zero. With a focus on an unknown future, our research led us to conclude that equal risk weighting of the five betas (global equities, nominal bonds, inflation indexed bonds, commodities and hedge fund/alternative betas) would provide maximum diversification to the total portfolio across various growth and inflation regimes. The board provided a great deal of flexibility to staff to transition from the old asset allocation policy to the new allocation over a multi-year time frame as investment opportunities presented themselves.

## Our Future – Focused

For MOSERS, risk weighting is simply a more structurally sound foundation from which to build on. It provides us with a solid anchor amid the distractions constantly inundating our inboxes. The risk of this approach is not manifested in levered bonds, no more than in equities, commodities or other alternative risk premiums that make up its structure. The real risk in risk weighting is being different from the traditional equity centric portfolio during periods of strong equity markets like the one we are currently experiencing. Being different when the market is in your favor is difficult enough, being different when the markets are working against you requires diligence and fortitude.

Certainly the last few months of FY13 posed this challenge. During this period, all variants of risk-weighted portfolios suffered in absolute terms and relative to the more equity centric traditional portfolio. Not surprisingly, the naysayers have used this period to proclaim the beginning of the end for risk-weighted portfolio design. They pontificate that risk-weighting methodologies are nothing more than levered bond portfolios and since it's now clear that interest rates have bottomed and a new bear market in bonds has started, risk-weighting will die a well-deserved death. Our view at MOSERS stands in stark contrast to that position. We believe that you will be better served with a portfolio positioned to perform well over time regardless of what lies ahead for interest rates, or inflation, or growth for that matter. While an equity centric portfolios will win when growth comes in above expectation and may also win when inflation comes in below expectation, they will most decidedly lose when the opposite of those conditions exist. History has taught us that there will be times in the future when those opposite conditions exist.

Regardless of what happens in the short-term, we are well prepared to stay the course. We have a seasoned group of investment professional steeped in an investment philosophy that finds at its cornerstones broad diversification, a contrarian style, strong risk management practices, and a sound governance process. It is this foundation that has served you well over the years and is likely to continue to serve you well in the future. We are disciplined in our approach and focused on generating the best long-term investment returns for you, the members and all Missouri taxpayers.

I would like to thank the executive director and the board for their leadership and willingness to provide us the flexibility and resources we need to pursue excellence in all that we do.

Best regards,

Rick Dahl

Rick Dahl
Chief Investment Officer

# INVESTMENT CONSULTANT'S REPORT

Summit Strategies Group

October 15, 2013

The Board of Trustees
Missouri State Employees Retirement System
907 Wildwood Drive
Jefferson City, MO 65109

Dear Board Members,

Most times, the simplest questions require the most thought to answer. In 2012, you asked the investment staff and Summit, "What's the best way to invest?" At the 2012 board retreat in July, we spent almost two full days giving you our best answer to this very direct question. And, as has become a hallmark of the governance at MOSERS over the past 15 years, you listened; you questioned and challenged, heard the pros and cons of our proposal, and eventually adopted a very new investment program and structure. In doing so, you once again broke away from the status quo, jettisoned an award-winning, top-decile-performing portfolio that had served the participants and the state better than almost any other public pension plan in the country. You approved a structure we believe will be the "best way" to achieve MOSERS' goals for the next generation.

As a brief history lesson, the MOSERS board has been willing to look forward and break from the consensus when it believed the opportunity set warranted doing so. Simply put, when the rewards of being different than the pack justified the risk of being different than the pack, MOSERS has repeatedly been willing to do just that. MOSERS was the first public pension fund I know of to delegate manager hiring/firing decisions to staff and consultant in 1998, one of the first mid-sized public funds to build internal investment expertise and trading capabilities, an early mover in the acceptance of and utilization of alternative strategies, and implement the ability to tactically position the portfolio when opportunities presented themselves. Each of these moves has added substantially to the consistent record of value-added investment results.

The decision made by the board to adopt a portfolio structure dominated by a "beta-balanced" approach is the most significant "different from the pack" decision in MOSERS history. Rooted in academic theory and research, "beta balanced" investing recognizes that investors must assume risk to achieve any sort of long-term real return, but there are more investment risks to which an investor can gain exposure beyond equity "beta" risk. Through the prudent use of leverage, an investor can essentially equalize the risk and return expectation of these various risks and diversify the portfolio across them. Cutting to the chase, MOSERS' staff and Summit believe these portfolios are the most efficient portfolios one can construct. Our expectation is that MOSERS will receive more return per unit of risk with this approach over time than a typical equity-dominated portfolio (i.e. "the pack" of typical institutional investors).

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If the pack has the vast majority of its risk exposure in equities and MOSERS' risk is spread out over several risks, it's fairly intuitive when MOSERS should be outperforming and when the pack should be outperforming. When equity markets are very strong, like during the past year, the pack (with the majority of its risk exposure in equities) should shine, and when equities are weak or other risks are being rewarded, MOSERS should shine. Put a full market cycle together and we believe the "beta balanced" approach adopted by the board in the past fiscal year has the highest probability of meeting the return requirements set for the fund. It's just going to be very different. Better, but different. The tradition of innovation at MOSERS continues and, if history can be our guide, the participants and state of Missouri will be better off for it.

Thanks for the continuing faith you have shown in us. It has been an enormous part of the Summit success story, which is actually a great Missouri success story.

Sincerely,

Stephen P. Holmes, CFA

President

# INVESTMENT POLICY SUMMARY

## Guiding Principles

Critical to the financial security of present and future benefit recipients is the effectiveness and efficiency of the system's asset management program. The MOSERS Board of Trustees, charged with the responsibility for investing the assets of the system in a manner consistent with fiduciary standards set forth in the prudent person rule, has adopted the following fundamental principles to guide all investment-related decisions:

- Preserve the long-term corpus of the fund.
- Maximize total return within prudent risk parameters.
- Act in the exclusive interest of the members of the system.

The investment policy summary serves as a reference point for management of system assets and outlines MOSERS' investment philosophy and practices. Investments within this report are presented on the basis of fair market value using a variety of sources such as appraisals, valuations of underlying companies and assets for limited partnerships and commingled funds, and through market values obtained from the investment custodian.

## Investment Objective

In keeping with the three guiding principles, the board has adopted the following broad investment objectives:

- Develop a real return objective (RRO) that will keep contribution rates reasonably level over long periods of time, absent changes in actuarial assumptions.
- Establish a risk balanced allocation policy that is expected to meet the RRO over long periods of time, while minimizing the impact of the fund's volatility on the contribution rate.
- Maximize the return per unit of cost of the investment program through the efficient use of internal and external resources.

## Investment Beliefs

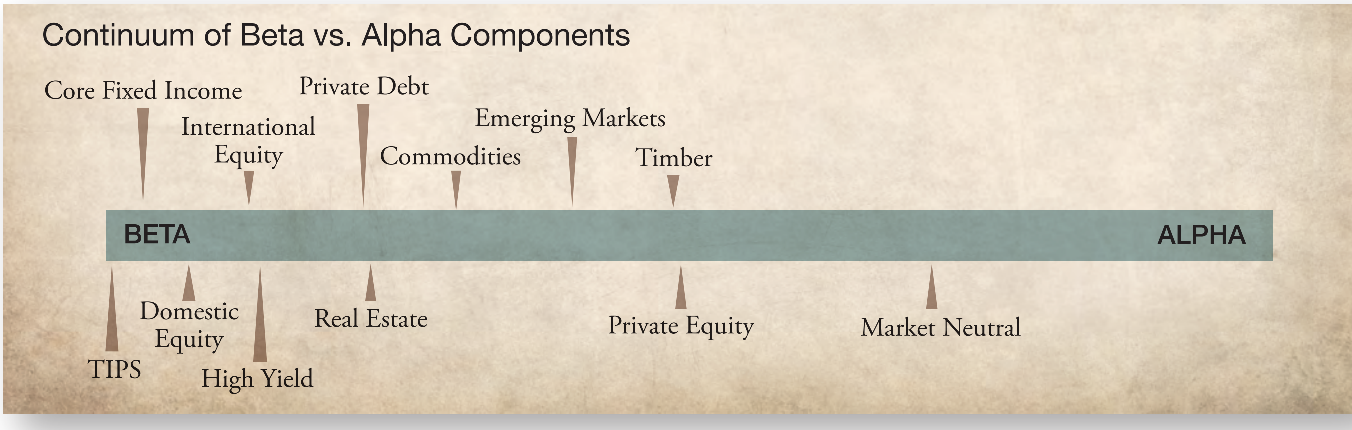
MOSERS' internal investment staff and external asset consultant have arrived at investment beliefs, which are the foundation for implementation of the investment portfolio to achieve the board's objectives. These beliefs guide every decision made within MOSERS' portfolio. They are the fundamental concepts underlying the MOSERS investment program. These beliefs are:

- **Portfolio construction should focus first on the allocation and balancing of risk; it is the allocation of risk that drives portfolio returns.** While investment returns receive a lot of public attention, understanding and balancing risk across asset classes improves the consistency of returns for a given level of risk and thus provides more stability in the contribution rate for the employer. Returns are the end product, where risks are the ingredients.

- **Diversification is critical because the future is unknown. Reliable diversification requires a fundamental understanding of the economic drivers of risk and return.** MOSERS' policy portfolio has been built upon the premise that very little is known about what the future holds. Therefore it is rational to construct a portfolio that is believed to combat various economic conditions. The following table reflects various economic environments and the types of investments that should be expected to perform well in those environments.

### Economic Environments

| | Growth | Inflation |
|---|---|---|
| Rising | Equities • Commodities • Illiquids<br>Hedge Fund/Alternative Betas | TIPS • Commodities |
| Falling | TIPS • Nominal Bonds | Equities • Nominal Bonds • Illiquids<br>Hedge Fund/Alternative Betas |




- **Every investment should be examined in the context of its potential return from beta (market return) and alpha (value added return); while separation is not always possible, every effort should be made to distinguish the two distinct return components.** Beta is the return which is expected to be earned by investing passively within a specific asset class or compensated risk premium. Exposures to beta can be purchased cheaply, and over long periods of time, the beta return should be positive and coincide with the risk associated with a given asset class. In contrast, alpha is the return generated through a manager's ability to select particular investments that perform better than the asset class as a whole. Alpha is a zero-sum game.

  Regardless of the source of the return, it is important to construct the portfolio based on a conscious decision to include a certain amount of beta exposure in the portfolio and a certain amount of alpha exposure. By consciously selecting this balance within the portfolio, staff is better able to manage the risks of the portfolio while ensuring the RRO is achieved. The chart above reflects the continuum of beta versus alpha components that are in the portfolio.

- **Flexibility to opportunistically alter the portfolio away from risk-balanced when markets are driven to extremes as result of short-term economic cycles is an important portfolio management tool.** As a result of the cyclical nature of the economy, asset classes or investment strategies may be more or less attractive relative to others in given time frames, thus marginal flexibility in the allocation policy provides the system with the opportunity to capitalize on this within prudent risk constraints. Under circumstances where the valuations of a particular asset class are compelling, it may make sense to modify the portfolio's allocation at the margins in order to capitalize on attractively valued opportunities without exposing the fund to additional risk.

## Roles and Responsibilities

### *Board of Trustees*

The board of trustees bears the ultimate fiduciary responsibility for the investment of system assets. Members of the board must adhere to state law and prudent standards of diligence with respect to their duties as investment fiduciaries. Accordingly, they are required to discharge their duties in the interest of plan participants. They must also "act with the same care, skill, prudence, and diligence under prevailing circumstances that a prudent person, acting in a similar capacity and familiar with those matters, would use in the conduct of a similar enterprise with similar aims."[1] Specifically related to investments, the board is charged with the duties of establishing and maintaining broad policies and objectives for the investment program along with the recommendations of staff and the external asset consultants.

### *Executive Director*

The executive director is appointed by and serves at the pleasure of the board. The board has given the executive director broad authority for planning, organizing, and administering the operations and investments of the system under broad policy guidance from the board. Specifically with regard to investments, the executive director is broadly responsible for the oversight of the investment program. The executive director must ensure that system assets are invested in accordance with the board's policies and that internal controls are in place to safeguard system assets. The executive director must also certify that all manager hiring and termination decisions were made in accordance with the board's governance policy. In addition, the executive director certifies strategic allocation decisions were made in accordance with the governance policy.

[1] Section 105.688, RSMo - Investment Fiduciaries, Duties.

### *Chief Investment Officer and Internal Staff*

The CIO serves at the pleasure of the executive director, yet has a direct line of communication with the board on investment-related issues. The CIO has primary responsibility for the overall direction of the investment program. The CIO works with the external asset consultants and executive director in advising the board on policies related to the investment program. The CIO has primary responsibility to make hiring and termination decisions related to money managers with the approval of the external asset consultant. The CIO is also charged with the responsibility of making strategic allocation decisions with the approval of the external asset consultant. Other responsibilities of the CIO include monitoring the investment of system assets, oversight of external money managers and the internally managed portfolios, and keeping the board apprised of situations which merit their attention. The internal investment staff is accountable to the CIO.

### *External Asset Consultants*

Summit Strategies Group of St. Louis, Missouri serves as the system's external general asset consultant and at the pleasure of the board. The primary duties of the external general asset consultant are to:

- Advise the board on policies related to the investment program.
- Provide a third-party perspective and level of oversight to the system's investment program.

The external general asset consultant must approve all manager hiring and termination decisions and strategic allocation decisions made by the CIO. The external asset consultant provides advice and input to the CIO and internal investment staff on investment-related issues and money manager searches.

Blackstone Alternative Asset Management serves as the system's external hedge fund consultant at the pleasure of the board. The primary duties of the external hedge fund consultant are to:

- Advise the board on policies related to the hedge fund program.
- Provide a third-party perspective and level of oversight to the system's hedge fund investment program.

The external hedge fund consultant must approve all hedge fund manager hiring and termination decisions. The external hedge fund consultant provides advice and input to the CIO and internal investment staff on hedge fund program issues and manager searches.

### *Chief Auditor*

The chief auditor reports directly to the executive director and if, in the opinion of the chief auditor circumstances warrant, may report directly to the board. The chief auditor is independent of the system's investment operations and, among other things, is responsible for providing objective audit and review services for the investment operations. It is the chief auditor's objective to promote adequate and effective internal controls at a reasonable cost, which results in suggested improvements that will lead to economies and efficiencies in the system's investment operations.

### *Master Custodian*

Bank of New York Mellon serves as the master custodian of the system's assets except in cases where investments are held in partnerships, commingled accounts, or unique asset classes where it is impossible for them to do so. The master custodian is responsible for maintaining the official book of records, providing performance reports, and serving as an additional layer of risk control in the safekeeping of system assets.

## Asset Allocation

Determining the system's asset allocation is regarded as one of the most important decisions in the investment management process. The board, with advice from staff and the general asset consultant, has developed a risk-weighted policy allocation that is designed to achieve the long-term required return objectives of the system, given certain risk constraints. The current allocation reflects the need for a diversified portfolio, which will perform well in a variety of economic conditions and will help reduce the portfolio's overall volatility. In determining the optimum mix of assets, the board considers five factors:

- The expected rate of return for each asset class.
- The expected risk of each asset class.
- The correlation between the rates of return of the asset classes.
- The investment objectives and risk constraints of the fund.
- The impact of the portfolio's volatility on the contribution rate.

MOSERS Asset Allocation

| Asset Class | Policy Weight | Allocation Range | Policy Benchmark |
|---|---|---|---|
| **Public Equity** | **24.40%** | | **MSCI ACWI** |
| Domestic | Benchmark weight* | +/- absolute 5.4% | |
| Int'l developed | Benchmark weight* | +/- absolute 5.4% | |
| Emerging markets | Benchmark weight* | +/- absolute 2.7% | |
| **Public Debt** | **16.20%** | | **Blended Return** |
| Core fixed income | 5.40% | 2.7% - 8.1% | Barclays Aggregate |
| TIPS | 5.40% | 2.7% - 8.1% | Barclays TIPS |
| High yield | 2.70% | 0.0% - 5.4% | Barclays High Yield |
| Market neutral | 2.70% | 0.0% - 5.4% | T-Bills + 4% |
| **Alternatives** | **22.70%** | | **Blended Return** |
| Real assets | 13.60% | 9.1% - 18.2% | Blended Return** |
| **Commodities** | **2.70%** | | **GSCI** |
| Timber | 5.45% | | NCREIF Timber |
| REITS/private RE | 5.45% | | Wilshire REITs |
| Private investments | 9.10% | 4.5% - 13.6% | S&P 500 + 3% |
| Private equity | 6.80% | | |
| Private debt | 2.30% | | |
| **Beta Balanced** | **36.70%*** ** | | **Blended Return** |
| Beta balanced equities | 4.00% | | MSCI ACWI |
| Beta balanced nominal bonds | 8.10% | | Barclays Long Treasury |
| Beta balanced inflation indexed bonds | 13.90% | | Barclays U.S. TIPS 1-10 Yr. |
| Beta balanced commodities | 3.70% | | GSCI |
| Beta balanced hedge funds/alternative betas | 7.00% | | AQR Delta |

* *The public equity sub-asset class target allocations are not static weights. The weights float based upon capitalization of the MSCI ACWI benchmark.*
** *The policy benchmark is based upon the blending of GSCI, NCREIF Timberland, and Dow Jones U.S. Select REITs at their policy benchmark weights.*
*** *The policy benchmark is levered 1.1 times capital.*

While the board maintains a set policy allocation mix, they have taken steps to provide flexibility by granting authority to the CIO, with the approval of the external asset consultants and certification of the executive director, to make strategic allocation decisions to capitalize on attractively valued opportunities within prudent risk contraints. This flexibility has allowed the system to take advantage of changing market conditions. The table above illustrates the policy asset allocation and ranges formally adopted by the board as of June 30, 2013.

## Rebalancing

It is the responsibility of staff to ensure that the asset allocation adheres to the system's rebalancing policy. MOSERS utilizes a combination of cash market and exchange traded futures transactions to maintain the total fund's allocation at the broad policy level. Month-end reviews are conducted to consider whether to bring the portfolio back within allowable ranges of the broad policy targets.

## Risk Controls

MOSERS' investment program faces numerous risks; however, the primary risk to MOSERS is that the assets will not support the liabilities over long periods of time. In order to control this risk and numerous other risks that face the system, the board has taken the following steps, on an ongoing basis, to help protect the system:

- Actuarial valuations are performed each year to ensure the system is on track to meet the funding objectives of the plan. In addition, every five years an external audit of the actuary is conducted to ensure that the assumptions being made and calculation methods being utilized are resulting in properly computed liabilities.
- Asset/liability studies are conducted at least once every five years. The purpose of these studies is to ensure that the current portfolio design is structured to meet the system's liabilities. During these studies, investment expectations are also reexamined in more detail.

- A governance policy, which incorporates investment limitations, is in place to ensure that board policies are clearly identified. Within these documents, desired outcomes are identified, responsibilities for individuals are identified in relation to particular areas of the portfolio's management, and details are provided for measuring outcomes. Reporting requirements are clearly identified to ensure appropriate checks and balances are in place. In addition, annual performance audits are conducted to ensure the performance measurement tools and methodologies being utilized are proper.

### Performance Objectives and Monitoring Process

Generating returns net of expenses equaling the RRO of 5.5% plus inflation remains the primary performance objective for the total fund over the long term.

The reason for the long-term focus on this objective is to preclude the temptation to overreact to events in the marketplace that have no relevance in the management of the relationship between the system's assets and liabilities. The resulting dilemma is the conflicting need to evaluate investment policy implementation decisions over shorter time frames while maintaining the longer-term focus necessary to manage and measure the fund's performance relative to the RRO. To address this problem, the board evaluates performance relative to policy and strategy benchmarks. This helps to evaluate the board's broad policy decisions and the staff and external consultant's implementation decisions. Policy benchmarks measure broad investment opportunities of each sub-asset class in which MOSERS has chosen to invest. The strategy benchmarks represent decisions made by the CIO to strategically deviate from the policy asset allocation for each sub-asset class. The return of the strategy benchmarks are determined based upon the actual weight of the asset class multiplied by the appropriate benchmark.

The policy and strategy benchmarks are used in the following manner to evaluate board and staff decisions:

- **Board Decisions:** The value added through board policy decisions is measured by the difference between the total fund policy benchmark return and the RRO. This difference captures the value added by the board through their policy asset allocation decisions relative to the return necessary to fund the system's liabilities. A policy benchmark return greater than the RRO reflects value added through board decisions. A policy benchmark return less than the RRO reflects losses or shortfalls in performance in funding the liabilities. These policy decisions are measured over long periods of time.
- **CIO and External Consultants' Decisions:** There are two components to decisions made by the CIO and external consultants, which are monitored by the board on an ongoing basis. They are: 1) strategic allocation decisions, and 2) implementation decisions.

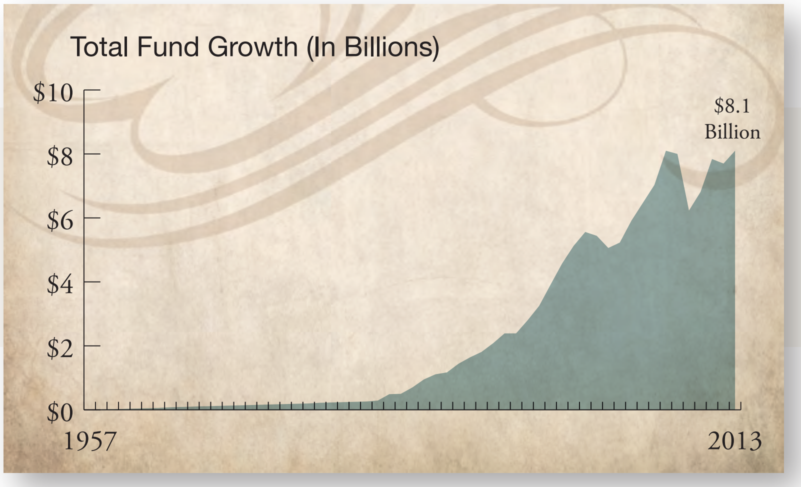
Strategy decisions are made by the CIO, with the approval of the external general asset consultant and the review of the executive director to deviate from the policy benchmark weight. The difference between the strategy benchmark return and the policy benchmark return captures the value added by the CIO through strategic decisions to overweight or underweight asset allocations relative to the board's policy allocation decisions. A strategy benchmark return greater than the policy benchmark return reflects value added through the sub-asset class allocation decisions. A strategy benchmark return less than the policy benchmark return reflects losses to the fund's performance based upon strategy decisions. Strategy decisions should be measured over all periods of time with majority weight placed on outcomes that have occurred over a market cycle.

Implementation decisions are money manager selection choices made by the CIO with the approval of the appropriate external consultant and the certification of the executive director that the decision was made in accordance within the board's adopted governance policy. The value added through these decisions is measured by the difference between the actual portfolio return and the strategy benchmark return. This difference captures the value added through these external manager selection decisions. An actual portfolio return greater than the strategy benchmark return reflects value added through these external manager selection decisions. An actual portfolio return less than the strategy benchmark return reflects losses to the fund's performance based upon implementation decisions. Implementation decisions should be measured over all periods of time with a majority weight placed on outcomes that have occurred over a market cycle.

The board reviews performance information on a quarterly basis to help ensure adequate monitoring of the fund's overall performance objectives.

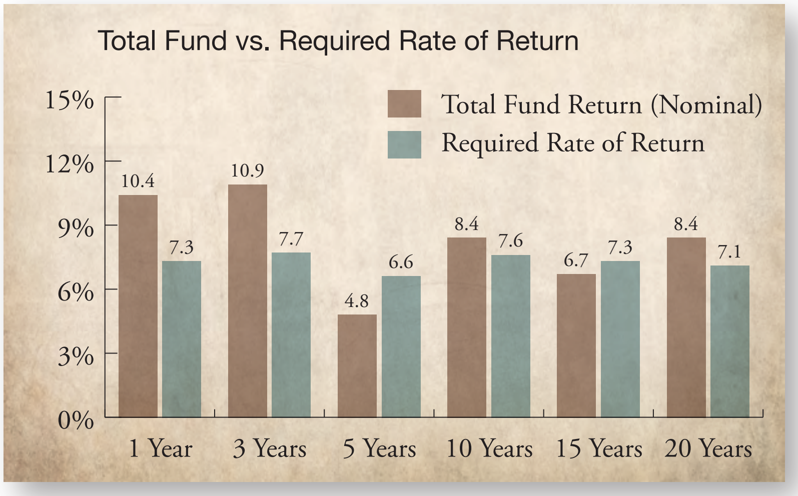
# TOTAL FUND REVIEW

As of June 30, 2013, the MOSERS investment portfolio had a market value of $8.1 billion. The graph to the right illustrates the growth of MOSERS' portfolio since the system's inception.




## Investment Performance

MOSERS' investments generated a return of 10.4%, net of fees, for FY13. The total fund return exceeded the 1-year policy benchmark of 8.2%. This additional 2.2% investment return produced $147.6 million over what would have been earned if the fund had been invested passively.




## Investment Performance vs. the Required Rate of Return

The total fund investment return is compared to a required rate of return. The required rate of return is established by the board to determine how well the fund is performing over the long term in order to meet future plan obligations after accounting for inflation. The required rate of return for FY13 is equal to the RRO (5.5%) plus inflation. The best known measure of inflation is the Consumer Price Index (CPI).[2]

Given the unpredictability of the investment markets, the portfolio should not be expected to meet the required rate of every year. A review of long periods of time is best to evaluate whether or not the total return has kept pace with the system's funding objectives.

The bar chart above reflects that MOSERS' investment returns have exceeded the required rate of return by 1.3% over the 20-year period ended June 30, 2013.[3]

## Investment Performance vs. Benchmark Comparisons

In addition to measuring performance relative to the required rate of return, the board also compares fund returns to the following two market benchmarks: the policy benchmark and the strategy benchmark.

The policy benchmark provides an indication of the returns that have been achieved (excluding transaction costs) by a portfolio invested passively in the broad market with percentage weights allocated to each asset class in MOSERS' policy asset allocation. Comparison of the total return to the policy benchmark is a reflection of the extent to which the asset allocation (beta) kept pace with the system's funding objectives. The total fund 1-year actual performance exceeded its policy benchmark by 2.2%, with the actual 3-, 5-, 10-, 15-, and 20-year returns also exceeding the policy benchmarks by 0.9%, 0.9%, 1.2%, 1.5% and 0.9%, respectively.

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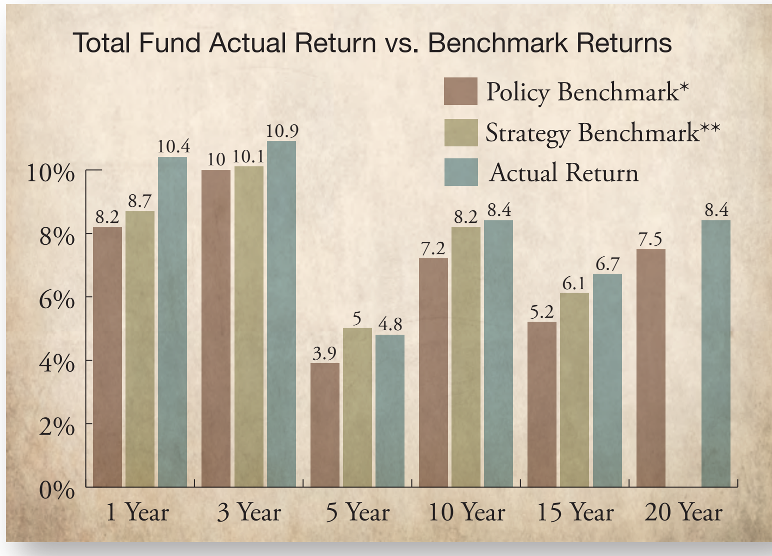
[2] CPI Source: United States Department of Labor, Bureau of Labor Statistics (not seasonally adjusted).

[3] Performance returns are calculated using a time-weighted rate of return on market values.

The strategy benchmark is more narrowly defined and focuses on sub-asset class allocation decisions made by the CIO. By comparing the policy benchmark to the strategy benchmark, the board is able to determine the value added through strategic decisions (active management) made by the CIO. Value is created when the strategy benchmark returns exceed the policy benchmark returns.

Returns for the total fund versus these benchmarks are displayed in the bar chart to the right.

Similarly, by comparing the actual return to the strategy benchmark, the board will, over the long term, be able to judge the success or failure of the staff and the consultant in implementing the CIO's strategic decisions. The primary implementation decision is in determining which managers the fund should employ. Value is added from manager selection when the total fund return exceeds the strategy benchmark return.




* As of 6/30/13, the policy benchmark was comprised of the following components: 24.4% total public equity policy benchmark, 16.2% total public debt policy benchmark, 22.7% total alternative investments policy benchmark, and 36.7% total beta balanced.

** As of 6/30/13, the strategy benchmark was comprised of the following components: 25.0% total public equity strategy benchmark, 14.1% total public debt strategy benchmark, 24.2% total alternative investments strategy benchmark, and 36.7% total beta balanced strategy. A strategy benchmark for the 20-year period is not available.

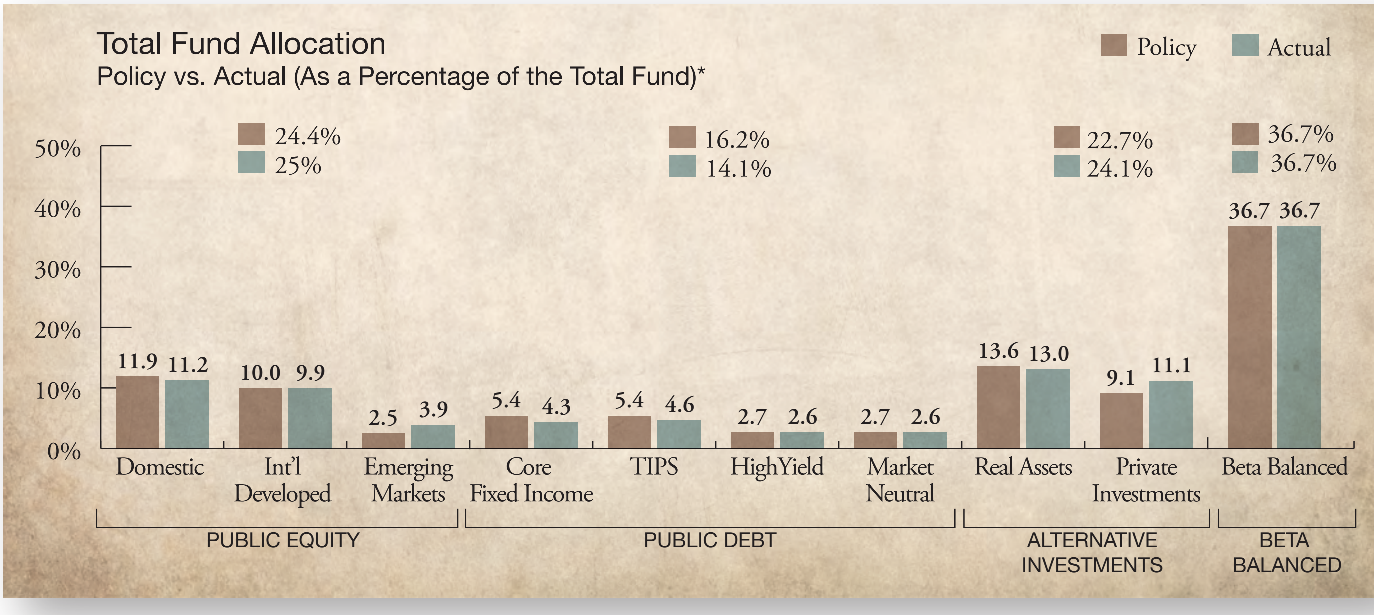
## Total Fund Policy Allocation Overview

As of June 30, 2013, the board's broad policy allocation mix was 24.4% public equity, 16.2% public debt, 22.7% alternative investments, and 36.7% beta balanced. The policy target, as of June 30, 2013, for each sub-asset class, along with the actual strategic allocation to each type of investment is shown in the bar graph at the top of the following page.

The board has granted authority to the CIO to make strategic decisions related to the allocation subject. A strategic decision should be thought of as any decision that might cause MOSERS' actual portfolio to differ from the policy asset allocation.

This has allowed MOSERS to capitalize on investment opportunities at the margin by overweighting asset classes that are viewed as "cheap" relative to their historical norm and underweighting asset classes that are "expensive" relative to their historical norm.

The asset allocation is built upon the belief that diversification is critical. The tables on the following page reflect the asset classes and their correlation to each other and the statistical performance data (net of fees) of the total fund as of June 30, 2013.




## Total Fund - Correlation Table - 5 Years

| | Public Equity | Core Fixed Income | TIPS | High Yield | Market Neutral | Real Assets | Private Investments |
|---|---|---|---|---|---|---|---|
| Public equity | 1.00 | | | | | | |
| Core fixed income | 0.45 | 1.00 | | | | | |
| TIPS | 0.39 | 0.78 | 1.00 | | | | |
| High yield | 0.67 | 0.41 | 0.49 | 1.00 | | | |
| Market neutral | 0.66 | 0.19 | 0.48 | 0.76 | 1.00 | | |
| Real assets | 0.67 | 0.52 | 0.38 | 0.35 | 0.56 | 1.00 | |
| Private investments | 0.67 | 0.48 | 0.41 | 0.51 | 0.63 | 0.72 | 1.00 |

## Total Fund - Statistical Performance

| Portfolio Characteristics | 1 Year | 3 Year | 5 Year | 10 Year | 15 Year |
|---|---|---|---|---|---|
| Annualized return | 10.4% | 10.9% | 4.8% | 8.4% | 6.7% |
| Annualized standard deviation | 6.09% | 8.08% | 10.81% | 8.60% | 9.88% |
| Sharpe ratio | 1.68 | 1.34 | 0.42 | 0.77 | 0.44 |
| Excess return* | 2.21% | 0.92% | 0.85% | 1.24% | 1.51% |
| Beta* | 1.04 | 0.78 | 0.72 | 0.74 | 0.82 |
| Annualized alpha* | 1.75% | 2.91% | 1.73% | 2.89% | 2.27% |
| Correlation* | 0.99 | 0.98 | 0.96 | 0.96 | 0.96 |
| Value added in dollars** | $165M | $203M | $353.6M | $1B | $1.9B |

* *As compared to the total fund policy benchmark.*
** *MOSERS earnings above what would have been earned if assets had been invested passively.*

## Investment Advisors

| Investment Advisors Name | Style | Portfolio Market Value |
|---|---|---|
| Actis | Emerging markets | $ 49,817,673 |
| African Devolopment Partners International | Emerging markets | 41,443,495 |
| AIP Fund V | Corporate buyout | 6,334,705 |
| Alinda INF Fund I | Infrastuctural | 28,805,719 |
| AQR Capital Management | Multi-strategy | 296,381,499 |
| AQR Capital Management | Risk parity | 345,437,345 |
| Ashmore Investment Management, Ltd. | Emerging markets debt | 49,512,144 |
| Axiom Asia Private Capital | Emerging markets | 23,851,965 |
| Axxon Brazil II | Emerging markets | 10,088,692 |
| Bayview Asset Management | Opportunistic mortgages | 54,139,606 |
| BlackRock Financial Management, Inc. | High yield bonds, loans and non-agency MBS | 33,821,870 |
| Blackstone Real Estate Advisors | Active real estate | 297,883,593 |
| Blackstone Alternative Asset Management | Fund-of-funds | 404,946,189 |
| Blakeney Onyx Emerging Markets | Emerging markets | 103,799,715 |
| Brevan Howard Capital Management | Emerging markets | 70,074,904 |
| Brevan Howard Capital Management | Global macro | 89,858,072 |
| Bridgepoint Capital Partners | Corporate buyout | 54,981,834 |
| Bridgewater Associates | Global macro | 77,419,352 |
| Bridgewater Associates | Risk parity | 415,212,445 |
| CarVal Investors | Distressed real estate debt | 58,200,000 |
| Catalyst Capital Group | Canadian distressed debt | 37,901,312 |
| Catterton Partners | Corporate buyout | 56,972,769 |
| Claren Road | Long/short - credit | 110,663,922 |
| COMAC | Global macro | 46,053,009 |
| CQS ABS Fund | Long/short - credit | 91,609,310 |
| Davidson Kempner | Event driven | 94,780,135 |
| DDJ Capital Management | Distressed debt | 3,558,507 |
| Diamondback Partners | Long/short - equity | 2,252,410 |
| DRI Capital | Intellectual property | 27,010,033 |
| Elliott Int'l | Multi-strategy | 94,824,067 |
| Eminence Capital | Long/short - equity | 99,430,554 |
| Empyrean | Event driven | 52,257,880 |
| Eton Park | Multi-strategy | 47,510,993 |
| Farallon | Multi-strategy | 5,553,286 |
| Fortress Investment Group, LLC | Opportunistic mortgages | 35,554,098 |
| Glenview | Long/short - equity | 59,947,519 |
| Global Energy Partners | Timberland | 177,846,490 |
| GMO Emerging Markets | Active growth | 121,712,392 |
| Harvest MLP Fund | Active MLP | 116,954,642 |
| HBK | Multi-strategy | 92,241,892 |
| Internal Staff | Passive MLP | 46,244,523 |
| Internal Staff | Passive TIPS | 596,792,973 |
| Internal Staff | Cash | 1,077,700,000 |
| JLL Partners | Corporate buyout | 45,203,537 |
| King Street | Credit driven | 37,802,861 |
| Linden Capital | Corporate buyout | 16,582,709 |
| MAST Credit Opps | Credit driven | 74,433,174 |
| Merit Energy | Energy - oil & gas | 8,173,459 |
| MHR Fund Management | Distressed debt | 93,862,009 |
| Millennium Technology Ventures | Direct secondaries | 16,891,934 |
| Morant Wright | International developed equity | 84,645,401 |

*Investment Advisors continued on page 75*

*Investment Advisors continued from page 74*

| Investment Advisors Name | Style | Portfolio Market Value |
|---|---|---|
| Nephila Triton | Reinsurance | 50,158,757 |
| New Mountain III | Corporate buyout | 43,865,041 |
| NISA Investment Advisors | Beta program/swap payable | (54,812,401) |
| NISA Investment Advisors | Commodities | 105,187,239 |
| NISA Investment Advisors | Credit hedge | 68,785,744 |
| Oaktree Capital Management | Opportunistic European loans | 2,341,377 |
| Oaktree Capital Management | Distressed debt | 53,545,999 |
| Oaktree Capital Management | Corporate buyout | 12,487,981 |
| Oaktree Capital Management | Real estate | 6,898,533 |
| PAAMCO - Alpha Manager | Multi-strategy - fund of funds | 4,286,036 |
| Pershing Square | Long/short - equity | 34,030,182 |
| Pharo Macro Fund | Global macro | 85,755,694 |
| Resource Management Service - Wildwood Timberlands | Timberland | 121,847,125 |
| Silchester Int'l | International developed equity | 718,334,103 |
| Silver Creek Management | Special situations - fund of funds | 64,902,052 |
| Silver Lake Partners II | Corporate buyout | 15,018,777 |
| Silver Point | Credit driven | 2,023,882 |
| SIRIS II | Corporate buyout | 3,579,138 |
| State Street Global Advisors | Index | 174,246,335 |
| Stepstone | Corporate buyout - fund-of-funds | 37,121,226 |
| Stone Harbor Investment Partners | Emerging markets debt | 78,288,606 |
| The Campbell Group Timber, LLC | Timberland | 43,050,929 |
| TPG Axon | Long/short - equity | 27,519,505 |
| TPGC Airline Credit Opportunities II | Special situations | 28,396,340 |
| Veritas | Corporate buyout | 61,399,872 |
| Viking | Long/short - equity | 117,047,892 |
| Visium | Long/short - equity | 85,928,970 |
| TCW | Energy | 103,945,485 |
| Miscellaneous (each less than $1M) | | 2,353,154 |
| | | $8,082,512,187 |

## Total Fund - Top Ten Publicly Traded Separate Account Holdings

| Ten Largest Holdings as of June 30, 2012* | Market Value | Percent of the Total Fund |
|---|---|---|
| U.S. Treasury Inflation Index Note - 0.125%, 2016 | $51,679,179 | 0.64% |
| U.S. Treasury Inflation Index Note - 0.500%, 2015 | 47,095,411 | 0.58 |
| U.S. Treasury Inflation Index Note - 0.625%, 2021 | 42,695,053 | 0.53 |
| U.S. Treasury Inflation Index Note - 2.625%, 2017 | 41,937,025 | 0.52 |
| U.S. Treasury Inflation Index Note - 0.125%, 2022 | 40,299,952 | 0.50 |
| U.S. Treasury Inflation Index Note - 1.625%, 2015 | 33,705,274 | 0.42 |
| U.S. Treasury Inflation Index Note - 0.125%, 2023 | 33,534,428 | 0.41 |
| U.S. Treasury Inflation Index Note - 2.375%, 2017 | 33,264,375 | 0.41 |
| U.S. Treasury Inflation Index Note - 1.125%, 2021 | 32,454,665 | 0.40 |
| U.S. Treasury Inflation Index Note - 1.250%, 2020 | 31,313,253 | 0.39 |

** For a complete list of holdings contact the Manager of Investment Policy & Communications.*

## Investment Manager Fees

*For the Year Ended Ended June 30, 2013*

| | Total Fees | Manager Fees | Paid/Accrued Performance Fees |
|---|---|---|---|
| **Public equity managers** | | | |
| Baillie Gifford EAFE Plus | $ 449,816 | $ 449,816 | $ 0 |
| Blackstone Hedged Equity Fund, LP | 433,384 | 433,384 | 0 |
| Blakeney Onyx, LP | 2,126,462 | 2,126,462 | 0 |
| Glenview Institutional Partners, LP | 5,361,607 | 912,172 | 4,449,435 |
| Grantham, Mayo, and Van Otterloo & Co. | 1,341,852 | 1,341,852 | 0 |
| Legg Mason Opportunity Trust | 60,872 | 60,872 | 0 |
| Leuthold Weeden Capital Management | 95,196 | 95,196 | 0 |
| Morant Wright Investment Management | 960,137 | 960,137 | 0 |
| Nippon Value Investors | 203,209 | 203,209 | 0 |
| Pershing Square, LP | 2,453,080 | 515,019 | 1,938,061 |
| Silchester International Investors | 2,905,432 | 2,905,432 | 0 |
| SSGA Emerging Markets | 148,328 | 148,328 | 0 |
| TPG- Axon Partners, Ltd. | 1,060,867 | 498,815 | 562,052 |
| Total public equity managers | 17,600,242 | 10,650,694 | 6,949,548 |
| **Public debt managers** | | | |
| Ashmore Emerging Markets Debt and Currency Fund | 366,598 | 366,598 | 0 |
| Bayview Opportunity Domestic, LP | 4,662,881 | 722,093 | 3,940,788 |
| BlackRock Financial Management Mortgage Opportunities | 226,338 | 226,338 | 0 |
| BlackRock Financial Management Bank Loans | 104,939 | 104,939 | 0 |
| Stone Harbor Investment Partners | 494,616 | 494,616 | 0 |
| Total public debt managers | 5,855,372 | 1,914,584 | 3,940,788 |
| **Alternative investment managers** | | | |
| Actis Emerging Markets III | 693,997 | 693,997 | 0 |
| Actis Global IV | 876,780 | 876,780 | 0 |
| African Development Partners I, LLC | 575,585 | 575,585 | 0 |
| Alinda Infrastructure Fund I, LP | 553,513 | 553,513 | 0 |
| American Industrial Partners Capital Fund V, LP | 690,001 | 690,001 | 0 |
| Axiom Asia Private Capital Fund II, LP | 400,000 | 400,000 | 0 |
| Axiom Asia Private Capital Fund III, LP | 245,219 | 245,219 | 0 |
| Axxon Brazil Private Equity Fund II B, LP | 598,763 | 598,763 | 0 |
| Bayview Opportunity Domestic, LP | 402,778 | 402,778 | 0 |
| Blackstone Real Estate Partners IV | 827,281 | 518,610 | 308,671 |
| Blackstone Real Estate Partners V | 4,324,233 | 1,129,705 | 3,194,528 |
| Blackstone Real Estate Partners VI | 3,753,854 | 958,961 | 2,794,893 |
| Blackstone Real Estate Partners VII | 2,458,322 | 1,040,159 | 1,418,163 |
| Bridgepoint Europe III A, LP | 206,508 | 206,508 | 0 |
| Bridgepoint Europe IV B, LP | 548,410 | 548,410 | 0 |
| Campbell Timber Fund II-A, LP | 344,230 | 344,230 | 0 |
| CarVaL Investors CVI Global Value Fund A, LP - real estate | 577,153 | 577,153 | 0 |
| CarVaL Investors CVI Global Value Fund A, LP - private debt | 577,153 | 577,153 | 0 |
| Catalyst Fund Limited Partnership III | 1,632,424 | 890,342 | 742,082 |
| Catalyst Fund Limited Partnership IV | 673,386 | 572,497 | 100,889 |
| Catterton Partners V, LP | 122,162 | 122,162 | 0 |
| Catterton Partners VI, LP | 548,472 | 405,621 | 142,851 |
| Catterton Partners VI, LP | 156,522 | 156,522 | 0 |
| DRI Capital - LSRC | 376,520 | 45,046 | 331,474 |
| DRI Capital - LSRC II | 187,500 | 187,500 | 0 |
| EIG (TCW) Energy Fund XIV, LP | 406,070 | 406,070 | 0 |
| EIG (TCW) Energy Fund XV, LP | 569,379 | 569,379 | 0 |
| Garnet Sky Investors Company, Ltd. | 607,883 | 607,883 | 0 |
| Gateway (TCW) Energy & Resource Holdings, LLC | 1,077,726 | 306,867 | 770,859 |
| Global Forest Partners GTI7 Institutional Investors Co., Ltd. | 1,825,576 | 591,225 | 1,234,351 |
| Harvest Fund Advisors, LLC | 1,195,361 | 416,935 | 778,426 |

*Continued on page 77*

*Investment Manager Fees continued from page 76*

| | Total Fees | Manager Fees | Paid/Accrued Performance Fees |
|---|---|---|---|
| JLL Partners Fund V, LP | 870,867 | 206,786 | 664,081 |
| JLL Partners Fund VI, LP | (118,532) | 763,991 | (882,523) |
| Linden Capital Partners II, LP | 221,958 | 221,958 | 0 |
| Merit Energy Partners F-II, LP | 104,493 | 104,493 | 0 |
| MHR Institutional Partners II A, LP | 2,682,700 | 230,851 | 2,451,849 |
| MHR Institutional Partners III, LP | 8,420,077 | 1,273,656 | 7,146,421 |
| Millennium Technology Value Partners II | 495,513 | 424,024 | 71,489 |
| New Mountain Partners III, LP | 552,986 | 518,978 | 34,008 |
| NISA Investment Advisors | 692,935 | 111,793 | 581,142 |
| OCM/GFI Power Opportunities Fund II, LP | (333,673) | 24,123 | (357,796) |
| OCM Opportunities Fund IVB, LP | 55,794 | 0 | 55,794 |
| OCM Opportunities Fund VII B, LP | 6,144,370 | 857,934 | 5,286,436 |
| OCM Opportunities Fund VIII B, LP | 850,621 | 363,943 | 486,678 |
| OCM Power Opportunities III, LP | 635,015 | 391,021 | 243,994 |
| OCM Real Estate Opportunities Fund III, LP | (6,241,667) | 7,179 | (6,248,846) |
| Parish Capital Buyout Fund I, LP | 103,429 | 86,602 | 16,827 |
| Parish Capital Buyout Fund II, LP | 174,035 | 174,035 | 0 |
| Parish Opportunities Fund II, LP | (117,945) | 63,640 | (181,585) |
| Resource Management Service - Wildwood Timberlands, LLC | 629,007 | 629,007 | 0 |
| Silver Lake Partners II, LP | (276,251) | 101,552 | (377,803) |
| SIRIS Partners II, LP | 952,279 | 254,339 | 697,940 |
| TPG Airline Credit Opportunities, LP | 1,353,688 | 600,000 | 753,688 |
| The Veritas Capital Fund III, LP | 1,242,186 | 0 | 1,242,186 |
| The Veritas Capital Fund IV, LP | 3,862,839 | 280,233 | 3,582,606 |
| Total alternative investment managers | 50,989,485 | 23,905,712 | 27,083,773 |
| **Alpha pool managers** | | | |
| AQR Absolute Return Institutional Fund, LP | 542,286 | 542,286 | 0 |
| AQR DELTA Sapphire Fund, LP | 2,115,097 | 2,115,097 | 0 |
| Blackstone Topaz Fund, LP | 4,571,300 | 3,354,122 | 1,217,178 |
| Brevan Howard, LP | 2,822,138 | 1,275,677 | 1,546,461 |
| Brevan Howard Emerging Market Strategies Fund, LP | 2,430,370 | 1,333,113 | 1,097,257 |
| Bridgewater Associates - Diamond Ridge Fund, LLC | 2,727,039 | 2,727,039 | 0 |
| Claren Road Credit Partners, LP | 3,753,174 | 1,554,044 | 2,199,130 |
| COMAC Global Macro Fund, LP | 1,156,333 | 1,156,333 | 0 |
| CQS ABS Feeder Fund, Ltd. | 3,190,550 | 1,620,764 | 1,569,786 |
| Davidson Kempner Institutional Partners, LP | 2,754,248 | 877,398 | 1,876,850 |
| Diamondback Partners, LP | 1,139,403 | 1,139,403 | 0 |
| Elliott International, Ltd. | 3,869,008 | 1,312,545 | 2,556,463 |
| Eminence Fund, Ltd. | 3,968,761 | 875,150 | 3,093,611 |
| Empyrean Capital Fund, LP | 916,873 | 916,873 | 0 |
| Eton Park Fund, LP | 2,844,252 | 1,124,237 | 1,720,015 |
| HBK Offshore Fund, Ltd. | 2,455,963 | 1,335,455 | 1,120,508 |
| King Street Capital, LP | 1,551,292 | 855,380 | 695,912 |
| Mast Credit Opportunities I, LP | 1,370,793 | 1,370,793 | 0 |
| Nephila Triton Fund, LP | 75,664 | 62,793 | 12,871 |
| King Street Capital, Ltd. | 80,574 | 11,518 | 69,056 |
| Pharo Macro Fund, Ltd. | 4,163,147 | 1,692,778 | 2,470,369 |
| Viking Global Equities III, Ltd. | 4,654,621 | 1,378,079 | 3,276,542 |
| Visium Balanced Fund, LP | 2,745,925 | 1,167,578 | 1,578,347 |
| Total alpha pool managers | 55,898,811 | 29,798,455 | 26,100,356 |
| **Other managers** | | | |
| AQR Global Risk Premium Fund (15 vol.) | 1,347,681 | 1,347,681 | 0 |
| Bridgewater All Weather Fund (12 vol.) | 1,040,998 | 1,040,998 | 0 |
| NISA Investment Advisors - Beta | 1,125,261 | 1,125,261 | 0 |
| MOSERS, Inc. | 140 | 140 | 0 |
| Total other managers | 3,514,080 | 3,514,080 | 0 |
| **Grand totals** | $133,857,990 | $69,783,525 | $64,074,465 |

## Schedule of Investment Portfolios by Asset Class

*As of June 30, 2013*

| | Fair Value | Percentage of Investments at Fair Value |
|---|---|---|
| **Public global equity** | | |
| Domestic equity | $ 901,343,155 | 11.2% |
| International developed equity | 801,266,642 | 9.9 |
| Emerging markets equity | 317,412,243 | 3.9 |
| Total public global equity | 2,020,022,040 | 25.0 |
| **Public debt** | | |
| Core fixed income | 347,687,930 | 4.3 |
| High yield bonds | 213,879,715 | 2.6 |
| TIPS | 368,581,666 | 4.6 |
| Market neutral | 207,519,077 | 2.6 |
| Total public debt | 1,137,668,388 | 14.1 |
| **Alternative investments** | | |
| Real assets | 1,055,076,830 | 13.0 |
| Private investments | 893,820,501 | 11.1 |
| Total alternative investments | 1,948,897,331 | 24.1 |
| **Beta balanced** | 2,971,055,335 | 36.7 |
| Cash and other miscellaneous investments | 4,869,093 | 0.1 |
| *Grand total* | $ 8,082,512,187 | 100.0% |
| Reconciliation to *Statement of Fiduciary Net Position* | | |
| Total portfolio value | $ 8,082,512,187 | |
| STIF | (1,192,337,766) | |
| Uninvested cash | (10,314,732) | |
| Interest and dividend receivable | 53,075,570 | |
| Variation margin | (2,630,161) | |
| AR securities sold | (33,850,496) | |
| AP securities purchased | 11,479,680 | |
| Fees payable | 12,909,034 | |
| Securities lending liability | 2,330,804 | |
| Swaps | (782,496) | |
| Foreign currency differences | (57,486) | |
| Miscellaneous difference | 3 | |
| Investments per *Statement of Fiduciary Net Position* | $ 6,922,334,141 | |

## Schedule of Investment Results*

### *1-, 3-, 5-, 10- , 15 - and 20-Year Periods*

| | 1 Year | 3 Year | 5 Year | 10 Year | 15 Year | 20 Year |
|---|---|---|---|---|---|---|
| **Total Fund** | | | | | | |
| MOSERS | 10.4% | 10.9% | 4.8% | 8.4% | 6.7% | 8.4% |
| Composite total return benchmark | 8.2% | 10.0% | 3.9% | 7.2% | 5.2% | 7.5% |
| **Public equity** | | | | | | |
| MOSERS | 21.8% | 14.9% | 5.5% | 9.9% | 6.5% | 9.2% |
| Public equity composite benchmark | 16.6% | 12.4% | 2.3% | 7.1% | 4.1% | 7.3% |
| **Public debt** | | | | | | |
| MOSERS | 3.3% | 6.7% | 5.8% | 5.9% | 7.0% | 7.0% |
| Public debt composite benchmark | 0.4% | 5.2% | 5.9% | 5.9% | 7.0% | 7.0% |
| **Alternatives** | | | | | | |
| MOSERS | 13.8% | 13.3% | 4.7% | 9.2% | N/A | N/A |
| Alternatives composite benchmark | 13.8% | 14.5% | 5.2% | 8.5% | N/A | N/A |
| **Beta balanced**** | | | | | | |
| MOSERS | N/A | N/A | N/A | N/A | N/A | N/A |
| Beta Balanced Composite Benchmark | N/A | N/A | N/A | N/A | N/A | N/A |

* *Time weighted rates of return on market values adjusted for cash flows.*
** *Beta balanced inception date was September 1, 2012*

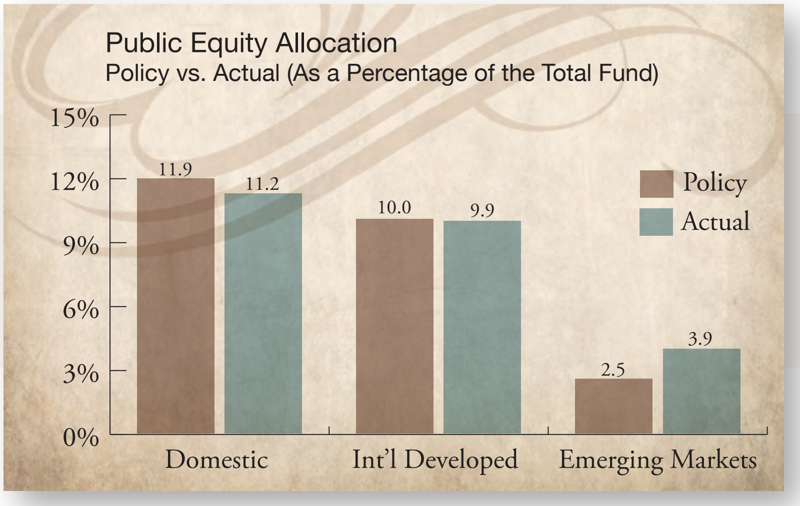
**Total Fund** - As of 6/30/13, the total fund policy benchmark was comprised of the following components: 24.4% total public equity policy benchmark, 16.2% total public debt policy benchmark, 22.7% total alternative investments policy benchmark, and 36.7% total beta balanced policy benchmark. The individual asset class benchmarks, as listed below are used to generate the total fund policy benchmark.

- **Public Equity** - As of 6/30/13, the policy benchmark was based on the capitalization of the MSCI ACWI benchmark, which at that date was 40.2% MSCI World Ex U.S. Net, 48.1% MSCI US Net, and 11.7% MSCI Emerging Markets Net. Similar benchmarks were used in previous years.
- **Public Debt** - As of 6/30/13, the public debt policy benchmark was comprised of 33.3% Barclays Aggregate, 33.3% Barclays U.S. TIPS, 16.7% Barclays High Yield, and 16.7% T-Bills + 4%. Similar benchmarks were used in previous years.
- **Alternative Investments** - As of 6/30/13, the alternative investments policy benchmark was comprised of the following components: 40% S&P 500 + 3%, 24% Dow Jones U.S. Select REIT Index, 24% NCREIF Timber, and 12% Goldman Sachs Commodity Index. This program did not begin until July 2002. Similar benchmarks were used in previous years.
- **Beta Balanced** - As of 6/30/13, the total beta balanced policy benchmark was comprised of the following components: 24% MSCI ACWI, 46% Barclays Long Treasuries, 21% Goldman Sachs Commodity, 80% Barclays US TIPS 1-10 YR, and 39% AQR Delta. This program did not begin until September 2012.

# PUBLIC EQUITY

*Asset Class Summary*

As of June 30, 2013, the public equity portfolio had a market value of $2.0 billion, representing 25.0% of the total fund. Performance for the fiscal year was 21.8%, net of fees and expenses.




## Highlights

There were some strategic changes in the makeup of the public equity portion of the portfolio; five managers were removed and some allocations were altered. Here are the highlights:

- Three domestic equity managers and two international developed managers were terminated due to a shift in asset allocation.
- An overweight to large multi-national U.S. companies concentrated in technology, health care, consumer staples and energy sectors was maintained.
- Within emerging equity, significant exposure to frontier markets was maintained.
- Within international developed, the overweight to Japanese equity was removed during this fiscal year.

## Portfolio Structure

The public equity portfolio has a target allocation of 24.4% of the total fund. This portfolio is considered global equity and therefore benchmarked against the MSCI All Country World Index (ACWI).

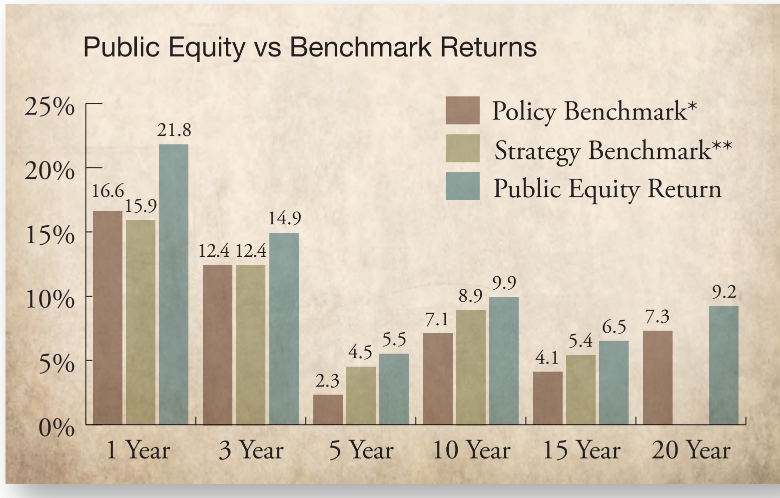
As of June 30, 2013, the portfolio includes domestic equity, international developed equity, and emerging markets equity. The policy allocations to each component are not static weights. The weights float based upon capitalization of the MSCI ACWI benchmark. As part of the implementation plan, hedged equity managers are utilized as a risk reducing tool. The bar chart above illustrates the actual allocation relative to the board's policy benchmark. Differences reflect the CIO's strategic decisions to overweight or underweight as of June 30, 2013.

## Market Overview

The MSCI ACWI returned 16.6% for the fiscal year. Domestic markets returned 19.8% and international developed markets returned 17.1%. The housing markets in the U.S. have rebounded nicely to help push the markets higher. Companies continue to report strong profits and investors have purchased stocks in light of the low return from cash and other fixed income choices. Aggregate economic conditions in Euroland remain weak, however, conditions have started to improve resulting in higher equity prices. Japan also announced new programs to stimulate the economy and this pushed equity markets higher.

The emerging markets were a disappointment during the fiscal year. The MSCI Emerging Markets index was up 2.9% for the year. The slow world-wide growth and falling commodity prices have kept the emerging markets from recovering. The world is watching China to see if they will be able to return to a stronger economy without a credit bubble. The developed world equity markets had a nice year but investors are looking at several years of growing profits without growth in the overall economies and wonder how long this can continue. While the markets have rebounded nicely off of 2008 lows, the real economies have yet to show growth levels typical in recovery periods.

The U.S. economy did not stop growing as predicted when federal sequestration took effect. However, many issues remain that are seen as a potential drag on the economy including spending cuts, tax increases and mandated healthcare. Although interest rates are rising in some areas, they are still at historically low levels and supportive of the economy and equity markets.




* As of 6/30/13, the public equity policy benchmark was based on the capitalization of the MSCI ACWI benchmark, which at that date was 40.2% MSCI World Ex US Net, 48.1% MSCI US Net, and 11.7% MSCI Emerging Markets Net.

** As of 6/30/13, the public equity strategy benchmark was comprised of the following components: 43.2% domestic consisting of S&P 500, S&P 100, MSCI U.S. Net, and hedge equity strategy benchmark; 40.3% international developed consisting of MSCI World Ex U.S. Net, MSCI EAFE, MSCI EAFE Ex Japan and TOPIXUSD Index; 16.5% emerging markets consisting of MSCI EMF Net.

## Performance

The public equity portfolio returned 21.8% for the fiscal year, exceeding the policy benchmark return of 16.6% and the strategy benchmark return of 15.9%, as illustrated in the bar chart to the right.

The outperformance of the equity portfolio, as compared to the policy benchmark, was due to all three sub-asset classes outperforming their respective benchmarks. The significant outperformance was remarkable in such a strong year for the markets. Often the MOSERS equity portfolio will underperform in periods when the market is strong due to the lower beta and defensive nature of the portfolio allocation.

The actual public equity return exceeded the strategy benchmark return by 5.9%. This year proved to be a success for the implementation decisions (manager selection) made by staff in all three sectors of the portfolio. Additionally, the policy benchmark outperformed the strategy benchmark by 0.7%. This was a result of staffs' strategic decisions to overweight Japanese equities, implement a Euro hedge, and to overweight large capitalization and high quality U.S. equity.

In the developed international markets, Switzerland, Greece and Finland were the best performing markets at 26.4%, 25.5% and 24.9%, respectively. Italy, Norway and Australia were the worst performing at 3.6%, 4.6% and 5.8%, respectively. All of these returns are U.S. dollar based.

In emerging markets, MOSERS' exposure to frontier markets benefited our equity portfolio performance, as the frontier markets were up 23% while emerging markets in total were up only 2.8%. In emerging markets, the country returns varied widely. Peru, Czech Republic and Brazil were the worst performers at -24.8%, -20.7%, and -14.1%, respectively. The Philippines, Thailand and Indonesia were the strongest performers at 23.9%, 15.1% and 12.4%, respectively.

## Additional Portfolio Information

The tables, as titled below, show the brokerage activity, and the soft dollar expenditures that occurred within the public equity portfolio in FY13.

### Public Equity - Brokerage Activity

| | | | Commissions | |
|---|---|---|---|---|
| Brokerage Firm | Shares Traded | $ Volume of Trades | $ Amount | Value Per Share |
| Morgan Stanley Securities | 7,329,125 | $114,264,688 | $ 35,203 | $0.00 |
| Investment Technology Group | 6,129,190 | 77,789,598 | 61,292 | 0.01 |
| ITG, Inc. | 5,634,851 | 120,219,334 | 56,349 | 0.01 |
| Barclays Capital | 2,167,818 | 90,553,948 | 15,959 | 0.01 |
| Liquidnet | 2,104,330 | 45,071,373 | 21,115 | 0.01 |
| JP Morgan Securities | 1,022,336 | 41,493,050 | 9,232 | 0.01 |
| Morgan Stanley & Co. | 912,670 | 18,278,703 | 6,799 | 0.01 |
| Credit Lyonnais Securities | 582,000 | 915,960 | 1,838 | 0.00 |
| Goldman Sachs & Co. | 480,400 | 15,623,800 | 6,127 | 0.01 |
| Weeden & Co. | 381,043 | 10,921,658 | 7,621 | 0.02 |
| UBS Equities | 281,086 | 5,283,279 | 2,340 | 0.01 |
| William Blair & Co. | 280,200 | 2,095,183 | 11,208 | 0.04 |
| Merrill Lynch | 206,308 | 2,205,770 | 1,120 | 0.01 |
| Merrill Lynch Pierce Fenner | 201,573 | 2,445,153 | 1,526 | 0.01 |
| Deutsche Bank | 168,877 | 963,473 | 1,559 | 0.01 |
| Equita SIM | 134,240 | 660,977 | 660 | 0.00 |
| Santander Central | 120,197 | 645,980 | 645 | 0.01 |
| Royal Bank of Canada | 108,216 | 1,318,983 | 1,319 | 0.01 |
| Jefferies & Co. | 78,300 | 486,095 | 3,132 | 0.04 |
| Keefe Bruyette and Woods | 68,050 | 534,414 | 2,722 | 0.04 |
| Others (50, each contributing less than 1%) | 1,093,127 | 19,312,542 | 33,969 | 0.03 |
| Total | 29,483,937 | $571,083,961 | $281,735 | $0.01 |

### Public Equity - Soft Dollar Expenditures*

| Types of Service Acquired | Commissions Used | Percentage of Total |
|---|---|---|
| Research services | $65,111 | 100% |
| Total | $65,111 | 100% |

* *These expendable excess commissions are permitted under current Securities Exchange Commission (SEC) guidelines and represent less than 20.2% of MOSERS' agency commissions.*

# DOMESTIC EQUITY

## Market Value

The domestic equity allocation was $901 million, or 11.2% of the total fund as of June 30, 2013.

## Summary of Portfolio

Domestic equity exposure is achieved through broadly diversified portfolios representing a variety of styles, sectors, market capitalizations, and an allocation to the beta/alpha program (see page 101 for further details). This portfolio is expected to contribute significantly to the fund's achievement of a long-term real return in excess of the 5.5% objective set by the board. It is expected that this portfolio will perform well in periods of falling inflation and rising growth. MOSERS' allocation to domestic equity of 11.2% was underweight to the policy MSCI ACWI weightings to domestic equity of 11.9% at June 30, 2013.

## Additional Portfolio Information

MOSERS had contracts with three external investment advisors who manage assets that comprise 13.5% of the domestic equity portfolio. The remaining 86.5% of the portfolio is in the beta/alpha program described on page 101. Three domestic equity managers were terminated in FY13. Management fees can be found on pages 76-77.

The table below shows the statistical performance for the domestic equity portfolio as of June 30, 2013.

### Domestic Equity - Statistical Performance

| Portfolio Characteristics | 1 Year | 3 Year | 5 Year | 10 Year |
|---|---|---|---|---|
| Annualized return | 27.1% | 20.5% | 7.8% | 9.0% |
| Annualized standard deviation | 8.58% | 13.22% | 16.80% | 14.09% |
| Sharpe ratio | 3.15 | 1.54 | 0.45 | 0.52 |
| Excess return* | 7.30% | 2.70% | 1.53% | 1.87% |
| Beta* | 1.25 | 0.95 | 0.88 | 0.93 |
| Annualized alpha* | 1.53% | 3.09% | 2.04% | 2.24% |
| Correlation* | 0.99 | 0.99 | 0.97 | 0.97 |

** As compared to the domestic equity policy benchmark.*

# INTERNATIONAL DEVELOPED EQUITY

## Market Value

As of June 30, 2013, the international developed equity allocation was $801 million, or 9.9% of the total fund.

## Summary of Portfolio

The international developed equity portfolio consists of publicly traded shares of corporations based in non-U.S developed countries. Equity exposure is achieved through broadly diversified portfolios representing a variety of styles, sectors, market capitalizations, and an allocation to the beta/alpha program (see page 101 for further details). This portfolio is expected to contribute significantly to the fund's achievement of a long-term real return in excess of the 5.5% objective set by the board. It is expected that this portfolio will perform well in periods of falling inflation and rising growth and offer income potential through dividend payments. As of June 30, 2013, MOSERS' allocation of 9.9% was underweight to the policy MSCI ACWI weighting of 10.0% for international developed countries.

## Additional Portfolio Information

MOSERS had contracts with two external investment advisors who manage assets that comprise 73.3% of the international developed equity portfolio. The remaining 26.7% of the portfolio is in the beta/alpha program described on page 101. Two managers were terminated in the international developed equity portfolio in FY13. Management fees can be found on pages 76-77.

The table below shows the statistical performance for the international developed equity portfolio as of June 30, 2013.

### International Developed Equity - Statistical Performance

| Portfolio Characteristics | 1 Year | 3 Year | 5 Year | 10 Year |
|---|---|---|---|---|
| Annualized return | 23.6% | 12.8% | 6.2% | 11.5% |
| Annualized standard deviation | 9.76% | 15.46% | 19.55% | 15.57% |
| Sharpe ratio | 2.40 | 0.82 | 0.23 | 0.58 |
| Excess return* | 6.52% | 3.39% | 5.68% | 3.02% |
| Beta* | 1.05 | 0.85 | 0.84 | 0.84 |
| Annualized alpha* | 4.77% | 4.31% | 5.11% | 3.81% |
| Correlation* | 0.98 | 0.98 | 0.98 | 0.98 |

** As compared to the international developed equity policy benchmark.*

## EMERGING MARKET

### Market Value

As of June 30, 2013, the emerging market equity portfolio was $317 million, or 3.9% of the total fund.

### Summary of Portfolio

The emerging market equity allows for participation in publicly traded shares of corporations based in the emerging economies across the globe. This equity exposure is achieved through broadly diversified portfolios representing a variety of styles, sectors, market capitalizations, and an allocation to the beta/alpha program (see page 101 for further details). The emerging markets equity portfolio is expected to contribute significantly to the fund's achievement of a long-term real return in excess of the 5.5% objective set by the board. As of June 30, 2013, MOSERS' allocation of 3.9% was overweight to the policy MSCI ACWI weighting of 2.5% for emerging market countries. This portfolio provides diversification associated with holding non-dollar assets and offers some of the best fundamental valuations available from equity markets around the globe.

### Additional Portfolio Information

MOSERS had contracts with three external investment advisors who manage assets that comprise 100% of the emerging market equity portfolio. There were no managers hired and or terminated in the emerging markets portfolio in FY13. Management fees can be found on pages 76-77.

The table below shows statistical performance for the emerging markets equity portfolio as of June 30, 2013.

Emerging Market Equity - Statistical Performance

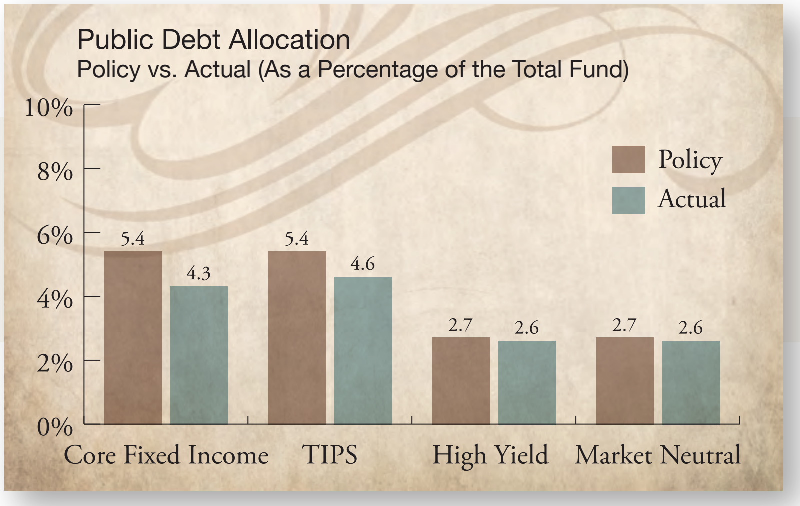
| Portfolio Characteristics | 1 Year | 3 Year | 5 Year | 10 Year |
|---|---|---|---|---|
| Annualized return | 6.7% | 4.5% | 0.4% | 15.7% |
| Annualized standard deviation | 10.10% | 17.96% | 25.31% | 20.61% |
| Sharpe ratio | 0.65 | 0.25 | 0.00 | 0.67 |
| Excess return* | 3.84% | 1.16% | 0.82% | 1.90% |
| Beta* | 0.86 | 0.85 | 0.89 | 0.83 |
| Annualized alpha* | 4.02% | 1.41% | 0.46% | 3.59% |
| Correlation* | 0.98 | 0.99 | 0.98 | 0.97 |

** As compared to the emerging market equity policy benchmark.*

# PUBLIC DEBT

*Asset Class Summary*

As of June 30, 2013, the public debt allocation had a market value of $1.1 billion, representing 14.1% of the total fund. Performance for the fiscal year was 3.3%, net of fees and expenses.




## Highlights

There were some modest strategic changes made to the public debt portfolio during the fiscal year:

- The substantial overweight to treasuries initiated in 2007 was maintained, with the offsetting underweight coming primarily from investment grade corporate securities and government guaranteed mortgages.
- The emerging market debt exposure added in 2011 was increased as a percent of assets in the core fixed income and high yield portfolios, adding to portfolio yield and non-dollar currency exposure.
- The bank loan exposure within high yield was reduced throughout the year as credit spreads were at less compelling levels.
- Within high yield, significant exposure continued to be maintained in security classes carrying attributes of high yield that are not represented within the benchmark, namely mortgage securities/whole loans. These non-index securities are generally believed to carry more protection in downside scenarios and, in some cases, offer inflation protection in the form of floating rate coupons.

## Portfolio Structure

At June 30, 2013, the public debt portfolio has a target allocation of 16.2% of the total fund. This portfolio is comprised of four sub-asset classes which include core fixed income, high yield bonds, treasury inflation protected securities (TIPS) and market neutral. The bar chart above illustrates the actual sub-asset allocations relative to the board's policy allocation for each of these sub-asset classes. Differences reflect the CIO's strategic decisions to overweight or underweight sub-asset classes as of fiscal year end.

## Market Overview

FY13 was a good year for financial assets, with the exception of interest rate sensitive assets, as the economy continued its slow growth recovery. At the end of FY13, the federal funds target rate was zero to 0.25% and the Federal Reserve Board (Fed) stated that the economy "expanded at a modest pace during the first half of the year" and was expected to "pick up from its recent pace." The Fed plans to monitor economic activity, inflation expectations and the labor market and adjust Fed security purchases to "maintain appropriate policy accommodation."

The Fed continued to purchase agency mortgage-backed securities and longer-term Treasury securities and continued reinvesting principal payments from its holdings. According to the Fed, these policies are intended to "maintain downward pressure on longer-term interest rates, support mortgage markets, and help to make broader financial conditions more accommodative." The Fed has maintained its zero interest rate policy since December 2008.

Long treasury prices fell substantially during FY13 as long-term interest rates increased sharply from the beginning of the period from 2.75% to 3.50% at the end of the fiscal year. The majority of the increase in rates came in the last two months of the period with over a 0.6% increase in long rates. Short-term rates remained low as the Fed maintained the federal funds rate constant, and market participants continued to show a strong interest in the short-end of the yield curve, seeking liquidity and safety. The treasury curve steepened during the fiscal year, increasing nearly 80 basis points in the 2-year versus 10-year spread.

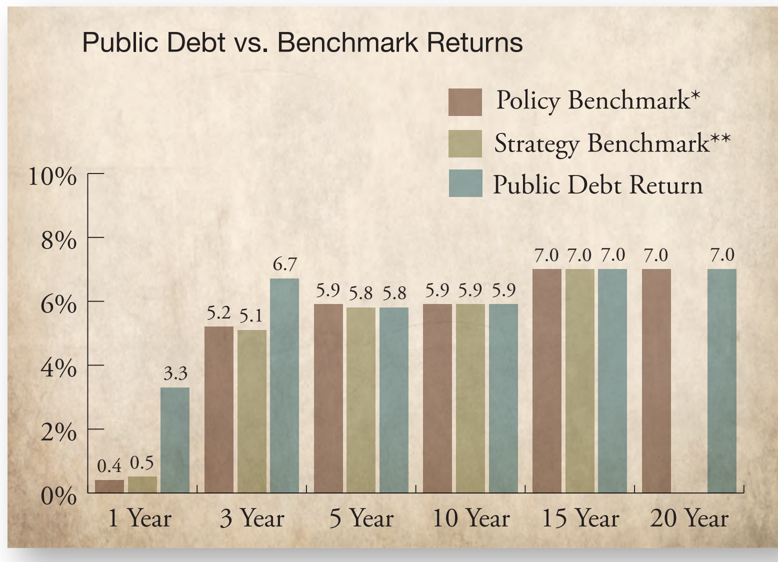
The broad debt market as represented by the Barclays Capital Aggregate Index experienced a return of -0.7% during the fiscal year. The three major components of the Aggregate Index, in order of their size contributions to the index, are treasuries, the securitized segment (largely mortgage-backed securities), and corporates. Fiscal year returns for these broad market components were -1.6%, -1.1% and 1.4%, respectively. Apart from the Aggregate Index there are three other important segments of the bond market, TIPS, high yield and external emerging markets debt (as distinguished from local currency denominated or internal debt). Fiscal year returns for these bond market segments were -4.8%, 9.5% and 1.1%. As the fiscal year progressed, yield premiums for credit risk decreased commensurate with the general economic conditions and decreased risk to the economic environment. The degree of credit improvement is best measured by investment grade corporate spreads, which tightened by 46 basis points and with high yield spreads having tightened by 119 basis points over the fiscal year.

The impact on the economy from the sharp rise in interest rates the last two months of the fiscal year may have a slowing effect on the economy depending on its persistence and market expectations. Investors have become accustomed to the Fed accommodation; however the Fed is trying to position itself to reduce the accommodation over time. How successful the Fed is at communicating its intentions and managing market expectations will likely be a dominate theme in asset prices and market volatility in the coming quarters.

## Performance

The public debt portfolio returned 3.3% for the fiscal year, significantly outperforming the policy benchmark return of 0.4% and the strategy benchmark return of 0.5%. The bar chart to the right illustrates performance over longer periods of time.

During the fiscal year, the outperformance relative to the policy benchmark was attributable to the implementations primarily within high yield and core fixed income. The portfolio is currently positioned with less interest rate risk than is the policy benchmark, a factor that may enable better long-term performance relative to the benchmark as interest rates are at historical lows and likely will rise in the event of a more sustained economic recovery, although imminent recovery may not be attainable, in large part, to the headwinds of austerity in overly indebted developed countries and its collateral impact upon the global economy and banking system.




* As of 6/30/13, the public debt policy benchmark was comprised of the following components: 33.3% Barclays Aggregate Index; 33.3% Barclays U.S. TIPS Index; 16.7% Barclays High Yield Index; and 16.7% T-Bills + 4%.

** As of 6/30/13, the public debt strategy benchmark was comprised of the following components: 36.9% core bonds consisting of various components of debt indices; 30.1% Barclays U.S. TIPS Index; 16.0% high yield bonds consisting of various components of debt indices and actual portfolio returns; and 17.0% market neutral consisting of T-Bills + 4%.

## Additional Portfolio Information

The table below shows the the brokerage activity that occurred within the public debt portfolio in FY13.

### Brokerage Activity

| Broker/Dealer Firm | Par Amount Traded | Market Value Traded | Percent of Total Trading Volume by Market Value |
|---|---|---|---|
| Barclays | $207,495,134 | $251,505,688 | 26.3% |
| Bank of Nova Scotia | 210,168,260 | 240,978,929 | 25.2 |
| Citigroup | 131,170,271 | 153,073,424 | 16.0 |
| Merrill Lynch | 89,100,152 | 86,588,709 | 9.0 |
| JP Morgan | 46,909,014 | 55,506,324 | 5.8 |
| Deutsche Bank | 39,300,403 | 45,826,062 | 4.8 |
| Goldman Sachs | 19,970,892 | 21,823,313 | 2.3 |
| Credit Suisse | 15,870,075 | 17,139,197 | 1.8 |
| HSBC | 9,595,095 | 10,449,022 | 1.1 |
| UBS | 7,999,354 | 10,373,424 | 1.1 |
| Morgan Stanley | 10,214,982 | 9,624,584 | 1.0 |
| Other (Includes 31, each contributing less than 1%) | 52,416,516 | 53,632,016 | 5.6 |
| Totals | $840,210,148 | $956,520,692 | 100.0% |

## CORE FIXED INCOME

### Market Value

The core fixed income allocation was $347.7 million as of fiscal year end, or 4.3% of the total fund.

### Summary of Portfolio

The core fixed income sub-asset class gives the total fund exposure to high quality fixed income instruments which, in turn, provides stable cash flows and excellent liquidity to the portfolio. Types of fixed income securities that may be held within this portfolio include U.S. Treasuries, mortgage-backed securities, asset-backed securities, agency securities, investment-grade corporate securities and international investment grade securities. Core fixed income is also one portfolio within the public debt asset class that can be efficiently implemented synthetically due to the wide availability of futures and swaps and their acceptance as mainstream instruments of portfolio management. Synthetic implementation of core exposure has been widely used since the addition of the beta/alpha program in FY05. Beta/alpha within the core fixed income portfolio is expected to be an efficient means of achieving superior risk adjusted returns over an entire economic cycle. Refer to the beta/alpha on page 101 for a more complete description of the program and its rationale. The core fixed income portfolio provides meaningful diversification to the fund in a variety of different economic scenarios. Core fixed income performs well, but would typically lag equities in periods of good economic growth and falling inflation. One should also expect adequate performance from this portfolio in periods of falling growth and stable inflation. As of June 30, 2013, MOSERS' allocation was below the 5.4% policy target allocation to core fixed income.

### Additional Portfolio Information

MOSERS had one contract with an external investment advisor for the management of a separate fixed income portfolio of investment grade emerging markets debt. The core fixed income portfolio also participates in the beta/alpha program. In the program, beta and alpha are completely separated such that the beta exposure is gained through synthetic replication of the core components and the alpha is gained through the alpha pool managers. Management fees can be found on pages 76-77.

The table below shows statistical performance for the core fixed income portfolio as of June 30, 2013.

Core Fixed Income - Statistical Performance

| Portfolio Characteristics | 1 Year | 3 Year | 5 Year | 10 Year |
|---|---|---|---|---|
| Annualized return | 3.8% | 7.7% | 7.5% | 6.0% |
| Annualized standard deviation | 4.28% | 3.82% | 5.75% | 4.76% |
| Sharpe ratio | 0.86 | 1.97 | 1.25 | 0.87 |
| Excess return* | 4.48% | 4.15% | 2.28% | 1.43% |
| Beta* | 1.22 | 1.12 | 1.26 | 1.09 |
| Annualized alpha* | 4.59% | 3.58% | 0.90% | 1.00% |
| Correlation* | 0.91 | 0.83 | 0.82 | 0.84 |

**As compared to the core fixed income policy benchmark.*

## HIGH YIELD BONDS

### Market Value

The high yield bond allocation was $213.9 million as of fiscal year end, or 2.6% of the total fund.

### Summary of Portfolio

The high yield bond portfolio invests in debt securities whose credit ratings are below investment grade quality. Relative to the core fixed income portfolio, this sub-asset class provides superior coupon cash flow, as well as some diversification benefit due to a reduced sensitivity to changes in interest rates. MOSERS views this allocation as one that is likely to be variable and very much dependent upon the particular stage of the economic cycle being experienced at the time of the allocation decision. As of fiscal year end, MOSERS was slightly under the 2.7% policy target allocation to high yield bonds.

### Additional Portfolio Information

MOSERS had contracts with six external investment advisors for the management of the high yield bond portfolio. Management fees can be found on pages 76-77.

The table below shows statistical performance for the high yield bond portfolio as of June 30, 2013.

High Yield Bonds - Statistical Performance

| Portfolio Characteristics | 1 Year | 3 Year | 5 Year | 10 Year |
|---|---|---|---|---|
| Annualized return | 14.8% | 10.7% | 8.0% | 6.9% |
| Annualized standard deviation | 4.93% | 4.73% | 10.84% | 8.52% |
| Sharpe ratio | 2.99 | 2.24 | 0.72 | 0.60 |
| Excess return* | 5.35% | (0.04)% | (2.88)% | (1.98)% |
| Beta* | 1.05 | 0.60 | 0.68 | 0.69 |
| Annualized alpha* | 4.38% | 4.07% | 0.61% | 0.81% |
| Correlation* | 0.93 | 0.87 | 0.87 | 0.85 |

** As compared to the high yield bond policy benchmark.*

# TREASURY INFLATION PROTECTED SECURITIES (TIPS)

## Market Value

The TIPS allocation was $368.6 million, or 4.6% of the total fund as of fiscal year end.

## Summary of Portfolio

TIPS are fixed income securities issued and guaranteed by the U.S. government. The yield on these securities is specifically tied to inflation, as measured by the U.S. consumer price index, plus a predetermined yield in relation to inflation (real yield). The TIPS allocation provides an excellent match relative to the system's liabilities in terms of its ability to provide inflation protection. As of June 30, 2013, MOSERS' allocation was below the 5.4% policy target allocation to TIPS.

## Additional Portfolio Information

The table below shows statistical performance for the TIPS portfolio as of June 30, 2013.

TIPS - Statistical Performance

| Portfolio Characteristics | 1 Year | 3 Year | 5 Year | 10 Year |
|---|---|---|---|---|
| Annualized return | (4.8)% | 4.5% | 4.5% | 5.6% |
| Annualized standard deviation | 6.17% | 5.56% | 7.62% | 7.30% |
| Sharpe ratio | 0.80 | 0.79 | 0.55 | 0.54 |
| Excess return* | (0.05)% | (0.14)% | (0.05)% | 0.09% |
| Beta* | 0.98 | 0.99 | 1.00 | 1.00 |
| Annualized alpha* | (0.17)% | (0.11)% | 0.04% | 0.07% |
| Correlation* | 1.00 | 1.00 | 1.00 | 1.00 |

** As compared to the TIPS policy benchmark.*

# MARKET NEUTRAL

## Market Value

As of fiscal year end, the market neutral allocation was $207.5 million, or 2.6% of the total fund.

## Summary of Portfolio

The market neutral portfolio consists of a variety of managers who utilize skill-based investment strategies, which allow them to take advantage of periodic inefficiencies that may exist within the market. The expectation for this sub-asset class is to produce relatively consistent absolute returns in various economic environments. More directly, it is expected that this portfolio will generate returns of 4% in excess of returns on 90-day Treasury bills with similar volatility to what is expected from the core fixed income portfolio over long periods of time. Market neutral investments also provide diversification and downside protection to the portfolio. MOSERS utilizes its beta/alpha program described on page 101 to gain exposure to this sub-asset class. This allows MOSERS to invest in an extremely diversified pool comprised of a variety of different types of strategies that provide additional risk protection and alpha that has minimal exposure to both the stock and the bond markets. As of fiscal year end, MOSERS was slightly below the 2.7% policy target allocation to market neutral.

## Additional Portfolio Information

MOSERS' market neutral exposure is captured through the managers comprising the alpha program, which is detailed on page 101.

The table below shows statistical performance for the market neutral portfolio as of June 30, 2013.

### Market Neutral - Statistical Performance

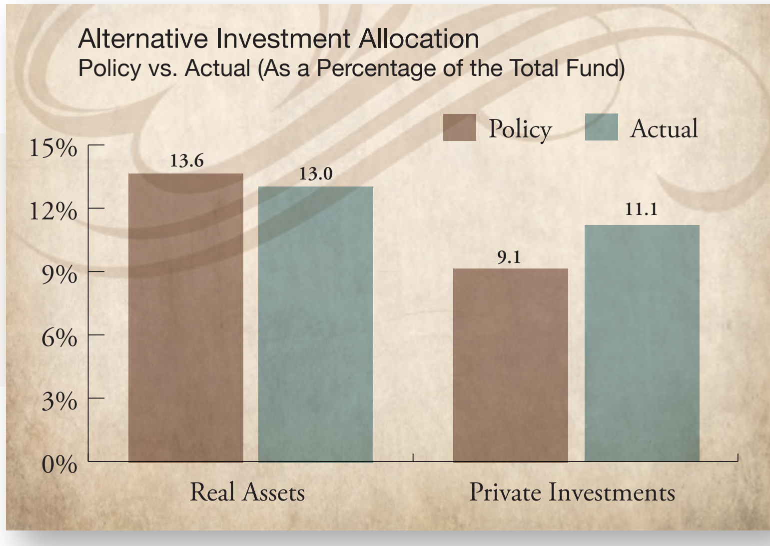
| Portfolio Characteristics | 1 Year | 3 Year | 5 Year | Since Inception (Dec. 2002) |
|---|---|---|---|---|
| Annualized return | 6.9% | 5.0% | 2.8% | 4.4% |
| Annualized standard deviation | 1.96% | 2.21% | 4.67% | 3.78% |
| Sharpe ratio | 3.45 | 2.22 | 0.54 | 0.69 |
| Excess return* | 2.84% | 0.94% | (1.42)% | (1.19)% |
| Beta as compared to S&P 500 | 0.20 | 0.09 | 0.15 | 0.14 |
| Beta as compared to Barclays Aggregate | 0.20 | (0.02) | 0.24 | 0.05 |

** As compared to the market neutral policy benchmark.*

# ALTERNATIVE INVESTMENTS

*Asset Class Summary*

As of June 30, 2013, the alternative investments portfolio had a market value of approximately $2.0 billion, which accounted for 24.1% of the total fund. Performance for the fiscal year was 13.8%, net of fees and expenses.




## Highlights

The 2013 fiscal year was an active and productive time for the portfolio. Below are a few highlights from this diverse set of assets:

- The alternative investments portfolio invests in a broad range of assets located around the globe. The recent fiscal year was highly productive as the overall return was 13.8%.
- Over the last decade, the alternative investments portfolio achieved an annualized rate of return of 9.2%, outperforming its policy benchmark, which returned 8.5%.
- MOSERS continues to commit capital to high quality managers with compelling strategies. This fiscal year, three existing managers and one new manager received capital commitments. Both sub-asset classes: real assets and private investments, participated in the capital allocation.

## Portfolio Structure

The alternative investments portfolio is targeted to comprise 22.7% of the total fund. This portfolio consists of two sub-asset classes: real assets and private investments. The real assets portfolio has a policy target allocation of 13.6%, and is further divided into three segments: commodities, timber and real estate. The private investments sub-asset class has a target allocation of 9.1%, and is focused in two areas: private equity and private debt.

At June 30, 2013, the alternative investments portfolio accounted for 24.1% of the total fund, somewhat above the target allocation. The overweight relative to the target allocation resided in the private investments portfolio, which had an actual weight of 11.1% versus a target of 9.1%. The real assets allocation had a weight of 13.0%, a bit below its 13.6% target. The bar chart above illustrates the actual allocations relative to the board's policy allocation.

The alternative investments portfolio covers a broad range of assets located in a number of regions around the world. Each asset type has its own set of expected return and risk characteristics. These characteristics are combined in a portfolio that is designed to complement the total fund, both in terms of return and diversification. The table below shows the five portfolio components and their correlation to each other.

Alternative Investments Correlation Table - 5 Year Period

| Sub-Asset Class | Real Estate | Commodities | Timber | Private Equity | Private Debt |
|---|---|---|---|---|---|
| Real estate | 1.00 | | | | |
| Commodities | 0.39 | 1.00 | | | |
| Timber | 0.02 | (0.09) | 1.00 | | |
| Private equity | 0.58 | 0.41 | 0.24 | 1.00 | |
| Private debt | 0.44 | 0.63 | 0.05 | 0.53 | 1.00 |

## Market Overview

The alternative investments portfolio contains a variety of asset types which are expected to perform quite differently from an investment standpoint. The following narrative provides a high level description of each market as well as some return data on how each performed during the past year.

Commodities, in general, refer to a group of tangible assets that are used as inputs to produce an end product. MOSERS uses an index that contains more than 20 individual commodities, each with its own distinct market. This broad set of commodities can be grouped into five categories: agriculture, livestock, energy, industrial metals and precious metals. While the returns for the commodities in each group tend to move together, each individual commodity possesses its own set of supply and demand characteristics, which can lead to returns that vary significantly from one another.

The Standard & Poor's GSCI (S&P GSCI) is one of the major indexes used to track the performance of commodities. This index contains 24 individual commodities in five diverse sectors. The S&P GSCI assigns each commodity a weight based on world production statistics in an effort to reflect the relative significance of each commodity in the world economy. Given this methodology, the index has a 69% allocation to the energy sector and is represented by six of the 24 commodities. Over the fiscal year, the S&P GSCI returned 2.0%, on a total return basis. During this period, the returns of the sectors varied greatly. The precious metals component experienced the largest loss over the year, declining 25.1%. The best performing sector, and the driver of the positive return for the overall index, was energy which increased by 8.2%. As mentioned earlier, returns within a sector can also vary significantly. For example, the commodities within the agriculture sector had the widest range of returns: cotton was up almost 15%, while coffee fell by over 35%.

Real estate is another asset type with a great deal of differentiation. Properties vary by geography, type, stage of development, use of leverage and whether or not it is publicly traded. The institutional real estate market, a sub-set of the real estate universe, contains a variety of property types: office, industrial, retail, multi-family and hotel. A well-known indicator of real estate performance is the Dow Jones U.S. Select REIT Index, which tracks the performance of publicly traded domestic real estate investment trusts (REITs). The index contains a number of individual REITs that were formed to invest in large institutional quality properties within a specific property-type. For year ended June 30, 2013, the Dow Jones REIT Index returned 7.7%.

The final component within real assets is timber. Timber plays an interesting role in a portfolio since it possesses a number of characteristics that differentiate it from other assets. Timber, given its extended growth cycle, has a long term investment horizon. Once mature, timberland has the potential to generate significant cash flows over time. With proper management, these cash flows can be timed to help meet the liquidity needs of the investor. As an example, managers of mature timberlands can plan harvests in order to generate a targeted amount of cash. Additionally, managers can alter harvest schedules to take advantage of strong markets or to avoid weak markets. Another benefit, in the event that a harvest is postponed, is that the tree remains on the stump where it continues to grow and add volume. The NCREIF Timberland Index, which is maintained by The National Council of Real Estate Investment Fiduciaries, is used to measure the performance of private timberlands in a number of regions within the U.S. Over the most recent fiscal year the index returned 9.4%, which was the highest among the benchmarks used to measure performance of the components within the real assets portfolio.

Private equity and private debt are the two components included in the private investments sub-asset class. Benchmarking this sub-asset class has always been a challenge. In order for a benchmark to be meaningful it should satisfy a number of criteria. A quality benchmark should be: identifiable in advance, investable, able to be calculated frequently and consistent with the manager's investment style. When dealing with assets in private markets these criteria are not met. The lack of an appropriate benchmark leads investors to use a variety of other methods, despite several shortfalls. One common method is to add a risk premium to an index of publicly traded equities, such as the S&P 500 Index. The rationale behind this approach is that an investor in private securities should expect to receive a premium above the return provided by the public markets. This incremental return is expected to compensate investors for the added risk and illiquidity associated with private investments. For the fiscal year, the private investments benchmark, the S&P 500 Index plus a 3% premium, returned 23.6%.

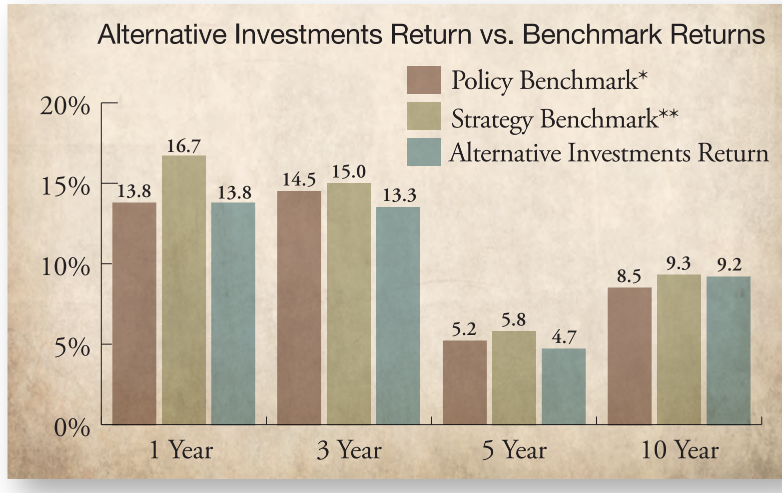
The alternative investments portfolio is comprised of a number of strategies. The performance of this portfolio is discussed in the next section.

## Performance

The alternative investments portfolio returned 13.8% for the fiscal year, which matched the policy benchmark return. The portfolio trailed the strategy benchmark return of 16.7% over the same time period.

The performance of the alternative investments portfolio reflects the blended return of the real assets (real estate, timber and commodities) and private investments (private equity and private debt) portfolios. For the fiscal year, the real assets portfolio returned 13.6%, while the private investments portfolio returned 13.9%. The 1-year return of the five components ranged from 21.8% to 1.2%. The 1-year result for each component falls within the expected range of outcomes.

Results for the alternative investments portfolio and its benchmarks, for the latest 1-, 3-, 5- and 10-year periods, are illustrated in the bar chart to the right.




* As of 6/30/13, the alternative investments policy benchmark was comprised of the following components: 40% S&P 500+3%, 24% Dow Jones U.S. Select REIT Index, 24% NCREIF Timber, and 12% Goldman Sachs Commodity.

** As of 6/30/13, the alternative investment strategy benchmark was comprised of the following components: 44.6% S&P 500 + 3%; 28.9% real estate consisting of NCREIF, STIF Return, S&P MLP TR Index, actual return of Bayview; 17.6% NCREIF Timber; and 8.91% commodities consisting of S&P GSCI TR Index and S&P GSCI Gold Excess Return Index.

The policy benchmark return for the alternative investments portfolio is a weighted average of the allocation mix and the policy benchmark return of each component. In order to determine the amount of value-added, the actual return is compared with the policy benchmark. During FY13, the overall alternative investments portfolio performed in line with the policy benchmark. At the sub-asset class level, the real assets portfolio outperformed the policy benchmark for the fiscal year by returning 13.6%, compared to the 7.5% for the benchmark. This outperformance was offset by the underperformance of the private investments portfolio, which achieved a 13.9% return, versus a 23.6% return for the benchmark.

A review of the sub-asset classes within the real assets portfolio shows that the outperformance of the real estate portfolio was more than enough to offset the underperformance turned in by the timber and commodities allocations. Within the private investments portfolio, both the private equity and private debt portfolios found it difficult to keep up with the 23.6% return of the equity based benchmark, although the private debt component was very close. Over a longer timeframe, like the latest 10-year period, the alternative investments portfolio returned 9.2%, annualized, which outperformed the policy benchmark return of 8.5%.

As described in the total fund review section, the strategy benchmark attributes performance to decisions made by staff. These decisions to either deviate, within parameters, from the policy asset allocation or to make specific investment manager selections are tracked on an ongoing basis. The strategy benchmark utilizes a set of indexes that are appropriate given the characteristics of the underlying investments. During FY13, the return of the portfolio trailed the strategy benchmark by 2.9%. This underperformance was due to the timber, private equity and private debt components of the alternative investments portfolio. While each 1-year return is meaningful, given the long term nature of the asset class, measurement over longer periods is more relevant. Since its inception 11 years ago, the portfolio has achieved a return of 10.2%, which outperformed the strategy benchmark return of 9.4%.

## Brokerage Activity

The table below illustrates the brokerage activity occurring within the alternative investments portfolio during the fiscal year. The activity resulted from trading activity in the publicly traded MLP accounts.

## Soft Dollar Expenditures

There were no commissions directed for soft dollar credits during the fiscal year ended June 30, 2013.

### Alternative Investments - Brokerage Activity

| Brokerage Firm | Shares Traded | $ Volume of Trades | Commissions $ Amount | Commissions Value Per Share |
|---|---|---|---|---|
| Baird, Robert W & Co., Inc. | 28,236 | $ 1,122,474 | $ 847 | $0.03 |
| Barclays Capital | 162,768 | 5,527,574 | 3,144 | 0.02 |
| BMO Capital Markets Corp. | 4,894 | 102,904 | 147 | 0.03 |
| BNY Convergex | 3,071 | 92,230 | 92 | 0.03 |
| BTIG, LLC | 138,049 | 5,071,812 | 4,141 | 0.03 |
| Cantor Fitzgerald & Co., Inc. | 23,431 | 764,910 | 703 | 0.03 |
| Citigroup Global Markets, Inc. | 106,406 | 3,490,484 | 3,192 | 0.03 |
| Credit Suisse Securities | 8,636 | 317,796 | 86 | 0.01 |
| Dahlman Rose & Co., LLC | 2,351 | 15,798 | 71 | 0.03 |
| Deutsche Bk Secs, Inc. | 8,686 | 410,632 | 261 | 0.03 |
| Global Hunter Securities, Ltd. | 8,046 | 319,609 | 241 | 0.03 |
| Imperial Capital, LLC | 2,265 | 53,388 | 68 | 0.03 |
| Instinet Corp. | 1,368,627 | 58,329,265 | 13,686 | 0.01 |
| JP Morgan Securities, Inc. | 15,706 | 523,699 | 255 | 0.02 |
| Janney Montgomery Scott | 18,960 | 798,033 | 569 | 0.03 |
| Jonestrading Institutional Services, LLC | 222,517 | 4,457,550 | 6,676 | 0.03 |
| Liquidnet, Inc. | 110,582 | 3,988,740 | 2,212 | 0.02 |
| Merlin Securities, LLC | 643,349 | 24,297,652 | 7,986 | 0.01 |
| Merrill Lynch Pierce Fenner Smith, Inc. | 19,666 | 893,623 | 590 | 0.03 |
| Morgan Stanley & Co., Inc. | 19,171 | 460,679 | 575 | 0.03 |
| Oppenheimer & Co., Inc. | 4,767 | 225,201 | 143 | 0.03 |
| Pershing, LLC | 88,893 | 3,760,116 | 1,315 | 0.01 |
| Raymond James & Associates, Inc. | 5,218 | 191,567 | 157 | 0.03 |
| RBC Capital Markets, LLC | 75,553 | 3,088,950 | 2,267 | 0.03 |
| Scotia Capital (USA), Inc. | 3,565 | 177,155 | 107 | 0.03 |
| Stifel Nicolaus | 2,988 | 140,529 | 90 | 0.03 |
| UBS Securities, LLC | 80,015 | 2,823,360 | 2,400 | 0.03 |
| USCA Securities, LLC | 34,958 | 1,309,065 | 1,049 | 0.03 |
| Weeden & Co. | 1,327 | 27,545 | 40 | 0.03 |
| Wells Fargo Securities, LLC | 156,273 | 5,658,693 | 2,817 | 0.02 |
| | 3,368,974 | $128,441,033 | $55,927 | $0.02 |

## REAL ASSETS

### Market Value

At the end of FY13, the value of the real assets sub-asset class was $1.1 billion, representing 13.0% of the total fund.

### Summary of Portfolio

The policy allocation target for real assets is 13.6% of the total fund. The actual allocation can operate within a range of +/- 5%. As previously discussed, the portfolio is made up of three separate and distinct components. The market values and percentages of the total fund follow: commodities, $105.2 million or 1.3%; timber, $342.7 million or 4.2%; and real estate, $607.1 million or 7.5%. Compared to their individual policy target allocations, real estate is overweight while timber and commodities are underweight.

MOSERS' commodities portfolio is managed by an external investment advisor. The advisor implements the strategy as efficiently as possible by utilizing exchange-traded futures contracts and/or swap agreements. The futures/swaps, when combined with an underlying portfolio of cash securities, form a portfolio that is benchmarked against the S&P GSCI. While the strategy is designed to closely track the index, there are opportunities when the manager or MOSERS will attempt to add incremental return.

The timber portfolio is made up of a diversified set of timberlands located in a number of U.S. and non-U.S. regions. MOSERS' U.S. portfolio consists of timber assets located in eleven states: two in the Pacific Northwest and nine in the South and Southeast. The non-U.S. portfolio is located in four countries around the globe: Australia, New Zealand, Chile and Uruguay. The portfolio is not only diversified by geography, but by species and age-class as well. The strategy is implemented through three Timber Investment Management Organizations (TIMOs). The timber portfolio is expected to provide economic diversification and help protect the total fund from rising inflation over the long term.

The real estate portfolio invests in a variety of strategies that have characteristics that are similar to those of publicly traded real estate. The portfolio holds a number of private real estate partnerships as well as other private assets that have attributes similar to those of real estate. These assets should, over an investment cycle, provide returns that are higher than those provided by publicly-traded REIT securities. The incremental return is expected to come from compelling strategies, and value added by the manager through their specialized skill, and the illiquidity premium associated with owning private assets. The portfolio also has exposure to publicly-traded income producing assets that have the potential to provide capital appreciation.

### Additional Portfolio Information

MOSERS' exposure to real assets is held in portfolios managed by 11 external investment firms and staff. During the fiscal year no new managers were added. The table below displays the statistical performance data (net of fees) of the real assets portfolio as of June 30, 2013.

Real Assets - Statistical Performance

| Portfolio Characteristics | 1 Year | 3 Year | 5 Year | 10 Year |
|---|---|---|---|---|
| Annualized return | 13.6% | 12.6% | 4.2% | 10.0% |
| Annualized standard deviation | 3.66% | 5.91% | 8.15% | 7.86% |
| Sharpe ratio | 3.68 | 2.11 | 0.49 | 1.04 |
| Excess return* | 6.07% | 2.67% | 2.31% | 2.17% |
| Beta* | 0.46 | 0.50 | 0.31 | 0.37 |
| Annualized alpha* | 9.45% | 7.16% | 3.47% | 6.76% |
| Correlation* | 0.78 | 0.80 | 0.63 | 0.63 |

**As compared to the real assets policy benchmark.*

# PRIVATE INVESTMENTS

## Market Value

The private investments portfolio had a value of $893.8 million, representing 11.1% of the total fund at the end of the fiscal year.

## Summary of Portfolio

As of June 30, 2013, the private investments allocation was somewhat above its 9.1% policy target and well within the +/-5% allowable range around the allocation target. The private investments sub-asset class includes the private equity portfolio, valued at $645.6 million or 8.0% of the total fund; and the private debt portfolio, valued at $248.2 million or 3.1% of the total fund.

Over the past eleven years the private investments portfolio has developed into a program that is diversified by investment type, investment strategy and geography. The objective of the private investments portfolio is to achieve a high level of return. This is accomplished, in part, by capturing the illiquidity premium associated with private markets. Over longer periods of time the portfolio is expected to produce an incremental return in excess of the return achieved by publicly-traded equities.

During the recent fiscal year, four commitments were made within the private investments portfolio. Three of the commitments were made to firms that currently manage assets on the system's behalf. Each of these managers employ a distinct strategy and specialize in identifying compelling opportunities within their area of expertise. The single new commitment was to a group that focuses on companies within the technology and telecommunication sectors. All four managers have a track record of producing attractive returns and are expected to help the portfolio achieve its long-term objective.

## Additional Portfolio Information

At the end of the fiscal year, the private investments sub-asset class was invested in a broad and diverse group of strategies. These strategies are managed by 25 external investment firms and represent exposure to U.S. corporate buyout, European corporate buyout, emerging market private equity, distressed investments, distressed debt, royalties and special situation strategies. In order to sustain exposure to alternative investments MOSERS continues to search for and invest with high quality managers that offer compelling strategies.

The table below displays the statistical performance data (net of fees) of the private investments portfolio as of June 30, 2013.

### Private Investments - Statistical Performance

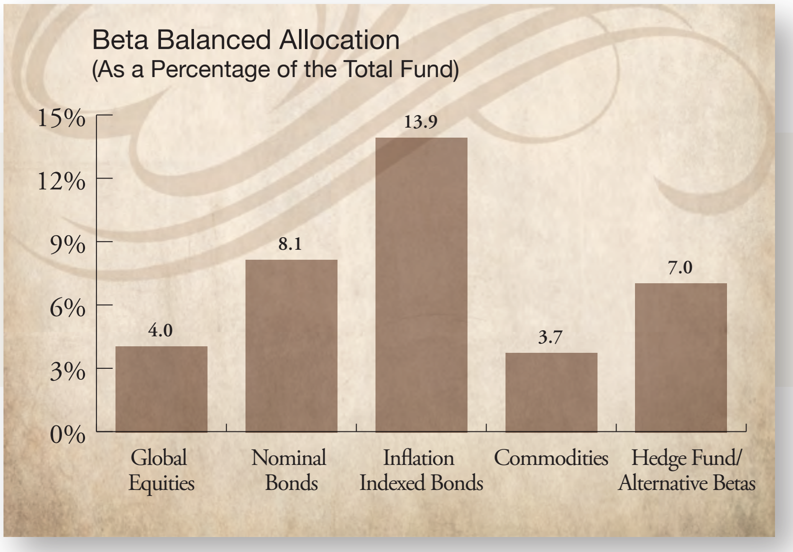
| Portfolio Characteristics | 1 Year | 3 Year | 5 Year | Since Inception (Sept. 2002) |
|---|---|---|---|---|
| Annualized return | 13.9% | 14.4% | 5.4% | 7.6% |
| Annualized standard deviation | 3.38% | 4.59% | 10.57% | 8.64% |
| Sharpe ratio | 4.06 | 3.12 | 0.48 | 0.67 |
| Excess return* | (9.74)% | (7.03)% | (4.70)% | (1.67)% |
| Beta* | 0.10 | 0.16 | 0.40 | 0.43 |
| Annualized alpha* | 10.86% | 40.40% | 1.35% | 3.45% |
| Correlation* | 0.20 | 0.46 | 0.67 | 0.70 |

** As compared to the private investments policy benchmark.*

# BETA BALANCED

*Asset Class Summary*

As of June 30, 2013, the beta balanced portfolio had a market value of $2.9 billion, representing 36.7% of the total fund. Performance for the 10 months since inception was -5%, net of fees and expenses.




## Highlights

Funding of the beta balanced portfolio commenced on September 1, 2012. Two external managers were hired.

## Portfolio Structure

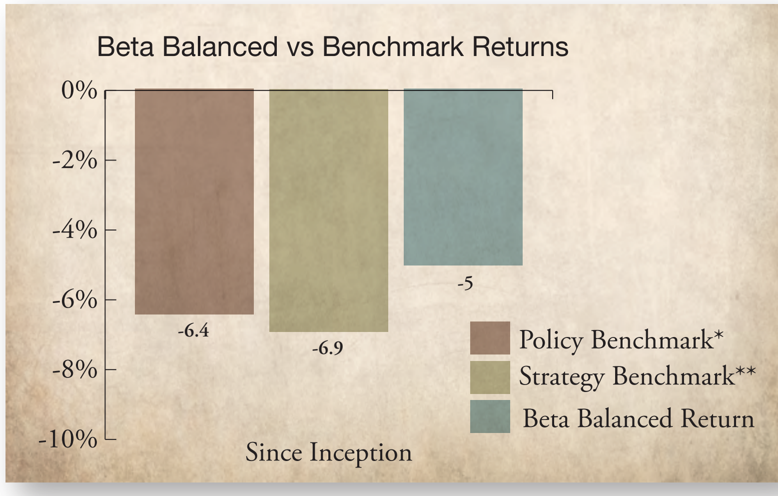
The beta balanced portfolio was 36.7% of the total fund on June 30, 2013. The goal of the beta balanced portfolio is to equalize the portfolio's risk exposures across economic environments and asset classes. The assets currently being used in the beta balanced portfolio are global equities, U.S. nominal bonds, inflation indexed bonds, commodities and hedge fund/ alternative betas. The bar chart above illustrates the actual allocations to each of these components.

There is both an internal and external component of the beta balanced portfolio. Bridgewater All Weather and AQR Global Risk Parity are utilized to fulfill the external portion of the portfolio. The internal portion is run with staff's discretion utilizing NISA Investment Advisors to manage the trading and operational aspects of the program.

## Market Overview

The markets entered the fiscal year with low expectations arising from a slowing U.S. economy, a difficult U.S. fiscal position, inflamed societies in the Middle East and Europe, and a historically large debt problem in the European Union, and Cyprus threatening to reignite the European debt crisis. In the face of all this uncertainty, stocks, credit and commodities increased and interest rates went down. The cause of this confidence was the global central bank's supportive monetary actions. Entering the last quarter (April – June 2013) the markets were ebullient and the momentum increased in most assets with commodities being a notable exception. However, interest rates had begun to rise on rumors that the Federal Reserve was considering reducing the size of their bond purchase program. Following Bernanke's confirmation of the taper, rumor investors got worried about the impacts of higher interest rates on economic growth and risk assets turned negative. In the end, the losses in June were enough to cause most risk assets to post a negative 4th quarter while at the same time U.S. treasuries lost money.

## Performance




* As of 6/30/13, the policy benchmark was comprised of the following components: 24% MSCI ACWI, 46% Barclays Long Treasuries, 21% Goldman Sachs Commodity Index, 80% Barclays U.S. TIPS 1-10 year, and 39% AQR Delta. All policy return components are adjusted for financing cost associated with the beta balanced program.

** As of 6/30/13, the beta balanced strategy benchmark was comprised of the following components:25.39% MSCI ACWI, 42.10% Barclays Long Treasuries, 22.23% S&P GSCI Total Return and S&P GSCI Gold Excess Return, 79.28% Barclays US TIPS 1-10 year, 42.72% AQR Delta. All strategy return components are adjusted for financing cost associated with the beta balanced program.

Since the September 1, 2012 inception, the beta balanced portfolio's performance was -5.0%. During that time frame, 60% of the risk taken in the portfolio was in assets that experienced negative performance with 40% in assets that experienced the opposite. The negative performance came from interest rate sectors, nominal bonds (-10.3%) and inflation indexed bonds (-4.3%), and commodities (-9.4%). The positive performers were global equities (12.6%) and hedge fund/alternative betas (3.0%). The bar chart to the right illustrates actual performance as compared to the policy and strategy benchmarks since inception.

Balancing risk necessitates holding larger weights in less volatile assets and less weight in more volatile assets. Accordingly, the return will be driven by the results of several risk factors versus a traditional equity-risk dominated portfolio where the risk and return are defined by equity prices. During this fiscal year, 60% of the beta balanced portfolio's risk was allocated to assets that had a poor year (nominal bonds, inflation indexed bonds and commodities) while 40% of the portfolio's risk was allocated to assets that had positive performance (equities and hedge fund/alternative betas).

While the portfolio's negative performance isn't an ideal outcome, it is understandable given the economic circumstances during this period. The bond portfolio performed well early in the year when the Fed continued their quantitative easing programs. By spring, the Fed was hinting about curtailing those programs because the growth profile had improved and inflation was well behaved. Assets like inflation indexed bonds and nominal bonds that do poorly when growth is higher than expectations, performed poorly with the prospect of the Fed ending the easy money policies because growth was sufficiently high. Assets, like inflation indexed bonds and commodities that do poorly when inflation runs below expectations, performed poorly when inflation stayed persistently low over the year and the end of QE mitigated the future expectations for high inflation numbers. Equities, or more broadly corporate assets, performed well in light of a higher than expected growth environment and lower than expected inflation environment. Corporations have also stabilized their balance sheets and those companies that wanted to take risk found a hospitable financing environment with low yields and relaxed underwriting standards.

Given that the market environment rewarded equity risk exceptionally well and the other assets exceptionally poorly, it is no surprise that a portfolio that attempts to balance those risks would not produce strong returns in this environment. The statistical performance of the portfolio since inception is provided in the table below.

### Beta Balanced - Statistical Performance

| Portfolio Characteristics | Since Inception (Sept. 2012) |
|---|---|
| Annualized return | (5.0)% |
| Annualized standard deviation | 9.98% |
| Sharpe ratio | (0.51) |
| Excess return* | 1.37% |
| Beta* | 1.05 |
| Annualized alpha* | 2.20% |
| Correlation* | 0.96 |

**As compared to the beta balanced policy benchamrk.*

# BETA/ALPHA PROGRAM

The beta/alpha program began as a result of MOSERS' investment belief that returns from these two components should be managed separately. The beta portion of the program is managed by NISA Investment Advisors. NISA uses futures, total return swaps, and/or Exchange-Traded Funds (EFTs) to gain market exposure to various predefined asset classes. The alpha program is a group of active managers with minimal systematic beta exposure. The objective of the alpha component is to provide a net of fees alpha return of cash plus 4% with similar to slightly higher volatility. This return can then be applied to various asset classes. The combination of the two components produces an efficient total return and also provides MOSERS a great deal of flexibility in the management of the fund.

## BETA PROGRAM

### Market Value

The total notional exposure was $1.375 billion as of June 30, 2013.

### Summary of Program

The beta component was added to the total fund in FY05. The beta component contained total return swaps and futures as of June 30, 2013. MOSERS is utilizing the beta component within the domestic equity, international equity, commodities and core fixed income sub-asset classes. The beta manager seeks market exposure in the most cost efficient manner and seeks to produce a market return gross of the financing cost to gain beta exposure. The manager's goal is to provide market exposure.

## ALPHA PROGRAM

### Market Value

The alpha program allocation was $1.899 billion, or 23.49% of the total fund, as of June 30, 2013.

### Summary of Portfolio

The alpha program portfolio was added to the total fund in FY05 with an initial investment in a fund-of-funds manager. MOSERS' hedge fund program is currently comprised of multiple direct hedge fund investments and one customized fund-of-funds vehicle. Alpha program managers utilize skill-based investment strategies, which allow them to take advantage of pricing dislocations that may exist within the market. Alpha program managers seek to produce consistent returns across all economic environments while mitigating downside risk. The ultimate goal within the alpha program is to provide consistent alpha with little correlation to traditional asset classes. MOSERS utilizes different strategies within the alpha program including global macro, event driven, credit related value, multi-strategy, and long/short equity. This portfolio targets the return of cash plus 4% net of fees over long periods of time.

### Additional Beta/Alpha Program Information

The table below shows the statistical performance for the alpha program as of June 30, 2013. The impact of the beta exposures is contained in the portfolios where the beta resides. Futher information regarding futures contracts and swap contracts can be found on pages 40-41. Management fees can be found on pages 77-78.

Alpha Program - Statistical Performance

| Portfolio Characteristics | 1 Year | 3 Year | 5 Year | Since Inception (Oct. 2004) |
|---|---|---|---|---|
| Annualized return | 8.5% | 5.3% | 2.7% | 3.4% |
| Annualized standard deviation | 2.62% | 2.46% | 4.83% | 4.07% |
| Sharpe ratio* | 3.20 | 2.13 | 0.50 | 0.38 |
| Beta as compared to S&P 500 | 0.29 | 0.09 | 0.16 | 0.14 |
| Beta as compared to Barclays Aggregate | 0.19 | (0.05) | 0.23 | 0.01 |

* *Sharpe ratio equals the annualized alpha program returns less the risk-free rate divided by the annualized standard deviation. Fees related to the beta program also reflect the risk-free rate; therefore, the risk-free rate is not considered in this calculation.*

# SECURITIES LENDING PROGRAM

During the fiscal year ending June 30, 2013, MOSERS earned net income of $1,020,380 through its securities lending program. MOSERS lends its fixed income, domestic equity and international equity securities through Deutsche Bank which manages the program in an agent capacity. In an agent lending program, the agent lender is responsible for making the loans to various broker-dealers, investing the cash collateral associated with the loaned securities, marking the loans and collateral to market on a daily basis, and, in most cases, indemnifying the lender against the default of a broker-dealer to whom they have loaned securities on behalf of the beneficial owner.

Domestic equity income decreased from the prior fiscal year due to a decrease in the average on loan balance and utilization. International equity income decreased from the prior fiscal year stemming from a decrease in the lending margin. The income from fixed income decreased from the prior fiscal year due to a decrease in the lending margin and average on loan balance.

## Domestic Equity

| Year | Average Lendable | Average on Loan | Average Utilization | Lending Margin (basis points) | Net Income |
|---|---|---|---|---|---|
| FY13 | $ 238,024,131 | $ 69,543,634 | 29.2% | 25.1 | $ 596,941 |
| FY12 | 424,041,044 | 145,373,164 | 34.3 | 19.1 | 810,972 |
| FY11 | 376,047,357 | 111,263,248 | 29.6 | 16.5 | 619,648 |
| FY10 | 321,114,801 | 83,944,408 | 26.1 | 26.9 | 864,401 |
| FY09 | 307,082,718 | 114,261,769 | 37.2 | 52.0 | 1,596,245 |
| FY08 | 440,025,347 | 195,971,154 | 44.5 | 36.6 | 1,611,536 |
| FY07 | 711,856,029 | 281,338,681 | 39.5 | 14.0 | 994,416 |
| FY06 | 856,712,658 | 377,314,359 | 44.0 | 14.2 | 1,218,245 |
| FY05 | 775,821,287 | 247,175,198 | 31.9 | 8.4 | 648,218 |
| FY04 | 1,552,186,713 | 176,626,818 | 11.4 | 7.2 | 1,114,144 |

## International Equity

| Year | Average Lendable | Average on Loan | Average Utilization | Lending Margin (basis points) | Net Income |
|---|---|---|---|---|---|
| FY13 | $192,359,434 | $49,525,171 | 25.7% | 5.6 | $108,379 |
| FY12 | 309,052,299 | 47,666,253 | 15.4 | 7.5 | 230,655 |
| FY11 | 320,082,404 | 88,623,017 | 27.7 | 10.4 | 333,000 |
| FY10 | 277,251,343 | 19,736,528 | 7.1 | 4.0 | 109,946 |
| FY09 | 342,215,198 | 32,267,851 | 9.4 | 14.9 | 510,622 |
| FY08 | 467,893,205 | 56,944,925 | 12.2 | 15.5 | 726,565 |
| FY07 | 485,230,034 | 41,033,858 | 8.5 | 8.1 | 395,017 |
| FY06 | 483,512,648 | 48,077,237 | 9.9 | 12.9 | 605,315 |
| FY05 | 360,790,809 | 39,881,555 | 11.1 | 13.2 | 476,226 |
| FY04 | 462,783,570 | 53,655,836 | 11.6 | 9.7 | 446,880 |

## Fixed Income

| Year | Average Lendable | Average on Loan | Average Utilization | Lending Margin (basis points) | Net Income |
|---|---|---|---|---|---|
| FY13 | $ 622,620,959 | $ 427,442,773 | 68.7% | 5.1 | $ 315,060 |
| FY12 | 776,256,144 | 516,553,974 | 66.5 | 6.4 | 496,074 |
| FY11 | 805,579,308 | 505,690,676 | 62.8 | 7.2 | 581,875 |
| FY10 | 836,242,270 | 190,547,907 | 22.8 | 2.8 | 230,031 |
| FY09 | 859,512,525 | 517,356,516 | 60.2 | 43.3 | 3,722,523 |
| FY08 | 1,082,813,165 | 894,372,380 | 82.6 | 56.4 | 6,104,526 |
| FY07 | 950,069,746 | 695,743,093 | 73.2 | 15.5 | 1,469,860 |
| FY06 | 1,183,366,350 | 776,959,063 | 65.7 | 15.7 | 1,853,181 |
| FY05 | 1,091,262,589 | 776,038,981 | 71.1 | 19.5 | 2,126,695 |
| FY04 | 1,231,730,491 | 1,043,891,521 | 84.7 | 20.1 | 2,475,630 |

# Actuarial
SECTION

# Actuarial Section

# ACTUARY'S CERTIFICATION LETTER

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October 15, 2013

The Board of Trustees
Missouri State Employees' Retirement System
907 Wildwood Drive
Jefferson City, Missouri 65102

Dear Board Members:

The basic financial objective of the Missouri State Employees' Retirement System (MOSERS) is to establish and receive contributions which:

(1) when expressed in terms of percents of active member payroll will remain approximately level from generation to generation of Missouri citizens, and which
(2) when combined with present assets and future investment return will be sufficient to meet the present and future financial obligations of MOSERS.

In order to measure progress toward this fundamental objective, MOSERS and the Judges Retirement Plan (Judges) perform annual actuarial valuations. The purposes of the valuations are to (i) measure present financial position, (ii) establish contribution rates that provide for the normal cost and level percent of payroll amortization of unfunded actuarial accrued liabilities over a reasonable period, and (iii) to determine the actuarial information for Governmental Accounting Standards Board (GASB) Statement No. 25. The latest completed actuarial valuations were based upon data and assumptions as of June 30, 2013, presented to the board in separate reports. These valuations indicate that the contribution rates for the fiscal year ending June 30, 2015, adopted by the board of trustees for the benefits scheduled to be in effect on and after July 1, 2013, meet the basic financial objective. These contribution rates are 16.97% of payroll for 50,833 MOSERS' actives, and 58.45% of payroll for 400 judges' actives.

The actuarial valuations are based upon financial and participant data which is prepared by retirement system staff, assumptions regarding future rates of investment return, salary increases, inflation, and assumptions regarding rates of retirement, turnover, death, and disability among MOSERS' and judges' members and their beneficiaries. The data is reviewed by us for internal and year-to-year consistency as well as general reasonableness prior to its use in the actuarial valuations. It is also summarized and tabulated for the purpose of analyzing trends.

We are not responsible for the accuracy or completeness of the data. The demographic assumptions were adopted by the board of trustees on June 20, 2012, based upon recommendations made in an experience study covering the period from 2007 to 2012. The economic assumptions were adopted by the board of trustees on July 19, 2012. The assumptions and methods used in this valuation, in our opinion, meet the parameters established by Governmental Accounting Standards Board Statement No. 25.

The benefit structure is outlined in this section of the annual report. We provided the information used in the supporting schedules in the actuarial section and the *Schedules of Funding Progress* in the *Financial Section*, as well as the employer contribution rates shown in the *Schedule of Employer Contributions* in the *Financial Section*.

**Based upon the valuation results, it is our opinion that the Missouri State Employees' Retirement System and the Judges Retirement Plan continue to operate in accordance with actuarial principles of level percent of payroll financing. To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of the plans as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable statutes.**

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

This report should not be relied on for any purpose other than the purposes described. Determinations of the financial results associated with the benefits described in this report in a manner other than the intended purpose may produce significantly different results.

David Kausch and Brad Armstrong are independent of the plan sponsor and 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,

David T. Kausch, F.S.A., E.A., M.A.A.A
Senior Consultant & Chief Actuary

Brad Lee Armstrong, A.S.A., E.A., M.A.A.A
Senior Consultant & Actuary

# SUMMARY OF ACTUARIAL ASSUMPTIONS

## Economic Assumptions

The assumed rate of return on investments used in the FY13 valuations was 8% per year, compounded annually (net after investment expenses). This assumption takes into consideration that equal amounts of money payable at different points in time in the future do not have the same value presently.

Pay increase assumptions for individual active members are shown for sample ages on pages 106-108. A portion of the assumption for each age represents merit and/or seniority increase, and the other 3% recognizes wage inflation. This assumption is used to project a member's current salary to the salaries upon which benefits will be based.

The active member payroll is assumed to increase 3% annually, which is the portion of the individual pay increase assumptions attributable to wage inflation. The annual cost-of-living adjustment (COLA) is assumed to be 4%, on a compounded basis, when a minimum COLA of 4% is in effect (4% for 12 years, 3.06% the next year to reach a cumulative 65% followed by 2%). When no minimum COLA is in effect, price inflation is assumed to be 2.5% and the annual COLA is assumed to be 2% (80% of 2.5%), on a compounded basis.

The table shown below provides the assumed rate of return (ARR) on investments, assumed price inflation (API) and real return objective (RRO) for the past ten valuation years.

| Valuation Year | ARR % | API % | RRO % | Valuation Year | ARR % | API % | RRO % |
|---|---|---|---|---|---|---|---|
| 2013 | 8.0% | 2.5% | 5.5% | 2008 | 8.5% | 3.5% | 5.0% |
| 2012 | 8.0% | 2.5% | 5.5% | 2007 | 8.5% | 3.5% | 5.0% |
| 2011 | 8.5% | 3.2% | 5.3% | 2006 | 8.5% | 3.5% | 5.0% |
| 2010 | 8.5% | 3.2% | 5.3% | 2005 | 8.5% | 3.5% | 5.0% |
| 2009 | 8.5% | 3.2% | 5.3% | 2004 | 8.5% | 3.5% | 5.0% |

## Non-Economic Assumptions

The mortality table, for post-retirement mortality, used in evaluating allowances to be paid was the RP 2000 combined healthy mortality table, projected to 2016 with Scale AA. Related values are shown on page 107. This assumption is used to measure the probabilities of each benefit payment being made after retirement. The pre-retirement mortality rates used were 100% of the post-retirement mortality rates for males and 80% of the post-retirement mortality for females.

The mortality tables include a margin of 15% for men and 17% for women for mortality improvements based on the four year experience study from June 30, 2007 to June 30, 2011. The mortality assumption was first used in the June 30, 2012 valuation.

The probabilities of age and service retirement are shown on pages 106-108. It was assumed that each member will be granted one half year (4 months for 2011 plan members) of service credit for unused leave upon retirement and military service purchases. The probabilities of withdrawal from service, disability and death-in-service are shown for sample ages on pages 107-108. For disability retirement, impaired longevity was recognized by use of special mortality tables.

The entry age normal actuarial cost method of valuation was used in determining liabilities and normal cost. Each member's normal cost was based on the benefit provisions applicable to that member. The normal cost is projected to the applicable fiscal year. Differences in the past between assumed experience and actuarial experience ("actuarial gains and losses") become part of actuarial accrued liabilities. Unfunded actuarial accrued liabilities are amortized to produce payments, (principal & interest) which are level percents of payroll contributions

The amortization of the unfunded actuarial accrued liability is based on a 30-year amortization period, level percent of payroll amortization. The amortization is based on the projected unfunded actuarial accrued liability at the beginning of the fiscal year. This method was first used in the June 30, 2010 valuation.

Employer contribution dollars were assumed to be paid in equal installments throughout the employer's fiscal year.

Valuation assets recognize assumed investment return fully each year. Differences between actual and assumed investment return are phased-in over a rolling three-year period. Valuation assets are not permitted to deviate from the market value by less than 80% or more than 125%.

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

The liabilities for active members hired on or after January 1, 2011, were based on MSEP 2011 benefits. The liabilities for active members hired on or after July 1, 2000, (April 26, 2005 for administrative law judges) were based on MSEP 2000 benefits. The liabilities for active members hired before July 1, 2000, for elected officials, General Assembly, and uniformed water patrol were based on MSEP benefits. The liabilities for all other active members hired before July 1, 2000, were based on the assumption that members would elect MSEP 2000 prior to age 62 and MSEP on or after age 62.

For member on long-term disability, the actuarial accrued liability is the present value of benefit under active assumptions plus the difference of the present value of benefit with and without future pay growth to reflect indexing of pay in ultimate retirement benefits.

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

## MSEP - Retirement Values - June 30, 2013

| Sample Attained Ages | Present Value of $1/Month the First Year (with 50% Joint & Survivor) Increasing 4.0%/2.0% Yearly | | | | Present Value of $1/Month the First Year Increasing 2.0% Yearly | | | | Future Life Expectancy (Years) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Service | | Disability | | Service | | Disability | | Service | | Disability | |
| | Men | Women | Men | Women | Men | Women | Men | Women | Men | Women | Men | Women |
| 40 | $224.11 | $224.12 | $212.76 | $211.89 | $184.40 | $186.75 | $169.01 | $172.32 | 41.95 | 44.10 | 32.39 | 34.43 |
| 45 | 217.22 | 217.01 | 202.65 | 201.39 | 177.68 | 180.43 | 157.94 | 162.08 | 37.15 | 39.24 | 27.68 | 29.69 |
| 50 | 208.28 | 207.81 | 190.14 | 188.39 | 169.01 | 172.32 | 144.49 | 149.76 | 32.39 | 34.43 | 23.13 | 25.13 |
| 55 | 196.76 | 196.07 | 175.18 | 172.83 | 157.94 | 162.08 | 128.94 | 135.56 | 27.68 | 29.69 | 18.87 | 20.84 |
| 60 | 182.48 | 181.61 | 157.88 | 154.80 | 144.49 | 149.76 | 111.76 | 119.87 | 23.13 | 25.13 | 14.96 | 16.90 |
| 65 | 165.46 | 164.49 | 138.11 | 134.44 | 128.94 | 135.56 | 92.72 | 102.82 | 18.87 | 20.84 | 11.39 | 13.32 |
| 70 | 145.94 | 144.91 | 116.94 | 112.03 | 111.76 | 119.87 | 73.10 | 84.62 | 14.96 | 16.90 | 8.29 | 10.12 |
| 75 | 123.90 | 123.17 | 96.04 | 88.83 | 92.72 | 102.82 | 55.15 | 66.19 | 11.39 | 13.32 | 5.83 | 7.37 |
| 80 | 100.55 | 100.10 | 76.52 | 68.15 | 73.10 | 84.62 | 40.28 | 50.49 | 8.29 | 10.12 | 4.03 | 5.31 |
| 85 | 78.09 | 77.41 | 59.89 | 52.82 | 55.15 | 66.19 | 30.32 | 40.10 | 5.83 | 7.37 | 2.91 | 4.05 |

## MSEP - Separations From Active Employment Before Service Retirement and Individual Pay Increase Assumptions - June 30, 2013

| Sample Ages | Years of Service | Percent of Active Members Separating Within the Next Year | | | | | | Pay Increase Assumptions for an Individual Employee | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Withdrawal*** | | Death* | | Disability | | | | |
| | | Men | Women | Men | Women | Men | Women | Merit and Seniority** | Base (Economy) | Increase Next Year |
| | 0 | 23.0% | 26.9% | | | | | | | |
| | 1 | 18.0 | 20.5 | | | | | | | |
| | 2 | 15.0 | 15.4 | | | | | | | |
| | 3 | 13.0 | 12.5 | | | | | | | |
| | 4 | 11.0 | 10.9 | | | | | | | |
| 25 | 5+ | 13.0 | 13.3 | 0.03% | 0.01% | 0.17% | 0.30% | 2.9% | 3.0% | 5.9% |
| 30 | | 10.2 | 10.5 | 0.04 | 0.02 | 0.17 | 0.30 | 2.2 | 3.0 | 5.2 |
| 35 | | 7.9 | 8.1 | 0.07 | 0.03 | 0.21 | 0.30 | 1.6 | 3.0 | 4.6 |
| 40 | | 5.6 | 5.7 | 0.09 | 0.04 | 0.26 | 0.32 | 1.2 | 3.0 | 4.2 |
| 45 | | 4.2 | 4.3 | 0.12 | 0.07 | 0.34 | 0.38 | 0.9 | 3.0 | 3.9 |
| 50 | | 2.8 | 2.9 | 0.16 | 0.10 | 0.49 | 0.57 | 0.7 | 3.0 | 3.7 |
| 55 | | 2.8 | 2.9 | 0.27 | 0.19 | 1.07 | 0.89 | 0.5 | 3.0 | 3.5 |
| 60 | | 2.8 | 2.9 | 0.52 | 0.37 | 1.50 | 1.50 | 0.4 | 3.0 | 3.4 |
| 65 | | 2.8 | 2.9 | 1.02 | 0.72 | 1.60 | 1.70 | 0.3 | 3.0 | 3.3 |
| 70 | | 2.8 | 2.9 | 1.74 | 1.24 | 1.60 | 1.70 | 0.2 | 3.0 | 3.2 |

* *2% of the deaths in active service are assumed to be duty-related.*

** *Does not apply to members of the General Assembly.*

*** *Does not apply to elected officials and legislators.*

*SUMMARY OF ACTUARIAL ASSUMPTIONS*

## Elected Officials and Legislators - Percent of Active Members Separating Within the Next Year - June 30, 2013

| Years of Service | Withdrawal Men/Women | Years of Service | Withdrawal Men/Women |
|---|---|---|---|
| 1 | 8.0% | 5 | 12.0% |
| 2 | 8.0 | 6 | 12.0 |
| 3 | 8.0 | 7 | 12.0 |
| 4 | 8.0 | 8+ | 35.0 |

## MSEP - Percent of Eligible Active Members Retiring Next Year - June 30, 2013

| | Normal Retirement Pattern | | | | Early Retirement Pattern | | |
|---|---|---|---|---|---|---|---|
| | MSEP and MSEP 2000* | | | MSEP 2011** | | MSEP* | MSEP 2011** |
| | Percent Eligible | | | | | | |
| Retirement Age | 1st Year | 2nd Year | 3rd Year | Percent Eligible | Retirement Age | Percent Eligible | Percent Eligible |
| 48 | 22% | | | | | | |
| 49 | 22 | 10% | | | | | |
| 50 | 22 | 10 | 21% | | | | |
| 51 | 22 | 10 | 21 | | | | |
| 52 | 22 | 10 | 21 | | | | |
| 53 | 22 | 10 | 18 | | | | |
| 54 | 22 | 10 | 18 | | | | |
| 55 | 22 | 12 | 26 | 45% | | | |
| 56 | 22 | 12 | 25 | 45 | | | |
| 57 | 22 | 12 | 22 | 35 | 57 | 2.5% | |
| 58 | 22 | 12 | 22 | 35 | 58 | 3.5 | |
| 59 | 22 | 12 | 20 | 30 | 59 | 3.5 | |
| 60 | 21 | 12 | 22 | 35 | 60 | 5 | |
| 61 | 20 | 12 | 20 | 25 | 61 | 6 | |
| 62 | 19 | 22 | 30 | 40 | 62 | 6 | 10% |
| 63 | 15 | 18 | 25 | 30 | 63 | 6 | 10 |
| 64 | 15 | 20 | 17 | 20 | 64 | 6 | 10 |
| 65 | 20 | 20 | 27 | 30 | 65 | 6 | 50 |
| 66 | 22 | 20 | 26 | 25 | 66 | 6 | 50 |
| 67 | 15 | 25 | 22 | 20 | 67 | 6 | |
| 68 | 15 | 20 | 22 | 20 | 68 | 6 | |
| 69 | 15 | 20 | 22 | 20 | 69 | 6 | |
| 70 | 25 | 20 | 22 | 20 | 70 | 6 | |
| 71 | 25 | 20 | 22 | 20 | 71 | 6 | |
| 72 | 25 | 20 | 22 | 20 | 72 | 6 | |
| 73 | 25 | 20 | 22 | 20 | 73 | 6 | |
| 74 | 25 | 20 | 22 | 20 | 74 | 6 | |
| 75 | 50 | 50 | 22 | 50 | 75 | 6 | |
| 76 | 50 | 50 | 22 | 50 | 76 | 6 | |
| 77 | 75 | 75 | 22 | 75 | 77 | 6 | |
| 78 | 100 | 100 | 100 | 100 | 78 | 100 | |

** For Members Hired Prior to January 1, 2011.*
*** For Members Hired On or After January 1, 2011.*

## Judicial Plan - Retirement Values - June 30, 2013

| Sample Attained Ages | Present Value of $1/Month the First Year (with 50% Joint & Survivor) Increasing 4.0%/2.0% Yearly | | | | Present Value of $1/Month the First Year Increasing 2.0% Yearly | | | | Future Life Expectancy (Years) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Service | | Disability | | Service | | Disability | | Service | | Disability | |
| | Men | Women | Men | Women | Men | Women | Men | Women | Men | Women | Men | Women |
| 40 | $224.38 | $223.90 | $213.16 | $211.47 | $184.40 | $186.75 | $169.01 | $172.32 | 41.95 | 44.10 | 32.39 | 34.43 |
| 45 | 217.58 | 216.73 | 203.19 | 200.83 | 177.68 | 180.43 | 157.94 | 162.08 | 37.15 | 39.24 | 27.68 | 29.69 |
| 50 | 208.75 | 207.44 | 190.84 | 187.67 | 169.01 | 172.32 | 144.49 | 149.76 | 32.39 | 34.43 | 23.13 | 25.13 |
| 55 | 197.38 | 195.60 | 176.09 | 171.92 | 157.94 | 162.08 | 128.94 | 135.56 | 27.68 | 29.69 | 18.87 | 20.84 |
| 60 | 183.27 | 181.03 | 159.02 | 153.70 | 144.49 | 149.76 | 111.76 | 119.87 | 23.13 | 25.13 | 14.96 | 16.90 |
| 65 | 166.45 | 163.79 | 139.51 | 133.14 | 128.94 | 135.56 | 92.72 | 102.82 | 18.87 | 20.84 | 11.39 | 13.32 |
| 70 | 147.12 | 144.11 | 118.57 | 110.55 | 111.76 | 119.87 | 73.10 | 84.62 | 14.96 | 16.90 | 8.29 | 10.12 |
| 75 | 125.29 | 122.34 | 97.88 | 87.30 | 92.72 | 102.82 | 55.15 | 66.19 | 11.39 | 13.32 | 5.83 | 7.37 |
| 80 | 102.13 | 99.32 | 78.52 | 66.77 | 73.10 | 84.62 | 40.28 | 50.49 | 8.29 | 10.12 | 4.03 | 5.31 |
| 85 | 79.74 | 76.76 | 61.89 | 51.78 | 55.15 | 66.19 | 30.32 | 40.10 | 5.83 | 7.37 | 2.91 | 4.05 |

## Judicial Plan - Percent of Eligible Active Members Retiring Next Year - June 30, 2013

| Normal Retirement Pattern | | | | | Early Retirement Pattern | | |
|---|---|---|---|---|---|---|---|
| Retirement Age | Judicial Plan* Percent Eligible | | Judicial Plan 2011** Percent Eligible | | Retirement Age | Judicial Plan* Percent Eligible | |
| | Men | Women | Men | Women | | Men | Women |
| 55 | 15% | 4% | | | | | |
| 56 | 15 | 4 | | | | | |
| 57 | 15 | 4 | | | | | |
| 58 | 15 | 4 | | | | | |
| 59 | 5 | 4 | | | | | |
| 60 | 10 | 10 | | | | | |
| 61 | 5 | 10 | | | | | |
| 62 | 10 | 10 | 30% | 35% | 62 | 8% | 4% |
| 63 | 10 | 10 | 20 | 20 | 63 | 8 | 4 |
| 64 | 10 | 10 | 15 | 20 | 64 | 8 | 4 |
| 65 | 15 | 23 | 30 | 50 | 65 | 8 | 4 |
| 66 | 20 | 23 | 25 | 25 | 66 | 8 | 4 |
| 67 | 20 | 23 | 20 | 25 | 67 | 8 | 4 |
| 68 | 30 | 23 | 20 | 25 | 68 | 8 | 4 |
| 69 | 30 | 23 | 30 | 50 | 69 | 8 | 4 |
| 70 | 100 | 100 | 100 | 100 | 70 | 100 | 100 |

** For Members Hired Prior to January 1, 2011*
*** For Members Hired On or After January 1, 2011*

## Judicial Plan - Separations From Active Employment Before Service Retirement and Individual Pay Increase Assumptions - June 30, 2013

| Sample Ages | Percent of Active Members Separating Within the Next Year | | | | Pay Increase Assumptions for an Individual Employee | | | Percent of Active Members Separating Within the Next Year | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Death | | Disability | | | | | Withdrawal | | |
| | Men | Women | Men | Woman | Merit and Seniority | Base (Economy) | Increase Next Year | Service Index | Men | Women |
| 25 | 0.03% | 0.01% | 0.01% | 0.01% | 2.2% | 3.0% | 5.2% | 1 | 4.0% | 4.0% |
| 30 | 0.04 | 0.02 | 0.02 | 0.01 | 2.2 | 3.0 | 5.2 | 2 | 1.0 | 1.0 |
| 35 | 0.07 | 0.03 | 0.03 | 0.02 | 1.5 | 3.0 | 4.5 | 3 | 1.3 | 1.3 |
| 40 | 0.09 | 0.04 | 0.04 | 0.03 | 0.8 | 3.0 | 3.8 | 4 | 1.3 | 1.3 |
| 45 | 0.12 | 0.07 | 0.05 | 0.04 | 0.6 | 3.0 | 3.6 | 5 | 1.3 | 1.3 |
| 50 | 0.16 | 0.10 | 0.08 | 0.07 | 0.5 | 3.0 | 3.5 | 6-10 | 1.3 | 1.3 |
| 55 | 0.27 | 0.19 | 0.13 | 0.12 | 0.4 | 3.0 | 3.4 | 11-31 | 1.0 | 1.0 |
| 60 | 0.52 | 0.37 | 0.20 | 0.19 | 0.0 | 3.0 | 3.0 | | | |
| 65 | 1.02 | 0.72 | 0.20 | 0.19 | 0.0 | 3.0 | 3.0 | | | |

## MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

*June 30, 2013*

### Pay Increase Timing

Beginning of (Fiscal) year.

### Decrement Timing

Decrements of all types are assumed to occur mid-year.

### Eligibility Testing

Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.

### Benefit Service

Exact fractional service is used to determine the amount of the benefit payable.

### Decrement Relativity

Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.

### Decrement Operation

Disability and withdrawal do not operate during normal retirement eligibility.

### Normal Form of Benefit

The assumed normal form of benefit is the straight life form for MSEP 2000 with 50% continuing to an eligible surviving spouse for MSEP. No adjustment has been made for post-retirement option election changes.

For judges, the assumed normal form of benefit is the straight life form, with 50% continuing to an eligible surviving spouse for members hired prior to January 1, 2011.

### Other Liability Adjustments

***MSEP 2000 Benefits for Active Employees***

Option elections were studied for MSEP 2000 retirees and we believe that the normal and early retirement alternate forms of payment assumption are slightly negatively subsidized. We have adjusted the actuarial accrued liability and normal cost by a factor of 0.99 for MSEP 2000 and MSEP 2011 retirements and by .995 for MSEP retirements based on the current rate of form of payment elections.

**Pre-Retirement Survivor Benefits for Spouse of Terminated-Vested Member**

| Age | Male | Female |
|---|---|---|
| <30 | 1.97 | 1.68 |
| 30-39 | 1.40 | 1.29 |
| 40-49 | 1.15 | 1.11 |
| >50 | 1.04 | 1.03 |

### Incidence of Contributions

Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.

### MSEP 2000 Election

All regular state employees hired on or before June 30, 2000, are assumed to elect MSEP 2000 prior to age 62 and MSEP on or after age 62. Elected Officials, General Assembly, and Uniformed Water Patrol Members hired before July 1, 2000, and Administrative Law Judges hired before April 26, 2005, are assumed to elect MSEP at retirement.

### Service Adjustment

It is assumed that each member will be granted one-half year of service credit, three months for unused leave upon retirement and three months for military service purchases. For members hired on or after January 1, 2011, it is assumed that each member will be granted four months for unused leave.

### Marriage Assumption

It is assumed that among active members 75% are married at retirement, 70% of those dying in active service are married, and men are three years older than their spouses.

### Forfeitures

For those hired on or after January 1, 2011, 50% of state employees terminating at first vesting eligibility are assumed to take a refund and forfeit their deferred pension. This percentage decreases to 0% at first retirement eligibility.

For judges, vested members are assumed not to take a refund of member contributions and forfeit their benefit upon separation from service.

### Salary and Benefit Limits

For purposes of the valuation, no limits were applied to member compensation or benefits.

The number of active members is assumed to remain constant although certain new hires on or after July 1, 2002, will participate in the Colleges and Universities Retirement Plan. Active and retired member data is reported as of May 31, 2013. It is assumed for valuation purposes that there is no turnover among members and no new entrants during the month of June 2013. New entrant assumed demographic patterns are based on the demographics of active members hired within the last five years.

### Data Adjustments

Active and retired member data was reported as of May 31, 2013. It was brought forward to June 30, 2013, by adding one month of service for all active members and the June COLA for certain retired members. It is expected that this procedure resulted in a slight overstatement of total liabilities as of June 30, 2013. Financial information continues to be reported as of June 30, 2013. This procedure was instituted to provide sufficient time for the board of trustees to certify the appropriate contribution rate prior to the October 1 statutory deadline.

Active members reported with less than a $100 annualized salary were assumed to receive the average active member pay, which is $36,952 ($103,137 for Administrative Law Judges) as of June 30, 2013. There were 16 members affected by this assumption.

For judges, active members reported with no annualized salary were assumed to receive the average active member pay, which is $121,744, as of June 30, 2013.

When the option of choosing plans is available, terminated vested members are reported with two records, one with benefits under the MSEP plan and one with benefits under the MSEP 2000 plan. Because it is unknown what the member will elect at retirement, both records are valued and the plan that produces the higher present value of future benefits is used for valuation purposes.

For any retired member who has elected a joint and survivor benefit yet has no beneficiary date of birth provided, it was assumed that the beneficiary is three years younger for male retirees and three years older for female retirees. For the terminated vested members, GRS staff found one member less than what was initially reported. This was confirmed with MOSERS staff. For members reported with no gender, the member is assumed to be male.

For judges, for any retired member who has elected a joint and survivor benefit yet has no beneficiary date of birth provided, it was assumed that the beneficiary is four years younger for male retirees and four years older for female retirees.

Due to limitations in our valuation program, members who are not eligible for normal retirement prior to age 85 had their date of birth adjusted.

## Summary of Member Data Included in Valuations

*Pension Trust Funds - June 30, 2013*

### Active Members

| Valuation Group | Number | Payroll | Group Averages | | |
|---|---|---|---|---|---|
| | | | Salary | Age (Yrs.) | Service (Yrs.) |
| **MSEP** | | | | | |
| Regular state employees | 47,688 | $1,706,683,663 | $ 35,789 | 45.5 | 11.0 |
| Elected officials | 6 | 659,969 | 109,995 | 48.3 | 6.4 |
| Legislative clerks | 22 | 749,722 | 34,078 | 59.2 | 21.3 |
| Legislators | 197 | 7,081,591 | 35,947 | 50.5 | 3.7 |
| Uniformed water patrol | 16 | 967,817 | 60,489 | 40.6 | 15.3 |
| Conservation department | 1,399 | 58,789,537 | 42,023 | 44.6 | 14.3 |
| School-term salaried employees | 1,477 | 102,392,802 | 69,325 | 56.2 | 20.4 |
| Administrative law judges | 28 | 2,887,849 | 103,137 | 56.6 | 19.1 |
| Total MSEP group | 50,833 | $1,880,212,950 | $ 36,988 | 45.8 | 11.3 |
| **Judicial Plan** | 400 | $ 48,697,726 | $121,744 | 56.7 | 12.5 |

### Retired Lives

| Type of Benefit Payment | Number | Annual Benefits | Group Averages | |
|---|---|---|---|---|
| | | | Benefit | Age (Yrs.) |
| **MSEP** | | | | |
| Retirement | 34,722 | $542,044,772 | $15,611 | 69.3 |
| Disability | 7 | 26,544 | 3,792 | 61.3 |
| Survivor of active member | 1,517 | 15,384,265 | 10,141 | 61.8 |
| Survivor of retired member | 2,893 | 32,415,401 | 11,205 | 75.0 |
| Total MSEP group | 39,139 | $589,870,982 | $15,071 | 69.4 |
| **Judicial Plan** | 497 | $ 23,387,811 | $57,118 | 75.4 |

### Others

| Group | Terminated Vested | Leave of Absence | Long-Term Disability |
|---|---|---|---|
| **MSEP** | 18,550 | 209 | 1,077 |
| **Judicial Plan** | 31 | 1 | 1 |

# Active Members by Attained Age and Years of Service

*June 30, 2013*

## MSEP

| | Years of Service to Valuation Date | | | | | | | Totals | |
|---|---|---|---|---|---|---|---|---|---|
| Attained Age | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | No. | Valuation Payroll |
| 15-19 | 38 | | | | | | | 38 | $ 823,118 |
| 20-24 | 1,478 | 19 | | | | | | 1,497 | 38,603,844 |
| 25-29 | 3,373 | 686 | 13 | | | | | 4,072 | 123,274,292 |
| 30-34 | 2,595 | 2,049 | 570 | 11 | | | | 5,225 | 172,796,554 |
| 35-39 | 1,690 | 1,562 | 1,528 | 454 | 3 | | | 5,237 | 185,046,291 |
| 40-44 | 1,556 | 1,346 | 1,512 | 1,474 | 342 | 26 | | 6,256 | 230,830,630 |
| 45-49 | 1,429 | 1,199 | 1,309 | 1,289 | 1,114 | 519 | 33 | 6,892 | 264,215,718 |
| 50-54 | 1,315 | 1,280 | 1,474 | 1,294 | 1,075 | 1,099 | 479 | 8,016 | 313,766,863 |
| 55-59 | 1,023 | 1,183 | 1,280 | 1,237 | 994 | 784 | 558 | 7,059 | 279,132,065 |
| 60 | 172 | 181 | 226 | 236 | 161 | 103 | 77 | 1,156 | 46,500,580 |
| 61 | 133 | 192 | 245 | 207 | 152 | 100 | 98 | 1,127 | 45,532,797 |
| 62 | 151 | 155 | 215 | 153 | 136 | 90 | 90 | 990 | 39,567,748 |
| 63 | 99 | 123 | 165 | 128 | 112 | 76 | 66 | 769 | 31,159,546 |
| 64 | 75 | 126 | 139 | 119 | 108 | 43 | 61 | 671 | 28,741,562 |
| 65 | 60 | 102 | 108 | 72 | 70 | 35 | 41 | 488 | 19,991,940 |
| 66 | 41 | 80 | 97 | 72 | 40 | 31 | 38 | 399 | 17,751,707 |
| 67 | 37 | 45 | 65 | 47 | 26 | 27 | 34 | 281 | 12,770,990 |
| 68 | 13 | 27 | 37 | 34 | 18 | 13 | 17 | 159 | 7,578,212 |
| 69 | 14 | 16 | 30 | 22 | 16 | 10 | 18 | 126 | 5,524,793 |
| 70 & Over | 35 | 58 | 93 | 62 | 39 | 26 | 62 | 375 | 16,603,700 |
| Totals | 15,327 | 10,429 | 9,106 | 6,911 | 4,406 | 2,982 | 1,672 | 50,833 | $1,880,212,950 |

*While not used in the financial computations, the following group averages are computed and shown because of their general interest.*

**Group Averages:** Age - 45.8 years • Service - 11.3 years • Annual pay - $36,988

## Judicial Plan

| | Years of Service to Valuation Date | | | | | | | Totals | |
|---|---|---|---|---|---|---|---|---|---|
| Attained Age | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | No. | Valuation Payroll |
| 30-34 | 2 | | | | | | | 2 | $ 233,712 |
| 35-39 | 5 | 3 | | | | | | 8 | 929,872 |
| 40-44 | 14 | 8 | 2 | | | | | 24 | 2,876,391 |
| 45-49 | 18 | 8 | 18 | 1 | | | | 45 | 5,418,627 |
| 50-54 | 19 | 14 | 17 | 10 | 3 | 1 | | 64 | 7,803,458 |
| 55-59 | 14 | 21 | 16 | 21 | 6 | 4 | 2 | 84 | 10,220,548 |
| 60 | 3 | 4 | 4 | 5 | 6 | 2 | 2 | 26 | 3,231,265 |
| 61 | 3 | 5 | 2 | 6 | 3 | 1 | | 20 | 2,437,845 |
| 62 | 2 | 2 | 11 | 6 | 2 | | 1 | 24 | 2,917,607 |
| 63 | 1 | 5 | 5 | | 1 | | 1 | 13 | 1,569,917 |
| 64 | | 1 | 6 | 5 | 2 | 4 | 3 | 21 | 2,565,574 |
| 65 | 1 | 3 | 6 | 2 | 4 | 2 | 1 | 19 | 2,314,213 |
| 66 | 1 | 3 | 4 | 7 | 2 | | 1 | 18 | 2,241,620 |
| 67 | | 3 | 4 | 3 | | 1 | 1 | 12 | 1,494,647 |
| 68 | | 1 | 1 | | 2 | 2 | 3 | 9 | 1,133,133 |
| 69 | | 1 | 2 | 2 | 1 | 2 | | 8 | 940,113 |
| 70 | | | 1 | 1 | | | 1 | 3 | 369,184 |
| Totals | 83 | 82 | 99 | 69 | 32 | 19 | 16 | 400 | $48,697,726 |

*While not used in the financial computations, the following group averages are computed and shown because of their general interest.*

**Group Averages:** Age - 56.7 years • Service - 12.5 years • Annual pay - $121,744

## Schedules of Active Member Valuation Data

*Six Years Ended June 30, 2013*

### MSEP

| Valuation Date | Schedule of Active Member Valuation Data | | | |
|---|---|---|---|---|
| | Number | Annual Payroll | Annual Average Pay | % Increase In Average Pay |
| June 30, 2008 | 54,542 | $1,916,527,398 | $35,139 | 3.44% |
| June 30, 2009 | 55,057 | 2,002,402,087 | 36,370 | 3.50 |
| June 30, 2010 | 53,478 | 1,945,095,321 | 36,372 | 0.01 |
| June 30, 2011 | 51,660 | 1,875,569,816 | 36,306 | (0.18) |
| June 30, 2012 | 51,332 | 1,864,069,493 | 36,314 | 0.02 |
| June 30, 2013 | 50,833 | 1,880,212,950 | 36,988 | 1.86 |

### Judicial Plan

| Valuation Date | Schedule of Active Member Valuation Data | | | |
|---|---|---|---|---|
| | Number | Annual Payroll | Annual Average Pay | % Increase In Average Pay |
| June 30, 2008 | 401 | $44,542,530 | $111,079 | 8.78% |
| June 30, 2009 | 397 | 45,505,512 | 114,623 | 3.19 |
| June 30, 2010 | 402 | 46,112,730 | 114,708 | 0.07 |
| June 30, 2011 | 399 | 45,888,020 | 115,008 | 0.26 |
| June 30, 2012 | 398 | 45,835,501 | 115,165 | 0.14 |
| June 30, 2013 | 400 | 48,697,726 | 121,744 | 5.71 |

## Retirees and Beneficiaries Added and Removed

*Six Years Ended June 30, 2013*

MSEP

| Fiscal Year Ended | Classification | Benefit Type | Added to Rolls Number | Added to Rolls Annual Allowances |
|---|---|---|---|---|
| June 30, 2008 | General employees | Retirement | 2,159 | $36,365,696 |
| | | Survivor of active | 91 | 971,449 |
| | | Survivor of retired | 234 | 2,715,274 |
| | | Disability | 0 | 900 |
| | | Occupational disability | 0 | 0 |
| | Lincoln university - vested | Retirement | 2 | 5,478 |
| | | Survivor of active | 0 | 0 |
| | Legislators | Retirement | 9 | 147,136 |
| | | Survivor of active | 0 | 4,489 |
| | | Survivor of retired | 5 | 114,053 |
| | Elected officials | Retirement | 0 | 37,804 |
| | | Survivor of active | 0 | 2,882 |
| | | Survivor of retired | 0 | 1,225 |
| | ALJs | Retirement | 2 | 102,631 |
| | | Survivor of active | 0 | 0 |
| | | Survivor of retired | 1 | 30,876 |
| June 30, 2009 | General employees | Retirement | 2,195 | 37,338,992 |
| | | Survivor of active | 82 | 996,258 |
| | | Survivor of retired | 251 | 3,077,466 |
| | | Disability | 0 | 876 |
| | | Occupational disability | 0 | 0 |
| | Lincoln university - vested | Retirement | 0 | 0 |
| | | Survivor of active | 0 | 0 |
| | Legislators | Retirement | 21 | 746,414 |
| | | Survivor of active | 0 | 5,137 |
| | | Survivor of retired | 4 | 84,108 |
| | Elected officials | Retirement | 2 | 105,141 |
| | | Survivor of active | 0 | 2,997 |
| | | Survivor of retired | 0 | 1,274 |
| | ALJs | Retirement | 3 | 168,517 |
| | | Survivor of active | 0 | 0 |
| | | Survivor of retired | 2 | 57,238 |
| June 30, 2010 | General employees | Retirement | 2,298 | 34,755,192 |
| | | Survivor of active | 83 | 1,054,292 |
| | | Survivor of retired | 246 | 3,080,424 |
| | | Disability | 0 | 830 |
| | | Occupational disability | 0 | 0 |
| | Lincoln university - vested | Retirement | 1 | 5,671 |
| | | Survivor of active | 0 | 0 |
| | Legislators | Retirement | 12 | 201,562 |
| | | Survivor of active | 0 | 3,975 |
| | | Survivor of retired | 5 | 78,765 |
| | Elected officials | Retirement | 0 | 0 |
| | | Survivor of active | 0 | 3,117 |
| | | Survivor of retired | 1 | 34,780 |
| | ALJs | Retirement | 3 | 113,877 |
| | | Survivor of active | 0 | 0 |
| | | Survivor of retired | 0 | 7,332 |

*Source of Data: MOSERS benefit payment database as of June 30, 2013.*
*Other Actuarial Section information reported based on MOSERS data as of May 31, 2013.*

| Removed from Rolls | | Rolls at End of Year | | | | |
|---|---|---|---|---|---|---|
| Number | Annual Allowances | Number | Annual Allowances | Percentage Increase (Decrease) in Annual Allowances | Average Annual Allowances | Percentage Increase (Decrease) in Average Annual Allowances |
| 853 | $9,745,552 | 26,599 | $397,765,293 | 7.17% | $14,954 | 1.91% |
| 59 | 259,787 | 1,336 | 11,489,155 | 6.60 | 8,600 | 4.05 |
| 137 | 916,500 | 2,118 | 20,288,228 | 9.73 | 9,579 | 4.70 |
| 1 | 4,074 | 11 | 36,416 | (8.02) | 3,311 | 0.36 |
| 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 0 | 0 | 13 | 55,953 | 10.85 | 4,304 | (6.21) |
| 0 | 0 | 1 | 2,624 | 0.00 | 2,624 | 0.00 |
| 10 | 300,216 | 249 | 4,581,935 | (3.23) | 18,401 | (2.85) |
| 0 | 0 | 14 | 155,201 | 2.98 | 11,086 | 2.98 |
| 3 | 24,638 | 54 | 708,344 | 14.45 | 13,117 | 10.21 |
| 0 | 0 | 12 | 514,994 | 7.92 | 42,916 | 7.92 |
| 0 | 0 | 1 | 74,927 | 4.00 | 74,927 | 4.00 |
| 0 | 0 | 1 | 31,843 | 4.00 | 31,843 | 4.00 |
| 2 | 94,035 | 25 | 1,099,342 | 0.79 | 43,974 | 0.79 |
| 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 0 | 0 | 10 | 245,968 | 14.35 | 24,597 | 2.92 |
| 852 | 9,903,887 | 27,942 | 425,200,398 | 6.90 | 15,217 | 1.76 |
| 54 | 390,167 | 1,364 | 12,095,246 | 5.28 | 8,867 | 3.10 |
| 110 | 827,564 | 2,259 | 22,538,130 | 11.09 | 9,977 | 4.15 |
| 1 | 4,237 | 10 | 33,055 | (9.23) | 3,306 | (0.15) |
| 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 0 | 0 | 13 | 55,953 | 0.00 | 4,304 | 0.00 |
| 0 | 0 | 1 | 2,624 | 0.00 | 2,624 | 0.00 |
| 8 | 120,396 | 262 | 5,207,953 | 13.66 | 19,878 | 8.03 |
| 1 | 14,128 | 13 | 146,210 | (5.79) | 11,247 | 1.45 |
| 2 | 20,473 | 56 | 771,979 | 8.98 | 13,785 | 5.09 |
| 0 | 0 | 14 | 620,135 | 20.42 | 44,295 | 3.21 |
| 0 | 0 | 1 | 77,924 | 4.00 | 77,924 | 4.00 |
| 0 | 0 | 1 | 33,117 | 4.00 | 33,117 | 4.00 |
| 2 | 90,337 | 26 | 1,177,522 | 7.11 | 45,289 | 2.99 |
| 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 1 | 27,354 | 11 | 275,852 | 12.15 | 25,077 | 1.95 |
| 833 | 9,979,318 | 29,407 | 449,976,272 | 5.83 | 15,302 | 0.56 |
| 49 | 276,401 | 1,398 | 12,873,137 | 6.43 | 9,208 | 3.85 |
| 117 | 1,078,265 | 2,388 | 24,540,289 | 8.88 | 10,277 | 3.01 |
| 1 | 2,985 | 9 | 30,900 | (6.52) | 3,433 | 3.84 |
| 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 0 | 0 | 14 | 61,624 | 10.14 | 4,402 | 2.28 |
| 0 | 0 | 1 | 2,624 | 0.00 | 2,624 | 0.00 |
| 12 | 239,880 | 262 | 5,169,635 | (0.74) | 19,731 | (0.74) |
| 1 | 16,709 | 12 | 133,476 | (8.71) | 11,123 | (1.10) |
| 0 | 0 | 61 | 850,744 | 10.20 | 13,947 | 1.18 |
| 1 | 66,911 | 13 | 553,224 | (10.79) | 42,556 | (3.93) |
| 0 | 0 | 1 | 81,041 | 4.00 | 81,041 | 4.00 |
| 0 | 0 | 2 | 67,897 | 105.02 | 33,949 | 2.51 |
| 1 | 46,794 | 28 | 1,244,605 | 5.70 | 44,450 | (1.85) |
| 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 0 | 0 | 11 | 283,184 | 2.66 | 25,744 | 2.66 |

*Continued on pages 116-119*

Continued from pages 114 - 115

## Retirees and Beneficiaries Added and Removed

*Six Years Ended June 30, 2013*

MSEP

| | | | Added to Rolls | |
|---|---|---|---|---|
| Fiscal Year Ended | Classification | Benefit Type | Number | Annual Allowances |
| June 30, 2011 | General employees | Retirement | 2,850 | $41,203,358 |
| | | Survivor of active | 65 | 914,689 |
| | | Survivor of retired | 298 | 3,059,195 |
| | | Disability | 0 | 79 |
| | | Occupational disability | 0 | 0 |
| | Lincoln university - vested | Retirement | 1 | 1,780 |
| | | Survivor of active | 0 | 0 |
| | Legislators | Retirement | 41 | 601,171 |
| | | Survivor of active | 0 | 2,903 |
| | | Survivor of retired | 5 | 73,841 |
| | Elected officials | Retirement | 0 | 0 |
| | | Survivor of active | 0 | 3,242 |
| | | Survivor of retired | 0 | 1,053 |
| | ALJs | Retirement | 4 | 212,519 |
| | | Survivor of active | 0 | 0 |
| | | Survivor of retired | 0 | 2,599 |
| June 30, 2012 | General employees | Retirement | 2,637 | 39,423,910 |
| | | Survivor of active | 82 | 1,129,634 |
| | | Survivor of retired | 282 | 3,665,503 |
| | | Disability | 0 | 458 |
| | | Occupational disability | 0 | 0 |
| | Lincoln university - vested | Retirement | 0 | 0 |
| | | Survivor of active | 0 | 0 |
| | Legislators | Retirement | 13 | 229,979 |
| | | Survivor of active | 0 | 3,531 |
| | | Survivor of retired | 4 | 80,142 |
| | Elected officials | Retirement | 2 | 86,431 |
| | | Survivor of active | 0 | 3,371 |
| | | Survivor of retired | 0 | 1,336 |
| | ALJs | Retirement | 3 | 124,248 |
| | | Survivor of active | 1 | 25,592 |
| | | Survivor of retired | 2 | 57,704 |
| June 30, 2013 | General employees | Retirement | 2,632 | 40,416,533 |
| | | Survivor of active | 97 | 1,080,366 |
| | | Survivor of retired | 323 | 4,085,887 |
| | | Disability | 0 | 696 |
| | | Occupational disability | 0 | 0 |
| | Lincoln university - vested | Retirement | 2 | 5,980 |
| | | Survivor of active | 0 | 0 |
| | Legislators | Retirement | 37 | 442,937 |
| | | Survivor of active | 0 | 3,851 |
| | | Survivor of retired | 9 | 176,283 |
| | Elected officials | Retirement | 1 | 53,873 |
| | | Survivor of active | 0 | 3,506 |
| | | Survivor of retired | 0 | 1,458 |
| | ALJs | Retirement | 4 | 233,124 |
| | | Survivor of active | 0 | 1,024 |
| | | Survivor of retired | 2 | 65,892 |

*Source of Data: MOSERS benefit payment database as of June 30, 2013.*
*Other Actuarial Section information reported based on MOSERS data as of May 31, 2013.*

| Removed from Rolls | | Rolls at End of Year | | | | |
|---|---|---|---|---|---|---|
| Number | Annual Allowances | Number | Annual Allowances | Percentage Increase (Decrease) in Annual Allowances | Average Annual Allowances | Percentage Increase (Decrease) in Average Annual Allowances |
| 892 | $10,670,476 | 31,365 | $480,509,154 | 6.79% | $15,320 | 0.12% |
| 46 | 261,503 | 1,417 | 13,526,323 | 5.07 | 9,546 | 3.67 |
| 176 | 1,670,990 | 2,510 | 25,928,494 | 5.66 | 10,330 | 0.52 |
| 1 | 1,732 | 8 | 29,247 | (5.35) | 3,656 | 6.50 |
| 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 0 | 0 | 15 | 63,404 | 2.89 | 4,227 | (3.98) |
| 0 | 0 | 1 | 2,624 | 0.00 | 2,624 | 0.00 |
| 10 | 185,635 | 293 | 5,585,171 | 8.04 | 19,062 | (3.39) |
| 1 | 19,612 | 11 | 116,767 | (12.52) | 10,615 | (4.57) |
| 2 | 16,628 | 64 | 907,957 | 6.73 | 14,187 | 1.72 |
| 0 | 0 | 13 | 553,224 | 0.00 | 42,556 | 0.00 |
| 0 | 0 | 1 | 84,283 | 4.00 | 84,283 | 4.00 |
| 0 | 0 | 2 | 68,950 | 1.55 | 34,475 | 1.55 |
| 0 | 0 | 32 | 1,457,124 | 17.08 | 45,535 | 2.44 |
| 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 1 | 27,724 | 10 | 258,059 | (8.87) | 25,806 | 0.24 |
| 895 | 11,116,063 | 33,107 | 508,817,001 | 5.89 | 15,369 | 0.32 |
| 34 | 197,452 | 1,465 | 14,458,505 | 6.89 | 9,869 | 3.38 |
| 158 | 1,416,283 | 2,634 | 28,177,714 | 8.67 | 10,698 | 3.56 |
| 0 | 0 | 8 | 29,705 | 1.57 | 3,713 | 1.56 |
| 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 2 | 11,032 | 13 | 52,372 | (17.40) | 4,029 | (4.68) |
| 0 | 0 | 1 | 2,624 | 0.00 | 2,624 | 0.00 |
| 8 | 139,545 | 298 | 5,675,605 | 1.62 | 19,046 | (0.08) |
| 0 | 0 | 11 | 120,298 | 3.02 | 10,936 | 3.02 |
| 3 | 52,550 | 65 | 935,549 | 3.04 | 14,393 | 1.45 |
| 0 | 0 | 15 | 639,655 | 15.62 | 42,644 | 0.21 |
| 0 | 0 | 1 | 87,654 | 4.00 | 87,654 | 4.00 |
| 0 | 0 | 2 | 70,286 | 1.94 | 35,143 | 1.94 |
| 3 | 158,072 | 32 | 1,423,300 | (2.32) | 44,478 | (2.32) |
| 0 | 0 | 1 | 25,592 | 0.00 | 25,592 | 0.00 |
| 0 | 0 | 12 | 315,763 | 22.36 | 26,314 | 1.97 |
| 983 | 12,869,826 | 34,756 | 536,363,708 | 5.41 | 15,432 | 0.41 |
| 64 | 400,983 | 1,498 | 15,137,889 | 4.70 | 10,105 | 2.39 |
| 150 | 1,363,799 | 2,807 | 30,899,802 | 9.66 | 11,008 | 2.90 |
| 1 | 3,854 | 7 | 26,546 | (10.63) | 3,792 | 2.13 |
| 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 0 | 0 | 15 | 58,351 | 11.42 | 3,890 | (3.45) |
| 0 | 0 | 1 | 2,623 | (0.04) | 2,623 | (0.04) |
| 15 | 320,292 | 320 | 5,798,251 | 2.16 | 18,120 | (4.86) |
| 0 | 0 | 11 | 124,149 | 3.20 | 11,286 | 3.20 |
| 6 | 88,725 | 68 | 1,023,107 | 9.36 | 15,046 | 4.54 |
| 0 | 0 | 16 | 693,528 | 8.42 | 43,346 | 1.65 |
| 0 | 0 | 1 | 91,160 | 4.00 | 91,160 | 4.00 |
| 0 | 0 | 2 | 71,744 | 2.07 | 35,872 | 2.07 |
| 2 | 111,466 | 34 | 1,544,957 | 8.55 | 45,440 | 2.16 |
| 0 | 0 | 1 | 26,615 | 4.00 | 26,615 | 4.00 |
| 1 | 22,759 | 13 | 358,896 | 13.66 | 27,607 | 4.91 |

## Retirees and Beneficiaries Added and Removed

*Six Years Ended June 30, 2013*

### Judicial Plan

| | | Added to Rolls | |
|---|---|---|---|
| Fiscal Year Ended | Benefit Type | Number | Annual Allowances |
| June 30, 2008 | Retirement | 21 | $1,554,013 |
| | Survivor of active | 0 | 31,650 |
| | Survivor of retired | 11 | 387,194 |
| | Disability | 0 | 0 |
| June 30, 2009 | Retirement | 30 | 1,922,615 |
| | Survivor of active | 1 | 59,484 |
| | Survivor of retired | 9 | 418,266 |
| | Disability | 0 | 0 |
| June 30, 2010 | Retirement | 12 | 1,137,305 |
| | Survivor of active | 0 | 32,700 |
| | Survivor of retired | 11 | 436,312 |
| | Disability | 0 | 0 |
| June 30, 2011 | Retirement | 36 | 2,501,248 |
| | Survivor of active | 0 | 14,893 |
| | Survivor of retired | 4 | 167,535 |
| | Disability | 0 | 0 |
| June 30, 2012 | Retirement | 18 | 1,490,554 |
| | Survivor of active | 0 | 22,717 |
| | Survivor of retired | 8 | 371,622 |
| | Disability | 0 | 0 |
| June 30, 2013 | Retirement | 27 | 2,233,387 |
| | Survivor of active | 0 | 28,591 |
| | Survivor of retired | 8 | 355,101 |
| | Disability | 0 | 0 |

*Source of Data: MOSERS benefit payment database as of June 30, 2013.*
*Other Actuarial Section information reported based on MOSERS data as of May 31, 2013.*

| Removed from Rolls | | Rolls at End of Year | | | | |
|---|---|---|---|---|---|---|
| Number | Annual Allowances | Number | Annual Allowances | Percentage Increase (Decrease) in Annual Allowances | Average Annual Allowances | Percentage Increase (Decrease) in Average Annual Allowances |
| 17 | $946,602 | 311 | $18,659,873 | 3.36% | $60,000 | 2.04% |
| 4 | 53,658 | 36 | 996,941 | (2.16) | 27,693 | 8.71 |
| 8 | 181,387 | 96 | 2,782,907 | 7.99 | 28,989 | 4.61 |
| 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 15 | 957,943 | 326 | 19,624,545 | 5.17 | 60,198 | 0.33 |
| 0 | 0 | 37 | 1,056,425 | 5.97 | 28,552 | 3.10 |
| 2 | 61,344 | 103 | 3,139,829 | 12.83 | 30,484 | 5.16 |
| 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 13 | 750,021 | 325 | 20,011,829 | 1.97 | 61,575 | 2.29 |
| 2 | 32,399 | 35 | 1,056,726 | 0.03 | 30,192 | 5.74 |
| 5 | 130,920 | 109 | 3,445,221 | 9.73 | 31,608 | 3.69 |
| 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 9 | 563,214 | 352 | 21,949,863 | 9.68 | 62,358 | 1.27 |
| 1 | 35,792 | 34 | 1,035,827 | (1.98) | 30,466 | 0.91 |
| 9 | 206,465 | 104 | 3,406,291 | (1.13) | 32,753 | 3.62 |
| 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 14 | 1,074,572 | 356 | 22,365,845 | 1.90 | 62,825 | 0.75 |
| 0 | 0 | 34 | 1,058,544 | 2.19 | 31,134 | 2.19 |
| 6 | 218,310 | 106 | 3,559,603 | 4.50 | 33,581 | 2.53 |
| 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| 13 | 851,802 | 370 | 23,747,431 | 6.18 | 64,182 | 2.16 |
| 1 | 33,778 | 33 | 1,053,358 | (0.49) | 31,920 | 2.52 |
| 10 | 288,980 | 104 | 3,625,723 | 1.86 | 34,863 | 3.82 |
| 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |

## Short-Term Solvency Test

*Ten Years Ended June 30, 2013*

### MSEP

| | Actuarial Accrued Liabilities for | | | | Percentage of Actuarial Liabilities Covered by Actuarial Value of Assets Available for | | |
|---|---|---|---|---|---|---|---|
| Fiscal Year | Member Contributions (1) | Current Retirees and Beneficiaries (2) | Active and Inactive Members, Employer Financed Portion (3) | Actuarial Value of Assets Available for Benefits | (1) | (2) | (3) |
| 2004 | $ 0 | $3,405,053,804 | $3,824,957,124 | $6,118,214,495 | 100.0% | 100.0% | 70.9% |
| 2005 | 0 | 3,629,506,014 | 3,948,522,003 | 6,435,344,102 | 100.0 | 100.0 | 71.1 |
| 2006 | 0 | 3,876,349,145 | 4,136,856,269 | 6,836,567,188 | 100.0 | 100.0 | 71.6 |
| 2007 | 0 | 4,208,621,537 | 4,291,807,104 | 7,377,289,283 | 100.0 | 100.0 | 73.8 |
| 2008 | 0 | 4,408,682,437 | 4,719,665,033 | 7,838,495,768 | 100.0 | 100.0 | 72.7 |
| 2009 | 0 | 4,737,859,976 | 4,756,946,739 | 7,876,079,342 | 100.0 | 100.0 | 66.0 |
| 2010 | 0 | 5,012,677,769 | 4,840,477,676 | 7,923,377,393 | 100.0 | 100.0 | 60.1 |
| 2011 | 67,126 | 5,357,794,617 | 4,765,682,300 | 8,022,481,408 | 100.0 | 100.0 | 55.9 |
| 2012 | 706,422 | 5,749,411,068 | 5,043,534,087 | 7,897,167,203 | 100.0 | 100.0 | 42.6 |
| 2013 | 1,504,901 | 6,062,654,441 | 5,070,478,142 | 8,096,436,929 | 100.0 | 100.0 | 40.1 |

### ALJLAP*

| | Actuarial Accrued Liabilities for | | | | Percentage of Actuarial Liabilities Covered by Actuarial Value of Assets Available for | | |
|---|---|---|---|---|---|---|---|
| Fiscal Year | Member Contributions (1) | Current Retirees and Beneficiaries (2) | Active and Inactive Members, Employer Financed Portion (3) | Actuarial Value of Assets Available for Benefits | (1) | (2) | (3) |
| 2004 | $0 | $9,188,086 | $11,196,127 | $16,238,804 | 100.0% | 100.0% | 63.0% |

** Assets and liabilities transferred to the MSEP during fiscal year 2005*

### Judicial Plan

| | Actuarial Accrued Liabilities for | | | | Percentage of Actuarial Liabilities Covered by Actuarial Value of Assets Available for | | |
|---|---|---|---|---|---|---|---|
| Fiscal Year | Member Contributions (1) | Current Retirees and Beneficiaries (2) | Active and Inactive Members, Employer Financed Portion (3) | Actuarial Value of Assets Available for Benefits | (1) | (2) | (3) |
| 2004 | $ 0 | $162,539,486 | $117,857,978 | $ 39,120,142 | 100.0% | 24.1% | 0.0% |
| 2005 | 0 | 168,703,822 | 123,600,064 | 44,223,509 | 100.0 | 26.2 | 0.0 |
| 2006 | 0 | 171,677,032 | 137,325,720 | 51,652,867 | 100.0 | 30.1 | 0.0 |
| 2007 | 0 | 199,489,503 | 127,176,870 | 61,903,516 | 100.0 | 31.0 | 0.0 |
| 2008 | 0 | 216,369,879 | 138,426,574 | 73,194,379 | 100.0 | 33.8 | 0.0 |
| 2009 | 0 | 231,505,591 | 137,601,250 | 81,337,881 | 100.0 | 35.1 | 0.0 |
| 2010 | 0 | 236,113,077 | 145,899,696 | 88,976,738 | 100.0 | 37.7 | 0.0 |
| 2011 | 284 | 251,532,354 | 141,951,951 | 98,398,628 | 100.0 | 39.1 | 0.0 |
| 2012 | 795 | 258,642,149 | 154,689,594 | 102,266,706 | 100.0 | 39.5 | 0.0 |
| 2013 | 2,924 | 274,911,416 | 160,464,018 | 111,140,339 | 100.0 | 40.4 | 0.0 |

# Derivation of Experience Gain (Loss)

*Year Ended June 30, 2013*

## MSEP

Actual experience will never coincide exactly with assumed experience (except by coincidence). Gains and losses may offset each other over a period of years, but sizeable year-to-year variations from assumed experience are common. Detail on the derivation of the experience gain (loss) is shown below.

| | | $ Millions |
|---|---|---|
| (1) | Unfunded actuarial accrued liability (UAAL) at beginning of year | $2,896.5 |
| (2) | Normal cost from last valuation | 160.6 |
| (3) | Actual employer contributions | 290.3 |
| (4) | Interest accrual: (1)x.085+[(2)-(3)]x(.085/2) | 226.5 |
| (5) | Expected UAAL before changes: (1)+(2)-(3)+(4) | 2,993.3 |
| (6) | Change from any changes in benefits, assumptions, or methods | (262.4) |
| (7) | Expected UAAL after changes: (5)+(6) | 2,730.9 |
| (8) | Actual UAAL at end of year | 3,038.2 |
| (9) | Gain (loss) (7)-(8) | (307.3) |
| (10) | Gain (loss) as a percent of actuarial accrued liabilities at start of year ($10,794) | (2.8)% |

| Valuation Date June 30 | Actuarial Gain (Loss) As a % of Beginning Accrued Liabilities |
|---|---|
| 2004 | (6.0)% |
| 2005 | (3.4) |
| 2006 | (0.1) |
| 2007 | 1.0 |
| 2008 | 0.1 |
| 2009 | (5.2) |
| 2010 | (4.0) |
| 2011 | (2.4) |
| 2012 | (4.7) |
| 2013 | (2.8) |

## Judicial Plan

The actuarial gains or losses realized in the operation of the Retirement System provide an experience test. 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 actuarial gain (loss) is shown below, along with a year-by-year comparative schedule.

| | | $ Millions |
|---|---|---|
| (1) | Unfunded actuarial accrued liability (UAAL) at beginning of year | $311.1 |
| (2) | Employer normal cost middle of year | 9.2 |
| (3) | Employer contributions | 28.3 |
| (4) | Interest | |
| | a. on (1) | 24.9 |
| | b. on (2) | 0.3 |
| | c. on (3) | 1.1 |
| | d. total [a+b-c] | 24.1 |
| (5) | Expected UAAL end of year before changes | 316.1 |
| (6) | Change in UAAL end of year | |
| | a. amendments | 0.0 |
| | b. assumptions (pay freeze) | 0.0 |
| | c. methods | (2.7) |
| | d. total | (2.7) |
| (7) | Expected UAAL after changes: (5)+(6d.) | 313.4 |
| (8) | Actual UAAL at end of year | 324.2 |
| (9) | Gain (loss) (7)-(8) | (10.8) |
| (10) | Gain (loss) as a percent of actuarial accrued liabilities at start of year ($413.3) | (2.6)% |

| Valuation Date June 30 | Actuarial Gain (Loss) As a % of Beginning Accrued Liabilities |
|---|---|
| 2004 | (1.0)% |
| 2005 | (0.1) |
| 2006 | (1.1) |
| 2007 | (0.6) |
| 2008 | (3.0) |
| 2009 | (1.8) |
| 2010 | (1.1) |
| 2011 | (0.4) |
| 2012 | (0.6) |
| 2013 | (2.6) |

## Comparison of Plans for General State Employees

*June 30, 2013*

MSEP • MSEP 2000 • MSEP 2011

| Benefit Provisions | MSEP |
|---|---|
| **Membership eligibility** | • Members who work in a permanent position normally requiring at least 1,040 hours of work a year. |
| **Vesting** | • 5 years |
| **Base benefit formula** | • .016 x FAP x service<br>*In the past, formula increases have been passed along to MSEP retirees.* |
| **Temporary benefit formula** | • Not available |
| **Benefit payment options** | • Life income annuity<br>• *Unreduced* joint & 50% survivor<br>• Joint & 100% survivor<br>• Life income with 60 guaranteed payments<br>• Life income with 120 guaranteed payments |
| **Cost-of-living adjustment (COLA)** | • If hired before August 28, 1997, will receive 4-5% each year until reaching the 65% cap. After COLA cap, the rate is based on 80% of the percentage increase in the CPI (0-5%).<br>• If hired on or after August 28, 1997, annual COLA will be based on 80% of the percentage increase in the CPI (0-5%). |
| **Normal retirement eligibility** | • Age 65 and active with 4 years of service<br>• Age 65 with 5 years of service<br>• Age 60 with 15 years of service<br>• "Rule of 80"- at least age 48 with age and service equaling 80 or more<br>• Age 50 if first became eligible prior to August 28, 2003 |
| **Early retirement eligibility** | • Age 55 with 10 years of service<br>*Base benefit will be reduced ½ of 1% (.005) for each month member's age is younger than normal retirement.* |
| **Death before retirement** | • Non duty-related death *(vested members)*<br>– Survivor benefit to eligible spouse calculated using the joint & 100% survivor option or 80% of the member's life income annuity paid to eligible children.<br>• Duty-related death *(no minimum service requirement).*<br>– Survivor benefit to eligible spouse or children no less than 50% of average compensation. |
| **In-service COLA** | • COLA given for service beyond age 65. COLA provisions are determined by employment date. |
| **BackDROP** | • Must work at least two years beyond normal retirement eligibility to be eligible for BackDROP. |
| **Service purchases** | • May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate. May also purchase public sector service at full actuarial cost. |
| **Service transfers** | • May transfer state service to other positions covered by MOSERS under 104.800. |
| **Member contributions** | • None |

| MSEP 2000 | MSEP 2011 |
|---|---|
| • Members hired for the first time on or after July 1, 2000, in a permanent position normally requiring at least 1,040 hours of work a year.<br>• Members who left state employment prior to becoming vested and returned to work on or after July 1, 2000, in a permanent position normally requiring at least 1,040 hours of work a year. | • Members hired for the first time on or after January 1, 2011, in a permanent position normally requiring at least 1,040 hours of work a year. |
| • 5 years | • 10 years |
| • .017 x FAP x service<br>*Future formula increases, if any, will not be passed along to retirees.* | • .017 x FAP x service<br>*Future formula increases, if any, will not be passed along to retirees.* |
| • .008 x FAP x service<br>*Available to those who retire under the "Rule of 80."* | • .008 x FAP x service<br>*Available to those who retire under the "Rule of 90."* |
| • Life income annuity<br>• Joint & 50% survivor<br>• Joint & 100% survivor<br>• Life income with 120 guaranteed payments<br>• Life income with 180 guaranteed payments | • Life income annuity<br>• Joint & 50% survivor<br>• Joint & 100% survivor<br>• Life income with 120 guaranteed payments<br>• Life income with 180 guaranteed payments |
| • Based on 80% of the percentage increase in the CPI (0-5%). | • Based on 80% of the percentage increase in the CPI (0-5%). |
| • Age 62 with 5 years of service<br>• "Rule of 80" - at least age 48 with age and service equaling 80 or more<br>• Age 50 if first became eligible prior to August 28, 2003 | • Age 67 with 10 years of service<br>• "Rule of 90" - at least age 55 with age and service equaling 90 or more<br>*Terminated-vested members not eligible for "Rule of 90."* |
| • Age 57 with 5 years of service<br>*Base benefit will be reduced ½ of 1% (.005) for each month member's age is younger than normal retirement.* | • Age 62 with 10 years of service; base benefit will be reduced ½ of 1% (.005) for each month member's age is younger than normal retirement.<br>*Terminated-vested members are not eligible.* |
| • Survivor benefit to eligible spouse calculated using the joint & 100% survivor option or 80% of the member's life income annuity paid to eligible children.<br>• Survivor benefit to eligible spouse or children no less than 50% of average compensation (no service requirement). | • Survivor benefit to eligible spouse calculated using the joint & 100% survivor option or 80% of the member's life income annuity paid to eligible children.<br>• Survivor benefit to eligible spouse or children no less than 50% of average compensation (no service requirement). |
| • Not available | • Not available |
| • Must work at least two years beyond normal retirement eligibility to be eligible for BackDROP. | • Not available |
| • May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate. May also purchase public sector service at full actuarial cost. | • May purchase qualifying public sector service at full actuarial cost. |
| • May transfer service under 104.1090 from other systems with written agreements to transfer required funds. | • Not available |
| • None | • 4% of pay |

## Comparison of Plans for Legislators

*June 30, 2013*

MSEP • MSEP 2000 • MSEP 2011

| Benefit Provisions | MSEP |
|---|---|
| **Membership eligibility** | • Elected to the General Assembly |
| **Vesting** | • 3 full-biennial assemblies (6 years) |
| **Base benefit formula** | • Biennial assemblies x $150<br>*In the past, formula increases have been passed along to MSEP retirees.* |
| **Temporary benefit formula** | • Not available |
| **Benefit payment options** | • Life income annuity<br>• *Unreduced* joint & 50% survivor<br>• Joint & 100% survivor<br>• Life income with 60 guaranteed payments<br>• Life income with 120 guaranteed payments |
| **Cost-of-living adjustment (COLA)** | • If sworn in before August 28, 1997, will receive 4-5% each year until reaching 65% cap. After COLA cap, the rate is based on 80% of the percentage increase in the CPI (0-5%).<br>• If sworn in on or after August 28, 1997, COLA will be based on 80% of the percentage increase in the CPI (0-5%). |
| **Normal retirement eligibility** | • Age 55 with 3 full-biennial assemblies or<br>• “Rule of 80” - at least age 48 with age and service equaling 80 or more |
| **Early retirement eligibility** | • Not available |
| **Death before retirement** | • Non duty-related death *(vested members)*<br>– Survivor benefit to eligible spouse calculated using the joint & 100% survivor option or 80% of the member’s life income annuity paid to eligible children.<br>• Duty-related death *(no minimum service requirement)*<br>– Survivor benefit to eligible spouse or children no less than 50% of the rate of compensation. |
| **In-service COLA** | • COLA given for service beyond age 65. COLA provisions are determined by employment date. |
| **BackDROP** | • Not available |
| **Service purchases** | • May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate. May also purchase public sector service at full actuarial cost. |
| **Service transfers** | • May transfer state service to other positions covered by MOSERS under 104.800. |
| **Member contributions** | • None |

| MSEP 2000 | MSEP 2011 |
|---|---|
| • Elected to the General Assembly on or after July 1, 2000 | • Elected to the General Assembly on or after January 1, 2011 |
| • 3 full-biennial assemblies (6 years) | • 3 full-biennial assemblies (6 years) |
| • (Active legislator's pay ÷ 24) x service<br>*Capped at 100% of pay; future formula increases, if any, will not be passed along to retirees.* | • (Active legislator's pay ÷ 24) x service<br>*Capped at 100% of pay; future formula increases, if any, will not be passed along to retirees.* |
| • Not available | • Not available |
| • Life income annuity<br>• Joint & 50% survivor<br>• Joint & 100% survivor<br>• Life income with 120 guaranteed payments<br>• Life income with 180 guaranteed payments | • Life income annuity<br>• Joint & 50% survivor<br>• Joint & 100% survivor<br>• Life income with 120 guaranteed payments<br>• Life income with 180 guaranteed payments |
| • Benefit adjustment based on increase in pay for an active member of the general assembly. | • Benefit adjustment based on increase in pay for an active member of the general assembly. |
| • Age 55 with 3 full-biennial assemblies or<br>• "Rule of 80" - at least age 50 with age and service equaling 80 or more | • Age 62 with 3 full-biennial assemblies or<br>• "Rule of 90" - at least age 55 with age and service equaling 90 or more |
| • Not available | • Not available |
| • Non duty-related death *(vested members)*<br>– Survivor benefit to eligible spouse calculated using the joint & 100% survivor option or 80% of the member's life income annuity paid to eligible children.<br>• Duty-related death *(no minimum service requirement)*<br>– Survivor benefit to eligible spouse or children no less than 50% of rate of compensation. | • Non duty-related death *(vested members)*<br>– Survivor benefit to eligible spouse calculated using the joint & 100% survivor option or 80% of the member's life income annuity paid to eligible children.<br>• Duty-related death *(no minimum service requirement)*<br>– Survivor benefit to eligible spouse or children no less than 50% of rate of compensation. |
| • Not available | • Not available |
| • Not available | • Not available |
| • May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate. May also purchase public sector service at full actuarial cost. | • May purchase qualifying public sector service at full actuarial cost. |
| • May transfer service under 104.1090 from other systems with written agreements to transfer required funds. | • Not available |
| • None | • 4% of pay |

## Comparison of Plans for Statewide Elected Officials

*June 30, 2013*

MSEP • MSEP 2000 • MSEP 2011

| Benefit Provisions | MSEP |
|---|---|
| Membership eligibility | • Elected to state office |
| Vesting | • 4 years (1 term) |
| Base benefit formula | • Less than 12 years of service<br>FAP x .016 x service<br>• 12 or more years of service<br>Monthly statutory compensation x .50<br>*In the past, formula increases have been passed along to MSEP retirees.* |
| Temporary benefit formula | • Not available |
| Benefit payment options | • Life income annuity<br>• *Unreduced* joint & 50% survivor<br>• Joint & 100% survivor<br>• Life income with 60 guaranteed payments<br>• Life income with 120 guaranteed payments |
| Cost-of-living adjustment (COLA) | • Less than 12 years of service<br>– Statewide elected officials sworn in before August 28, 1997 will receive 4-5% each year until they reach 65% cap. After COLA cap, the rate is based on 80% of the percentage increase in the CPI (0-5%).<br>– Statewide elected officials sworn in between August 28, 1997 and June 30, 2000, will receive a COLA equal to 80% of percentage increase in the CPI (0-5%).<br>• 12 or more years of service<br>Statewide elected officials with 12 or more years of service will receive a COLA based on increases in statutory compensation for the highest position held. |
| Normal retirement eligibility | • Age 60 with 15 years of service or<br>• "Rule of 80" - at least age 50 with age and service equaling 80 or more |
| Early retirement eligibility | • Age 55 with 10 years of service |
| Death before retirement | • Non duty-related death *(vested members)*<br>– Survivor benefit to eligible spouse calculated using the joint & 100% survivor option or 80% of the member's life income annuity paid to eligible children.<br>• Duty-related death *(no minimum service requirement)*<br>– Survivor benefit to eligible spouse or children no less than 50% of current pay. |
| In-service COLA | • COLA provisions determined by amount of service relative to 12 years and date of employment. |
| BackDROP | • Not available |
| Service purchases | • May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate. May also purchase public sector service at full actuarial cost. |
| Service transfers | • May transfer state service to other positions covered by MOSERS under 104.800. |
| Member contributions | • None |

| MSEP 2000 | MSEP 2011 |
|---|---|
| • First employed on or after July 1, 2000 | • First employed on or after January 1, 2011 |
| • 4 years (1 term) | • 4 years (1 term) |
| • (Active elected official's pay ÷ 24) x service<br>*Capped at 12 years of service or 50% of pay; future formula increases, if any, will not be passed along to retirees.* | • (Active elected official's pay ÷ 24) x service<br>*Capped at 12 years of service or 50% of pay; future formula increases, if any, will not be passed along to retirees.* |
| • Not available | • Not available |
| • Life income annuity<br>• Joint & 50% survivor<br>• Joint & 100% survivor<br>• Life income with 120 guaranteed payments<br>• Life income with 180 guaranteed payments | • Life income annuity<br>• Joint & 50% survivor<br>• Joint & 100% survivor<br>• Life income with 120 guaranteed payments<br>• Life income with 180 guaranteed payments |
| • Benefit adjustment based on increase in pay for an active statewide elected official. | • Benefit adjustment based on increase in pay for an active statewide elected official. |
| • Age 55 with 4 years of service or "Rule of 80" - at least age 50 with age and service equaling 80 or more | • Age 62 with 4 years of service or "Rule of 90" - at least age 55 with age and service equaling 90 or more |
| • Not available | • Not available |
| • Non duty-related death *(vested members)*<br>– Survivor benefit to eligible spouse calculated using the joint & 100% survivor option or 80% of the member's life income annuity paid to eligible children.<br>• Duty-related death *(no minimum service requirement)*<br>– Survivor benefit to eligible spouse or children no less than 50% of current pay. | • Non duty-related death *(vested members)*<br>– Survivor benefit to eligible spouse calculated using the joint & 100% survivor option or 80% of the member's life income annuity paid to eligible children.<br>• Duty-related death *(no minimum service requirement)*<br>– Survivor benefit to eligible spouse or children no less than 50% of current pay. |
| • Not available | • Not available |
| • Not available | • Not available |
| • May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost. | • May purchase qualifying public sector service at full actuarial cost. |
| • May transfer service under 104.1090 from other systems with written agreements to transfer required funds. | • Not available |
| • None | • 4% of pay |

## Comparison of Plans for Judges

*June 30, 2013*

### Judicial Plan • Judicial Plan 2011

| Benefit Provisions | Judicial Plan |
|---|---|
| **Membership eligibility** | • Must be a judge or commissioner of the supreme court or the court of appeals, a judge of the circuit court, probate court, magistrate court, court of common pleas, court of criminal corrections, a justice of the peace, or a commissioner or deputy commissioner of the circuit court appointed after February 29, 1972; a commissioner of the juvenile division of the circuit court appointed pursuant to Section 211.023, RSMo; a commissioner of the drug court pursuant to Section 478.466, RSMo; or a commissioner of the family court. |
| **Vesting** | • Immediate |
| **Base benefit formula** | • Monthly pay x .50 = monthly base benefit |
| **Temporary benefit formula** | • Not available |
| **Benefit payment options** | • Life income annuity<br>• Automatic *unreduced* joint and 50% survivor option<br>*If married at least two continuous years immediately preceding judges death.* |
| **Cost-of-living adjustment (COLA)** | • If hired before August 28, 1997, will receive 4-5% each year until reaching 65% cap. After COLA cap, the rate is based on 80% of the percentage increase in the CPI (0-5%)<br>• If hired on or after August 28, 1997, based on 80% of the percentage increase in the CPI (0-5%). |
| **Normal retirement eligibility** | • Age 62 with 12 years service<br>• Age 60 with 15 years service<br>• Age 55 with 20 years service |
| **Reduced retirement eligibility** | • Age 60 if less than 15 years service<br>• Age 62 if less than 12 years service |
| **Death before retirement** | • Non duty-related death<br>– Survivor benefit to eligible spouse equal to 50% of the benefit the member would have received based on service to age 70.<br>• Duty-related death<br>– Survivor benefit to eligible spouse equal to 50% of the member's annuity at the time of death. |
| **In-service cola**<br>*Service beyond age 65* | • Judges who are at least age 60 and work beyond the date first eligible for unreduced benefits will receive COLAs for each year worked beyond normal retirement eligibility. COLA provisions are determined by date of employment. |
| **BackDROP** | • Not available |
| **Service purchases** | • May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate. May also purchase public sector service at full actuarial cost. |
| **Service transfers** | • May transfer state service to other positions covered by MOSERS under 104.800. |
| **Member contributions** | • None |

| Judicial Plan 2011 |
|---|
| • Must be a judge or commissioner of the supreme court or the court of appeals, a judge of the circuit court, probate court, magistrate court, court of common pleas, court of criminal corrections, a justice of the peace, or a commissioner or deputy commissioner of the circuit court; a commissioner of the juvenile division of the circuit court appointed pursuant to Section 211.023, RSMo; a commissioner of the drug court pursuant to Section 478.466, RSMo; or a commissioner of the family court appointed or elected a judge for the first time on or after January 1, 2011. |
| • Immediate |
| • Monthly pay x .50 = monthly base benefit |
| • Not available |
| • Life income annuity<br>• Joint & 50% survivor<br>• Joint & 100% survivor<br>• Life income with 120 guaranteed payments<br>• Life income with 180 guaranteed payments |
| • Based on 80% of the percentage increase in the CPI (0-5%) |
| • Age 67 with 12 years service<br>• Age 62 with 20 years service |
| • Age 67 if less than 12 years service<br>• Age 62 if less than 20 years service |
| • Non duty-related death<br>– Survivor benefit to eligible spouse equal to 50% of the benefit the member would have received based on service to age 70.<br>• Duty-related death<br>– Survivor benefit to eligible spouse equal to 50% of the member's annuity at the time of death. |
| • Not available |
| • Not available |
| • May purchase qualifying public sector service at full actuarial cost. |
| • May transfer state service to other positions covered by MOSERS under 104.800. |
| • 4% of pay |

## Comparison of Plans for Uniformed Members of the Water Patrol

*June 30, 2013*

MSEP • MSEP 2000

| Benefit Provisions | MSEP | MSEP 2000 |
|---|---|---|
| **Membership eligibility** | • Members who work in a permanent position normally requiring at least 1,040 hours of work a year. | • Members hired for the first time on or after July 1, 2000, in a permanent position normally requiring at least 1,040 hours of work a year.<br>• Members who left state employment prior to becoming vested and returned to work on or after July 1, 2000, in a permanent position normally requiring at least 1,040 hours of work a year. |
| **Vesting** | • 5 years of service | • 5 years of service |
| **Base benefit formula** | • 1.6% x FAP x service increased by 33.3% | • 1.7% x FAP x service |
| **Temporary benefit formula** | • Not available | • 0.8% x FAP x service<br>*(must retire under "Rule of 80")* |
| **Benefit payment options** | • Life income annuity<br>• *Unreduced* joint and 50% survivor<br>• Joint & 100% survivor<br>• 120 Or 180 guaranteed payments | • Life income annuity<br>• Joint & 50% survivor<br>• Joint & 100% survivor<br>• 120 Or 180 guaranteed payments |
| **Cost-of-living adjustment (COLA)** | • If hired before August 28, 1997, will receive 4-5% each year until reaching 65% cap. After COLA cap, the rate is based on 80% of the percentage increase in the CPI (0-5%).<br>• If hired on or after August 28, 1997, based on 80% of the percentage increase in the CPI (0-5%). | • Based on 80% of the percentage increase in the CPI (0-5%). |
| **Normal retirement eligibility** | • Age 55 and active with 4 years of service<br>• Age 55 with 5 years of service<br>• "Rule of 80"- minimum age 48 | • Age 62 with 5 years of service<br>• "Rule of 80" - minimum age 48 |
| **Early retirement eligibility** | • Not available | • Age 57 with 10 years of service |
| **Death before retirement** | • Non duty-related death *(vested members)*<br>– Survivor benefit to eligible spouse calculated using the joint & 100% survivor option or 80% of the member's life income annuity paid to eligible children.<br>• Duty-related death *(no minimum service requirement)*<br>– Survivor benefit to eligible spouse or children no less than 50% of current pay. | • Non duty-related death *(vested members)*<br>– Survivor benefit to eligible spouse calculated using the joint & 100% survivor option or 80% of the member's life income annuity paid to eligible children.<br>• Duty-related death *(no minimum service requirement)*<br>– Survivor benefit to eligible spouse or children no less than 50% of current pay. |
| **In-service COLA** | • COLA given for service beyond age 65. COLA provisions are determined by employment date. | • Not available |
| **BackDROP** | • Not available | • Not available |
| **Service purchases** | • May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate. May also purchase public sector service at full actuarial cost. | • May purchase qualifying public sector service at full actuarial cost. |
| **Service transfers** | • May transfer state service to other positions covered by MOSERS under 104.800. | • Not available |
| **Member contributions** | • None | • None |

SUMMARY OF PLAN PROVISIONS

## Administrative Law Judges and Legal Advisors Plan

*June 30, 2013*

| Benefit Provisions | Requirements |
|---|---|
| **Membership eligibility** | • Administrative law judge or legal advisor in the Division of Workers' Compensation, a member or legal counsel of the Labor and Industrial Relations Commission, chairperson of the State Board of Mediation, or an administrative hearing commissioner hired prior to April 26, 2005. |
| **Vesting** | • Immediate |
| **Base benefit formula** | • Normal retirement eligibility<br>50% of the average highest 12 consecutive months of salary |
| **Temporary benefit formula** | • Not available |
| **Benefit payment options** | • Life income annuity (if unmarried)<br>• Automatic *unreduced* joint and 50% survivor option<br>– If married on date of termination and two continuous years immediately preceding judges death. |
| **Cost-of-living adjustment (COLA)** | • If hired before August 28, 1997, will receive 4-5% each year until reaching 65% cap. After COLA cap, the rate is based on 80% of the percentage increase in the CPI.<br>• If hired on or after August 28, 1997, based on 80% of the percentage increase in the CPI (0-5%). |
| **Normal retirement eligibility** | • Age 62 with 12 years of service<br>• Age 60 with 15 years of service<br>• Age 55 with 20 years of service |
| **Reduced retirement eligibility** | • Age 65 with less than 12 years of service with reduced benefit, based upon years of service relative to 12 years. |
| **Death before retirement** | • Non duty-related death<br>– Survivor benefit to eligible spouse equal to 50% of the benefit the member would have received based on service relative to 12 years.<br>• Duty-related death<br>– Survivor benefit to eligible spouse equal to 50% of the member's annuity at the time of death. |
| **In-service COLA** | • Not available |
| **BackDROP** | • Not available |
| **Service purchases** | • May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate. May also purchase public sector service at full actuarial cost. |
| **Service transfers** | • May transfer state service to other positions covered by MOSERS under 104.800. |
| **Member contributions** | • None |

* *All new administrative law judges and legal advisors hired on or after April 26, 2005, who were not previously covered by a retirement system under Chapter 287, RSMo, participate in the MSEP, which is covered under Chapter 104, RSMo.*

## Life Insurance Plans

*June 30, 2013*

MOSERS administers basic and optional term life insurance plans for eligible state employees and retirees.

### Active Members*

| Plan Provision | Requirement |
|---|---|
| • **Basic life insurance** - An amount equal to one times annual salary (with a minimum of $15,000) while actively employed. | • Actively employed in an eligible state position resulting in membership in MOSERS. |
| • **Duty-related death benefit** - Duty-related death benefit equivalent to two times the annual salary the member was earning at the time of death in addition to the basic life insurance amount of one times annual salary. | • Actively employed in an eligible state position resulting in membership in MOSERS. |
| • **Optional life insurance** - Additional life insurance may be purchased in a flat amount in multiples of $10,000 not to exceed the maximum (lesser of six times annual salary or $800,000). Spouse coverage may be purchased in multiples of $10,000 up to a maximum of $100,000; however, the amount of spouse coverage cannot exceed the amount of optional life insurance coverage the member has purchased. Coverage for children is available in a flat amount of $10,000 per child. | • Actively employed in an eligible state position resulting in membership in MOSERS. |

* *Terminating employees may convert coverage up to the amount they had as an active employee at individual rates.*

### Retired Members

| Plan Provision | Requirement |
|---|---|
| • **Basic life insurance at retirement** - $5,000 basic life insurance during retirement. | • Must retire directly from active employment. |
| • **Optional life insurance at retirement (MSEP)** - An employee may retain up to the lesser of $60,000 or the amount of optional life insurance coverage held at the time of retirement at the group rate and may convert any remaining basic and optional life insurance at individual rates. | • Must retire directly from active employment. |
| • **Optional life insurance at retirement (MSEP 2000)** - Under "Rule of 80", an employee may retain the current amount of coverage prior to retirement until age 62 at which time coverage is reduced to $60,000, and may convert any remaining basic and optional life insurance at individual rates. Coverage for spouse ends at member's retirement and may be converted at individual rates. | • Must retire directly from active employment. |
| • **Optional life insurance at retirement (MSEP 2011)** - Under "Rule of 90", an employee may retain the current amount of coverage prior to retirement until age 62 at which time coverage is reduced to $60,000, and may convert any remaining basic and optional life insurance at individual rates. Coverage for spouse ends at member's retirement and may be converted at individual rates. | • Must retire directly from active employment. |

## Long-Term Disability (LTD) Plans

*June 30, 2013*

MOSERS administers the LTD Plan for eligible state employees who become disabled during active employment.

### Active Members

| Classification | Requirement |
| --- | --- |
| • **General state employees, legislators, and elected state officials** - Members of MOSERS in a position normally requiring 1,040 hours of work a year are covered under the LTD plan, unless they work for a state agency which has its own LTD plan. | • Eligible participants receive 60% of their compensation minus primary social security, workers' compensation, and employer provided income. Benefits commence after 90 days of disability or after sick leave expires, whichever occurs last. LTD benefits cease upon the earliest of (i) when disability ends, (ii) when the member is first eligible for normal retirement benefits or is receiving early retirement benefits, (iii) when the member returns to work, or (iv) upon a member's death. |
| • **Water patrol** | • Uniformed members who are eligible for statutory occupational disability receive benefits equal to 50% of compensation with no offset for social security at the time of disability. For nonoccupational disabilities, eligible participants receive the same benefit as general employees. |
| • **Judges** | • In addition to the disability benefits provided to general employees, judges also receive benefits under the state constitution. Participants receive 50% of salary until the current term expires. |

## Changes in Plan Provisions

HB 233 was enacted during FY13 – legislation which contained minor clarifications and administrative changes to the retirement plans administered by MOSERS; however, there were no changes in benefit plan provisions this year.

## Actuarial Present Values
*June 30, 2013*

### MSEP

| Actuarial Present Value June 30, 2013 for | Actuarial Present Value | Portion Covered by Future Normal Cost Contributions | Actuarial Accrued Liabilities |
|---|---|---|---|
| **Active members** | | | |
| **Service retirement benefits based on services rendered before and likely to be rendered after valuation date** | $4,754,705,778 | $648,442,753 | $4,106,263,025 |
| Disability benefits likely to be paid to present active members who become totally and permanently disabled | 138,509,142 | 86,334,651 | 52,174,491 |
| Survivor benefits likely to be paid to widows and children of present active members who die before retiring | 94,722,679 | 22,042,669 | 72,680,010 |
| Separation benefits likely to be paid to present active members | 407,756,601 | 191,406,641 | 216,349,960 |
| Refunds likely to be paid to present active members | 24,363,928 | 22,859,027 | 1,504,901 |
| **Active member totals** | $5,420,058,128 | $971,085,741 | 4,448,972,387 |
| **Members on leave of absence & LTD** | | | |
| Service retirement benefits based on service rendered before the valuation date | | | 94,092,558 |
| **Terminated-vested members** | | | |
| Service retirement benefits based on service rendered before the valuation date | | | 528,918,098 |
| **Retired lives** | | | 6,061,942,427 |
| **BackDROP installment payments incurred, but not yet paid** | | | 712,014 |
| **Total actuarial accrued liability** | | | 11,134,637,484 |
| **Actuarial value of assets** | | | 8,096,436,929 |
| **Unfunded actuarial accrued liability** | | | $3,038,200,555 |
| **Funded Ratio** | | | 72.7% |

### Judicial Plan

| Actuarial Present Value June 30, 2013 for | Actuarial Present Value | Portion Covered by Future Normal Cost Contributions | Actuarial Accrued Liabilities |
|---|---|---|---|
| **Active members** | | | |
| Service retirement benefits based on services rendered before and likely to be rendered after valuation date | $202,444,730 | $53,973,242 | $148,471,488 |
| Disability benefits likely to be paid to present active members who become totally and permanently disabled | 846,935 | 895,585 | (48,650) |
| Survivor benefits likely to be paid to widows and children of present active members who die before retiring | 4,371,129 | 2,337,577 | 2,033,552 |
| Refunds likely to be paid to present active members | 39,274 | 36,350 | 2,924 |
| **Active member totals** | $207,702,068 | $57,242,754 | 150,459,314 |
| **Retired lives** | | | 274,911,416 |
| **Terminated-vested members** | | | 9,406,185 |
| **Member on Leave of Absence** | | | 289,552 |
| **Members on LTD** | | | 311,891 |
| **Total actuarial accrued liability** | | | 435,378,358 |
| **Actuarial value of assets** | | | 111,140,339 |
| **Unfunded actuarial accrued liability** | | | $324,238,019 |
| **Funded Ratio** | | | 25.5% |

# Statistical
SECTION

# Statistical Section

# SUMMARY

## Plan Membership

Membership in the pension trusts administered by MOSERS increased by 1,849. Active members decreased by 497, retired members and their beneficiaries increased by 1,840, and terminated-vested members increased by 506. Membership data for the last ten years ended June 30, 2013, can be found on page 145. Page 148 depicts the location of benefit recipients, showing that the majority remain in the state of Missouri after retirement.

## Valuation Assets vs. Pension Liabilities

The charts on pages 140-144 graphically represent the funding progress of the pension plans for the ten years ended June 30, 2013. The area charts in the middle of the pages show the portion of the pension liabilities that are unfunded compared to the portion covered by assets in the trust funds. The charts on the bottom of the pages illustrate the funded ratio of the plans for the ten years ended June 30, 2013.

The existence of the unfunded actuarial accrued liabilities is not necessarily an indication of financial problems, but the fluctuations are important and must be monitored and controlled.

The remainder of this section contains various statistical and historical data considered useful in evaluating the condition of the plans.

All nonaccounting data is taken from MOSERS' internal sources except for that information which is derived from the actuarial valuations (pages 140-145, 149, and 158-159). Member data may differ between some schedules since the valuations are performed using data as of May 31 each year.

## Changes in Net Position
*Last Ten Fiscal Years*

| | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|
| **MSEP** | | | | |
| *Additions* | | | | |
| Employer contributions | $ 164,691,836 | $194,524,059 | $227,233,195 | $ 239,488,751 |
| Employee contributions | 0 | 0 | 0 | 0 |
| Member service purchases | 3,426,367 | 4,122,001 | 3,072,315 | 3,460,923 |
| Service transfers in | 166,510 | 29,397 | 161,613 | 172,936 |
| Investment income (net of expenses) | 873,793,645 | 727,341,314 | 728,526,971 | 1,283,573,438 |
| Other | 469,959 | 1,231,658 | 501,512 | 542,266 |
| Total additions to plan net position | 1,042,548,317 | 927,248,429 | 959,495,606 | 1,527,238,314 |
| *Deductions* | | | | |
| Benefits | 367,248,099 | 367,431,297 | 400,169,563 | 447,240,771 |
| Refunds | 8,585 | 0 | 1,341 | 0 |
| Service transfers out | 529,177 | 199,201 | 133,866 | 51,980 |
| Administrative expenses | 5,694,082 | 6,228,609 | 6,486,597 | 6,689,710 |
| Total deductions from plan net position | 373,479,943 | 373,859,107 | 406,791,367 | 453,982,461 |
| Transfer from ALJLAP plan | 0 | 18,157,148 | 0 | 0 |
| **Change in net position** | $ 669,068,374 | $571,546,470 | $552,704,239 | $1,073,255,853 |
| **ALJLAP** | | | | |
| *Additions* | | | | |
| Employer contributions | $ 945,950 | $ 1,124,924 | $ 0 | $ 0 |
| Investment income (net of expenses) | 2,344,262 | 2,057,375 | 0 | 0 |
| Other | 1,261 | 3,484 | 0 | 0 |
| Total additions to plan net position | 3,291,473 | 3,185,783 | 0 | 0 |
| *Deductions* | | | | |
| Benefits | 1,003,355 | 749,197 | 0 | 0 |
| Administrative expenses | 15,276 | 17,618 | 0 | 0 |
| Total deductions from plan net position | 1,018,631 | 766,815 | 0 | 0 |
| Transfer to MSEP plan | 0 | (18,157,148) | 0 | 0 |
| **Change in net position** | $2,272,842 | $(15,738,180) | $ 0 | $ 0 |
| **Judicial Plan** | | | | |
| *Additions* | | | | |
| Employer contributions | $ 20,636,314 | $ 21,852,985 | $ 22,401,569 | $ 23,745,467 |
| Employee contributions | 0 | 0 | 0 | 0 |
| Investment income (net of expenses) | 5,800,076 | 5,409,107 | 5,933,531 | 11,356,312 |
| Other | 3,119 | 9,160 | 4,085 | 4,798 |
| Total additions to plan net position | 26,439,509 | 27,271,252 | 28,339,185 | 35,106,577 |
| *Deductions* | | | | |
| Benefits | 17,658,269 | 18,396,397 | 19,091,587 | 20,595,504 |
| Administrative expenses | 37,796 | 46,321 | 52,830 | 59,187 |
| Total deductions from plan net position | 17,696,065 | 18,442,718 | 19,144,417 | 20,654,691 |
| **Change in net position** | $ 8,743,444 | $ 8,828,534 | $ 9,194,768 | $ 14,451,886 |
| **Internal Service Fund** | | | | |
| Operating revenues | | | | |
| Premium receipts | $ 25,771,703 | $ 27,305,305 | $ 26,415,236 | $ 27,101,931 |
| Deferred compensation receipts | 0 | 0 | 0 | 0 |
| Miscellaneous income | 436,489 | 436,489 | 436,501 | 436,502 |
| Total operating revenues | 26,208,192 | 27,741,794 | 26,851,737 | 27,538,433 |
| *Operating expenses* | | | | |
| Premium disbursements | 25,736,083 | 27,271,948 | 26,379,919 | 27,063,815 |
| Deferred compensation disbursements | 0 | 0 | 0 | 0 |
| Premium refunds | 35,620 | 33,357 | 35,317 | 38,116 |
| Administrative expenses | 474,040 | 466,531 | 487,699 | 527,040 |
| Total operating expenses | 26,245,743 | 27,771,836 | 26,902,935 | 27,628,971 |
| *Non-operating revenues* | | | | |
| Investment income | 24,353 | 49,326 | 85,124 | 117,729 |
| **Change in net position** | $ (13,198) | $ 19,284 | $ 33,926 | $ 27,191 |

| 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| $ 249,770,156 | $ 252,105,008 | $ 251,226,187 | $ 263,418,048 | $ 263,373,924 | $ 274,655,284 |
| 0 | 0 | 0 | 599,761 | 4,955,399 | 9,698,883 |
| 3,085,133 | 3,235,999 | 3,576,954 | 2,814,551 | 2,869,085 | 3,475,123 |
| 38,069 | 28,075 | 10,009 | 142,248 | 2,675,339 | 2,446,627 |
| 110,627,355 | (1,508,376,715) | 859,898,512 | 1,395,677,299 | 158,102,123 | 778,008,348 |
| 572,274 | 619,060 | 639,901 | 659,474 | 448,463 | 489,193 |
| 364,092,987 | (1,252,388,573) | 1,115,351,563 | 1,663,311,381 | 432,424,333 | 1,068,773,458 |
| | | | | | |
| 479,853,891 | 511,466,555 | 543,284,289 | 597,424,954 | 611,522,451 | 646,708,308 |
| 0 | 0 | 3,106 | 0 | 123,709 | 622,341 |
| 251,443 | 0 | 462,970 | 17,745,828 | 588,180 | 1,911,665 |
| 6,950,878 | 7,088,483 | 7,064,544 | 7,054,581 | 7,017,057 | 7,575,883 |
| 487,056,212 | 518,555,038 | 550,814,909 | 622,225,363 | 619,251,397 | 656,818,197 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| $ (122,963,225) | $(1,770,943,611) | $ 564,536,654 | $1,041,086,018 | $(186,827,064) | $ 411,955,261 |
| | | | | | |
| $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | | | | | |
| $ 26,215,309 | $ 27,725,882 | $ 27,029,198 | $ 27,702,682 | $ 26,324,526 | $ 28,330,649 |
| 0 | 0 | 0 | 59,958 | 149,859 | 211,936 |
| 1,043,940 | (15,847,382) | 9,909,718 | 17,460,050 | 2,061,916 | 10,724,252 |
| 5,506 | 6,504 | 7,374 | 8,250 | 5,849 | 6,743 |
| 27,264,755 | 11,885,004 | 36,946,290 | 45,230,940 | 28,542,150 | 39,273,580 |
| | | | | | |
| 22,058,085 | 23,232,088 | 24,230,545 | 25,488,531 | 26,821,412 | 27,802,871 |
| 66,880 | 74,473 | 81,414 | 88,253 | 91,514 | 104,428 |
| 22,124,965 | 23,306,561 | 24,311,959 | 25,576,784 | 26,912,926 | 27,907,299 |
| $ 5,139,790 | $ (11,421,557) | $ 12,634,331 | $ 19,654,156 | $ 1,629,224 | $ 11,366,281 |
| | | | | | |
| $ 27,957,666 | $ 28,990,057 | $ 29,098,799 | $ 28,829,638 | $ 28,578,326 | $ 28,961,637 |
| 60,393,973 | 75,661,047 | 69,143,267 | 54,221,226 | 17,500,476 | 0 |
| 536,493 | 1,027,380 | 1,039,369 | 981,404 | 608,187 | 480,120 |
| 88,888,132 | 105,678,484 | 99,281,435 | 84,032,268 | 46,686,989 | 29,441,757 |
| | | | | | |
| 27,927,265 | 28,968,981 | 29,077,825 | 28,804,638 | 28,556,036 | 28,930,950 |
| 60,371,802 | 75,683,218 | 69,143,267 | 54,221,226 | 17,500,476 | 0 |
| 30,401 | 21,076 | 20,974 | 24,999 | 22,291 | 30,687 |
| 708,100 | 819,581 | 797,020 | 826,809 | 778,529 | 805,457 |
| 89,037,568 | 105,492,856 | 99,039,086 | 83,877,672 | 46,857,332 | 29,767,094 |
| | | | | | |
| 77,396 | 20,755 | 9,816 | 11,071 | 11,068 | 12,075 |
| $ (72,040) | $ 206,383 | $ 252,165 | $ 165,667 | $ (159,275) | $ (313,262) |

## Deductions from Net Position for Benefits and Refunds by Type

*Last Ten Fiscal Years*

### MSEP

| | FY04 | FY05 | FY06 | FY07 | FY08 |
|---|---|---|---|---|---|
| **Type of benefit** | | | | | |
| Retirement | $295,200,937 | $314,623,851 | $338,449,307 | $366,185,990 | $393,328,057 |
| Survivors | 21,930,438 | 24,251,854 | 26,944,984 | 29,340,464 | 31,894,702 |
| Disability | 102,696 | 82,246 | 62,324 | 42,273 | 36,825 |
| Lump sum | 320,267 | 342,720 | 459,398 | 556,568 | 454,643 |
| BackDROP | 49,693,761 | 28,130,626 | 34,253,550 | 51,115,476 | 54,139,664 |
| Total benefits | $367,248,099 | $367,431,297 | $400,169,563 | $447,240,771 | $479,853,891 |
| Refunds | $ 8,585 | $ 0 | $ 1,341 | $ 0 | $ 0 |

| | FY09 | FY10 | FY11 | FY12 | FY13 |
|---|---|---|---|---|---|
| **Type of benefit** | | | | | |
| Retirement | $421,847,017 | $448,880,110 | $476,841,741 | $504,555,055 | $533,962,629 |
| Survivors | 34,615,979 | 37,718,898 | 39,968,601 | 42,963,959 | 46,659,381 |
| Disability | 33,812 | 33,403 | 29,191 | 29,503 | 27,255 |
| Lump sum | 272,189 | 409,787 | 293,147 | 229,650 | 191,320 |
| BackDROP and service transfers | 54,697,557 | 56,705,060 | 98,038,103 | 64,332,464 | 67,779,388 |
| Total benefits | $511,466,554 | $543,747,258 | $615,170,783 | $612,110,631 | $648,619,973 |
| Refunds | $ 0 | $ 3,106 | $ 0 | $ 123,709 | $ 622,341 |

### ALJLAP*

| | FY04 | FY05 | FY06 | FY07 | FY08 |
|---|---|---|---|---|---|
| **Type of benefit** | | | | | |
| Retirement | $ 840,963 | $ 616,370 | $ 0 | $ 0 | $ 0 |
| Survivors | 162,392 | 132,827 | 0 | 0 | 0 |
| Total benefits | $1,003,355 | $ 749,197 | $ 0 | $ 0 | $ 0 |

**ALJLAP Plan transitioned to the MSEP Plan in fiscal year 2005*

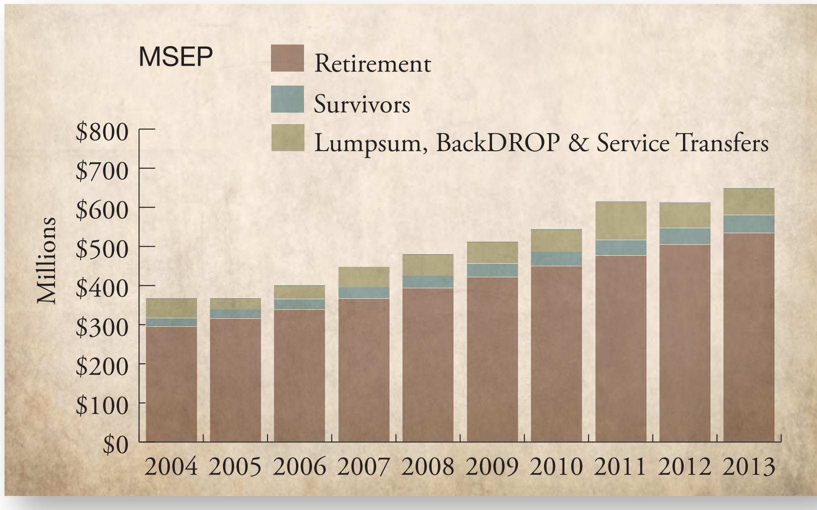
### Judicial Plan

| | FY04 | FY05 | FY06 | FY07 | FY08 |
|---|---|---|---|---|---|
| **Type of benefit** | | | | | |
| Retirement | $ 14,913,678 | $ 15,513,182 | $ 15,989,341 | $ 17,135,426 | $ 18,342,676 |
| Survivors | 2,744,591 | 2,883,215 | 3,070,746 | 3,433,078 | 3,715,409 |
| Disability | 0 | 0 | 31,500 | 27,000 | 0 |
| Total benefits | $ 17,658,269 | $ 18,396,397 | $ 19,091,587 | $ 20,595,504 | $ 22,058,085 |

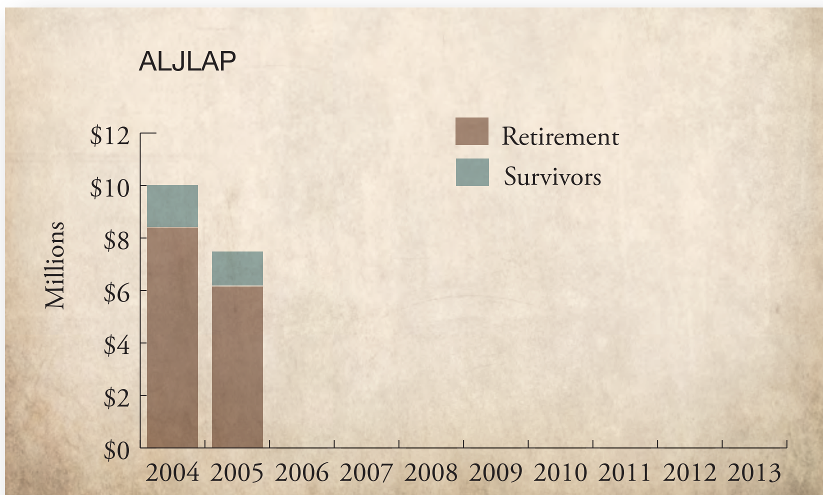
| | FY09 | FY10 | FY11 | FY12 | FY13 |
|---|---|---|---|---|---|
| **Type of benefit** | | | | | |
| Retirement | $ 19,143,753 | $ 19,784,720 | $ 21,025,904 | $ 22,284,844 | $ 23,123,702 |
| Survivors | 4,088,335 | 4,445,825 | 4,462,627 | 4,536,569 | 4,679,169 |
| Disability | 0 | 0 | 0 | 0 | 0 |
| Total benefits | $ 23,232,088 | $ 24,230,545 | $ 25,488,531 | $ 26,821,413 | $ 27,802,871 |

## Deductions from Net Position for Benefits and Refunds by Type

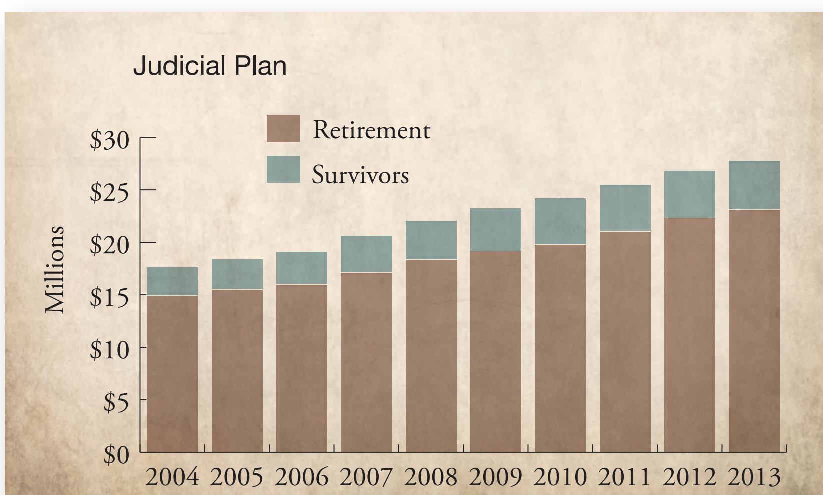
*Last Ten Fiscal Years*




Disability benefits are included, but amounts are too minimal to display visually in graph.




The ALJLAP was transitioned to the MSEP during FY05.



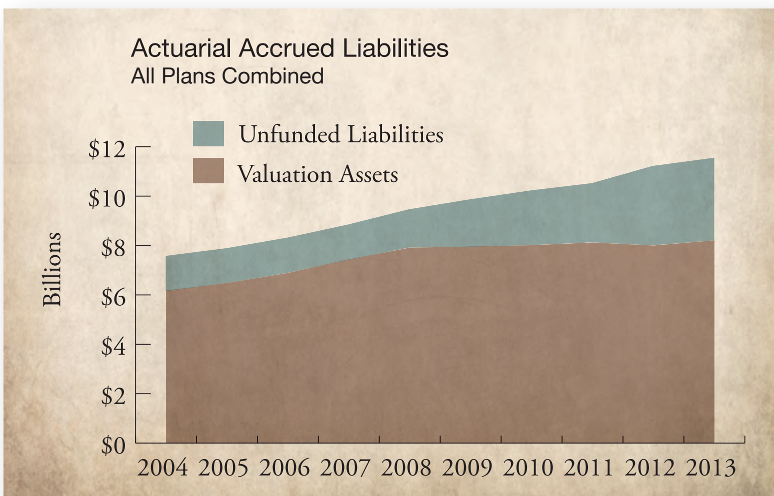

Disability benefits are included, but amounts are too minimal to display visually in graph.

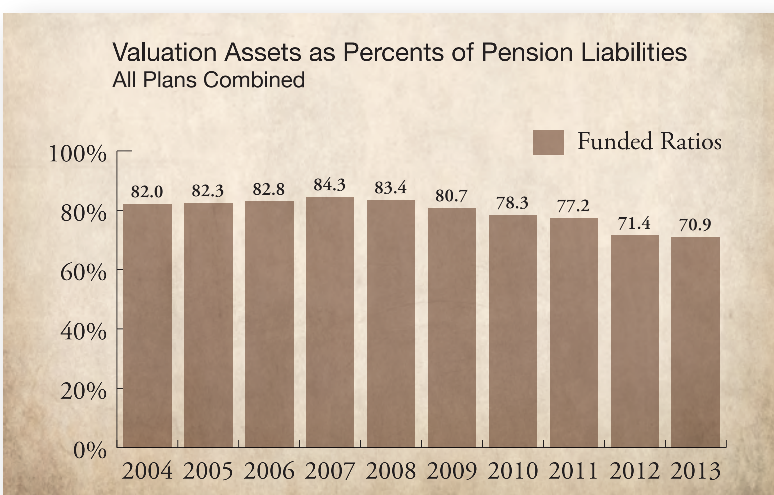
## Valuation Assets (Smoothed Market) vs. Pension Liabilities

*Pension Trust Funds - Last Ten Fiscal Years*

All Plans Combined

| | Dollars in Billions | | | |
|---|---|---|---|---|
| Fiscal Year | Valuation Assets | Unfunded Liabilities | Accrued Liabilities | Funded Ratios |
| 2004 | $6.1735 | $1.3573 | $ 7.5308 | 82.0% |
| 2005 | 6.4795 | 1.3908 | 7.8703 | 82.3 |
| 2006 | 6.8883 | 1.4339 | 8.3222 | 82.8 |
| 2007 | 7.4392 | 1.3879 | 8.8271 | 84.3 |
| 2008 | 7.9117 | 1.5714 | 9.4831 | 83.4 |
| 2009 | 7.9574 | 1.9065 | 9.8639 | 80.7 |
| 2010 | 8.0124 | 2.2228 | 10.2352 | 78.3 |
| 2011 | 8.1210 | 2.3960 | 10.5170 | 77.2 |
| 2012 | 7.9994 | 3.2076 | 11.2070 | 71.4 |
| 2013 | 8.2075 | 3.3624 | 11.5700 | 70.9 |



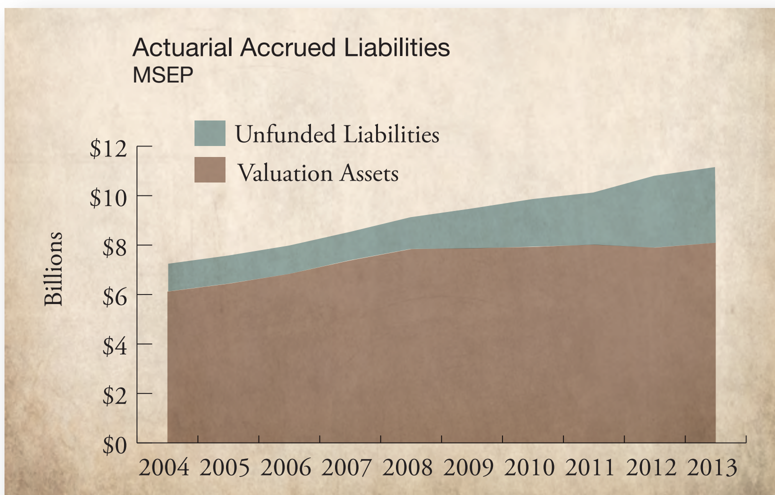



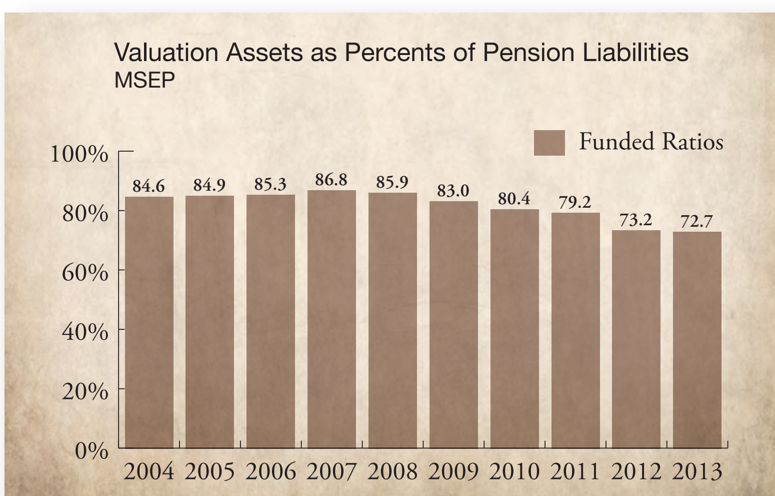
## Valuation Assets (Smoothed Market) vs. Pension Liabilities

*Ten Years Ended June 30, 2013*

MSEP

| | Dollars in Billions | | | |
|---|---|---|---|---|
| Fiscal Year | Valuation Assets | Unfunded Liabilities | Accrued Liabilities | Funded Ratios |
| 2004 | $6.1182 | $1.1118 | $ 7.2300 | 84.6% |
| 2005 | 6.4353 | 1.1427 | 7.5780 | 84.9 |
| 2006 | 6.8366 | 1.1766 | 8.0132 | 85.3 |
| 2007 | 7.3773 | 1.1231 | 8.5004 | 86.8 |
| 2008 | 7.8385 | 1.2898 | 9.1283 | 85.9 |
| 2009 | 7.8761 | 1.6187 | 9.4948 | 83.0 |
| 2010 | 7.9234 | 1.9298 | 9.8532 | 80.4 |
| 2011 | 8.0225 | 2.1010 | 10.1240 | 79.2 |
| 2012 | 7.8972 | 2.8965 | 10.7937 | 73.2 |
| 2013 | 8.0964 | 3.0382 | 11.1346 | 72.7 |



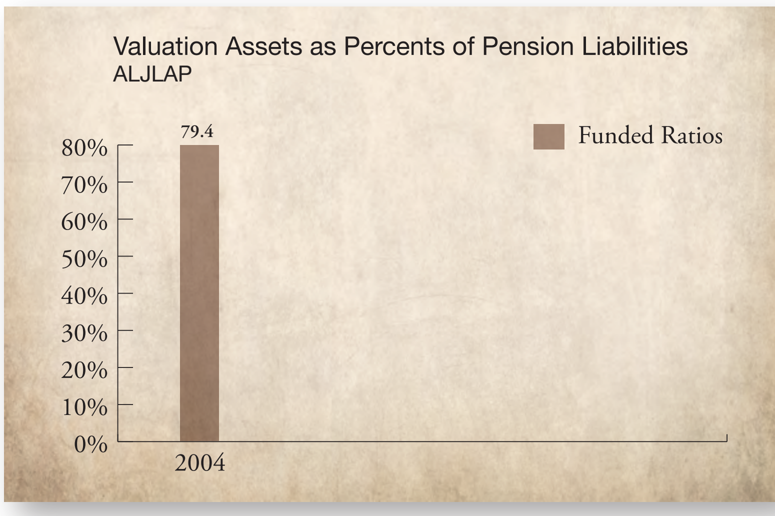



## Valuation Assets (Smoothed Market) vs. Pension Liabilities
***Pension Trust Funds - Last Ten Fiscal Years***

ALJLAP*

| | Dollars in Billions | | | |
|---|---|---|---|---|
| Fiscal Year | Valuation Assets | Unfunded Liabilities | Accrued Liabilities | Funded Ratios |
| 2004 | $0.0162 | 0.0042 | $0.0204 | 79.4% |

** Assets and liabilities transferred to MSEP during fiscal year 2005.*

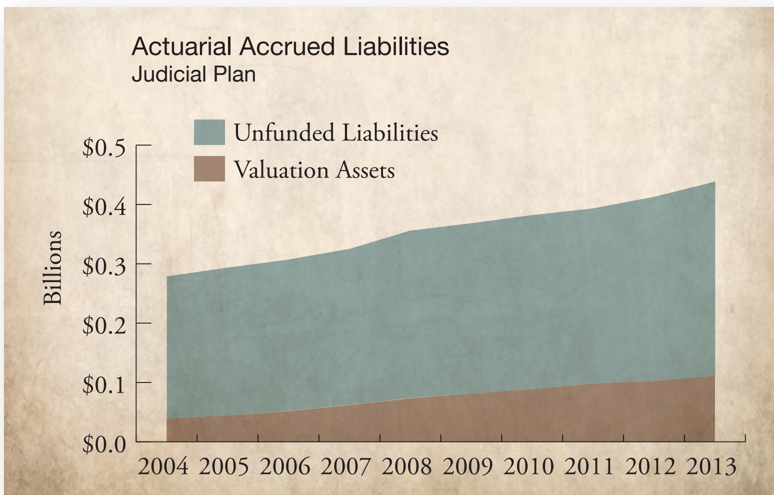


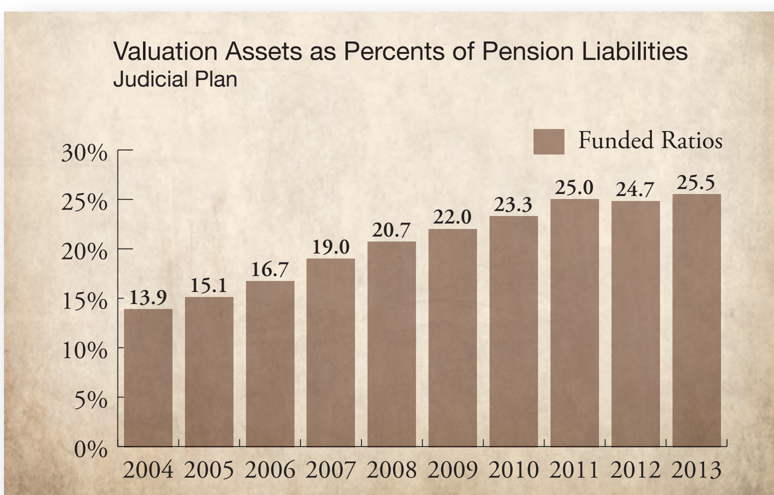
# Valuation Assets (Smoothed Market) vs. Pension Liabilities

*Ten Years Ended June 30, 2013*

Judicial Plan

| | Dollars in Billions | | | |
|---|---|---|---|---|
| Fiscal Year | Valuation Assets | Unfunded Liabilities | Accrued Liabilities | Funded Ratios |
| 2004 | $0.0391 | $0.2413 | $0.2804 | 13.9% |
| 2005 | 0.0442 | 0.2481 | 0.2923 | 15.1 |
| 2006 | 0.0517 | 0.2573 | 0.3090 | 16.7 |
| 2007 | 0.0619 | 0.2648 | 0.3267 | 19.0 |
| 2008 | 0.0732 | 0.2816 | 0.3548 | 20.7 |
| 2009 | 0.0813 | 0.2878 | 0.3691 | 22.0 |
| 2010 | 0.0890 | 0.2930 | 0.3820 | 23.3 |
| 2011 | 0.0984 | 0.2951 | 0.3935 | 25.0 |
| 2012 | 0.1023 | 0.3111 | 0.4133 | 24.7 |
| 2013 | 0.1111 | 0.3242 | 0.4354 | 25.5 |

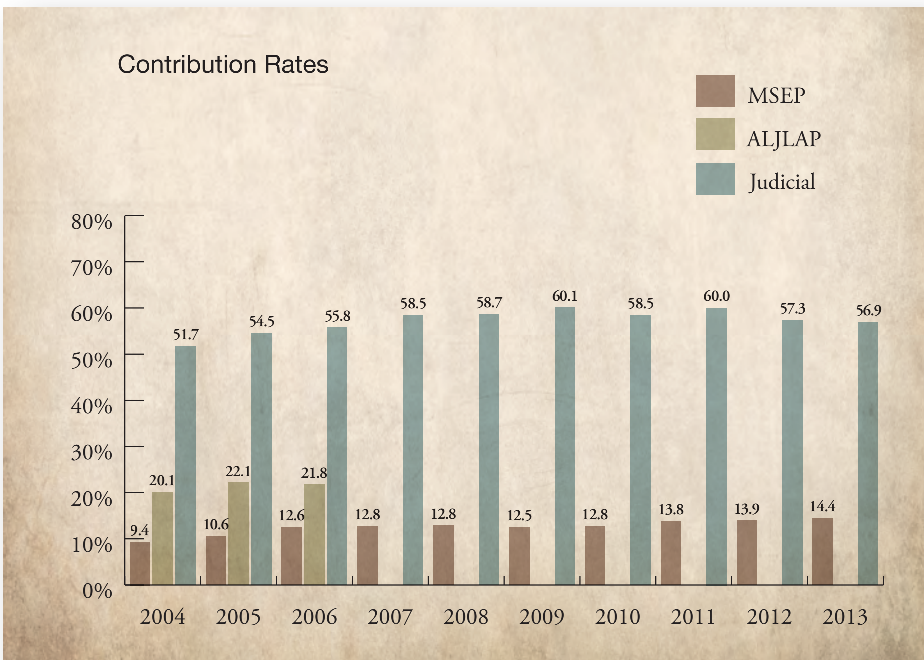


## Contribution Rates as a Percent of Payroll
*Last Ten Fiscal Years*

| Fiscal Year | MSEP | ALJLAP* | Judicial Plan |
|---|---|---|---|
| 2004 | 9.35% | 20.12% | 51.68% |
| 2005 | 10.64 | 22.13 | 54.51 |
| 2006 | 12.59 | 21.79 | 55.76 |
| 2007 | 12.78 | 0.00 | 58.48 |
| 2008 | 12.84 | 0.00 | 58.65 |
| 2009 | 12.53 | 0.00 | 60.07 |
| 2010 | 12.75 | 0.00 | 58.48 |
| 2011 | 13.81 | 0.00 | 60.03 |
| 2012 | 13.97 | 0.00 | 57.30 |
| 2013 | 14.45 | 0.00 | 56.92 |

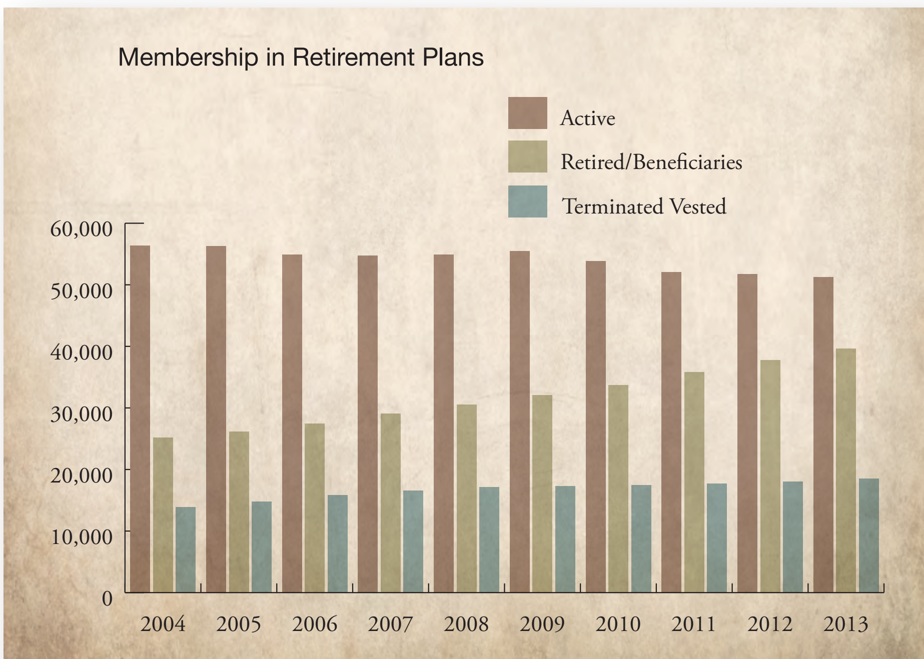
* *The ALJLAP was transitioned to MSEP during fiscal year 2005. After fiscal year 2006, the rate for MSEP includes the ALJ's.*



## Membership in Retirement Plans
*Last Ten Fiscal Years*

| Fiscal Year | Active* | Retired/Beneficiaries | Terminated-Vested | Totals |
|---|---|---|---|---|
| 2004 | 56,362 | 25,179 | 13,898 | 95,439 |
| 2005 | 56,336 | 26,177 | 14,789 | 97,302 |
| 2006 | 54,887 | 27,450 | 15,829 | 98,166 |
| 2007 | 54,763 | 29,129 | 16,578 | 100,470 |
| 2008 | 54,943 | 30,572 | 17,123 | 102,638 |
| 2009 | 55,454 | 32,100 | 17,304 | 104,858 |
| 2010 | 53,880 | 33,716 | 17,441 | 105,037 |
| 2011 | 52,059 | 35,801 | 17,757 | 105,617 |
| 2012 | 51,730 | 37,796 | 18,075 | 107,601 |
| 2013 | 51,233 | 39,636 | 18,581 | 109,450 |

** Excludes members on leave of absence and long-term disability.*



# Benefit Recipients by Type of Retirement and Option Selected

*June 30, 2013*

## MSEP

| Amount of Monthly Benefit | Number of Benefit Recipients | Type of Retirement A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|---|
| 1-250 | 4,662 | 1,712 | 2,139 | 264 | 482 | 2 | 0 | 63 |
| 251-500 | 6,796 | 3,252 | 2,403 | 386 | 685 | 5 | 0 | 65 |
| 501-750 | 5,027 | 3,053 | 1,160 | 283 | 498 | 0 | 0 | 33 |
| 751-1000 | 4,342 | 3,315 | 488 | 173 | 339 | 0 | 0 | 27 |
| 1001-1250 | 3,644 | 3,069 | 213 | 124 | 227 | 0 | 0 | 11 |
| 1251-1500 | 2,974 | 2,630 | 103 | 79 | 156 | 0 | 0 | 6 |
| 1501-1750 | 2,443 | 2,220 | 55 | 47 | 119 | 0 | 0 | 2 |
| 1751-2000 | 2,100 | 1,959 | 30 | 36 | 74 | 0 | 0 | 1 |
| Over 2000 | 7,563 | 7,080 | 51 | 120 | 310 | 0 | 0 | 2 |
| Total | 39,551 | 28,290 | 6,642 | 1,512 | 2,890 | 7 | 0 | 210 |

## Judicial Plan

| Amount of Monthly Benefit | Number of Benefit Recipients | Type of Retirement A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|---|
| 1-250 | 3 | 0 | 2 | 0 | 1 | 0 | 0 | 0 |
| 251-500 | 10 | 0 | 7 | 0 | 1 | 0 | 0 | 2 |
| 501-750 | 8 | 0 | 3 | 0 | 3 | 0 | 0 | 2 |
| 751-1000 | 6 | 0 | 1 | 1 | 4 | 0 | 0 | 0 |
| 1001-1250 | 5 | 1 | 4 | 0 | 0 | 0 | 0 | 0 |
| 1251-1500 | 5 | 0 | 3 | 1 | 0 | 0 | 0 | 1 |
| 1501-1750 | 6 | 0 | 3 | 2 | 1 | 0 | 0 | 0 |
| 1751-2000 | 8 | 0 | 3 | 1 | 3 | 0 | 0 | 1 |
| Over 2000 | 456 | 284 | 50 | 28 | 91 | 0 | 0 | 3 |
| Total | 507 | 285 | 76 | 33 | 104 | 0 | 0 | 9 |

**Type of Retirement**

A - Normal retirement
B - Early retirement
C - Survivor of active
D - Survivor of retired
E - Disability
F - Occupational disability (Water Patrol)
G - Ex-spouse

| Option Selected | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 0 | 15 | 168 | 163 | 269 | 0 | 952 | 521 | 39 | 2,535 |
| 7 | 34 | 226 | 142 | 340 | 4 | 1,391 | 1,038 | 24 | 3,590 |
| 8 | 35 | 111 | 59 | 240 | 2 | 1,087 | 1,145 | 7 | 2,333 |
| 10 | 22 | 63 | 41 | 295 | 0 | 946 | 1,005 | 2 | 1,958 |
| 12 | 17 | 58 | 28 | 350 | 0 | 776 | 707 | 1 | 1,695 |
| 7 | 9 | 44 | 28 | 351 | 1 | 633 | 496 | 0 | 1,405 |
| 9 | 9 | 31 | 18 | 340 | 1 | 479 | 358 | 0 | 1,198 |
| 10 | 2 | 31 | 19 | 311 | 1 | 460 | 249 | 1 | 1,016 |
| 70 | 18 | 72 | 35 | 1,058 | 0 | 2,066 | 1,040 | 0 | 3,204 |
| 133 | 161 | 804 | 533 | 3,554 | 9 | 8,790 | 6,559 | 74 | 18,934 |

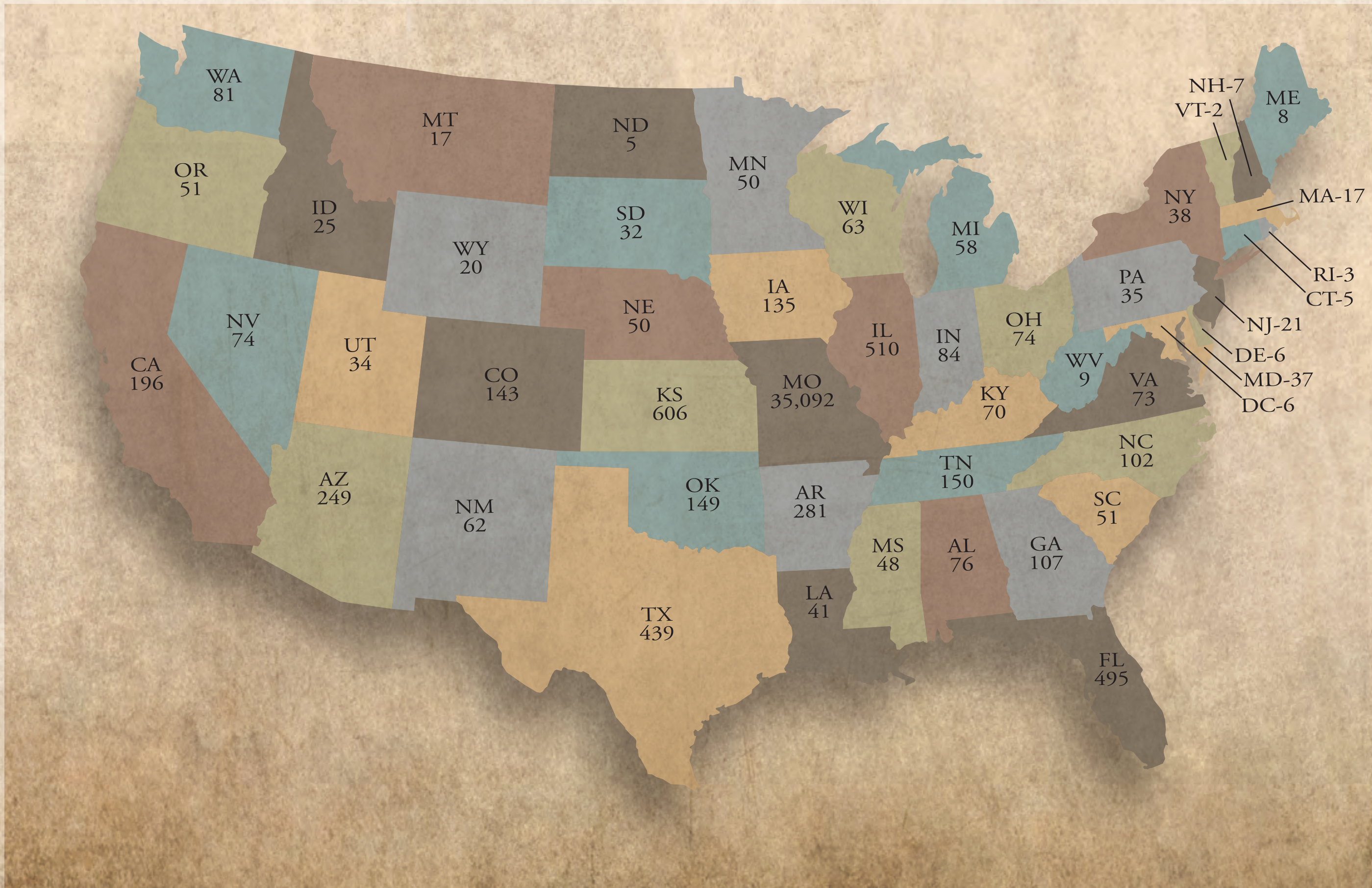
| Option Selected | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| 422 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 1 | 8 |
| 458 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 1 | 20 |

**Option Selected**

1 - Automatic 50% joint & survivor
2 - 60 guaranteed payments
3 - 120 guaranteed payments
4 - 180 guaranteed payments
5 - 50% joint & survivor
6 - 75% joint & survivor
7 - 100% joint & survivor
8 - Unreduced 50% joint & survivor
9 - Automatic minor survivor
10 - No survivor option (includes pop-ups)

## Distribution of Benefit Recipients by Location

*June 30, 2013*




### Benefit Recipients Outside the Continental United States

| | |
|---|---|
| 12 | Alaska |
| 8 | Hawaii |
| 5 | Army Post Office |
| 1 | Argentina |
| 2 | Australia |
| 11 | Canada |
| 1 | Colombia, South America |
| 1 | Costa Rica |
| 1 | Germany |
| 1 | Guam |
| 2 | India |
| 2 | Ireland |
| 2 | Israel |
| 2 | Italy |
| 3 | Mexico |
| 1 | Marshall Islands |
| 1 | Nigeria |
| 1 | P. R. China |
| 1 | Panama |
| 1 | Philippines |
| 1 | Puerto Rico |
| 1 | Spain |
| 1 | Sri Lanka |
| 1 | Sweden |
| 1 | Thailand |
| 1 | The Netherlands |
| 2 | United Arab Emirates |
| 3 | United Kingdom |

# Benefits Payable June 30, 2013

*Tabulated by Option and Type of Benefit*

## MSEP

| Type of Benefit | Number | Annual Benefits | Average Annual Benefits |
|---|---|---|---|
| **Service retirement** | | | |
| Life annuity | 5,149 | $ 66,373,044 | $12,890 |
| 50% joint and survivor | 5,418 | 90,180,757 | 16,645 |
| 100% joint and survivor | 2,747 | 53,525,512 | 19,485 |
| 5-year certain and life | 131 | 1,424,628 | 10,875 |
| 10-year certain and life | 142 | 1,344,087 | 9,465 |
| Survivor beneficiary | 2,300 | 26,936,597 | 11,712 |
| Total | 15,887 | 239,784,625 | 15,093 |
| **Disability retirement** | 7 | 26,544 | 3,792 |
| **Death-in-service** | 1,411 | 15,019,911 | 10,645 |
| Grand totals | 17,305 | $254,831,080 | 14,726 |

## MSEP 2000

| Type of Benefit | Number | Annual Benefits | Average Annual Benefits |
|---|---|---|---|
| **Service retirement** | | | |
| Life annuity | 13,344 | $193,656,491 | $14,513 |
| 50% joint and survivor | 3,246 | 65,334,958 | 20,128 |
| 100% joint and survivor | 3,508 | 59,728,927 | 17,026 |
| 5-year certain and life | 31 | 457,437 | 14,756 |
| 10-year certain and life | 566 | 6,024,789 | 10,645 |
| 15-year certain and life | 440 | 3,994,142 | 9,078 |
| Survivor beneficiary | 593 | 5,478,804 | 9,239 |
| Total | 21,728 | 334,675,548 | 15,403 |
| **Death-in-service** | 106 | 364,354 | 3,437 |
| Grand totals | 21,834 | $335,039,902 | 15,345 |

## Judicial Plan

| Type of Benefit | Number | Annual Benefits | Average Annual Benefits |
|---|---|---|---|
| **Service retirement** | | | |
| Life annuity | 1 | $ 81,360 | $81,360 |
| 50% joint and survivor | 359 | 23,614,053 | 65,777 |
| Survivor beneficiary | 104 | 3,634,791 | 34,950 |
| Total | 464 | 27,330,204 | 58,901 |
| **Death-in-service** | 33 | 1,057,607 | 32,049 |
| Grand totals | 497 | $28,387,811 | 57,118 |

## Average Monthly Benefit Amounts

*Ten Years Ended June 30, 2013*

MSEP

| Members Retiring During Fiscal Year | | Years Credited Service by Category <5 | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 | 30+ | All Members |
|---|---|---|---|---|---|---|---|---|---|
| 2004 | Average monthly benefit | $ 125 | $ 285 | $ 422 | $ 696 | $ 1,044 | $ 1,454 | $ 1,656 | $ 1,017 |
| | Average final average salary | $ 1,837 | $ 2,433 | $ 2,293 | $ 2,616 | $ 2,724 | $ 3,062 | $ 3,043 | $ 2,753 |
| | Number of retirees | 6 | 296 | 281 | 298 | 369 | 586 | 342 | 2,178 |
| 2005 | Average monthly benefit | $ 281 | $ 286 | $ 467 | $ 682 | $ 1,192 | $ 1,570 | $ 1,989 | $ 949 |
| | Average final average salary | $ 4,085 | $ 2,363 | $ 2,284 | $ 2,606 | $ 3,097 | $ 3,351 | $ 3,541 | $ 2,824 |
| | Number of retirees | 4 | 294 | 260 | 267 | 254 | 321 | 127 | 1,527 |
| 2006 | Average monthly benefit | $ 426 | $ 284 | $ 443 | $ 691 | $ 1,036 | $ 1,568 | $ 1,854 | $ 909 |
| | Average final average salary | $ 3,520 | $ 2,449 | $ 2,347 | $ 2,664 | $ 2,742 | $ 3,322 | $ 3,431 | $ 2,787 |
| | Number of retirees | 3 | 342 | 278 | 276 | 279 | 343 | 152 | 1,673 |
| 2007 | Average monthly benefit | $ 150 | $ 276 | $ 490 | $ 689 | $ 1,122 | $ 1,571 | $ 1,859 | $ 956 |
| | Average final average salary | $ 2,613 | $ 2,345 | $ 2,559 | $ 2,628 | $ 2,966 | $ 3,322 | $ 3,433 | $ 2,848 |
| | Number of retirees | 1 | 408 | 303 | 313 | 333 | 431 | 202 | 1,991 |
| 2008 | Average monthly benefit | $ 0 | $ 264 | $ 466 | $ 723 | $ 1,105 | $ 1,594 | $ 2,040 | $ 939 |
| | Average final average salary | $ 0 | $ 2,358 | $ 2,444 | $ 2,783 | $ 2,945 | $ 3,380 | $ 3,677 | $ 2,861 |
| | Number of retirees | 0 | 383 | 373 | 321 | 339 | 369 | 187 | 1,972 |
| 2009 | Average monthly benefit | $ 111 | $ 290 | $ 490 | $ 748 | $ 1,235 | $ 1,651 | $ 2,151 | $ 979 |
| | Average final average salary | $ 1,596 | $ 2,408 | $ 2,458 | $ 2,861 | $ 3,232 | $ 3,488 | $ 3,905 | $ 2,964 |
| | Number of retirees | 1 | 436 | 366 | 301 | 393 | 371 | 171 | 2,039 |
| 2010 | Average monthly benefit | $ 442 | $ 288 | $ 495 | $ 782 | $ 1,190 | $ 1,605 | $ 2,118 | $ 948 |
| | Average final average salary | $ 6,215 | $ 2,541 | $ 2,568 | $ 2,904 | $ 3,181 | $ 3,429 | $ 3,819 | $ 2,982 |
| | Number of retirees | 2 | 473 | 423 | 336 | 370 | 331 | 216 | 2,151 |
| 2011 | Average monthly benefit | $ 39 | $ 336 | $ 493 | $ 818 | $ 1,224 | $ 1,654 | $ 2,133 | $ 1,008 |
| | Average final average salary | $ 925 | $ 2,626 | $ 2,506 | $ 3,029 | $ 3,236 | $ 3,523 | $ 3,868 | $ 3,057 |
| | Number of retirees | 3 | 581 | 482 | 429 | 479 | 482 | 275 | 2,731 |
| 2012 | Average monthly benefit | $ 139 | $ 302 | $ 520 | $ 818 | $ 1,234 | $ 1,631 | $ 2,275 | $ 941 |
| | Average final average salary | $ 8,932 | $ 2,571 | $ 2,643 | $ 3,045 | $ 3,292 | $ 3,501 | $ 4,100 | $ 3,054 |
| | Number of retirees | 4 | 582 | 528 | 400 | 461 | 370 | 193 | 2,538 |
| 2013 | Average monthly benefit | $ 251 | $ 326 | $ 518 | $ 753 | $ 1,234 | $ 1,697 | $ 1,995 | $ 923 |
| | Average final average salary | $ 3,744 | $ 2,665 | $ 2,583 | $ 2,814 | $ 3,295 | $ 3,637 | $ 3,645 | $ 3,002 |
| | Number of retirees | 5 | 600 | 557 | 386 | 437 | 388 | 203 | 2,576 |
| Ten Years Ended June 30, 2013 | | | | | | | | | |
| | Average monthly benefit | $ 215 | $ 298 | $ 487 | $ 747 | $ 1,170 | $ 1,594 | $ 1,989 | $ 959 |
| | Average final average salary | $ 3,855 | $ 2,499 | $ 2,495 | $ 2,816 | $ 3,096 | $ 3,387 | $ 3,617 | $ 2,927 |
| | Number of retirees | 29 | 4,395 | 3,851 | 3,327 | 3,714 | 3,992 | 2,068 | 21,376 |

*Note: COLA increases and temporary benefits payable under MSEP 2000 until age 62 are excluded from the above for comparison purposes.*

# Average Monthly Benefit Amounts
*Ten Years Ended June 30, 2013*

General Employees in the MSEP

| Members Retiring During Fiscal Year | | Years Credited Service by Category <5 | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 | 30+ | All Members |
|---|---|---|---|---|---|---|---|---|---|
| 2004 | Average monthly benefit | $ 125 | $ 274 | $ 419 | $ 683 | $ 1,044 | $ 1,454 | $ 1,656 | $ 1,016 |
| | Average final average salary | $ 1,837 | $ 2,421 | $ 2,291 | $ 2,612 | $ 2,724 | $ 3,061 | $ 3,043 | $ 2,751 |
| | Number of retirees | 6 | 290 | 280 | 295 | 369 | 585 | 342 | 2,167 |
| 2005 | Average monthly benefit | $ 229 | $ 262 | $ 427 | $ 676 | $ 1,173 | $ 1,570 | $ 1,943 | $ 933 |
| | Average final average salary | $ 4,449 | $ 2,338 | $ 2,215 | $ 2,602 | $ 3,100 | $ 3,351 | $ 3,565 | $ 2,812 |
| | Number of retirees | 3 | 283 | 255 | 265 | 250 | 321 | 123 | 1,500 |
| 2006 | Average monthly benefit | $ 426 | $ 275 | $ 431 | $ 691 | $ 1,036 | $ 1,564 | $ 1,846 | $ 905 |
| | Average final average salary | $ 3,520 | $ 2,427 | $ 2,340 | $ 2,664 | $ 2,742 | $ 3,318 | $ 3,423 | $ 2,780 |
| | Number of retirees | 3 | 339 | 275 | 276 | 279 | 342 | 151 | 1,665 |
| 2007 | Average monthly benefit | $ 0 | $ 259 | $ 485 | $ 685 | $ 1,122 | $ 1,567 | $ 1,859 | $ 955 |
| | Average final average salary | $ 0 | $ 2,327 | $ 2,556 | $ 2,627 | $ 2,966 | $ 3,323 | $ 3,433 | $ 2,847 |
| | Number of retirees | 0 | 397 | 301 | 312 | 333 | 430 | 202 | 1,975 |
| 2008 | Average monthly benefit | $ 0 | $ 259 | $ 461 | $ 723 | $ 1,105 | $ 1,594 | $ 2,040 | $ 939 |
| | Average final average salary | $ 0 | $ 2,353 | $ 2,441 | $ 2,783 | $ 2,945 | $ 3,380 | $ 3,677 | $ 2,861 |
| | Number of retirees | 0 | 380 | 370 | 321 | 339 | 369 | 187 | 1,966 |
| 2009 | Average monthly benefit | $ 111 | $ 264 | $ 470 | $ 744 | $ 1,232 | $ 1,649 | $ 2,134 | $ 972 |
| | Average final average salary | $ 1,596 | $ 2,374 | $ 2,434 | $ 2,861 | $ 3,233 | $ 3,486 | $ 3,881 | $ 2,955 |
| | Number of retirees | 1 | 422 | 362 | 300 | 392 | 370 | 170 | 2,017 |
| 2010 | Average monthly benefit | $ 442 | $ 284 | $ 493 | $ 778 | $ 1,190 | $ 1,600 | $ 2,092 | $ 942 |
| | Average final average salary | $ 6,215 | $ 2,538 | $ 2,567 | $ 2,904 | $ 3,181 | $ 3,430 | $ 3,788 | $ 2,978 |
| | Number of retirees | 2 | 470 | 422 | 335 | 370 | 330 | 214 | 2,143 |
| 2011 | Average monthly benefit | $ 39 | $ 302 | $ 484 | $ 807 | $ 1,221 | $ 1,645 | $ 2,115 | $ 1,001 |
| | Average final average salary | $ 925 | $ 2,607 | $ 2,501 | $ 3,029 | $ 3,237 | $ 3,518 | $ 3,846 | $ 3,053 |
| | Number of retirees | 3 | 553 | 477 | 425 | 478 | 479 | 273 | 2,688 |
| 2012 | Average monthly benefit | $ 139 | $ 293 | $ 503 | $ 814 | $ 1,234 | $ 1,631 | $ 2,275 | $ 938 |
| | Average final average salary | $ 8,932 | $ 2,566 | $ 2,621 | $ 3,046 | $ 3,292 | $ 3,501 | $ 4,100 | $ 3,050 |
| | Number of retirees | 4 | 575 | 524 | 398 | 461 | 370 | 193 | 2,525 |
| 2013 | Average monthly benefit | $ 169 | $ 301 | $ 502 | $ 746 | $ 1,234 | $ 1,697 | $ 1,995 | $ 921 |
| | Average final average salary | $ 4,244 | $ 2,653 | $ 2,568 | $ 2,813 | $ 3,295 | $ 3,637 | $ 3,645 | $ 3,001 |
| | Number of retirees | 3 | 574 | 551 | 384 | 437 | 388 | 203 | 2,540 |
| Ten Years Ended June 30, 2013 | | | | | | | | | |
| | Average monthly benefit | $ 196 | $ 280 | $ 474 | $ 741 | $ 1,168 | $ 1,591 | $ 1,979 | $ 954 |
| | Average final average salary | $ 4,008 | $ 2,484 | $ 2,480 | $ 2,815 | $ 3,096 | $ 3,386 | $ 3,610 | $ 2,923 |
| | Number of retirees | 25 | 4,283 | 3,817 | 3,311 | 3,708 | 3,984 | 2,058 | 21,186 |

*Note: COLA increases and temporary benefits payable under MSEP 2000 until age 62 are excluded from the above for comparison purposes.*

## Average Monthly Benefit Amounts

*Ten Years Ended June 30, 2013*

Legislators in the MSEP

| Members Retiring During Fiscal Year | | Years Credited Service by Category <5 | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 | 30+ | All Members |
|---|---|---|---|---|---|---|---|---|---|
| 2004 | Average monthly benefit | $ 0 | $ 797 | $ 1,306 | $ 1,959 | $ 0 | $ 0 | $ 0 | $ 1,197 |
| | Average final average salary | $ 0 | $ 2,993 | $ 2,993 | $ 2,993 | $ 0 | $ 0 | $ 0 | $ 2,993 |
| | Number of retirees | 0 | 6 | 1 | 3 | 0 | 0 | 0 | 10 |
| 2005 | Average monthly benefit | $ 435 | $ 910 | $ 1,379 | $ 1,742 | $ 2,409 | $ 0 | $ 3,411 | $ 1,650 |
| | Average final average salary | $ 2,993 | $ 2,993 | $ 2,993 | $ 2,993 | $ 2,898 | $ 0 | $ 2,803 | $ 2,946 |
| | Number of retirees | 1 | 11 | 3 | 1 | 4 | 0 | 4 | 24 |
| 2006 | Average monthly benefit | $ 0 | $ 871 | $ 1,524 | $ 0 | $ 0 | $ 0 | $ 0 | $ 1,263 |
| | Average final average salary | $ 0 | $ 2,993 | $ 2,993 | $ 0 | $ 0 | $ 0 | $ 0 | $ 2,993 |
| | Number of retirees | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 5 |
| 2007 | Average monthly benefit | $ 150 | $ 873 | $ 1,306 | $ 1,959 | $ 0 | $ 3,484 | $ 0 | $ 1,113 |
| | Average final average salary | $ 2,613 | $ 2,993 | $ 2,993 | $ 2,993 | $ 0 | $ 2,993 | $ 0 | $ 2,969 |
| | Number of retirees | 1 | 11 | 2 | 1 | 0 | 1 | 0 | 16 |
| 2008 | Average monthly benefit | $ 0 | $ 871 | $ 1,306 | $ 0 | $ 0 | $ 0 | $ 0 | $ 1,045 |
| | Average final average salary | $ 0 | $ 2,993 | $ 2,993 | $ 0 | $ 0 | $ 0 | $ 0 | $ 2,993 |
| | Number of retirees | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 5 |
| 2009 | Average monthly benefit | $ 0 | $ 910 | $ 1,496 | $ 1,995 | $ 2,395 | $ 0 | $ 0 | $ 1,150 |
| | Average final average salary | $ 0 | $ 2,993 | $ 2,993 | $ 2,993 | $ 2,993 | $ 0 | $ 0 | $ 2,993 |
| | Number of retirees | 0 | 13 | 3 | 1 | 1 | 0 | 0 | 18 |
| 2010 | Average monthly benefit | $ 0 | $ 876 | $ 1,496 | $ 2,245 | $ 0 | $ 3,242 | $ 0 | $ 1,602 |
| | Average final average salary | $ 0 | $ 2,993 | $ 2,993 | $ 2,993 | $ 0 | $ 2,993 | $ 0 | $ 2,993 |
| | Number of retirees | 0 | 3 | 1 | 1 | 0 | 1 | 0 | 6 |
| 2011 | Average monthly benefit | $ 0 | $ 1,000 | $ 1,512 | $ 2,021 | $ 2,744 | $ 3,242 | $ 0 | $ 1,266 |
| | Average final average salary | $ 0 | $ 2,993 | $ 2,993 | $ 2,993 | $ 2,993 | $ 2,993 | $ 0 | $ 2,993 |
| | Number of retirees | 0 | 28 | 4 | 4 | 1 | 1 | 0 | 38 |
| 2012 | Average monthly benefit | $ 0 | $ 1,069 | $ 1,621 | $ 2,225 | $ 0 | $ 0 | $ 0 | $ 1,295 |
| | Average final average salary | $ 0 | $ 2,993 | $ 2,993 | $ 2,993 | $ 0 | $ 0 | $ 0 | $ 2,993 |
| | Number of retirees | 0 | 7 | 2 | 1 | 0 | 0 | 0 | 10 |
| 2013 | Average monthly benefit | $ 374 | $ 907 | $ 1,513 | $ 2,120 | $ 0 | $ 0 | $ 0 | $ 1,036 |
| | Average final average salary | $ 2,993 | $ 2,993 | $ 2,993 | $ 2,993 | $ 0 | $ 0 | $ 0 | $ 2,993 |
| | Number of retirees | 2 | 25 | 5 | 2 | 0 | 0 | 0 | 34 |
| Ten Years Ended June 30, 2013 | | | | | | | | | |
| | Average monthly benefit | $ 333 | $ 930 | $ 1,465 | $ 2,026 | $ 2,463 | $ 3,323 | $ 3,411 | $ 1,250 |
| | Average final average salary | $ 2,898 | $ 2,993 | $ 2,993 | $ 2,993 | $ 2,930 | $ 2,993 | $ 2,803 | $ 2,984 |
| | Number of retirees | 4 | 109 | 26 | 14 | 6 | 3 | 4 | 166 |

*Note: COLA increases and temporary benefits payable under MSEP 2000 until age 62 are excluded from the above for comparison purposes.*

## Average Monthly Benefit Amounts

*Ten Years Ended June 30, 2013*

Elected Officials in the MSEP

| Members Retiring During Fiscal Year | | <5 | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 | 30+ | All Members |
|---|---|---|---|---|---|---|---|---|---|
| | | Years Credited Service by Category | | | | | | | |
| 2004 | Average monthly benefit | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | Average final average salary | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | Number of retirees | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | Average monthly benefit | $ 0 | $ 0 | $ 4,218 | $ 0 | $ 0 | $ 0 | $ 0 | $ 4,218 |
| | Average final average salary | $ 0 | $ 0 | $ 10,065 | $ 0 | $ 0 | $ 0 | $ 0 | $ 10,065 |
| | Number of retirees | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| 2006 | Average monthly benefit | $ 0 | $ 2,009 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 2,009 |
| | Average final average salary | $ 0 | $ 8,979 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 8,979 |
| | Number of retirees | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2007 | Average monthly benefit | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | Average final average salary | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | Number of retirees | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008 | Average monthly benefit | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | Average final average salary | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | Number of retirees | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2009 | Average monthly benefit | $ 0 | $ 3,336 | $ 4,852 | $ 0 | $ 0 | $ 0 | $ 0 | $ 4,094 |
| | Average final average salary | $ 0 | $ 8,979 | $ 9,703 | $ 0 | $ 0 | $ 0 | $ 0 | $ 9,341 |
| | Number of retirees | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| 2010 | Average monthly benefit | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | Average final average salary | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | Number of retirees | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2011 | Average monthly benefit | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | Average final average salary | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | Number of retirees | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2012 | Average monthly benefit | $ 0 | $ 0 | $ 3,781 | $ 0 | $ 0 | $ 0 | $ 0 | $ 3,781 |
| | Average final average salary | $ 0 | $ 0 | $ 8,093 | $ 0 | $ 0 | $ 0 | $ 0 | $ 8,093 |
| | Number of retirees | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| 2013 | Average monthly benefit | $ 0 | $ 0 | $ 4,489 | $ 0 | $ 0 | $ 0 | $ 0 | $ 4,489 |
| | Average final average salary | $ 0 | $ 0 | $ 8,979 | $ 0 | $ 0 | $ 0 | $ 0 | $ 8,979 |
| | Number of retirees | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Ten Years Ended June 30, 2013 | | | | | | | | | |
| | Average monthly benefit | $ 0 | $ 2,673 | $ 4,223 | $ 0 | $ 0 | $ 0 | $ 0 | $ 3,835 |
| | Average final average salary | $ 0 | $ 8,979 | $ 9,166 | $ 0 | $ 0 | $ 0 | $ 0 | $ 9,120 |
| | Number of retirees | 0 | 2 | 6 | 0 | 0 | 0 | 0 | 8 |

*Note: COLA increases are excluded from the above for comparison purposes.*

## Average Monthly Benefit Amounts

*Ten Years Ended June 30, 2013*

Uniformed Water Patrol in the MSEP

| Members Retiring During Fiscal Year | | Years Credited Service by Category <5 | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 | 30+ | All Members |
|---|---|---|---|---|---|---|---|---|---|
| 2004 | Average monthly benefit | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 1,743 | $ 0 | $ 1,743 |
| | Average final average salary | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 3,628 | $ 0 | $ 3,628 |
| | Number of retirees | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 2005 | Average monthly benefit | $ 0 | $ 0 | $ 0 | $ 1,267 | $ 0 | $ 0 | $ 0 | $ 1,267 |
| | Average final average salary | $ 0 | $ 0 | $ 0 | $ 3,254 | $ 0 | $ 0 | $ 0 | $ 3,254 |
| | Number of retirees | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 2006 | Average monthly benefit | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 2,848 | $ 3,090 | $ 2,969 |
| | Average final average salary | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 4,657 | $ 4,710 | $ 4,684 |
| | Number of retirees | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| 2007 | Average monthly benefit | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | Average final average salary | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | Number of retirees | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008 | Average monthly benefit | $ 0 | $ 0 | $ 750 | $ 0 | $ 0 | $ 0 | $ 0 | $ 750 |
| | Average final average salary | $ 0 | $ 0 | $ 2,541 | $ 0 | $ 0 | $ 0 | $ 0 | $ 2,541 |
| | Number of retirees | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 2009 | Average monthly benefit | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 2,351 | $ 5,113 | $ 3,732 |
| | Average final average salary | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 4,173 | $ 7,902 | $ 6,037 |
| | Number of retirees | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| 2010 | Average monthly benefit | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 4,886 | $ 4,886 |
| | Average final average salary | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 7,184 | $ 7,184 |
| | Number of retirees | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| 2011 | Average monthly benefit | $ 0 | $ 0 | $ 721 | $ 0 | $ 0 | $ 3,086 | $ 4,553 | $ 3,200 |
| | Average final average salary | $ 0 | $ 0 | $ 2,964 | $ 0 | $ 0 | $ 5,077 | $ 6,912 | $ 5,388 |
| | Number of retirees | 0 | 0 | 1 | 0 | 0 | 2 | 2 | 5 |
| 2012 | Average monthly benefit | $ 0 | $ 0 | $ 0 | $ 959 | $ 0 | $ 0 | $ 0 | $ 959 |
| | Average final average salary | $ 0 | $ 0 | $ 0 | $ 2,794 | $ 0 | $ 0 | $ 0 | $ 2,794 |
| | Number of retirees | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 2013 | Average monthly benefit | $ 0 | $ 69 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 69 |
| | Average final average salary | $ 0 | $ 1,291 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 1,291 |
| | Number of retirees | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Ten Years Ended June 30, 2013 | | | | | | | | | |
| | Average monthly benefit | $ 0 | $ 69 | $ 735 | $ 1,113 | $ 0 | $ 2,623 | $ 4,514 | $ 2,748 |
| | Average final average salary | $ 0 | $ 1,291 | $ 2,753 | $ 3,024 | $ 0 | $ 4,522 | $ 6,801 | $ 4,766 |
| | Number of retirees | 0 | 1 | 2 | 2 | 0 | 5 | 6 | 16 |

*Note: COLA increases and temporary benefits payable under MSEP 2000 until age 62 are excluded from the above for comparison purposes.*

## Average Monthly Benefit Amounts
*Ten Years Ended June 30, 2013*

Administrative Law Judges and Legal Advisors in the MSEP

| Members Retiring During Fiscal Year | | Years Credited Service by Category <5 | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 | 30+ | All Members |
|---|---|---|---|---|---|---|---|---|---|
| 2004 | Average monthly benefit | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | Average final average salary | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | Number of retirees | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | Average monthly benefit | $ 0 | $ 0 | $ 3,750 | $ 0 | $ 3,584 | $ 0 | $ 0 | $ 3,626 |
| | Average final average salary | $ 0 | $ 0 | $ 7,500 | $ 0 | $ 7,169 | $ 0 | $ 0 | $ 7,251 |
| | Number of retirees | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 4 |
| 2006 | Average monthly benefit | $ 1,088 | $ 1,669 | $ 0 | $ 0 | $ 0 | $ 3,333 | $ 0 | $ 2,030 |
| | Average final average salary | $ 7,836 | $ 5,933 | $ 0 | $ 0 | $ 0 | $ 6,667 | $ 0 | $ 6,812 |
| | Number of retirees | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 3 |
| 2007 | Average monthly benefit | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | Average final average salary | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | Number of retirees | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008 | Average monthly benefit | $ 0 | $ 0 | $ 2,040 | $ 3,968 | $ 0 | $ 0 | $ 0 | $ 2,683 |
| | Average final average salary | $ 0 | $ 0 | $ 4,081 | $ 7,936 | $ 0 | $ 0 | $ 0 | $ 5,366 |
| | Number of retirees | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 3 |
| 2009 | Average monthly benefit | $ 0 | $ 0 | $ 0 | $ 0 | $ 4,200 | $ 0 | $ 0 | $ 4,200 |
| | Average final average salary | $ 0 | $ 0 | $ 0 | $ 0 | $ 8,400 | $ 0 | $ 0 | $ 8,400 |
| | Number of retirees | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| 2010 | Average monthly benefit | $ 823 | $ 0 | $ 2,827 | $ 0 | $ 0 | $ 0 | $ 0 | $ 2,159 |
| | Average final average salary | $ 8,172 | $ 0 | $ 5,851 | $ 0 | $ 0 | $ 0 | $ 0 | $ 6,625 |
| | Number of retirees | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 3 |
| 2011 | Average monthly benefit | $ 0 | $ 0 | $ 3,236 | $ 4,101 | $ 0 | $ 0 | $ 0 | $ 3,524 |
| | Average final average salary | $ 0 | $ 0 | $ 6,433 | $ 8,202 | $ 0 | $ 0 | $ 0 | $ 7,023 |
| | Number of retirees | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 3 |
| 2012 | Average monthly benefit | $ 0 | $ 2,493 | $ 0 | $ 4,378 | $ 0 | $ 4,204 | $ 0 | $ 3,692 |
| | Average final average salary | $ 0 | $ 8,756 | $ 0 | $ 8,756 | $ 0 | $ 8,408 | $ 0 | $ 8,640 |
| | Number of retirees | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 |
| 2013 | Average monthly benefit | $ 0 | $ 0 | $ 2,657 | $ 0 | $ 4,134 | $ 0 | $ 4,450 | $ 3,747 |
| | Average final average salary | $ 0 | $ 0 | $ 5,314 | $ 0 | $ 8,267 | $ 0 | $ 8,900 | $ 7,494 |
| | Number of retirees | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 3 |
| Ten Years Ended June 30, 2013 | | | | | | | | | |
| | Average monthly benefit | $ 956 | $ 2,081 | $ 2,827 | $ 4,149 | $ 3,881 | $ 3,769 | $ 4,450 | $ 3,184 |
| | Average final average salary | $ 8,004 | $ 7,345 | $ 5,693 | $ 8,298 | $ 7,762 | $ 7,537 | $ 8,900 | $ 7,153 |
| | Number of retirees | 2 | 2 | 8 | 3 | 6 | 2 | 1 | 24 |

*Note: COLA increases are excluded from the above for comparison purposes.*

## Average Monthly Benefit Amounts

*Ten Years Ended June 30, 2013*

Judicial Plan

| Members Retiring During Fiscal Year | | Years Credited Service by Category <5 | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 | 30+ | All Members |
|---|---|---|---|---|---|---|---|---|---|
| 2004 | Average monthly benefit | $ 855 | $ 3,586 | $ 4,500 | $ 4,061 | $ 4,597 | $ 0 | $ 4,500 | $ 3,998 |
| | Average final average salary | $ 5,129 | $ 8,000 | $ 9,000 | $ 8,121 | $ 9,194 | $ 0 | $ 9,000 | $ 8,350 |
| | Number of retirees | 1 | 1 | 2 | 4 | 3 | 0 | 1 | 12 |
| 2005 | Average monthly benefit | $ 0 | $ 0 | $ 4,388 | $ 4,500 | $ 4,142 | $ 4,306 | $ 4,396 | $ 4,310 |
| | Average final average salary | $ 0 | $ 0 | $ 9,000 | $ 9,000 | $ 8,284 | $ 8,600 | $ 8,792 | $ 8,649 |
| | Number of retirees | 0 | 0 | 2 | 1 | 3 | 5 | 2 | 13 |
| 2006 | Average monthly benefit | $ 592 | $ 1,946 | $ 4,500 | $ 4,000 | $ 0 | $ 4,396 | $ 0 | $ 2,930 |
| | Average final average salary | $ 5,875 | $ 6,564 | $ 9,000 | $ 8,000 | $ 0 | $ 8,792 | $ 0 | $ 7,496 |
| | Number of retirees | 2 | 2 | 1 | 2 | 0 | 2 | 0 | 9 |
| 2007 | Average monthly benefit | $ 207 | $ 2,121 | $ 3,995 | $ 4,243 | $ 4,390 | $ 4,071 | $ 4,167 | $ 3,756 |
| | Average final average salary | $ 5,875 | $ 7,889 | $ 7,990 | $ 8,486 | $ 8,833 | $ 8,143 | $ 8,333 | $ 8,213 |
| | Number of retirees | 2 | 5 | 5 | 14 | 6 | 7 | 3 | 42 |
| 2008 | Average monthly benefit | $ 381 | $ 2,045 | $ 4,120 | $ 4,828 | $ 5,132 | $ 4,593 | $ 5,186 | $ 4,080 |
| | Average final average salary | $ 2,742 | $ 6,203 | $ 8,276 | $ 9,656 | $ 10,264 | $ 9,186 | $ 10,373 | $ 8,517 |
| | Number of retirees | 1 | 2 | 6 | 3 | 3 | 2 | 1 | 18 |
| 2009 | Average monthly benefit | $ 524 | $ 1,786 | $ 3,663 | $ 4,693 | $ 5,286 | $ 5,127 | $ 5,020 | $ 3,456 |
| | Average final average salary | $ 6,103 | $ 7,469 | $ 7,811 | $ 9,336 | $ 10,572 | $ 10,255 | $ 10,040 | $ 8,385 |
| | Number of retirees | 6 | 2 | 7 | 6 | 3 | 3 | 1 | 28 |
| 2010 | Average monthly benefit | $ 458 | $ 1,333 | $ 4,507 | $ 4,557 | $ 0 | $ 5,181 | $ 4,973 | $ 4,064 |
| | Average final average salary | $ 6,597 | $ 8,000 | $ 9,577 | $ 9,114 | $ 0 | $ 10,362 | $ 9,946 | $ 9,343 |
| | Number of retirees | 1 | 1 | 2 | 1 | 0 | 2 | 3 | 10 |
| 2011 | Average monthly benefit | $ 0 | $ 2,188 | $ 4,622 | $ 4,515 | $ 4,869 | $ 4,789 | $ 4,650 | $ 4,342 |
| | Average final average salary | $ 0 | $ 7,994 | $ 9,299 | $ 9,031 | $ 9,738 | $ 9,577 | $ 9,299 | $ 9,138 |
| | Number of retirees | 0 | 4 | 9 | 9 | 4 | 2 | 5 | 33 |
| 2012 | Average monthly benefit | $ 1,740 | $ 2,353 | $ 4,561 | $ 4,621 | $ 0 | $ 5,020 | $ 0 | $ 3,684 |
| | Average final average salary | $ 9,114 | $ 7,797 | $ 10,179 | $ 9,241 | $ 0 | $ 10,040 | $ 0 | $ 9,055 |
| | Number of retirees | 1 | 5 | 4 | 4 | 0 | 1 | 0 | 15 |
| 2013 | Average monthly benefit | $ 0 | $ 2,277 | $ 4,234 | $ 4,625 | $ 5,444 | $ 5,452 | $ 5,293 | $ 4,699 |
| | Average final average salary | $ 0 | $ 8,123 | $ 8,696 | $ 9,251 | $ 10,888 | $ 10,904 | $ 10,585 | $ 9,767 |
| | Number of retirees | 0 | 2 | 6 | 4 | 5 | 4 | 2 | 23 |
| Ten Years Ended June 30, 2013 | | | | | | | | | |
| | Average monthly benefit | $ 584 | $ 2,173 | $ 4,247 | $ 4,437 | $ 4,834 | $ 4,648 | $ 4,709 | $ 3,968 |
| | Average final average salary | $ 5,979 | $ 7,630 | $ 8,750 | $ 8,867 | $ 9,679 | $ 9,295 | $ 9,417 | $ 8,712 |
| | Number of retirees | 14 | 24 | 44 | 48 | 27 | 28 | 18 | 203 |

*Note: COLA increases are excluded from the above for comparison purposes.*

## Retirees and Beneficiaries Tabulated by Year of Retirement

*As of June 30, 2013*

### MSEP

| Fiscal Year of Retirement | Number | Total Annual Benefit | Average Monthly Benefit |
|---|---|---|---|
| 1973 | 4 | $ 29,409 | $ 613 |
| 1974 | 3 | 22,750 | 632 |
| 1975 | 3 | 15,503 | 431 |
| 1976 | 15 | 98,950 | 550 |
| 1977 | 16 | 143,352 | 747 |
| 1978 | 24 | 145,304 | 505 |
| 1979 | 22 | 143,170 | 542 |
| 1980 | 29 | 272,601 | 783 |
| 1981 | 52 | 518,665 | 831 |
| 1982 | 76 | 694,305 | 761 |
| 1983 | 77 | 844,356 | 914 |
| 1984 | 110 | 984,948 | 746 |
| 1985 | 127 | 1,411,196 | 926 |
| 1986 | 167 | 1,508,723 | 753 |
| 1987 | 212 | 2,397,936 | 943 |
| 1988 | 265 | 3,409,516 | 1,072 |
| 1989 | 317 | 4,614,819 | 1,213 |
| 1990 | 313 | 4,344,505 | 1,157 |
| 1991 | 433 | 7,138,064 | 1,374 |
| 1992 | 465 | 7,289,369 | 1,306 |
| 1993 | 570 | 8,625,531 | 1,261 |
| 1994 | 571 | 8,895,828 | 1,298 |
| 1995 | 776 | 12,864,020 | 1,381 |
| 1996 | 786 | 13,473,320 | 1,428 |
| 1997 | 812 | 13,914,734 | 1,428 |
| 1998 | 982 | 16,848,101 | 1,430 |
| 1999 | 1,084 | 19,091,823 | 1,468 |
| 2000 | 1,183 | 20,518,115 | 1,445 |
| 2001 | 2,334 | 39,511,095 | 1,411 |
| 2002 | 1,693 | 25,446,409 | 1,253 |
| 2003 | 1,776 | 28,697,097 | 1,347 |
| 2004 | 2,370 | 37,663,546 | 1,324 |
| 2005 | 1,738 | 25,444,614 | 1,220 |
| 2006 | 1,905 | 27,026,559 | 1,182 |
| 2007 | 2,242 | 32,815,981 | 1,220 |
| 2008 | 2,240 | 31,888,945 | 1,186 |
| 2009 | 2,335 | 33,969,749 | 1,212 |
| 2010 | 2,451 | 34,550,180 | 1,175 |
| 2011 | 3,085 | 45,838,554 | 1,238 |
| 2012 | 2,903 | 39,788,760 | 1,142 |
| 2013 | 2,985 | 39,343,497 | 1,098 |
| | 39,551 | $592,243,899 | $1,248 |

### Judicial Plan

| Fiscal Year of Retirement | Number | Total Annual Benefit | Average Monthly Benefit |
|---|---|---|---|
| 1976 & prior | 1 | $ 10,657 | $ 888 |
| 1977 | 0 | 0 | 0 |
| 1978 | 1 | 15,291 | 1,274 |
| 1979 | 0 | 0 | 0 |
| 1980 | 1 | 20,851 | 1,738 |
| 1981 | 1 | 64,134 | 5,345 |
| 1982 | 0 | 0 | 0 |
| 1983 | 1 | 20,481 | 1,707 |
| 1984 | 1 | 21,768 | 1,814 |
| 1985 | 2 | 87,263 | 3,636 |
| 1986 | 2 | 84,573 | 3,524 |
| 1987 | 8 | 434,591 | 4,527 |
| 1988 | 7 | 406,747 | 4,842 |
| 1989 | 6 | 340,294 | 4,726 |
| 1990 | 6 | 326,558 | 4,536 |
| 1991 | 13 | 601,823 | 3,858 |
| 1992 | 6 | 304,033 | 4,223 |
| 1993 | 7 | 281,726 | 3,354 |
| 1994 | 6 | 292,498 | 4,062 |
| 1995 | 16 | 1,136,818 | 5,921 |
| 1996 | 10 | 538,706 | 4,489 |
| 1997 | 6 | 336,153 | 4,669 |
| 1998 | 22 | 1,375,202 | 5,209 |
| 1999 | 20 | 1,175,934 | 4,900 |
| 2000 | 22 | 1,417,939 | 5,371 |
| 2001 | 18 | 1,490,729 | 6,902 |
| 2002 | 15 | 1,031,406 | 5,730 |
| 2003 | 22 | 1,363,396 | 5,164 |
| 2004 | 18 | 1,091,780 | 5,055 |
| 2005 | 18 | 1,141,780 | 5,286 |
| 2006 | 17 | 707,639 | 3,469 |
| 2007 | 57 | 3,081,732 | 4,505 |
| 2008 | 30 | 1,589,975 | 4,417 |
| 2009 | 37 | 1,835,165 | 4,133 |
| 2010 | 16 | 869,064 | 4,526 |
| 2011 | 40 | 2,187,296 | 4,557 |
| 2012 | 22 | 958,611 | 3,631 |
| 2013 | 32 | 1,783,902 | 4,646 |
| | 507 | $28,426,515 | $4,672 |

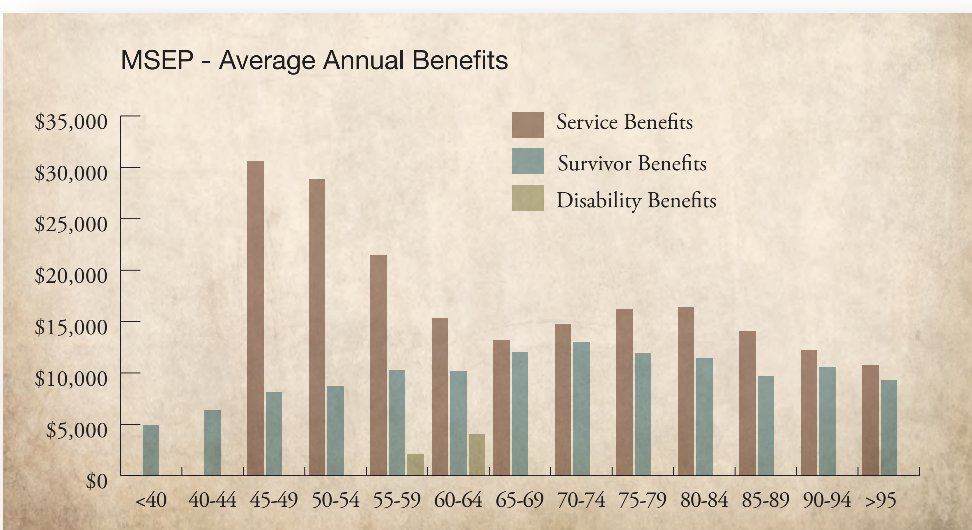
## Total Benefits Payable June 30, 2013

*Tabulated by Attained Ages of Benefit Recipients*

MSEP

| | Service Retirement | | Disability Retirement | | Survivors and Beneficiaries | | Totals | |
|---|---|---|---|---|---|---|---|---|
| Attained Ages | No. | Annual Benefits | No. | Annual Benefits | No. | Annual Benefits | No. | Annual Benefits |
| Under 20 | | | | | 73 | $ 261,620 | 73 | $ 261,620 |
| 20-24 | | | | | 19 | 120,300 | 19 | 120,300 |
| 25-29 | | | | | 5 | 12,240 | 5 | 12,240 |
| 30-34 | | | | | 20 | 100,031 | 20 | 100,031 |
| 35-39 | | | | | 38 | 270,302 | 38 | 270,302 |
| 40-44 | | | | | 78 | 499,098 | 78 | 499,098 |
| 45-49 | 1 | $ 30,660 | | | 112 | 917,176 | 113 | 947,836 |
| 50-54 | 535 | 15,459,291 | | | 185 | 1,608,629 | 720 | 17,067,920 |
| 55-59 | 3,631 | 78,014,608 | 1 | $ 2,124 | 321 | 3,297,713 | 3,953 | 81,314,445 |
| 60-64 | 8,174 | 125,148,995 | 6 | 24,420 | 519 | 5,283,307 | 8,699 | 130,456,722 |
| 65-69 | 8,541 | 112,484,127 | | | 539 | 6,494,194 | 9,080 | 118,978,321 |
| 70-74 | 5,717 | 84,443,965 | | | 609 | 7,945,571 | 6,326 | 92,389,536 |
| 75-79 | 3,652 | 59,291,365 | | | 662 | 7,909,012 | 4,314 | 67,200,377 |
| 80-84 | 2,370 | 38,992,560 | | | 591 | 6,762,716 | 2,961 | 45,755,276 |
| 85-89 | 1,448 | 20,388,033 | | | 438 | 4,251,149 | 1,886 | 24,639,182 |
| 90-94 | 509 | 6,234,719 | | | 153 | 1,619,520 | 662 | 7,854,239 |
| 95 | 39 | 490,653 | | | 15 | 191,952 | 54 | 682,605 |
| 96 | 32 | 344,198 | | | 8 | 82,536 | 40 | 426,734 |
| 97 | 27 | 308,636 | | | 9 | 42,624 | 36 | 351,260 |
| 98 | 16 | 148,056 | | | 9 | 68,904 | 25 | 216,960 |
| 99 | 12 | 123,298 | | | 2 | 5,304 | 14 | 128,602 |
| 100 | 7 | 63,390 | | | 3 | 48,528 | 10 | 111,918 |
| 101 | 8 | 52,500 | | | 1 | 4,572 | 9 | 57,072 |
| 102 | 2 | 19,082 | | | 0 | 0 | 2 | 19,082 |
| 105 | 1 | 6,636 | | | 1 | 2,668 | 2 | 9,304 |
| Totals | 34,722 | $542,044,772 | 7 | $26,544 | 4,410 | $47,799,666 | 39,139 | $589,870,982 |

Average age at retirement: 60.3 years • Average age now: 69.4 years

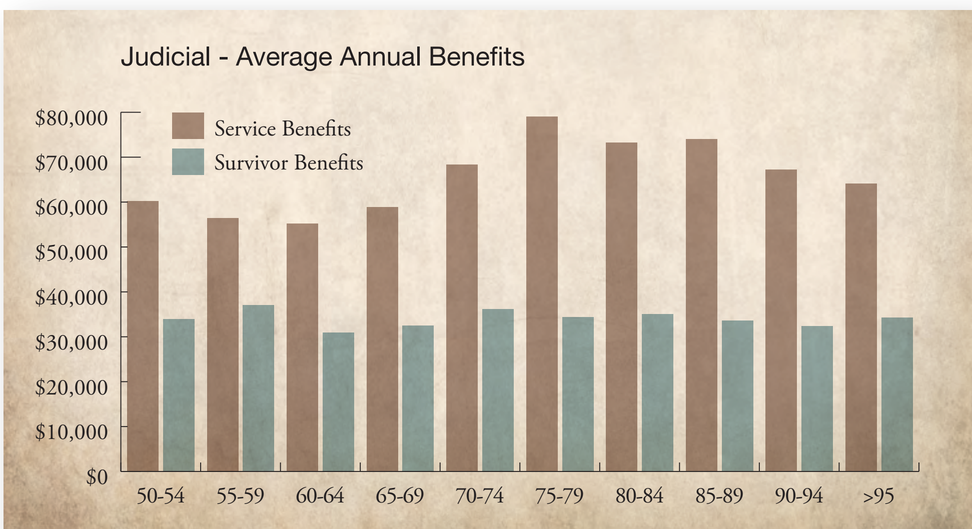


## Total Benefits Payable June 30, 2013
*Tabulated by Attained Ages of Benefit Recipients*

Judicial Plan

| | Service Retirement | | Survivors and Beneficiaries | | Totals | |
|---|---|---|---|---|---|---|
| Attained Ages | No. | Annual Benefits | No. | Annual Benefits | No. | Annual Benefits |
| 50-54 | 1 | $ 60,240 | 2 | $ 82,692 | 3 | $ 142,932 |
| 55-59 | 9 | 508,551 | 3 | 102,035 | 12 | 610,586 |
| 60-64 | 63 | 3,476,624 | 7 | 259,369 | 70 | 3,735,993 |
| 65-69 | 79 | 4,649,551 | 18 | 558,108 | 97 | 5,207,659 |
| 70-74 | 88 | 6,017,216 | 12 | 390,773 | 100 | 6,407,989 |
| 75-79 | 46 | 3,636,839 | 13 | 471,036 | 59 | 4,107,875 |
| 80-84 | 38 | 2,785,247 | 38 | 1,309,410 | 76 | 4,094,657 |
| 85-89 | 22 | 1,629,190 | 29 | 1,016,118 | 51 | 2,645,308 |
| 90-94 | 11 | 739,596 | 14 | 470,471 | 25 | 1,210,067 |
| 95 and over | 3 | 192,360 | 1 | 32,388 | 4 | 224,748 |
| Totals | 360 | $23,695,414 | 137 | $4,692,400 | 497 | $28,387,814 |

Average age at retirement: 65.1 years • Average age now: 75.4 years



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