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STATEWIDE

Survey of Public Employee Retirement Systems in Missouri

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CITIZENS SUMMARY

Survey of Public Employee Retirement Systems in Missouri

Background

The financial condition and long-term sustainability of public employee retirement plans has been a recent topic of discussion nationwide. This survey provides information and reports key data of Missouri public employee defined benefit (DB) retirement plans that help indicate financial condition of the plans.

Our survey focuses on public employee DB retirement plans, due to the risks to the sponsoring governments and ongoing liabilities associated with such plans. A typical DB plan guarantees monthly payments to eligible members, beginning upon retirement. Benefits are calculated based on a formula that considers employees' salaries, length of service, and a multiplier. Generally, a large portion of contributions are paid by the sponsoring government. DB plans use an actuarial valuation process to determine the actuarial value of plans' liabilities, assets, and related annual required contributions.

As of December 31, 2012, there were 89 DB plans in Missouri, covering approximately 546,000 members. These plans reported actuarial assets totaling approximately $57 billion and actuarial accrued liabilities totaling approximately $73 billion. Ninety-four percent of all employees participating in public employee DB retirement plans in Missouri are members of the 15 plans selected for additional analysis in our report.

Survey Results

There are several key indicators of plan financial condition. These indicators should not be viewed individually, but in combination with other indicators along with a plan's actuarial assumptions and policies. In addition, the indicators should not be reviewed at a single point in time, but trends in the indicators should be reviewed over an extended period. Our review of various indicators found the financial condition of Missouri plans varied widely, with some indicating very good financial condition and others indicating very poor financial condition. Many plans have experienced worsened financial condition in recent years, primarily due to economic and financial market downturns associated with the recession from 2007 to 2009.

The most often cited indicator of plan financial condition is the funded ratio. In simple terms, the funded ratio is the percentage of the present value of future retirement benefit payments previously earned by employees (actuarial accrued liabilities) that are covered by plan assets as of a specific date. The aggregate funded ratio of Missouri plans has decreased from 83 percent to 78 percent between 2003 and 2012, but is higher than aggregate funded ratios reported at the national level. In 2012, 40 of the 89 Missouri plans (covering 67 percent of statewide members) had funded ratios of 80 percent or higher, which is down from 47 such plans in 2003. Aggregate unfunded actuarial accrued liabilities for the Missouri plans has nearly doubled in the past 10 years, from $8.18 billion in 2003 to $16.02 billion in 2012.

Actual contributions paid as a percentage of the annual required contribution (ARC) calculated by the plan's actuary measures an employer's commitment to achieving the plan's overall funding goals. In aggregate, Missouri plans received 94 percent of ARC in 2012. However, 34 plans (covering 33 percent of statewide members) received less than 100 percent of the ARC in 2012. The failure of sponsoring governments to fully fund the ARC makes it difficult for the plans to reach financial goals.

ARC as a percentage of covered payroll (also referred to as contribution rate) can indicate the stress the required contribution level could assert on the government's budget and operations. The aggregate ARC as a percentage of covered payroll in 2012 for the 15 selected plans was 14.18 percent, an increase from 9.70 percent in 2003.

Investment income often provides the largest portion of DB plan assets. Another key indicator is a comparison of long-term annualized market rates to assumed rates of investment return. Several of the 15 selected plans underperformed their assumed rates of return for the 10-year period ended in 2012. However, of the 10 largest plans, which cover 92 percent of statewide members, only 1 plan underperformed the investment return assumptions on both the 10-year and longer-term basis.

Other key indicators of financial condition include ARC as a percentage of the sponsoring government's budget and unfunded actuarial accrued liability as a percentage of covered payroll.

The financial condition of the 89 Missouri public employee DB plans is impacted by various external factors and decisions made by the plans' governing boards and sponsoring governments. Key influences of financial condition identified and discussed in this survey include economic conditions and investment performance, benefit structure, board governance, investment policy, contribution and funding policies, and selection of actuarial assumptions and methods. Because the interaction of factors that impact a plan's financial condition can vary among DB plans, it is difficult to compare the plans.

Our survey identified various key practices DB plans should follow to support adequate financial condition. Many of these practices have been implemented by Missouri plans, including the 15 selected plans. Governing boards and sponsoring governments of many of the largest and statewide plans in Missouri have taken measures to strengthen financial condition. However, it will take time before the effect of such changes become fully evident.

The appendixes to this survey present key background, financial, and actuarial data for each of the 89 Missouri public employee DB plans.

Because of the compound nature of this report, no overall rating is provided.

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Honorable Jeremiah W. (Jay) Nixon, Governor
and
Members of the General Assembly
Jefferson City, Missouri

Retirement benefits are often a significant component of public employee compensation, and are utilized by governments to recruit and retain employees. As a result, governments often incur significant liabilities associated with retirement benefits and must contribute significant resources to retirement plans. Due to the importance of maintaining good financial condition of retirement plans for state and local government employees, we have surveyed and gathered information regarding Missouri public employee defined benefit retirement plans. The information was obtained from publicly available plan documents, a database compiled by the General Assembly's Joint Committee on Public Employee Retirement from information submitted by the retirement plans, and from our direct solicitation of information from certain plans. We have not audited the information submitted and, accordingly, do not express an opinion or any other form of assurance on the accuracy of the information. Our survey objective was to identify, obtain, and report key data of Missouri public employee defined benefit retirement plans that influence and indicate the financial condition of the plans.

Missouri state and local governments sponsored 89 defined benefit retirement plans, covering approximately 546,000 members, as of December 31, 2012. These plans reported actuarial assets totaling approximately $57 billion and actuarial liabilities totaling approximately $73 billion, resulting in a combined unfunded liability of approximately $16 billion as of plan years ended during the year ended December 31, 2012. In total, these plans were 78 percent funded during this period.

Our survey of data supporting the identified key indicators of financial condition for Missouri's 89 public employee defined benefit retirement plans noted the financial condition of these plans varies significantly. Numerous external and internal factors, including the economy and financial decisions, impact plan financial condition. The financial condition of the plans has been significantly impacted by the 2007 to 2009 recession. Decisions impacting retirement plans are made by various parties including sponsoring governments, plans' governing boards, and plans' management staff. Our survey of data determined plan decisions vary. It is essential that the various parties make sound financial decisions to maintain good financial condition. When plan liabilities are not appropriately managed, costs to the sponsoring governments to fund those liabilities could increase significantly and/or retirement benefits promised to employees could be jeopardized.

It is difficult to conclusively assess the financial condition of retirement plans or evaluate the impact of individual management decisions because of the complexity of the various factors, and there appears to be no agreed-upon national or statewide benchmarks or criteria related to these areas. In fact, there is often disagreement on what should be considered sufficient or adequate. The aggregate funded ratio of

Missouri defined benefit plans has decreased from 83 percent to 78 percent between 2003 and 2012; however, Missouri plans' aggregate 2012 funded ratio is higher than identified national averages of 73 percent to 74 percent. Officials from several plans indicated investment returns in 2013 and 2014 have been strong. These returns have likely positively impacted the plans' funded ratios. During 2012, contributions to Missouri plans totaled $2.65 billion, with $1.78 billion from the sponsoring governments and $870 million from employees. In aggregate, Missouri plans received 94 percent of actuarially required contributions (ARC) in 2012, higher than the national average of 80 percent. However, 34 plans (38 percent of Missouri plans), covering 33 percent of total members, received less than 100 percent of the ARC in 2012. The failure of sponsoring governments to fully fund 100 percent of the ARC makes it difficult for the plans to reach financial goals.

Governing boards and sponsoring governments of many of the largest and statewide plans in Missouri have taken measures to strengthen the plans' financial condition. Such measures include lengthening vesting periods, increasing retirement ages, reforming benefits and benefit formulas, restricting or reducing retiree cost of living adjustment payments, and increasing employee contribution requirements. In addition, many of these plans have changed actuarial assumptions and investment policies. However, it will take time before the effect of such changes become fully evident.

The financial condition and long-term sustainability of Missouri public employee defined benefit retirement plans deserves careful consideration and requires the design of policies that target the plans' long-term sustainability. The intent of this survey is to make key retirement plan information available for evaluation and consideration.

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State Auditor

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Survey of Public Employee Retirement Systems in Missouri Introduction

Background

In recent years, the financial condition and long-term sustainability of public employee retirement plans nationwide has been the topic of much discussion and concern as actuarial funding levels have decreased and required government contributions have increased. The poor financial condition of several large public employee retirement plans across the country has been widely publicized and the long-term sustainability of those plans questioned. Similar to plans in many states, changes have been made to various public employee retirement plans in Missouri to help control costs and improve long-term financial condition. This survey provides information that will assist in understanding defined benefit (DB) retirement plans and identifies and reports key data of Missouri public employee DB retirement plans that help indicate financial condition of the plans.

Plans incur liabilities for payment of retirement benefits. While investment earnings provide a large portion of the required funding, for most plans significant costs associated with benefits are also paid by taxpayers. Thus, the need exists for retirement plans to follow sound financial practices and assure taxpayers that commitments for future benefits will not cause undue financial burden on the sponsoring government and taxpayers.

Our survey focuses on public employee DB retirement plans due to the risks to the sponsoring governments and ongoing liabilities associated with such plans. The majority of Missouri public employee retirement plans are DB plans or a combination of both DB and defined contribution plans. Some plans cover members who are not eligible for Social Security benefits, making plan benefits a larger portion of those members' retirement assets. As of December 31, 2012, there were 130 public employee retirement plans in Missouri. Of these plans, 89 were DB plans (11 of which also provided a defined contribution plan) and 41 were defined contribution plans. Three of these 89 plans cover only state employees and 86 primarily cover local government employees. Selected data of the 89 plans is included at Appendix B and Appendix C.

DB plans guarantee members a specified lifetime benefit upon retirement; typically defined in a formula that considers various factors such as salary and years of service. Members' vested benefits are typically not portable to other plans. Investment and life expectancy risks associated with DB plans are borne by the plan sponsor. Because benefits are guaranteed for the member's lifetime, DB plan members have greater assurance of the adequacy of retirement incomes.

Defined contribution plans do not guarantee members a specified benefit. Instead, the benefit is normally based on the employer/employee contributions accumulated in the members' accounts plus or minus investment gains and losses. When terminating employment, members may elect to transfer vested benefits to other qualified defined contribution plans.

Since an employee's benefits are based on what was actually contributed and accumulated earnings, defined contribution plans do not require the actuarially based funding that is necessary for DB plans. Investment and life expectancy risks associated with defined contribution plans are borne by the plan members. In addition, disability and survivor benefits are generally not provided. Defined contribution plan members have less assurance of the adequacy of retirement income and the possibility of outliving the balance of the member's account.

Authorization

Authorization for Missouri public employee DB retirement plans is provided in the Missouri Constitution and various state statutes. When authorized, state and local governments may establish pension plans to provide retirement benefits to government officers and employees. State law authorizes statewide retirement plans for certain employees of the state, counties, courts, and school districts. In addition, a statewide multiple employer retirement plan is authorized for local political subdivisions which are not separately provided for in other state laws. State law also authorizes local retirement plans for employees of cities, counties, police departments, fire departments, and school districts with large populations; and for fire protection districts and certain other political subdivisions. Article VI, Section 25 of the Constitution and Chapter 105, RSMo, govern all public pension plans in Missouri.

Certain plans are considered "statutory" plans in which the plan governance is outlined in statutes and plan modifications must be approved by the General Assembly. The remaining plans are governed locally by the sponsoring government. In Missouri, 15 DB plans have been statutorily created and 74 have been locally created, such as by ordinance. Appendix A, Chart 1 and Appendix C provide references to the state laws applicable to Missouri public employee DB plans.

Joint Committee on Public Employee Retirement

The Joint Committee on Public Employee Retirement (JCPER) consists of six senators appointed by the President Pro Tem of the Senate, and six members of the House of Representatives, appointed by the Speaker of the House. Governed by Chapters 21 and 105, RSMo, the committee is required to:

- Make a continuing study and analysis of all state and local government retirement systems and report annually to the General Assembly.
- Devise a standard reporting system to obtain data on each public employee retirement system that will provide information on each system's financial and actuarial status at least biennially.
- Determine from its study and analysis the need for changes in statutory law.
- Make any other recommendations to the General Assembly necessary to provide adequate retirement benefits to state and local government employees within the ability of taxpayers to support their future costs.

Missouri public employee retirement plans are required to provide quarterly investment information and copies of audited annual financial statements within 6 months of the plans' fiscal year end to the JCPER. The JCPER is required to submit an annual report of the committee's activities and an analysis of the retirement plans to the legislature by January 15th of each year.

To facilitate the annual report, the JCPER solicits information from the plans annually. Plan personnel enter plan information in an on-line survey system maintained by the JCPER. Examples of information reported are plan type and background; governing board membership; member eligibility, benefits, contributions, and vesting; financial data including assets, operating liabilities, investment market values, investment advisors, and advisory fees; and actuarial information including methods used and assumptions made, required contributions, covered payroll, actuarial value of assets, and actuarial value of accrued pension liabilities. In recent years, the JCPER has increased the amount of data requested from the plans. Once received, the JCPER analyzes and performs a limited review of the data for accuracy, then compiles the information and submits the required annual report to the General Assembly. JCPER annual reports and other information regarding Missouri public employee retirement plans are located on the JCPER web site.[1]

Scope and Methodology

Our survey includes key data of Missouri public employee DB retirement plans that indicate financial condition of the plans. Key plan data was obtained from the JCPER for all Missouri public employee DB retirement plans and from publicly available documents for some plans. Additional information from the 15 largest and/or statewide plans was obtained using a separate questionnaire.

Similar to national data, available statewide data is not always current because plan data comes from annual financial reports prepared up to 6 months after fiscal year end, plans have varying fiscal year ends, and the collection of the data is time consuming.

We sent questionnaires requesting additional information to all plans having membership over 5,000, and all plans with statewide coverage. There were 12 plans with membership exceeding 5,000 (including 7 large statewide plans) and 3 additional smaller statewide plans, for a combined total of 15 plans selected to receive questionnaires. Eleven of the 15 selected plans are statutorily created. In total, these plans covered approximately 94 percent of total plan membership and 93 percent of total plan assets, for the plan years ended during the year ended December 31, 2011. The 15 DB plans selected

[1] <http://www.jcper.org/>

were County Employees' Retirement Fund, Kansas City Employees' Retirement System, Kansas City Public School Retirement System, Local Government Employees' Retirement System, Missouri Department of Transportation & Highway Patrol Employees' Retirement System, Missouri State Employees' Retirement System - Judicial Plan, Missouri State Employees' Retirement System - MSEP, Prosecuting Attorneys' & Circuit Attorneys' Retirement System, Public Education Employees' Retirement System, Public School Retirement System, Sheriff's Retirement System, St. Louis County Employees' Retirement Plan, St. Louis Employees' Retirement System, St. Louis Public School Retirement System, and University of Missouri Retirement, Disability & Death Benefit Plan. Information gathered for each of the 15 selected plans is presented in Appendix A.

To determine which plan data should be considered "key" for identifying plan financial condition, we performed various procedures. We reviewed applicable state laws and published literature specifically on DB plan practices and factors that have significant impact on financial condition. We identified and reviewed documentation of best practices recommended by recognized authoritative associations related to public retirement plans and governments. We also interviewed JCPER personnel and four actuarial professionals or groups of professionals knowledgeable of or active in public retirement plan actuarial practice, actuarial education, and/or public policy.

We obtained DB plan data from the JCPER database created by the on-line survey process for the plan years ended during the 10 years ended December 31, 2011. At the time we were performing the bulk of our initial data collection and analysis (March through November 2013), the most current data available for all plans was through plan year 2011. At that time, only some plans had begun reporting plan year 2012 data; however, other plans had not yet reported, and the JCPER had not reviewed reported plan data, for that plan year. To obtain data for the plan year 2012 for the 15 selected plans, we worked with the JCPER to expedite the plan reporting and JCPER review of plan data for that year. Later, after all plan year 2012 data became available, we downloaded certain limited data for that plan year for all DB plans.

The data downloaded from the JCPER had several limitations. Some of the key data was not available from the JCPER. Therefore, we obtained that data, for the 15 selected plans only, through a separate State Auditor's office survey. Some on-line system data was determined to be inaccurate or incomplete; but was available separately from the JCPER, for certain years. For example, the most accurate data regarding contributions for plan years 2006 through 2010, was from a study performed by the JCPER. In addition,

some plans did not report certain data to the JCPER for some years, and some plans did not report any data during some years.

To verify accuracy of the data for the 15 selected plans, we analyzed and discussed the data with personnel of each of the plans. Certain corrections and additions were made to the data based on these procedures. We provided personnel of each of the 15 selected plans with a copy of their plan's sections of Appendixes A, B, and C to further verify the accuracy of information presented. For the remaining 74 plans (covering approximately 6 percent of statewide membership), we performed analytical procedures and identified, followed up on, and revised certain data that appeared inaccurate or incomplete.

In addition to surveying the 15 selected plans for key data not available from the JCPER, we surveyed these plans on various management practices and actions related to financial reporting and plan financial condition. This survey was limited to gathering and compiling information from each plan. We did not draw conclusions about the financial condition of any individual plan.

To obtain national-level data regarding certain indicators of plan financial condition, we researched and identified various publications that report values of and trends in certain ratios and other statistics at the national level. This report cites two of those publications. One publication, *The Funding of State and Local Pensions: 2012-2016*,[2] prepared by the Center for Retirement Research at Boston College, reports data obtained from a national sample of 126 DB plans (109 state-administered and 17 locally-administered). The other publication, *2014 Report on State Retirement Systems: Funding Levels and Asset Allocation*,[3] prepared by Wilshire Consulting, reports national data obtained from 134 state-sponsored DB plans.

The data and information presented in this report are based on accounting standards effective during the periods corresponding to the data. However, as noted at the Recent GASB Accounting and Reporting Changes section, significant changes to accounting standards are effective beginning in 2014; and as a result, certain data and information will differ in future years. In addition, this report outlines the key data and general benefit requirements

[2] Alicia H. Munnell, Jean-Pierre Aubry, Josh Hurwitz, and Madeline Medenica, "The Funding of State and Local Pensions: 2012-2016," *State and Local Pension Plans*, Number 32, Center for Retirement Research at Boston College, Chestnut Hill, Ma., July 2013, pp. 1-15.

[3] Russell J. Walker, "2014 Report on State Retirement Systems: Funding Levels and Asset Allocation," Wilshire Associates Incorporated, Santa Monica, Ca., February 26, 2014, pp. 1-23.

of all 89 Missouri public employee DB plans. Additional information regarding each plan is available from each plan. Contact information for each of the 15 selected plans is included at Appendix A, Chart 1.

Defined Benefit Plans

As noted above, DB plans are widely used by Missouri's state and local governments. An understanding of the basic structure, characteristics, and terminology used by DB retirement plans is essential to understand and evaluate the financial condition of the plans.

A typical DB plan promises retirement benefits to eligible members in the form of monthly payments. The monthly payments begin upon members' retirement and continue throughout their remaining lives normally, with some options for survivor benefits. Although individual plans differ, common features of DB plans include:

- Retirement benefits are guaranteed.
- Employees earn retirement benefits by working a required number of years to become vested.
- Retirement benefits are calculated based on a formula that considers employees' salaries, length of service, and a multiplier. Other benefits often include early retirement ages with a reduced benefit payment, cost of living adjustments (COLA), and temporary additional benefits in some situations.
- Retirement benefits may also be provided to survivors of deceased vested members and to disabled members.

The authorizing government and/or the sponsoring government and the plan's governing board design various aspects of the DB plan's benefit structure and policies. The governing boards' trustees are usually appointed and/or elected from among plan members and/or non-members. For some plans, the governing board's duties may be assumed by a governmental office. The governing board manages the plan's assets/investments and retirement benefit payments. Because benefit payments are guaranteed, the sponsoring government is responsible for funding these payments and assumes nearly all of the financial risk associated with operating the plan.

Retirement benefits are funded by plan assets accumulated from contributions by sponsoring governments, employees, or other sources; and investment earnings. These assets are held in trust for future benefit payments to retirees. To be considered fully funded, current plan assets should equal the estimated current (present) value of future benefit payments (accrued liabilities) earned by employees as of the actuarial valuation date.

Contributions necessary to fund retirement benefits of DB plans are determined using one of two approaches: actuarial funding or pay-as-you-go. With the actuarial funding approach, an actuarial analysis estimates and

compares the present value of future benefit payments (accrued liabilities) to plan assets. The actuary calculates the annual required contribution (ARC) needed to meet plan funding goals. The ARC includes an amount for normal costs and an amortization payment for the unfunded actuarially accrued liability (UAAL). The ARC must be paid in an actuarial funding approach to achieve funding goals. With the pay-as-you-go approach, the funding policy does not require payment of the ARC. Instead, contribution amounts are generally only sufficient to cover benefit payments and expenses that become due in the current period. This type of funding policy is not recommended for DB plans because it may create large fluctuations in contributions needed and does not allocate the cost of a current employees' total annual employment pay package to current taxpayers, known as inter-generational equity.

Retirement systems, especially DB plans, use a number of terminologies. See page 51 for a glossary of terms relevant to this survey.

Actuarial Valuations

Defined benefit plans use an actuarial valuation process, performed by actuaries, to determine the plans' liabilities, assets, and required contributions. Total actuarial liabilities are the present (current) value of all expected benefit payments. These liabilities include both actuarially accrued liability (AAL - benefits already earned) and future normal cost (benefits expected to be earned in the future). Actuarial assets are the assets available to make payments for the AAL. Required contributions are identified for portions of both normal cost and any unfunded AAL (UAAL). Actuarial assumptions and methods play a significant role in the actuarial valuation. The plan's governing board, and in some cases the sponsoring government, make judgments based on historical information and estimations of future events related to various factors including employment, terminations, retirement ages, life expectancies, employee disability rates, investment earnings, employee raises, COLA, and economic inflation. Recommendations from the plan's actuaries often provide important information for these judgments. In addition, various actuarial cost methods are used to allocate the costs over the remaining lives of the plan's members and the members' beneficiaries. Because plan funding is based on actuarial valuation processes, it is essential that sound actuarial decisions are made. If not, a plan could experience too much or too little assets to pay future benefits. Actuarial valuations are typically performed yearly or every other year, and are documented in reports provided to a plan's governing board. Governmental Accounting Standards Board (GASB) standards require actuarial valuations at least biennially for DB plans. Actuaries are required to follow the Actuarial Standards Board standards of practice.

Section 105.664, RSMo, requires each plan, at least biennially, to prepare an actuarial valuation in compliance with GASB. According to information the 89 plans reported to the JCPER for plan year 2012, actuarial valuations were obtained annually by 85 plans and biennially by 4 plans. When a plan makes a substantial proposed change in benefits, Article VII, Section 14 of the

Constitution and Sections 105.665, 105.670, and 105.675, RSMo, require the plan prepare an actuarial valuation, including a statement of the related costs and required increase to required contributions.

Actuarial valuations are often supported by experience studies performed by actuaries. These studies compare actual activity to past actuarial assumptions and actuarial methods used. Conducting periodic experience studies (typically every 3 to 5 years and covering 4 to 10 years of historical information) helps improve the accuracy of projections in future actuarial valuations. When differences between assumptions used and actual "experience" are identified, adjustments to future assumptions may be made.

Another aid to the actuarial valuation process are audits of the actuarial valuations. The audits, performed by an independent actuary, review the valuation for accuracy and may provide independent opinions on the reasonableness of actuarial assumptions and actuarial methods used. The audits cover one or more valuations and may also cover the most recent experience study.

Accounting and Reporting Requirements

Section 105.661, RSMo, requires that plans prepare annual financial statements and obtain audits of those statements. Certain information regarding a DB plan's financial condition is reported in financial statements of the plan and the sponsoring government.

GASB standards establish accounting and reporting requirements for DB plans. GASB published these standards, which have governed pension plans in recent years, in 1994[4] and added additional disclosure requirements in 2007.[5]

The GASB requirements have been amended by new standards issued in 2012 that will be implemented by plans and sponsoring governments beginning in 2014 and 2015. The new GASB standards will significantly change the pension data available in plan and sponsoring government financial statements. Discussion of the new accounting and reporting requirements, as well as the anticipated impact on DB plans and the sponsoring governments, is included in the Recent GASB Accounting and Reporting Changes section.

[4] *Statement No. 25 of the Governmental Accounting Standards Board: Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans*, and *Statement No. 27 of the Governmental Accounting Standards Board: Accounting for Pensions by State and Local Governmental Employers*, Governmental Accounting Standards Board, Norwalk, Connecticut, November 1994.

[5] *Statement No. 50 of the Governmental Accounting Standards Board: Pension Disclosures- an amendment of GASB Statements No. 25 and No. 27*, Governmental Accounting Standards Board, Norwalk, Connecticut, May 2007.

Key Indicators of Financial Condition

A plan's governing board and sponsoring government(s) must work together to implement responsible design practices to ensure the plan remains in good financial condition and that payments to retirees and survivors are ultimately sustainable. Basic plan design features that promote good financial condition provide (1) levels of benefits that allow the government to attract and retain employees, and (2) contribution levels that are not overly burdensome on the government, but are sufficient to generate adequate reserves to pay future benefit payments (liabilities).

Plan data typically used to indicate and assess financial condition is primarily determined using complex actuarial calculations which in turn are guided by the selection of numerous assumptions and estimates of future events. Appropriate assumptions and reasonable estimates are essential elements for accurate assessment of a plan's financial condition. The actual financial condition of a plan will never match the estimated financial condition of a plan due to differences between a plan's actual experience and the assumptions and estimates.

Various plan data can be analyzed to evaluate a plan's financial condition. Several key indicators of plan financial condition include (1) funded ratio, (2) percentage of ARC paid, (3) ARC as a percentage of covered payroll and as a percentage of budget, (4) UAAL as a percentage of covered payroll, and (5) market and smoothed versus assumed investment returns. The relative importance of these indicators to each plan's financial condition may vary depending on the characteristics of the plan and the sponsoring government.

Accounting and reporting standards require some of these indicators to be published, but others are only reported voluntarily by some plans or not reported at all. These indicators should not be reviewed individually, but in combination with other indicators along with a plan's actuarial assumptions and policies. In addition, the indicators should not be reviewed at a single point in time, but trends in the indicators should be reviewed over an extended period. Comparing the financial condition between various plans is difficult because the indicators are based on varying actuarial assumptions and methods used by individual plans.

Funded Ratio

Funded ratio, the most often cited indicator of plan financial condition, is calculated using actuarial values of assets and accrued liabilities earned by employees as of the valuation date. In simple terms, the funded ratio is the percentage of the present value of future retirement benefit payments (accrued liabilities) previously earned by employees that are covered by plan assets as of a specific date. When a plan has not accumulated enough assets to cover expected benefit payments in future years based on service to date, the plan has UAAL. Actuarial methods are usually designed with a target of 100 percent funding, and a plan is considered fully funded if the plan's assets meet or exceed the plan's accrued liabilities.

There are widely varying viewpoints regarding what minimum funded ratio percentage indicates a plan is adequately funded. In the private business sector, the federal government considers plans with funded ratios below 80 percent to be at risk of default. This ratio has commonly been applied in the public retirement system community as a threshold for gauging the adequacy of plan funding. However, a July 2012 issue brief,[6] published by the American Academy of Actuaries, termed the 80 percent standard a "myth." The issue brief explains that the standard is widely but erroneously cited as a basis for whether a pension plan is financially sound, that there is no clear attribution as to its source, and that understanding a pension plan's financial health should not be reduced to a single measure such as its funded ratio. Several credit rating agencies view public employee plan funded ratios of 60 percent and below as extremely poor-funded and 90 percent and above as very well-funded; however, the credit rating agencies do not review the funded ratio in isolation. Some economists and public policy groups believe a plan must maintain peak funded ratios well above 100 percent during periods of strong economic growth before the plan can be considered adequately funded and sustainable during periods of weak economic growth or declining economic conditions.

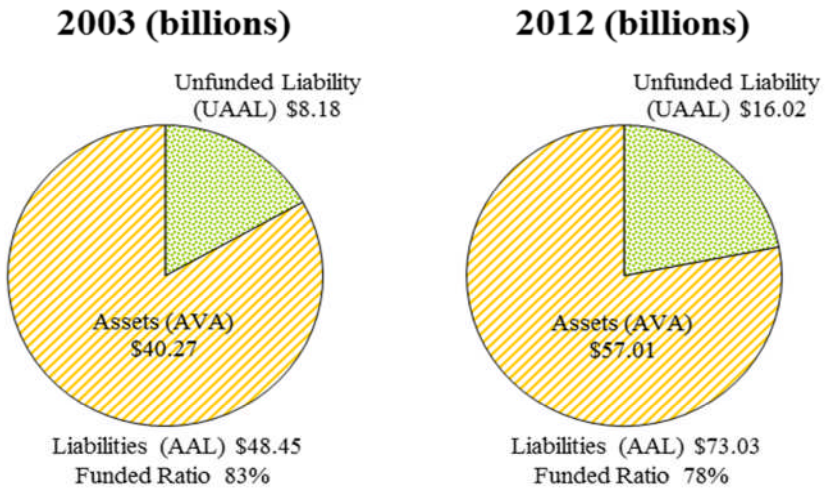
The funded ratio is best viewed over a number of years so that the stability (or upward/downward trend) of the ratio can be identified and evaluated. A decreasing funded ratio could indicate worsening financial condition, a declining ability to ultimately pay retirement benefits, and the possibility that employer/employee contributions may need to increase. An increasing funded ratio often indicates that a plan is making progress toward the overall funding goals that have been set by the governing board. However, the funded ratio should not be considered a single benchmark for plan financial condition, and should be reviewed along with other indicators and influences identified in this survey.

Figure 1 presents the aggregate actuarial values of assets, liabilities, UAAL, and funded ratios for the 89 plans as of 2003[7] and 2012.

[6] "The 80% Pension Funding Standard Myth," *Issue Brief*, The American Academy of Actuaries, July 2012, <http://www.actuary.org/files/80_Percent_Funding_IB_071912.pdf>, accessed on July 7, 2013, pp. 1-4.

[7] As of December 31, 2003, only 80 of the 89 plans existed or were reporting to the JCPER.

Figure 1: Missouri DB Plans: 2003 and 2012 Aggregate Actuarial Assets, Liabilities, UAAL, and Funded Ratio



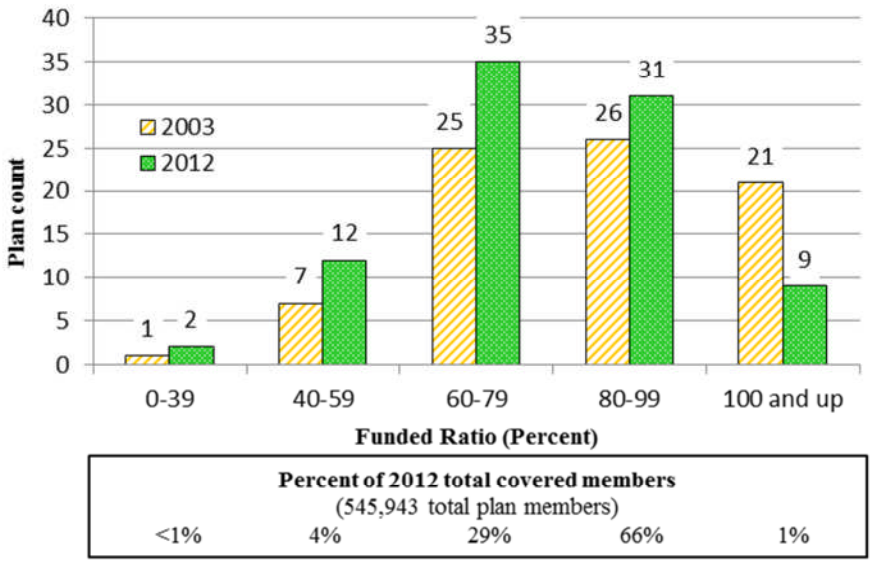
The 2012 Missouri aggregate funded ratio of 78 percent is higher than aggregate funded ratios reported at the national level. A report issued by the Center for Retirement Research at Boston College[8] indicates an aggregate funded ratio of 73 percent nationwide in 2012, and a report issued by Wilshire Consulting[9] similarly indicates an aggregate funded ratio of 74 percent in 2012.

Figure 1 shows Missouri plans experienced a drop in aggregate funded ratio during the 10-year period, from 83 percent in 2003 to 78 percent in 2012. The Wilshire Consulting report also indicates national level funded ratios have declined fairly steadily from 89 percent in 2003 to 74 percent in 2012. The United States Government Accountability Office (GAO) reported, in a March 2012 study,[10] that funded ratios have declined nationwide due to poor investment returns in recent years, failure to fully fund the ARC, and benefit increases. Similarly, officials from the 15 selected plans indicated recent fluctuations in funded ratios occurred primarily due to market downturns, and changes to benefits and actuarial assumptions (e.g., lowered investment return assumptions or increased life expectancies).

[8] Alicia H. Munnell, Jean-Pierre Aubry, Josh Hurwitz, and Madeline Medenica, "The Funding of State and Local Pensions: 2012-2016," *State and Local Pension Plans*, Number 32, Center for Retirement Research at Boston College, Chestnut Hill, Ma., July 2013, p. 2.
[9] Russell J. Walker, "2014 Report on State Retirement Systems: Funding Levels and Asset Allocation," Wilshire Associates Incorporated, Santa Monica, Ca., February 26, 2014, p. 3.
[10] Barbara D. Bovbjerg and Stanley J. Czerwinski, "State and Local Government Pension Plans: Economic Downturn Spurs Efforts to Address Costs and Sustainability," GAO-12-322, United States Government Accountability Office, March 2, 2012, <http://www.gao.gov/products/GAO-12-322>, accessed on March 31, 2014, p. 13.

Figure 2 presents distributions of 2003 and 2012 funded ratios for the 89 plans.[11] While only 40 plans (45 percent) had funded ratios of 80 percent or higher for plan year 2012, those plans covered 67 percent of statewide membership. The Center for Retirement Research at Boston College[12] reported 33 percent of plans nationwide had funded ratios of 80 percent or higher for plan year 2012.

Figure 2: Missouri DB Plans: 2003 and 2012 Distribution of Funded Ratios



Funded ratios for each of the 89 plans for certain plan years during the period 2002 to 2012 are presented in Appendix B and Appendix C. These funded ratios ranged from 10 percent (Cedar Hill Fire Protection District Length of Service Awards Program) to 164 percent (Maplewood Police & Fire Retirement Fund). Ten-year comparative schedules of funded ratios for each of the 15 selected plans are presented in Appendix A, Chart 2. Funded ratios of these plans for 2012 ranged from 24.70 percent (Missouri State Employees' Retirement System - Judicial Plan) to 91.26 percent (Sheriff's Retirement System).

We asked officials of the 15 selected plans to explain any unique issues affecting their plan's funded ratio. Their responses are included in Appendix A, Responses to Certain Survey Items. For example, Missouri State Employees' Retirement System officials indicated the funded ratio of the Judicial Plan is low because prior to 1998, the plan used the pay-as-you-go funding method. These officials said the plan changed to an actuarially calculated funding method in 1998 and the UAAL is expected to steadily

[11] As of December 31, 2003, only 80 of the 89 plans existed or were reporting to the JCPER.
[12] Alicia H. Munnell, Jean-Pierre Aubry, Josh Hurwitz, and Madeline Medenica, "The Funding of State and Local Pensions: 2012-2016," *State and Local Pension Plans*, Number 32, Center for Retirement Research at Boston College, Chestnut Hill, Ma., July 2013, p. 2.

decrease over time. Officials from another plan with a low funded ratio, Missouri Department of Transportation & Highway Patrol Employees' Retirement System, indicated that until 1976, the plan was not funded at the actuarially recommended contribution amounts, benefit increases were not adequately funded, employee contributions were refunded without provision for replacement assets, and the plan first hired management professionals knowledgeable of pension fund operations in 1988 and investment professionals beginning in 1997.

Additionally, several plans are funded by set fees or have unique contribution sources or restrictions that could result in actual contributions differing from ARC. Our survey of the 15 selected plans noted the County Employees' Retirement Fund, Kansas City Public School Retirement System, Prosecuting Attorneys' & Circuit Attorneys' Retirement System, Public Education Employees' Retirement System, Public School Retirement System, and the Sheriff's Retirement System all have unique contribution sources or restrictions impacting funded ratios.

Guidelines or Criteria

Chapter 105, RSMo, requires consideration of funded ratios for all public retirement plans. For example when substantial plan benefit changes are proposed, Section 105.665.2(2), RSMo, requires an actuarial cost study that fully funds UAAL within 30 years or less. As a result, a retirement plan anticipating substantial changes must demonstrate the plan is capable of attaining a 100 percent funded ratio within 30 years. Section 105.684, RSMo, states for most plans, there should be no retirement benefit increases unless the plan's actuary has determined the funded ratio is at least 80 percent and will not be less than 75 percent after the benefit increase. The section also requires most plans with a funded ratio below 60 percent to prepare an accelerated contribution schedule based on a descending (closed) amortization period. Section 105.683, RSMo, states if a plan's funded ratio is below 60 percent and has been descending for 5 consecutive years, and the sponsoring government has not paid 100 percent of the ARC for 5 years, the sponsoring government can be considered delinquent in making contribution payments. The law provides that certain plans in this situation can intercept state payments due to the sponsoring government in the amount of 25 percent of the contribution deficiency. State laws specific to certain plans also contain requirements regarding funded ratios.

The JCPER monitors funded ratios annually and maintains a watch list of each DB plan with either market or actuarial value funded ratios of 70 percent or less. JCPER officials indicated the monitoring threshold was developed based on 2003 information from a credit rating agency. As of November 2013, the watch list included 24 plans with funded ratios ranging from 10 percent to 69 percent.

Percentage of ARC Paid

Contributions are paid by the sponsoring government and/or employees. For plan year 2012, contributions to the 89 plans totaled $2.65 billion, with

$1.78 billion from the sponsoring governments and $870 million from employees. About half of the plans received contributions solely from the sponsoring governments (non-contributory plans), and half received contributions from both the sponsoring governments and employees (contributory plans). For some plans, employee contributions were significant. For example, $761 million (87 percent) of the $870 million employee contributions, was paid by members of the Public Education Employees' Retirement System and the Public School Retirement System. Of the Missouri contributory plans, 2012 employee contributions for 26 plans ranged from 20 percent to 50 percent of total plan contributions. Many plans, including 7 of the 15 selected plans, have recently implemented or increased employee contribution requirements.

Actual contributions as a percentage of ARC, or percentage of ARC paid, indicates the extent the sponsoring government is making the employer contribution payments as recommended by the actuary. This factor measures an employer's commitment to achieving the plan's overall funding goals. A Government Finance Officers Association (GFOA)[13] best practice guide recommends that "under no circumstance should state and local government plan sponsors engage in pension contribution holidays or make insufficient contributions. When employers skip an actuarially required contribution or make a smaller payment than required, they defer that cost to the future and jeopardize the long-term funding of the plan. When governing bodies arbitrarily reduce contributions to a plan, the resulting systemic underfunding ensures future financial shortfalls and places the burden for that shortfall on future taxpayers. These types of funding decisions compound future funding problems and are, in many instances, a leading cause of funding shortfalls." When a plan's contributions are funded by a source other than employer and employee contributions, such as fees or specially levied taxes, the percentage of ARC paid could identify flaws in the funding design of the plan.

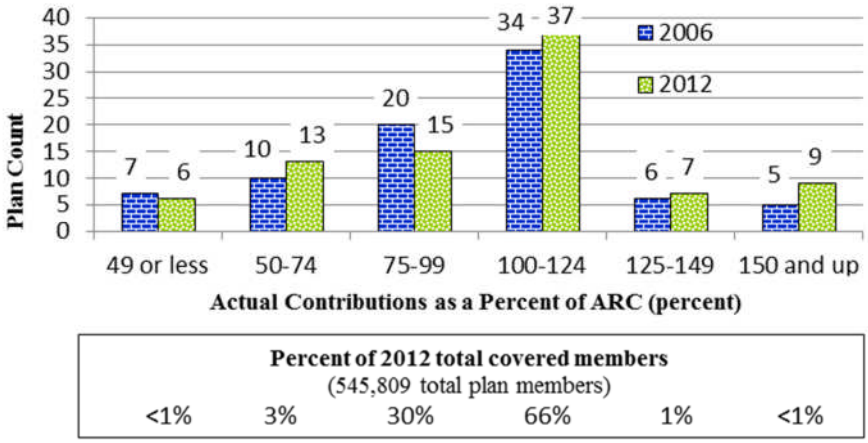
A plan that is consistently receiving contributions that equal 100 percent or more of ARC from year to year is more likely to achieve overall funding goals. A plan that consistently receives less than 100 percent of ARC has the potential of long-term funding shortfalls and ultimately poor financial condition. There is a relationship between a plan's funded status and the ARC. Generally, when a plan's funded status improves, the ARC decreases; and when the funded status declines, the ARC increases. Furthermore, the ARC is dependent on various assumptions approved by a plan's governing board; therefore, when changes to assumptions are made, the ARC likewise

[13] "Responsible Management and Design Practices for Defined Benefit Pension Plans," Government Finance Officers Association, October 2010, <http://www.gfoa.org/responsible-management-and-design-practices-defined-benefit-pension-plans>, accessed on June 24, 2014, p. 1.

changes. A plan's governing board can control the ARC through changes in assumptions.

Figure 3 shows a distribution of 2006 and 2012 actual contributions as a percentage of ARC for 87 of the 89 plans.[14] In 2012, contributions were not required for two plans. The figure shows 53 plans, or 61 percent, received 100 percent or more of the ARC in 2012. These plans cover 67 percent of statewide membership. A total of 34 plans, covering 33 percent of statewide membership, received less than 100 percent of the ARC in 2012; with 10 of these plans in the 90 percent to 99 percent range.

Figure 3: Missouri DB Plans: 2006 and 2012 Distribution of Percentage of ARC Paid



Ten-year comparative schedules of ARC, actual contributions, and percentage of ARC paid are presented for the each of the 15 selected plans in Appendix A, Chart 4. For 2012, 10 of the 15 plans received at least 100 percent of ARC. The percent of ARC paid for the 15 selected plans in 2012 ranged from 68 percent (Kansas City Public School Retirement System) to 144 percent (Prosecuting Attorneys' & Circuit Attorneys' Retirement System). Over the 10 years, 10 of the plans' contributions have consistently met or exceeded the ARC. Of the 5 plans that have not consistently met or exceeded ARC, 3 have special funding sources or statutory limitations that prevented the plan from receiving 100 percent of the ARC. Officials from one plan indicated they will begin receiving 100 percent of the ARC in 2014, and officials from the other plan indicated they have received at or above 90 percent of the ARC since 2007.

Actual percentage of ARC paid for each of the plans is presented in Appendix B and Appendix C. Our analysis of 2006 and 2012 percentages for these plans showed the percentage of ARC paid increased for approximately 40 percent of plans, decreased for approximately 40 percent of plans, and stayed the same for approximately 20 percent of the plans.

[14] As of December 31, 2006, only 82 of the 89 plans existed or were reporting to the JCPER.

A review of the aggregate percentage of ARC paid shows the 87 Missouri plans received 94 percent of ARC in 2012, an increase from 84 percent of ARC in 2006. Two of these plans, Public School Retirement System and Public Education Employee Retirement System, which together cover approximately 44 percent of statewide membership, had a percentage of contributions paid, respectively, of 71 percent and 77 percent in 2006, and 86 percent and 100 percent in 2012. The contribution percentage increased to 100 percent in 2013 for the Public School Retirement System. Lower percentages in earlier years for these two systems resulted from statutory limitations on increases in contribution rates. While reviewing aggregate data is informational, it can mask the significance of the extent that smaller plans are not receiving ARC.

In aggregate, Missouri plans have received higher percentages of ARC paid than at the national level. Data reported by the Center for Retirement Research at Boston College[15] indicates national-level aggregate percentage of ARC paid decreased from approximately 100 percent in 2001, to approximately 83 percent in 2006, and to approximately 80 percent in 2012.

Outgoing GASB standards require plans to calculate target contribution amounts based on ARC; however, the standards do not require that employers actually pay the ARC amount. Contribution payments for some plans are controlled by state or local laws or other contractual agreements. Of the 15 selected plans, state law requires contributions of 100 percent of ARC for 4 plans; and each of those plans received at least 100 percent of ARC during 2012. For 3 plans, state law requires calculation of contributions based on ARC, but actual contribution rates and/or annual rate increases are capped. As a result, 1 plan received only 86 percent in 2012. For 4 other plans, state law requires contributions of specific rates or fees, rather than ARC-based contributions. Two of these 4 plans received at least 100 percent of ARC in 2012, while 2 did not. State law governing the other 4 plans contain no such requirements regarding contributions. Two of the 4 plans received 100 percent of ARC, and the other 2 received less. As discussed at the Recent GASB Accounting and Reporting Changes section, the GASB-required methods of calculating the ARC are being eliminated for DB plans.

ARC as a Percentage of Covered Payroll and as a Percentage of Budget

For those plans primarily funded by employer contributions, ARC as a percentage of covered payroll (also referred to as contribution rate) or as a percentage of the government's budget are measures of stress the required contribution level could assert on the government's budget and operations. Rising ratios could indicate cause for concern. Long-term rising ratios could indicate a number of problems such as plan design features or policies that

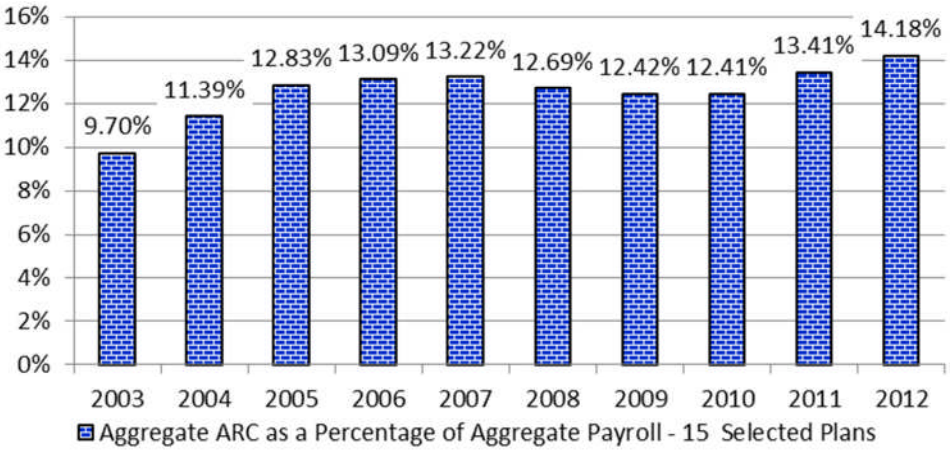
[15] Alicia H. Munnell, Jean-Pierre Aubry, Josh Hurwitz, and Madeline Medenica, "The Funding of State and Local Pensions: 2012-2016," *State and Local Pension Plans*, Number 32, Center for Retirement Research at Boston College, Chestnut Hill, Ma., July 2013, p. 3.

may not be correctly identifying and offsetting future pension liabilities. Short-term fluctuating ratios could be related to economic growth and decline. These ratios alone do not provide a full picture of a plan's financial health, but should be reviewed over a period of time and in combination with other indicators of financial condition. GASB reporting standards require plans to disclose the ARC as a percentage of payroll; however, there are no reporting requirements for ARC as a percentage of budget. While some plans may voluntarily report the ARC as a percentage of budget, it is not commonly reported and would be difficult for multiple-employer plans to report.

Certain factors could mitigate the significance of this ratio for some plans. For example, the cost of funding a plan that covers only a small portion of the sponsoring government's work force and/or represents only a small portion of the government's overall budget, would not likely have a significant impact on the government's budget even if these ratios are high.

Figure 4 presents 2003 through 2012 aggregate ARC as a percentage of payroll for the 15 selected plans. During this period, the aggregate rates for these plans trended upward by approximately 4.5 percent. While not necessarily true in all instances, such trends could indicate additional stress on the governments' budgets and operations.

Figure 4: 15 Selected Plans: 2003 to 2012 Aggregate ARC as a Percentage of Payroll



Ten-year comparative schedules of ARC as a percentage of payroll are presented for each of the 15 selected plans in Appendix A, Chart 4. In 2012, the rates for the 15 selected plans ranged from 4.94 percent (County Employees' Retirement Fund) to 58.6 percent (Missouri Department of Transportation & Highway Patrol Employees' Retirement System). Officials from the 15 selected plans indicated significant changes to contribution rates in recent years occurred primarily due to market downturns, differences between expected and actual payroll expense and employee counts, and changes to benefits and actuarial assumptions.

The 2012, 2010, and 2006 ARC as a percentage of payroll for each of the plans is presented in Appendix C. Of the 87 plans having ARC, only 83 plans had active employees with covered payroll. The ratios of the 83 plans for plan year 2012 ranged from 2.46 percent to 167.39 percent. Our analysis of available data for the applicable 83 plans found the aggregate ARC as a percentage of payroll was nearly the same as both the 2006 and 2012 percentages for the 15 selected plans. In addition, our review of the 2012 percentages noted most plan members were covered by plans with ARC as a percentage of payroll of less than 15 percent.

A Center for Retirement Research at Boston College[16] report indicates the national-level ARC as a percentage of payroll has increased annually from approximately 7 percent in 2003 and 11 percent in 2006, to 15.3 percent in 2012; with the most significant increases occurring during the periods 2003 to 2005 and 2010 to 2012, similar to the trend of increases for the 15 plans.

Rates of ARC as a percentage of state or local budget indicate the impact the ARC has on the sponsoring government's discretionary spending power. A report issued by Fitch Ratings[17] indicates, "assessing the contributions against the general fund, in the case of most entities, provides an indication of the affordability of the pension commitments and whether spending for pensions is or could be expected to start crowding out spending for other needs." A Fitch official indicated Fitch expects higher pension costs at the local level given the labor intensive nature of local services, and that pressure on a government's rating may arise when it becomes clear pension costs are being deferred or are reducing liquidity and financial flexibility.

Although information is not widely available regarding the impact of pension costs on governments' general funds, the following data presents pension cost data in relationship to certain governments' total budgets. A study performed by the National Association of State Retirement Administrators[18] of 2010 data indicated state and local spending on public pensions was 2.8 percent of total government spending. For Missouri state employees, required state contributions to the Missouri State Employees' Retirement System and Missouri Department of Transportation & Highway Patrol Employees' Retirement System for approximately 59,200 state

[16] Alicia H. Munnell, Jean-Pierre Aubry, Josh Hurwitz, and Madeline Medenica, "The Funding of State and Local Pensions: 2012-2016," *State and Local Pension Plans*, Number 32, Center for Retirement Research at Boston College, Chestnut Hill, Ma., July 2013, p. 3.

[17] Douglas Offerman, "Enhancing the Analysis of U.S. State and Local Government Pension Obligations," Fitch, Inc., New York, NY, February 17, 2011, p. 5.

[18] Keith Brainard and Alex Brown, "Issue Brief: State and Local Government Spending on Public Employee Retirement Systems," National Association of State Retirement Administrators, Updated May 2013, <http://www.nasra.org/content.asp?admin=Y&contentid=116>, accessed on March 27, 2014, p. 1.

employees during fiscal year 2012 totaled approximately $455 million, or less than 2 percent of the state's total budgeted expenditures.

UAAL as a Percentage of Covered Payroll

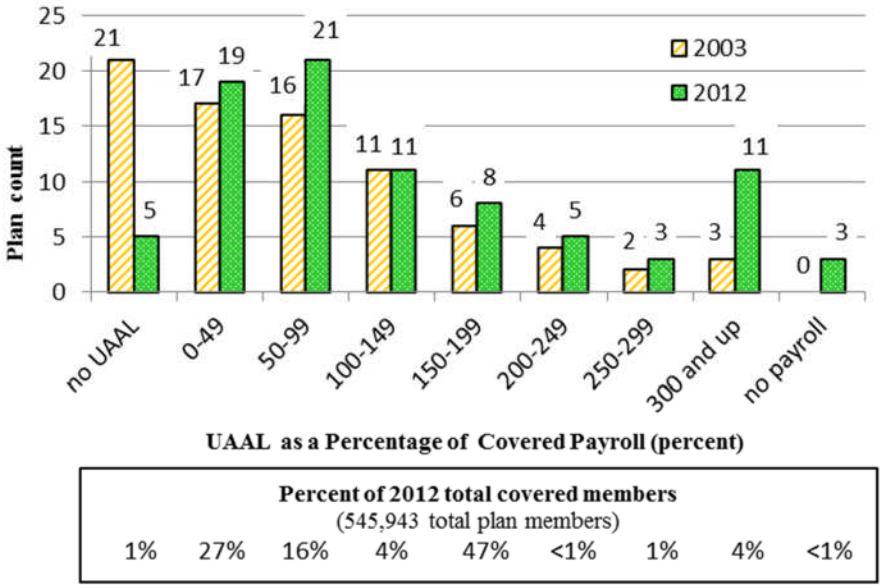
As noted in Figure 1 and Figure 2, 80 of the 89 plans are not fully funded, with an aggregate UAAL of approximately $16 billion as of plan year 2012. Calculating the UAAL as a percentage of covered payroll provides an indicator to help evaluate the stress the UAAL places on the sponsoring government's budget. This analysis compares UAAL to the sponsoring government's annual payroll expense for covered employees. This indicator, which is required by accounting and reporting standards to be reported for 6 years, is best reviewed over a number of years. An upward trend in this percentage could be an indication of worsening financial condition, and a downward trend could indicate improvement. Higher ratios may indicate a plan has weaker financial condition and the sponsoring government might have trouble making payments toward reducing the unfunded liability.

The trends in the UAAL as a percentage of payroll must be reviewed in conjunction with other indicators of financial position and other influences because, reviewed alone, it is not likely to provide a complete and accurate assessment of financial position. A number of influences including the economy, payroll trends, and proportion of active members to total plan members can impact this ratio. The economy can have a significant impact on the UAAL, and has recently exerted upward pressure on the ratio. Payroll growth is typically expected by most plans; however, during the recent recession, limited payroll increases and hiring freezes implemented by many sponsoring governments have also exerted upward pressure on the ratio. Finally, a plan that is "mature" or has a lower ratio of active members to total members, has a smaller payroll base against which to allocate the UAAL, exerting upward pressure on the ratio.

Figure 5 presents distributions of 2003 and 2012 UAAL as a percentage of payroll for the 86 plans that reported applicable data.[19] In 2012, 59 of the 86 (69 percent) plans, covering 94 percent of statewide membership, had UAAL as a percentage of payroll less than 200 percent, with 8 plans covering approximately 47 percent of statewide membership in the 150 to 199 percent range. Most other plans covering the majority of remaining statewide membership had a percentage less than 150 percent. A Wilshire Consulting[20] report indicates the national median UAAL as a percentage of payroll for 2012 was slightly over 150 percent.

[19] As of December 31, 2003, only 80 of the 86 plans existed or were reporting to the JCPER.
[20] Russell J. Walker, "2014 Report on State Retirement Systems: Funding Levels and Asset Allocation," Wilshire Associates Incorporated, Santa Monica, Ca., February 26, 2014, p. 10.

Figure 5: Missouri DB Plans: 2003 and 2012 Distribution of UAAL as a Percentage of Payroll



UAAL as a percentage of payroll for the 89 plans for plan years 2002 and 2011 is presented in Appendix C. UAAL as a percentage of payroll for the 15 selected plans, for certain years during the years 2004 through 2012, are presented in Appendix A, Chart 3. This percentage for 2012 ranged from 42.35 percent (County Employees' Retirement Fund) to 678.66 percent (Missouri State Employees' Retirement System - Judicial Plan) for these plans.

Market and Smoothed versus Assumed Investment Returns

Although frequently not reported by retirement plans, a comparison of the market-valued and smoothed investment returns to the assumed investment rate of return provides a good overview of a plan's long-term achievement of projected investment income. Investment income often provides the largest portion of DB plan assets; therefore, a plan should achieve at least the assumed investment rate of return over the long term to properly fund benefit payments. Investment returns can vary significantly from year to year depending on a plan's investment strategy and general economic conditions. As a result, a comparison of annualized market to assumed rates should be performed over an extended period. Analyses of annualized market to assumed rates are included in the Key Factors that Influence Financial Condition, Actuarial Assumptions section.

Key Factors that Influence Financial Condition

Numerous factors influence the financial condition of DB plans. Some factors are external influences a plan cannot control, but a plan must establish policies that anticipate and control the impact of those influences. Others factors are internal decisions made by a plan or sponsoring government. Setting policies to respond to these factors are key responsibilities of a plan's governing board.

The process of achieving or maintaining good financial condition of a DB plan, both on a short-term and long-term basis, is complex and can be challenging for a plan's governing board and the sponsoring government. The calculations that estimate liabilities and determine required contributions require the use of actuarial specialists. In addition, actuarial calculations rely on numerous judgments by a plan's governing board (usually made with the assistance of an actuarial consultant) regarding expected future events of the next 10, 20, 30, or even more years. In most cases, a governing board does not have the ability to control or change these future events. Small changes in some assumptions can have a big impact on the actuarial calculations and, ultimately, the perceived financial condition of a plan.

Officials from plans responding to our survey question regarding the primary cause(s) of recent funding level fluctuations indicated the weak economy and financial market downturn, as well as changes to benefits and actuarial assumptions, were the primary causes. Several officials indicated that 2013 and 2014 investment returns were much stronger and have resulted in improved financial condition. These officials also indicated the plan governing boards and/or sponsoring governments had implemented significant changes to benefit structures, actuarial assumptions, investment policies, vesting periods, and/or employee contributions to strengthen the long-term financial condition of the plans.

We identified factors or influences having the greatest impact on plans. Consideration of these various factors is necessary when evaluating a plan's financial condition.

Economy and Investment Performance

Investment performance has a significant impact on a plan's financial condition because investment earnings are a significant source of plan assets. Reports issued by the GAO[21] and the National Institute on Retirement Security[22] indicate investment returns generate more than half of pension fund asset increases nationwide.

The national and global economy can have a dramatic impact on investment performance and the financial condition of retirement plans. Economic expansions that generate investment returns above a plan's assumed

[21] Barbara D. Bovbjerg and Stanley J. Czerwinski, "State and Local Government Pension Plans: Economic Downturn Spurs Efforts to Address Costs and Sustainability," GAO-12-322, United States Government Accountability Office, March 2, 2012, <http://www.gao.gov/products/GAO-12-322>, accessed on March 31, 2014, p. 8.

[22] Ilana Boivie, "Pensionomics 2012: Measuring the Economic Impact of DB Pension Expenditures," National Institute on Retirement Security, March 6, 2012, <http://www.nirsonline.org/index.php?option=com_content&task=view&id=684&Itemid=48>, accessed on April 3, 2014, p. 3.

investment rate of return can increase the plan's funded ratio, decrease the unfunded liability, and decrease required contributions. Economic recessions that generate investment returns below the assumed investment rate of return will have the opposite impact on a plan's actuarially determined values and contributions.

The impact of the economy would be best reviewed by examining a plan's rate of return on investments; however, since the outgoing GASB standards did not require reporting of investment returns, such information is not readily available at the statewide or national level. We surveyed the 15 selected plans for this data. Ten-year comparative schedules of investment returns for the 15 selected plans are presented in Appendix A, Chart 7. These charts generally demonstrate that plan investment returns increased and decreased throughout this period in a pattern consistent with the economy's expansion and recession. The recent economic recession is reflected in the decreased investment returns and funded ratios of many plans. Because many plans have adopted asset smoothing policies, the losses incurred during the economic recession are recognized over a period of time, and therefore have not yet been fully recognized and reflected in the plans' annualized investment returns and funded ratios. For plans that have adopted asset smoothing policies, despite the economic recovery, annualized investment returns and funded ratios may continue to decrease until the losses are fully absorbed over a period of time (usually 3 to 5 years). See additional information regarding longer-term returns for certain plans at the Actuarial Assumptions, Economic Assumption and Policies section.

Because the health of the economy significantly impacts investment performance and the financial condition of a retirement plan over an extended period of time, a long-term outlook of the economy and development of a reasonable assumed investment rate of return is necessary for managing pension funds. Various best practices recommend plan administrators resist short-term reactions to market variations either positive or negative.

Governing Board

Adequate board governance is a key component of a properly managed retirement plan. Board governance considerations include composition, competence, selection, and training of board members. The authorizing statutes and/or sponsoring government generally establish the composition of a plan's governing board. The GFOA[23] recommends that "DB plan sponsors should pay particular attention to the composition of the Board of Trustees and make efforts to ensure that varied interests are represented and

[23] "Design Elements of Defined Benefit Retirement Plans," Government Finance Officers Association, February 2008, <http://www.gfoa.org/design-elements-defined-benefit-retirement-plans>, accessed on June 24, 2014, p. 2.

balanced among those of employers, employees, retirees, taxpayers and unions, if applicable. Criteria for governing board selection are crucial to ensure a competent board oversees the policy development of all plan activities." The GFOA further recommends board members receive adequate training.

Information about the board members for each of the 89 plans is included in Appendix A, Chart 1 and Appendix C. Many plans have governing boards that include representation from the plans' members and various non-member individuals. However, some plans had less diverse representation.

A review of governing board composition for the 15 selected plans indicates some plans may not have the recommended representation of varied and balanced interests. Plans classify and report the number of board members to the JCPER in 5 different categories including active plan members, retired plan members, non-plan members, appointed, and other. For the 15 selected plans, 10 plans' governing boards include trustees from 3 or more of the categories, 3 plans include trustees from 2 categories, and 2 plans include trustees from only 1 category.

Benefit Structure

A plan's benefit structure determines a member's benefit payment upon retirement and related plan liabilities. A 2010 GFOA advisory[24] indicates when benefit structures are not designed appropriately, they can compound funding problems; and that benefit structures, in many instances, are a leading cause of funding shortfalls. To contain costs associated with retirement benefits, the advisory recommends a benefit structure should include (1) retirement ages reflecting demographic trends for life expectancy, (2) exclusion of extraordinary or spiked income amounts, (3) avoidance of awarding retroactive benefit increases, (4) careful assessment of the cost of deferred retirement options and purchase of service credits, and (5) elimination of automatic COLA. Ultimately all benefits should be evaluated actuarially on a regular basis to assess both the financial condition of a plan and the advisability of implementing any benefit structure changes.

DB plans can significantly reduce costs by making changes to benefit structures. Such changes have been made across the country in recent years to address declining funded ratios exacerbated by the recent economic recession. National studies performed by the GAO[25] and the Center for State

[24] "Responsible Management and Design Practices for Defined Benefit Pension Plans," Government Finance Officers Association, October 2010, <http://www.gfoa.org/responsible-management-and-design-practices-defined-benefit-pension-plans>, accessed on June 24, 2014, p. 1.

[25] Barbara D. Bovbjerg and Stanley J. Czerwinski, "State and Local Government Pension Plans: Economic Downturn Spurs Efforts to Address Costs and Sustainability," GAO-12-322, United States Government Accountability Office, March 2, 2012, <http://www.gao.gov/products/GAO-12-322>, accessed on March 31, 2014, pp. 18-22.

and Local Government Excellence[26] indicate throughout the United States, pension plans have enacted benefit structure changes in recent years, primarily for new employees, by adjusting the benefit formula, raising the retirement age or length of work service requirements, and limiting or eliminating retiree COLA. These benefit structure changes were frequently paired with increased or new employee contribution requirements.

Many Missouri plans have also experienced similar changes, primarily for new employees. Officials from the 15 selected plans surveyed indicated benefit changes included increased retirement ages, reduced survivor benefits, elimination of the subsidy for purchase of prior work history, lengthened vesting periods, and limitation of COLA. Officials from some of these plans also indicated employee contributions had been implemented or increased.

In addition to benefit structure changes, some sponsoring governments in other states previously using only DB plans have moved to defined contribution plans, which shift all future investment risk to the members; or hybrid plans, which include both defined benefit and defined contribution components to limit future liabilities. Officials of the Kansas City Employees' Retirement Plan indicated the plan had implemented changes in which newly elected officials and judges are now required to participate in a defined contribution plan instead of the DB plan.

Because various factors of the benefit structure are considered contractual between the employee and employer, most changes to the benefit structure will only affect new employees. Therefore, the impact of changes to the benefit structure may take many years before the resulting impact on a plan's overall financial health is seen. A summary of the benefit structures and employee contribution requirements of each of the 15 selected plans is included at Appendix A, Chart 9.

Investment Policy

Our review of best practices, guidelines, and other published articles indicates a sufficiently designed investment policy is essential due to the significance of investment income to a plan's assets. DB plans usually have an investment cost advantage over other types of plans. Because DB plan assets are usually pooled into large funds, investing activity can be conducted more efficiently using a comprehensive investment plan. Section 105.688, RSMo, provides that plan assets should be invested using the same care, skill, prudence, and diligence that a prudent person acting in a similar capacity would use.

[26] "Survey Findings State and Local Government Workforce: 2013 Trends," Center for State and Local Government Excellence, May 2013, <http://slge.org/wp-content/uploads/2013/05/Workforce-Trends-2013_13-3541.pdf>, accessed on April 8, 2014, p. 4.

Choosing an appropriate investment strategy for a DB plan should be driven by the level of risk that the plan can accept for the security and liquidity of the investment principal. A plan that chooses an investment strategy involving higher risk would also need to establish an investment policy that is designed to control such risk. Pension investing is normally dependent on the actuarial "age" of a plan. A "younger" plan, in a phase of acquiring assets and funding new liabilities, can typically accept more investment risk because there is a long time frame over which to absorb market gains and losses. A more mature plan, which is reaching a phase of distributing a significant portion of the assets to retirees, would likely need to invest in instruments that do not put the principal of the investments at significant risk of loss and are more liquid. In addition, the assumed investment rate of return must be consistent with the chosen investment policy.

Asset allocation is one of the most important aspects of the investment strategy. The purpose is to manage overall investment risk by spreading the investment portfolio across chosen types of investments of varying degrees of risk. The specific allocation choices should be driven by other governing board policies such as long-term funding goals and a plan's cash flow needs. Also, asset allocation should consider the degree of risk a plan can accept and projected investment returns. A plan typically chooses percentage targets for allocating the plan's assets between multiple types of instruments. On an ongoing basis, a plan should monitor and rebalance assets between investment types to ensure the percentage targets are maintained. The asset allocation of the 15 selected plans for 2012, as reported to the JCPER, are presented in Appendix A, Chart 6. The officials of each plan exercise judgment when categorizing the plan's assets into the 11 asset classifications allowed by the JCPER; and as a result, the reported asset classifications may not be comparable among the plans. In addition, the data reported is based on actual investments and may not be reflective of the plans' target asset allocations.

The investment policies should be designed to ensure investments are diverse across investment types, credit ratings, issuers, industries, and countries. In addition, investment managers, both internal and external, should be properly monitored for performance and compliance with fiduciary responsibilities. Also, investment policies should help ensure investment costs are minimized within the constraints of the chosen investment allocation and other policies, and provide for monitoring of investment performance and comparison to a set of hypothetical investments (benchmarks) to ensure the investment strategy is achieving performance objectives.

Contributions and Funding Policies

Contributions play an integral role in a plan's funding policy and the financial condition of a plan. If the policies related to contributions and funding are not properly designed and adhered to, the financial condition of a plan can be significantly impacted.

The GFOA recommends funding guidelines[27] and sustainable funding practices[28] based on actuarial valuation studies. These practices include a long-term commitment to a reasonable funding policy. A properly designed policy provides reasonable assurance the cost of benefits will be funded in an equitable and sustainable manner. Contributions should be made in amounts recommended by the actuarial valuation and should be calculated to balance the conflicting goals of minimizing fluctuations in the contribution amounts and equitably allocating pension costs over the employees' active work history.

Sponsoring governments should commit to making all required employer contributions each year. When a sponsoring government does not make 100 percent of its required contributions, a plan is less able to invest sufficient monies to properly fund future benefit payments to the members.

Actuarial Assumptions

A plan's management and governing board must develop assumptions to estimate future results, because many factors that determine the costs of future benefit payments and the growth of the plan's assets are unknown. The selection of actuarial assumptions and methods significantly impacts the financial condition of a plan.

Actuarial assumptions include judgments about future events over an extended time period and must be carefully selected and diligently monitored to ensure the financial condition of a plan is not adversely impacted. An example of how a change in an economic assumption can impact plan financial condition can be seen at the Missouri State Employees' Retirement System - Judicial Plan. Plan officials indicated a temporary decrease to the wage inflation assumption from 4 percent to 0 percent in the 2009, 2010, and 2011 actuarial valuations, resulted in a $5 million decrease in actuarial accrued liability (and a decrease in UAAL).

Governing boards usually select and approve actuarial assumptions with the assistance of actuarial and investment advisors. To assist decision making, comparative analyses of the possible impact on plan financial condition from each assumption may be obtained from the actuary. For example, the Missouri State Employees' Retirement System-MSEP actuarial valuation as of June 30, 2012, estimated funded ratios of 66 percent, 73 percent, and 81 percent would occur if assumed investment rates of return were adjusted to 7 percent, 8 percent, and 9 percent, respectively.

[27] "Funding Defined Benefit Pensions," Government Finance Officers Association, June 2012, <http://www.gfoa.org/funding-defined-benefit-pensions>, accessed on June 24, 2014, p. 1.
[28] "Sustainable Funding Practices of Defined Benefit Pension Plans," Government Finance Officers Association, October 2009, <http://gfoa.org/sustainable-funding-practices-defined-benefit-pension-plans>, accessed on June 24, 2014, pp. 1-3.

The GFOA[29] indicates in a best practice guide, "The reliability of an actuarial valuation also depends on the use of reasonable methods and assumptions. Experience studies, performed no less frequently than every five years, can help to ensure the assumptions are in line with the plan's demographic and economic experience, or can be used as a guide to make necessary changes. Likewise, a comprehensive audit of the plan's actuarial valuations performed by an independent actuary at least once every five to eight years can be used to evaluate the appropriateness of the actuarial methods, assumptions, and their application." Another GFOA[30] best practice guide encourages the performance of actuarial audits by an incoming actuary when a plan begins using a new actuarial consultant and indicates plans frequently have such audits performed.

Retirement systems are not required to obtain these reports and studies unless state or local laws include such requirements. Missouri statutes do not require retirement systems to obtain actuarial audits; however, periodic experience studies are required, usually every 5 years, for the state employee retirement systems, the large teacher retirement systems, and some large police and fire retirement systems. Thirteen of the 15 selected plans obtained actuarial audits or alternative reviews, and experience studies or alternative studies. Officials from one of the two remaining plans indicated they do not consider these audits/studies necessary or cost effective because of their plan's high funded ratio and limited size. Instead, this plan periodically requires its actuary to perform additional reviews of selected assumptions.

Economic Assumptions and Policies

Key economic assumptions include assumed investment rate of return, price inflation, and wage inflation. Even a slight change in economic assumptions can have huge impact. For example, an increase in assumed investment rate of return will decrease required contribution amounts and increase the funded ratio. However a decrease in assumed investment rate of return will require additional contributions and will decrease the funded ratio.

Assumed Investment Rate of Return

The assumed investment rate of return is the long-term rate of return expected on plan assets, and is often cited as the assumption having the most impact on plan financial condition. There is significant debate among pension and public finance professionals regarding the most appropriate assumed investment rate of return (discount rate) to use when valuing pension liabilities (future benefit payments). We discuss key issues over that debate in the Risk-Free Discount Rate Debate section.

[29] "The Role of the Actuarial Valuation Report in Plan Funding," Government Finance Officers Association, February 2013, <http://www.gfoa.org/role-actuarial-valuation-report-plan-funding>, accessed on June 24, 2014, p. 3.
[30] "Actuarial Audits," Government Finance Officers Association, May 2014, <http://www.gfoa.org/actuarial-audits>, accessed on May 30, 2014, p. 2.

The assumed investment rate of return is typically also used as the discount rate when a plan's actuary calculates the present value of plan liabilities through a method called discounting. When setting the rate, a plan considers current and past economic conditions, long-term economic outlook predictions, expected inflation, past investment performance, investment policies, and asset allocation. This rate is the sum of the assumed real rate of return plus assumed price inflation, with the assumed real rate of return sometimes referred to as the "spread." A same or similar rate is typically assumed each year due to the long-term nature of the rate.

Because the rate used determines the present value of plan liabilities extending far into the future, it significantly impacts the perceived plan financial condition and the ARC. A higher rate creates a smaller present value of liabilities and UAAL, and lower ARC. Conversely, a lower rate creates a higher present value of liabilities and UAAL, and higher ARC. If the rate is not set realistically and reevaluated regularly, over time the funded ratio and contributions could become inconsistent with the benefit payment liability of a plan and could either overfund or jeopardize the financial condition of the plan. The National Association of State Retirement Administrators (NASRA) explains in an issue brief,[31] "An investment return assumption that is set too low will overstate liabilities and costs, causing current taxpayers to be overcharged and future taxpayers to be undercharged. A rate set too high will understate liabilities, undercharging current taxpayers, at the expense of future taxpayers. An assumption that is significantly wrong in either direction will cause a misallocation of resources and unfairly distribute costs among generations of taxpayers." Similarly, the GFOA states in an advisory,[32] "Unrealistically high investment return assumptions are likely to result in a chronically declining funded ratio and higher contributions in the future. Caution should be exercised to ensure the investment return assumption reflects the reasonably expected returns of the plans asset allocation over a reasonable period of time."

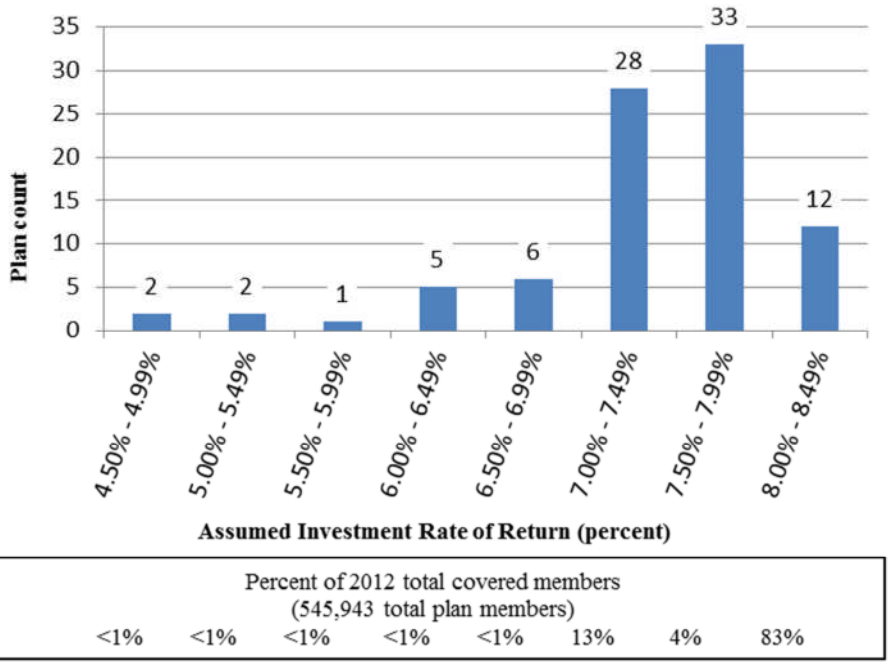
Numerous articles indicate the most common assumed investment rate of return used by plans nationwide range from 7.5 to 8.5 percent. The articles also indicate the average assumed rate used by plans is declining primarily due to the belief that future economic growth will be less than that made prior to the recent economic recession. The Missouri State Employees' Retirement System board's recent actions reflect these comments. The plan's

[31] Keith Brainard and Alex Brown, "Issue Brief: Public Pension Plan Investment Return Assumptions," National Association of State Retirement Administrators, December 2013, <http://www.nasra.org/content.asp?contentid=120>, accessed on April 11, 2014, p. 1.
[32] "Responsible Management and Design Practices for Defined Benefit Pension Plans," Government Finance Officers Association, October 2010, <http://www.gfoa.org/responsible-management-and-design-practices-defined-benefit-pension-plans>, accessed on June 24, 2014, p. 2.

annual financial report dated June 30, 2012, indicated pooled investments for the Judicial and MSEP plans returned about 8.5 percent (annualized) over 20 years, about equal to the assumed rate adopted by the board in 2001 through 2011. However, partially in response to the economy, the board reduced the assumed rate to 8 percent for both plans in 2012.

Figure 6 presents distributions of 2012 assumed investment rates of return for the 89 plans. Twelve plans covering 83 percent of statewide membership had an assumed investment return rate of between 8 and 8.5 percent.

Figure 6: Missouri DB Plans: 2012 Distribution of Assumed Investment Rate of Return



The 2011 assumed investment rate of return for each of the 89 plans is presented in Appendix B and Appendix C. Ten-year comparative schedules of assumed investment rate of return, including assumed real rate of return and price inflation, for each of the 15 selected plans are presented in Appendix A, Chart 8. The 2012 assumed investment rates of return for the 15 selected plans ranged from 7.25 percent to 8.25 percent and the assumed real rate or return ranged from 3.75 percent to 5.5 percent.

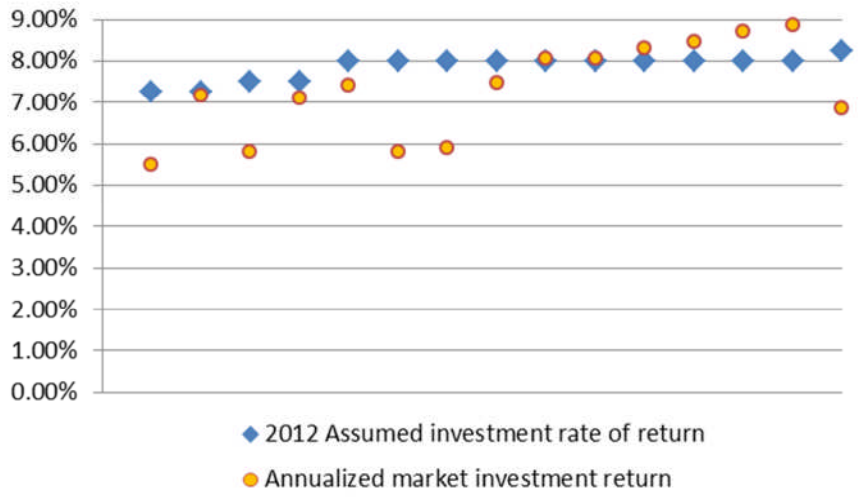
Missouri plans reported declining assumed investment return rates between the 2003 and 2012 plan years. The average (non-weighted) assumed rate for the 89 plans declined from 7.58 percent to 7.17 percent between 2003 and 2012. The average (non-weighted) assumed rate for the 15 selected plans declined from 8.00 percent to 7.85 percent during that period. This change likely indicates plans are anticipating economic growth will be slower in future years. Some individuals believe that even the lowered investment

return assumptions are unrealistically high. See the Risk-Free Discount Rate Debate section.

A test of the appropriateness of a plan's assumed investment rate of return would be a comparison of the assumed rate to the annualized market long-term investment returns. Unfortunately, long-term investment performance is not usually reported because there are no related reporting requirements. In addition, the JCPER does not collect this data.

Figure 7 below presents a comparison of the 2012 assumed investment rate of return to the 10-year annualized market investment return for each of the 15 selected plans for the 2003 to 2012. We surveyed the 15 selected plans for this information because such longer-term data regarding investment returns is not collected by the JCPER. The plans used varying methodologies to calculate the annualized market investment returns shown below. For example, some plans reported returns net of investment fees and costs, while other plans were unable to do so.

Figure 7: 15 Selected Plans: 2012 Assumed Investment Rate of Return and 2003 to 2012 Annualized Market Investment Return



The 15 selected plans reported 10-year annualized market investment returns ranging from 5.49 percent (Prosecuting Attorneys' & Circuit Attorneys' Retirement System) to 8.86 percent (University of Missouri Retirement, Disability, & Death Benefit Plan). As shown in Figure 7, for 9 plans the annualized market returns for the 10-year period were less than the assumed returns by 0.08 percent to 2.2 percent. The value of this comparison is somewhat limited because it only included the most recent 10 years that included 2 periods of significant economic downturn, and did not provide an extended long-term look-back. Annualized returns for longer time periods would likely produce different results and could reduce the negative effects of the recent economic recessions.

To obtain information for a longer-term look-back, we requested the 10 largest of the 15 selected plans, having 92 percent of statewide membership, to provide additional long-term investment performance data as of the plans' 2012 year ends. Table 1 presents information the plans provided and shows only 1 of the 10 plans underperformed investment return assumptions on both the 10-year and longer-term basis. In addition, officials from several plans indicated returns in 2013 and 2014 have been strong, which has positively impacted the plans' recent long-term returns even more than reflected in the information reported.

Table 1: 10 Selected Plans: 2012 Assumed Investment Rate of Return versus Annualized Market Rate of Investment Return through 2012 (unless otherwise noted)

Plan	2012 Assumed Investment Rate of Return (%)	Annualized Market Rate of Investment Return (%)	Market Return Over (Under) Assumed Return (%)	Number of Years
County Employees' Retirement Fund	8.00	7.40	(0.60)	10
		8.66	0.66	18[1]
Kansas City Public School Retirement System	8.00	7.48	(0.52)	10
		7.84	(0.16)	20
		8.21	0.21	24[2]
Local Government Employees' Retirement System	7.25	7.17	(0.08)	10
		8.70	1.45	20
Missouri Department of Transportation & Highway Patrol Employees' Retirement System	8.25	6.86	(1.39)	10
		6.75	(1.50)	20
Missouri State Employees' Retirement System - MSEP	8.00	8.07	0.07	10
		8.55	0.55	20
		10.32	2.32	32[3]
Public Education Employees' Retirement System and Public School Retirement System[4]	8.00	5.80/5.90	(2.20)/(2.10)	10
		7.53	(0.47)	20
		10.05	2.05	30
St. Louis Employees' Retirement System	8.00	8.48	0.48	10
		8.67	0.67	27[5]
St. Louis Public School Retirement System	8.00	8.70	0.70	10
		6.70	(1.30)	15[6]
University of Missouri Retirement, Disability & Death Benefit Plan	8.00	8.86	0.86	10
		8.47	0.47	20

[1] Since plan inception, January 1, 1995.

[2] Since inception of the plan's analysis of composite investment return data, July 1, 1989.

[3] Since inception of the plan's analysis of composite investment return data, April 1981.

[4] The Public Education Employees' and Public School Retirement Systems' assets are jointly managed. The 20-year and 30-year returns presented are combined for the plans.

[5] A 20-year rate is not available. The long-term returns reflect data from January 1986 through September 30, 2012, and are since inception of the plan's analysis of composite investment return data.

[6] Plan officials indicated they were only able to provide accurate investment return data back through 1998.

Assumed Price Inflation

The assumed price inflation rate is a component of both the assumed investment rate of return and assumed wage inflation and in some plans may be used in determining the amount of retirees' COLA increases. Any significant difference between actual price inflation and assumed price inflation rates will cause a reduction in unfunded liabilities either slower or faster than expected.

Price inflation rates should be set in relation to both historical and future anticipated inflation. Common indices include the Consumer Price Index and the Gross National Product. When selecting the assumed price inflation rate to be used in the economic assumptions, a plan may choose to adjust the historical index rate for local conditions, anticipated changes in the economy that have not occurred yet, and other relevant factors. A plan's investment returns generally need to exceed the economic inflation rate or the plan is losing "buying power." Ten-year assumed price inflation rates for the 15 selected plans are shown in Appendix A, Chart 8.

Assumed Wage Inflation

The assumed wage inflation rate affects the actuarial calculation of members' final salaries and the resulting expected benefit payments. Assumed wage inflation rate considers both price inflation and employee raises. Accurate wage inflation assumptions promote accurate benefit payment liability determinations as well as accurate assessment of financial condition. If the wage inflation rate is underestimated, the ultimate liability will be understated and the financial condition of a plan would appear better than it actually is and vice-versa. The assumed wage inflation rates for the 89 plans are presented in Appendix A, Chart 1 and Appendix C.

Demographic Assumptions

Numerous assumptions and predictions about plan member demographic information must be made in the actuarial valuation process. The key demographic assumptions include estimates of members' ages at retirement, mortality rates, rates of employment termination, rates of disability, and selection of benefit payment structures available. Actual member demographic experience will never exactly match the assumptions. When actual experience differs significantly from assumptions, the financial position of a plan is affected because payments made to retirees will not be in the amounts estimated at the time required contributions were calculated and made. A periodic experience study is designed to detect differences between actual experience and the original assumptions. When significant differences occur, a plan should consider revising the assumptions used in future actuarial valuations.

Actuarial Methods

Various actuarial approaches are used in plan actuarial valuations. Three key areas in which different approaches may be employed include actuarial cost methods, asset valuation methods, and amortization methods.

Actuarial Cost Methods

Actuarial cost methods are used to allocate estimated future pension costs of current employees over time, and the method used impacts when benefits are funded. There are several cost methods commonly used by Missouri DB plans, each with their own variations, which allow plans to tailor the cost allocation to their specific characteristics or long-term funding goals. Table 2 presents information reported to the JCPER by the plans on the basic cost methods used during plan year 2011.

Table 2: Missouri DB Plans: 2011 Actuarial Cost Methods

Method	15 Selected Plans	All Plans
Entry Age	12 plans (80%)	53 plans (60%)
Other	3 plans (20%)	36 plans (40%)
	15 plans	89 plans

Information regarding specific actuarial cost methods used by each of the 89 plans is included in Appendix A, Chart 1 and Appendix C.

The entry age method spreads the cost of total expected retirement benefits for each member on a level basis (percentage of payroll or dollar amount) each year over the expected work life of the member. The GFOA's best practices[33] state the entry age method is especially well suited to the objective of keeping contributions relatively stable and equitably allocating the costs over the employees' period of active service. In 2011, most of the 15 selected plans used the entry age cost method; however, only 60 percent of the 89 plans used the entry age method. Beginning in 2014 the entry age normal/level percentage of payroll will be the only allocation method allowed for calculating pension liabilities presented in financial statements.

Other actuarial cost methods used by the 89 plans during 2011 include aggregate, projected unit credit, frozen initial liability, and unit credit. Each of these methods uses different processes to spread the expected retirement benefits of members such as (1) allocating costs for each individual member separately, (2) determining combined liability for all members before spreading the cost, or (3) breaking the total expected costs into various pools and using a different allocation method for each pool. According to a Society of Actuaries article,[34] these cost methods, except for the unit credit method, are traditionally used by DB plans. The article indicates the unit credit method is not reasonable for plans with benefits based on percentages of pay, but is reasonable for plans with benefits not based on percentages of pay, frozen plans, and plans with no active members. In addition, this method is not suitable for determining contribution amounts.

[33] "Core Elements of a Funding Policy," Government Finance Officers Association, March 2013, <http://www.gfoa.org/core-elements-funding-policy>, accessed on June 24, 2014, p. 2.
[34] Philip Martin McCaulay, "Public Pension Plan Funding Policy," Society of Actuaries, June 2010, <http://www.soa.org/library/monographs/retirement-systems/public-pension-finance/2010/june/mono-2010-mrs10-mccaulay.aspx>, accessed on April 15, 2014, p. 14.

Missouri statutes include requirements pertaining to actuarial cost methods for certain statewide plans including the Missouri State Employees' Retirement System - Judicial Plan, Missouri State Employees' Retirement System - MSEP, and Missouri Department of Transportation & Highway Patrol Employees' Retirement System. Although the statutes do not specify the overall actuarial cost method, they require the plans' chosen methods determine normal cost as a level percentage of payroll. State statutes also require two of these plans to calculate UAAL cost as level percentage of payroll. The percentage of payroll calculation helps the state manage and minimize fluctuations in contribution amounts.

Asset Valuation Methods

The asset valuation method used significantly impacts a plan's actuarial asset values. Some plans value assets at market value, fully recognizing investment gains and losses in the year they occur. Many plans adopt an asset valuation method that recognizes a portion of each year's gains and losses relative to the assumed rate over a period of time, typically between 3 to 5 years. This method, called smoothing, spreads the impact of relative investment gains and losses over several years, providing for more moderate fluctuations in plan financial condition and required contributions. For the 15 selected plans, Appendix A, Chart 7 illustrates the effect of the smoothing process compared to market returns for the period of plan years 2003 through 2012.

The 89 plans utilized asset valuation methods in 2012 as shown in Table 3.

Table 3: Missouri DB Plans: 2012
Asset Valuation Methods

Method	15 Selected Plans	All Plans
3 year smoothing	1	5
4 year smoothing	2	10
5 year smoothing	11	36
Other[1]	1	3
Market value (no smoothing)	0	29
Not reported	0	6
	15	89

[1] Assumed Yield, Assured Yield, or Smoothed Actuarial Value

Information about the asset valuation methods used by each of the 89 plans is included in Appendix A, Chart 1 and Appendix C.

Amortization Methods

Amortization methods are used to determine current contributions needed to fund the UAAL. Most retirement plans do not fully fund the UAAL immediately, but spread the contribution payments across several years (the amortization period). The amortization method and period chosen can have a significant impact on the rate the UAAL becomes funded and the amount of contributions needed.

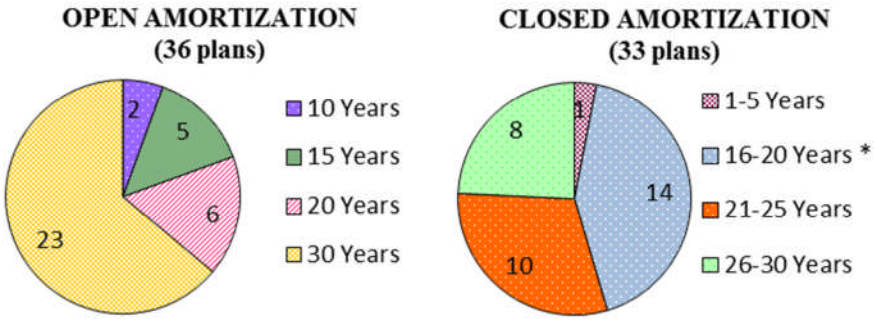
Amortization methods are not required when a plan does not have UAAL, which normally happens under two different scenarios. Some plans do not have UAAL because they are fully funded or utilize certain actuarial cost methods which do not calculate a UAAL amount that must be amortized. Plans that are fully funded do not need to make any contributions toward the UAAL, and plans that use an actuarial cost method that does not create UAAL only need to make contributions in an amount equal to the difference between the current and prior years' actuarial liability totals. All remaining plans would choose either an opened or closed amortization period.

An open amortization period allocates UAAL over an identified number of years on a rolling year basis. For example, each year, a plan that uses a 20-year open amortization period will spread the unfunded liability over the next 20 years. In theory this method could eventually approach full funding of liability; however, it will require significantly longer than the 20 years to arrive at that nearly fully funded position because there is no definite date in the future to achieve the goal.

A closed amortization period sets a future date that an unfunded liability will become fully funded and reduces the amortization period by 1 year each year after the closed period policy is adopted. For example, a plan that uses a 20-year closed amortization period will allocate liabilities over a 19-year amortization period in the year after the closed period was adopted, reducing the amortization period by 1 year each year thereafter. This method sets an absolute full funding date for the plan's liability and at the end of that period, the plan should have achieved a 100 percent funded ratio. Although using closed amortization periods provides for full funding more quickly than open periods, a plan using this method is likely to experience more significant fluctuations in financial condition and required contributions.

Information reported to the JCPER by Missouri DB plans for 2012 indicates 36 plans covering 32 percent of statewide membership used open amortization periods, 33 plans covering 66 percent of statewide membership used closed amortization periods and 20 plans covering 2 percent of statewide membership did not require amortization because the plans were fully funded and/or used an actuarial cost method that does not produce UAAL. Figure 8 presents the number of plans that used open or closed amortization periods and the number of years included in 2012 amortization calculations.

Figure 8: Missouri DB Plans: 2012 Distribution of Open and Closed Amortization Periods



* Includes the Local Government Employees' Retirement System in which liability amortization periods vary between 15 and 30 years by participating employer. Closed amortization is required for all periods in excess of 15 years and open amortization is used for periods of 15 years or less.

Information about the amortization methods used by each of the 89 plans is included in Appendix A, Chart 1 and Appendix C.

Missouri statutes require amortization periods of 30 years or less for some plans and a closed amortization period for one of those plans. However, there are no amortization period requirements for the majority of plans authorized by state statute. A discussion paper[35] published by the Society of Actuaries recommends using a closed or fixed period or fixed date to amortize the UAAL, because otherwise the UAAL may "grow until infinity and the responsibility for paying it is passed on to future taxpayers."

Risk-Free Discount Rate Debate

Pension and public finance professionals debate the most appropriate assumed investment rate of return (discount rate) to use when valuing pension liabilities (future benefit payments). The potential mismatch between guaranteed pension benefits and the uncertainty of investment returns drives this debate, and there is a clear division of opinion regarding the discount rate.

To achieve investment returns above the rate of inflation, plan administrators generally must expose a plan's assets to investment risk. The principal and/or the expected investment returns of these higher risk investments are not guaranteed. Investments with little to no risk of losing principal are considered risk-free. Based on our review of a number of articles, opinions vary regarding the selection of the risk-free rate. The opinions advocate a range of rates including a short-term Treasury Bill rate, a longer-term rate consistent with the sponsoring governments' cost of

[35] Philip Martin McCaulay, "Public Pension Plan Funding Policy," Society of Actuaries, June 2010, <http://www.soa.org/library/monographs/retirement-systems/public-pension-finance/2010/june/mono-2010-mrs10-mccaulay.aspx>, accessed on April 15, 2014, p. i.

borrowing, and a long-term government bond rate (e.g., 30-year Treasury bonds).

Some economists argue that using the traditional assumed rate of investment return, typically around 8 percent, to value liabilities produces misleading results by understating plan liabilities and overstating funding levels. They believe a more conservative valuation using a lower, risk-free or risk-adjusted, discount rate is appropriate due to the guaranteed nature of DB pension liabilities; and that such a rate considers the risk a plan will not achieve expected returns. In addition, they argue using the traditional, higher rate, may create an incentive for a plan to adopt riskier investment policies.

The assumed investment rate of return significantly impacts plan financial condition; and using a reduced discount rate will impact plan funding levels and the ARC. The Center for Retirement Research at Boston College[36] recalculated the 2012 aggregate funded ratio for a sample of plans nationwide using a 5 percent, risk-adjusted rate; estimating the aggregate funded ratio would only be 50 percent, significantly less than the 73 percent aggregate funded ratio calculated using current assumed investment rates of return. A policy study conducted by the Show-Me Institute[37] estimated aggregate funded ratios for five large statewide Missouri plans would decline from the current 81 percent funded ratio to 46 percent using a 4 percent risk-adjusted discount rate.

A discussion paper[38] regarding funding policies, published by the Society of Actuaries, indicates while traditional actuarial methods for funding DB plans are in need of improvement, the use of financial economics, which advocates the use of a risk-free rate in calculating pension liability, is not an appropriate solution. The society indicates "the use of a risk-free discount rate would require an increase in contributions to an unacceptable level." The society recommends improvements in actuarial cost methods, asset smoothing methods, UAAL amortization methods, and selection of actuarial assumptions.

A plan must carefully consider the assumed investment rate of return. The selected rate substantially impacts plan funding levels and required contributions. Plan administrators need to select a rate that provides for

[36] Alicia H. Munnell, Jean-Pierre Aubry, Josh Hurwitz, and Madeline Medenica, "The Funding of State and Local Pensions: 2012-2016," *State and Local Pension Plans*, Number 32, Center for Retirement Research at Boston College, Chestnut Hill, Ma., July 2013, p. 4.
[37] Andrew G. Biggs, "Public Employee Pensions in Missouri: A Looming Crisis," Policy Study Number 36, Show-Me Institute, St. Louis, Mo., March 2013, p.17.
[38] Philip Martin McCaulay, "Public Pension Plan Funding Policy," Society of Actuaries, June 2010, <http://www.soa.org/library/monographs/retirement-systems/public-pension-finance/2010/june/mono-2010-mrs10-mccaulay.aspx>, accessed on April 15, 2014, p. i.

sufficient funding levels without generating excessive funding and overcharging the current generation of taxpayers but also does not push excessive levels of risk of funding shortfalls onto future generations of taxpayers.

Recent GASB Accounting and Reporting Changes

The GASB recognized the need to reconsider its authoritative pension guidance and recently amended pension accounting and reporting requirements. The changes take effect for pension plans beginning in 2014, and for governments that sponsor or participate in pension plans beginning in 2015. While outgoing GASB requirements provide for a single set of methods and assumptions for both financial accounting/reporting and for calculating the ARC,[39] the revised GASB requirements only prescribe the methods and assumptions for financial accounting/reporting. As a result, under the new changes, DB plans will likely develop separate actuarial calculations for financial statement purposes and for funding purposes. The changes are intended to improve the usefulness of pension information reported by state and local governments for making decisions and assessing accountability. One of the most noticeable changes will be the inclusion of all pension activities and net long-term liabilities (or assets) in the sponsoring government's basic financial statements.

Outgoing GASB Requirements

Outgoing GASB standards include requirements for measuring and reporting financial statement information and calculating a plan's ARC. GASB-required DB plan financial reports must include financial statements, supplementary schedules, and explanatory notes. The financial statements report assets and liabilities as of a specific date and annual totals of income and expenses. The financial statements do not provide information about the long-term debt for pension benefit payments to be made in the future or long-term financial condition of a plan but focus instead on the current year of operations. The supplementary schedules report multi-year data for required and actual contributions made, actuarial assets and accrued liabilities, and funded ratios. The notes to the financial statements and other required supplementary information provide information about the financial condition of the plan and the plan's long-term debt for pension benefits. The explanatory notes also describe or define the employer(s) participating in the plan; types of employees covered; number of plan members; benefits provided; significant accounting, funding, and contribution policies; contribution rates and agreements; selected investment information; selected actuarial valuation assumptions and methods used; current year funded status information; and significant changes made. There are similar basic accounting and reporting requirements for sponsoring governments.

[39] The ARC is called actuarially determined contributions (ADC) in GASB 67 and 68.

GASB Revisions

GASB Statement No. 67[40] amends accounting and reporting requirements for pension plans and GASB Statement No. 68[41] amends accounting and reporting requirements for sponsoring governments. The new GASB statements require the following key changes in financial accounting and reporting for most DB plans.

- The new standards rename various financial statement terminologies. For example, AAL is renamed total pension liability (TPL), AVA is renamed fiduciary net position (FNP), normal cost is renamed service cost, UAAL is renamed fiduciary net pension liability (NPL), funded ratio is renamed fiduciary net position as a percentage of total pension liability (FNP/TPL), and ARC is renamed actuarially determined contribution (ADC).
- Plan assets (FNP) will be calculated based on current market value rather than smoothed. With this change, the year-to-year fluctuations in the FNP/TPL and NPL could be significant as the market value of assets fluctuates.
- The entry age normal/level percentage of payroll actuarial cost method will become the only allowable method for calculating total pension liabilities.
- Actuarial assets (FNP) will be compared to actuarial accrued liabilities (TPL) and a crossover point determined, if applicable, where TPL exceed actuarial assets. If this crossover point is expected, a blended discount rate must be used. Effectively, TPL covered by actuarial assets are calculated using the plan's assumed investment rate of return, while the remaining uncovered liabilities are calculated using a risk-adjusted interest rate for high-yield, tax-exempt, 20-year general obligation bonds (4.29 percent[42] as of July 24, 2014). Under current economic conditions, the blended rate will likely be lower than the assumed investment rate of return normally used to discount liabilities. The effect of using the blended rate, rather than only the assumed investment rate of return, to discount the liabilities may result in increased NPL (formerly UAAL) and decreased FNP/TPL (formerly funded ratio).
- Schedules of investment rates of return for 10 years will be presented.
- Factors that significantly affect trends in the amounts reported, such as changes of benefit terms, changes in the size or composition of the

[40] *Statement No. 67 of the Governmental Accounting Standards Board: Financial Reporting for Pension Plans-an amendment of GASB Statement No. 25,* Governmental Accounting Standards, Board Norwalk, Connecticut, June 2012.

[41] *Statement No. 68 of the Governmental Accounting Standards Board: Accounting and Financial Reporting for Pensions-an amendment of GASB Statement No. 27*, Governmental Accounting Standards, Board Norwalk, Connecticut, June 2012.

[42] As reported in The Bond Buyer 20-Bond GO Index. This index is comprised of a portfolio of 20 highly rated general obligation bonds that mature in 20 years.

population covered by the benefit terms, or the use of different assumptions will be presented.

- The notes to the financial statements will include additional information. Certain types of plans will need to report expanded information about actuarial assumptions, including a sensitivity study presenting alternate present values of pension liabilities assuming the liabilities were discounted one percent higher and lower than the actual discount rate.
- Previous requirements for calculating contribution amounts are eliminated. The methods for calculating pension liabilities, assets, and expenses that are reported in financial statements will not likely be used for determining required contributions. Different assumptions and methods may be used for determining a plan's liabilities reported in the financial statements versus determining the ADC. For example, a plan required to use the blended rate for determining reported liabilities can use a different assumed investment rate of return for funding purposes and determining contributions.

Plans will still exercise a significant degree of judgment regarding selection of actuarial assumptions and methods when applying the new GASB standards.

The new GASB statements require the following key changes in the sponsoring governments' financial accounting and reporting.

- If contributions to the plans do not at least equal 100 percent of the prior year's ADC, the unpaid amounts will generally be included in sponsoring governments' reported liabilities. When contributions are not significant to a sponsoring government's expenses, the impact is minimal. Previously, only any unpaid portion of the prior year's legally required pension contribution appeared on a government's financial statements. However, under the new requirements the difference between the ADC and actual contributions will now be reported.
- The long-term net pension liability, or unfunded accrued liability, will be reported in the sponsoring government's basic financial statements rather than just being disclosed in the notes to the financial statements as required by the outgoing standards. If there is no net pension liability, the financial statements will reflect an asset instead of a liability. Sponsoring governments that participate in multiple employer plans will report their individual or proportional share of the liability.

As a result, many sponsoring governments will report liabilities on the face of their financial statements that were not previously reported, which may have a significant impact on the sponsoring governments' reported financial condition.

The Center for Retirement Research at Boston College[43] reported funded ratios may change in 2014 for significantly underfunded plans. These plans will be forced to use a blended rate which will be lower than the assumed rate of return on assets. The study also estimated what 2012 funded ratios for certain state and local plans nationwide would have looked like under the new GASB requirements, and concluded the previous aggregate funded ratio of 73 percent would have fallen to 60 percent under the new GASB changes.

Impact of Key Changes

The GASB changes will have varying impact on the actuarial assumptions and methods used for financial reporting and resulting reported financial condition of Missouri retirement plans. Officials from 12 of the 15 selected plans indicated they had evaluated the various impacts of the GASB changes. All 12 indicated their plan would prepare separate calculations for funding purposes. These changes will impact the 15 selected plans in the following ways.

Value of Assets

All 15 selected plans currently use smoothing to value the assets and will therefore have to switch to using market value when calculating asset values (FNP).

Entry Age Normal/Level Percentage of Payroll Actuarial Cost Method

Twelve of the 15 selected plans currently use the Entry Age Normal method, and three plans use a different method. Officials from one of these three plans (St. Louis County Employees' Retirement Plan) acknowledged they will switch to the Entry Age Normal method, while officials from the other two plans (St. Louis Employees Retirement System and St. Louis Public School Retirement System) indicated they had not yet evaluated the needed changes.

Blended Discount Rate

Officials from 8 of the 12 plans that had evaluated the impact of the GASB changes indicated a blended discount rate would not be required in their actuarial valuations, and officials from 4 plans indicated the blended discount rate would be required in their valuations (Kansas City Public School Retirement System, Prosecuting Attorneys' & Circuit Attorneys' Retirement System, Sheriff's Retirement System, and St. Louis County Employees Retirement Plan).

[43] Alicia H. Munnell, Jean-Pierre Aubry, Josh Hurwitz, and Madeline Medenica, "The Funding of State and Local Pensions: 2012-2016," *State and Local Pension Plans*, Number 32, Center for Retirement Research at Boston College, Chestnut Hill, Ma., July 2013, pp. 5-7.

Recent Funding Guidance and Recommendations

Because the amended GASB standards no longer prescribe the requirements for determining funding and contribution levels, pension industry leaders identified a need for guidance on funding standards and practices. Several national organizations representing local and state governments established a Pension Funding Task Force to develop such guidance. In 2013, the task force published *PENSION FUNDING: A Guide for Elected Officials.*[44] The document included the following policy objectives and recommendations:

Actuarial Cost Method: 1) Each participant's benefit should be fully funded under a reasonable allocation method by the expected retirement date. 2) The benefit costs should be determined as a level percentage of member compensation and include expected income adjustments. [The Entry Age Normal (level percentage of payroll) actuarial cost method is especially well-suited to meeting these policy objectives.]

Asset Smoothing Method: 1) The funding policy should specify all components of asset smoothing, such as the amount of investment return subject to smoothing and the time period(s) used for smoothing a specific gain or loss. 2) The asset smoothing method should be the same for both gains and losses and should not be reset or biased toward high or low investment returns. [The use of a 5-year period for "smoothing" investment experience is especially well-suited to meeting these policy objectives.]

Amortization Policy: 1) The adjustments to contributions should be made over periods that appropriately balance intergenerational equity against the goal of keeping contributions level as a percentage of payroll over time. 2) The amortization policy should reflect explicit consideration of (a) gains and losses actually experienced by a plan, (b) any changes in assumptions and methods, and (c) benefit or plan changes. 3) The amortization of surplus requires special consideration consistent with the goal of stable costs and intergenerational equity. [Amortizing the various components of the unfunded actuarial accrued liability over periods that focus on matching participant demographics but also, except for plan amendments, consider managing contribution volatility, is especially well-suited to meeting these policy objectives.]

Regarding these recommendations, the Pension Funding Task Force indicated "some governments with well-funded pension plans will determine that they need to make few, if any, changes to their funding policies, while others may face many challenges." Officials from 11 of the 15 plans surveyed indicated they were aware of the Pension Funding Task Force's recommendations and 4 plans indicated they were not aware of the recommendations. Officials from 12 plans

[44] "PENSION FUNDING: A Guide for Elected Officials," 2013, <http://www.nasact.org /washington/downloads/announcements/03_13_Pension_Funding_Guide.pdf>, accessed on July 30, 2013, p. 6.

indicated they either already or plan to follow all or most of the recommendations. Officials from three plans indicated they had not evaluated if changes would be needed in response to the recommendations.

In addition, the GFOA[45] recommends adopting a funding policy that assures benefit costs will be funded in an equitable and sustainable manner. According to the GFOA, an appropriate funding policy would include frequent actuarial valuations to determine contributions, contributions that fully fund benefits, sponsoring governments' commitment to fully funding the recommended contributions, and reporting of information regarding the government's progress toward meeting its pension funding objectives.

Summary

The financial condition of the 89 Missouri public employee DB plans is impacted by various external factors and decisions made by the plans' governing boards and sponsoring governments. Key influences of financial condition identified and discussed in this survey include economic conditions and investment performance, benefit structure, board governance, investment policy, contribution and funding policies, and selection of actuarial assumptions and methods. The process of achieving or maintaining good financial condition of DB plans, both on a short-term and long-term basis, is complex and can be challenging for plans' boards and sponsoring governments. Because the interaction of factors that impact a plan's financial condition can vary among DB plans, it is difficult to compare the plans.

Our review of various indicators noted Missouri plans' financial condition varies widely, with some plans having indicators of very good financial condition and others having indicators of very poor financial condition. Overall, in aggregate, the financial condition of Missouri plans is higher than national averages. However, data supporting the financial condition of several plans raises significant concern regarding the financial health of those plans. All 89 plans receive actuarial valuations at least biennially, with many receiving them annually. Additionally, almost all the 15 selected largest and/or statewide plans (and likely some other plans) also obtain periodic actuarial audits and experience studies. These outside analyses are utilized to monitor the health of the plans and the appropriateness of actuarial assumptions underlying management decisions affecting the plans.

Many plans have experienced worsened financial condition in recent years. Aggregate UAAL for the Missouri plans has nearly doubled in the past 10

[45] "Funding Defined Benefit Pensions," Government Finance Officers Association, June 2012, <http://www.gfoa.org/funding-defined-benefit-pensions>, accessed on June 24, 2014, p. 1.

years, from $8.18 billion in 2003 to $16.02 billion in 2012. As a result, the aggregate funded ratio of Missouri plans has decreased from 83 percent to 78 percent during this period. Missouri plans' aggregate 2012 funded ratio is higher than national averages of 73 percent to 74 percent reported in two studies. While numerous factors cause fluctuations of individual plan funded ratios, the aggregate decreased funded ratios and increased UAAL appear to have resulted primarily from economic and financial market downturns during the period. Funded ratios for Missouri plans range from 10 percent to 164 percent. Almost half of the plans, covering 67 percent of total statewide membership, had funded ratios of 80 percent or higher in 2012. In addition, officials from several plans indicated investment returns in 2013 and 2014 have been strong. These returns have likely positively impacted the plans' funded ratios.

During 2012, contributions to Missouri DB plans totaled $2.65 billion, with $1.78 billion from the sponsoring governments and $870 million from employees. The expectation of the plans' financial health is based in large part on the premise that ARC amounts determined by actuarial consultants will be received. The failure of sponsoring governments to fully fund 100 percent of the ARC makes it difficult for the plans to reach financial goals. In aggregate, Missouri plans received 94 percent of ARC in 2012, higher than the national average of 80 percent. The aggregate percentage of ARC paid for Missouri plans has increased from 84 percent in 2006 to 94 percent in 2012, while national averages have decreased from 83 percent in 2006 to 80 percent in 2012. Aggregate information for Missouri plans is fairly good, primarily driven by the large plans or overfunding by some plans. However, 34 plans (38 percent of Missouri plans), covering 33 percent of total members, received less than 100 percent of the ARC in 2012. This statistic is concerning as it indicates sponsoring governments of some plans may not be committed to achieving plans' overall funding goals. Five of the 15 selected plans, covering 94 percent of total statewide membership, did not receive 100 percent of ARC in 2012. However, 2 of these plans received 93 percent and 96 percent in 2012. Officials from 2 other plans reported changes had been made that will provide for higher ARC payments going forward, and officials from another plan indicated funding received exceeded the ARC in 2013 and 2014.

Aggregate ARC as a percentage of payroll (also referred to as the contribution rate) has increased from 9.7 percent in 2003 to 14.18 percent in 2012, for the 15 selected plans. These percentages and upward trend are similar to those at the statewide and national level. ARC as a percentage of payroll can reflect the stress employer contributions place on a sponsoring government's budget and operations.

Governing boards and sponsoring governments of many of the largest and statewide plans have taken measures to strengthen financial condition. Such measures include lengthening vesting periods, increasing retirement ages,

reforming benefits and benefit formulas, restricting or reducing retiree COLA payments, and increasing employee contribution requirements. In addition, many plans have changed actuarial assumptions and investment policies, and sponsoring governments have become more committed to fully funding the ARC. Officials from most of the 15 selected plans indicated changes had been recently implemented that should improve plan financial condition. However, it will take time before the effect of such changes become fully evident. All plans and sponsoring governments must remain vigilant to ensure continued monitoring and additional adjustments as needed.

In this survey, we identified various key practices DB plans should follow to support adequate financial condition. Plans should be managed and governed by employees and board members experienced and knowledgeable in DB plan operations and funding. DB plans should have actuarially based funding practices with the goal of annually fully funding benefits earned and systematically reducing UAAL. Plans should work with sponsoring governments to ensure required contributions are made and that benefit structures are affordable. Investment policies should be designed to achieve the investment return assumption and allow for the greatest return on assets without taking unacceptable risks. Plans should monitor to ensure actuarial assumptions are met, and modify assumptions as needed. Assumptions should be supported by periodic actuarial valuations prepared by competent actuaries; approved by the board; and validated by periodic actuarial audits and experience studies, or alternative processes. Plan governing boards should include a balanced representation of sponsoring governments and plan members to ensure decisions are unbiased and the interests of all parties are considered. Many of the above-mentioned practices have been implemented by Missouri plans, including the 15 selected plans. Failure to adhere to these practices could result in significant fiscal problems for the plan, sponsoring organization, and taxpayers.

Significant changes in pension accounting and reporting requirements, prescribed by the GASB, begin taking effect in 2014. Because the amended GASB standards will no longer address funding and contribution levels, it is imperative that plans evaluate plan funding policies, and modify those policies if necessary. Consideration should be given to the recently-published guidance from the Pension Funding Task Force that provides plans with recommended funding standards and practices.

Plans and sponsoring governments must closely monitor and react to the indicators of financial condition to ensure adequate financial condition is maintained. Periods of stress, usually caused by political climate, economic environment, and/or market swings can have dramatic effect on the financial health of plans. Such impact may be felt not only in the short term, but over generations. A plan that is not properly managed for long-term health is at

risk of not achieving good financial condition and is likely to place a heavier financial burden on future generations.

Retirement systems, especially DB plans, use a number of terminologies. The following terms are relevant to this survey.

Actuarial Accrued Liability (AAL)
The portion of the present value of estimated future benefit payments (liabilities) earned by employees as of the actuarial valuation date. The AAL represents the portion of liability which would already have assets on hand to support future benefit payments if a plan was 100% funded. The actuarial cost method selected by a plan impacts the portion of pension liability included in the AAL. The portion of the present value of future benefit payments not included in AAL includes benefits employees will earn in future periods (normal cost).

Actuarial Cost Method (Funding Method)
A procedure for allocating the actuarial present value of projected benefits (and expenses if applicable) to time periods, usually in the form of a normal cost and an actuarial accrued liability.

Actuarial Value of Assets (AVA)
The actuarially determined value of plan assets available to pay retirement benefits. A plan's governing board selects an asset valuation method that complements the overall funding goals of the plan. Methods used include a range of options that generally recognize assets at current market value or adjusts asset value by allocating (smoothing) certain changes in the market value of assets over a period of time.

Amortization of Unfunded Actuarial Accrued Liability (UAAL)
Allocating the UAAL over a period of time to determine the contribution needed to fund the upcoming year's portion of the UAAL. The actuary uses the number of years (amortization period) specified by the governing board after consulting with the plan's actuary and investment professionals. The two basic amortization period types are open and closed.

Annual Required Contribution/Actuarially Required Contribution (ARC)
The ARC represents the amount of cash that should be added to a plan's assets in the upcoming year to ensure the plan remains in a good long-term financial condition. The ARC includes funding for the normal cost of the following year and for the amortization of UAAL over a period of time, with the goal of fully funding the plan at the end of the period. Contributions are made by the employer or, in some plans, also by the employees covered by the plan. In some limited cases, a plan's contributions may come not from employer/employee contributions, but from some alternative source such as a fee for a specific government service, that is collected and forwarded to the plan.

Asset Allocation
The allocation of plan assets to various investment categories within a plan's investment portfolio, as approved by the governing board. Example investment categories include government bonds, corporate bonds, domestic stocks, and short-term investments.

Assumed Investment Rate of Return/Interest Rate
The rate of return a plan expects to earn on invested assets over a long period of time. The rate is approved by the governing board.

Assumed Price Inflation/Economic Inflation/Deflation
The rate a plan expects that the general price level of goods and services in the economy will change over a period of time.

Covered Payroll
The total amount of pay earned in the current year by all employees who are or may become eligible for retirement benefits.

Discounting
The mathematical process used to determine the present value of future benefit payments (liabilities).

Funded Ratio/Funded Status/Percentage Funded
A comparison of a plan's assets to the plan's liabilities. It is expressed as a percentage calculated by dividing the AVA by the AAL.

Normal Cost
The portion of the present value of estimated future benefit payments (liabilities) that will be earned by current employees in the upcoming year or is expected to be earned in some future year. Typically, normal costs are funded by future cash inflows. The actuarial cost method selected by the plan impacts the portion of total liability included in the normal cost and the allocation of normal costs between the upcoming year and future years. The portion of the present value of future benefit payments not included in normal cost includes benefits employees have already earned in previous periods (AAL).

Present (Current) Value of Future Benefits
The current worth of future benefit payments determined by discounting at an assumed rate of interest and adjusting for the probabilities of payment. Benefit liabilities are comprised of AAL (benefits that have already been earned by employees) and normal cost (estimated benefits that are expected to be earned by current employees in future periods). Because assets can be held and invested until needed for future payments and many plans will continue to receive contributions from the sponsoring governments, employees, and other sources, the current value of the assets held to make these payments can be less than the future value of the payments. Future cash inflows are expected to make up the difference.

Rate of Return/Market Rate of Return
Investment income earned on invested assets, usually net of investment expenses. The rate is expressed as an annual percentage of increase (or decrease) on investment principal.

Real Rate of Return/Spread on Investment Return
The real rate of return equals the assumed investment rate of return less the assumed price inflation rate.

Risk-Free Discount Rate
A theoretical discount rate related to a series of payments with near zero risk with respect to payment timing and amount. This rate is usually quoted at or near interest rates for investments considered to be high grade and low risk, which would produce a steady, unchanging, and predictable income stream, such as U.S. government securities.

Smoothed Rate of Return
Rate of return calculated after the market value of assets have been allocated (smoothed) over a multi-year smoothing period. The smoothing period, usually a 3 to 5 year period, is approved by the governing board. The smoothing adjustment assists a plan in managing extreme fluctuations that may occur in the amount of cash needed on a year to year basis to keep the plan in a good long-term financial condition.

Unfunded Actuarial Accrued Liability (UAAL)
The portion of AAL that is not covered by current plan assets. The UAAL is calculated by subtracting the AVA from the AAL.

Wage Inflation
The increase in wages expected throughout employees' careers. Wage inflation considers both the increases in raises due to 1) general cost of living, which typically approximates economic inflation rates and 2) career advances.

Selected Data for 15 Large/Statewide Missouri Public Employee Defined Benefit Retirement Plans
Plan Years Ended January 1, 2012 to December 31, 2012

This appendix presents key background information, financial data, and actuarial information for 15 selected Missouri public employee defined benefit retirement plans. These 15 plans include the 12 plans with membership exceeding 5,000 (including 7 large statewide plans) and 3 additional smaller statewide plans, with a combined total of 15 plans that covered approximately 94 percent of total statewide plan membership.

The information and data was obtained from the JCPER database, the plans' financial statements and actuarial valuation reports, and a questionnaire we sent to the plans. Unless otherwise indicated, the information and data is presented as of each plan's fiscal year ended during calendar year 2012. When available, certain additional data was presented for plan years 2003 through 2012.

The appendix provides certain key elements of each plan. Complete financial information can be obtained from the plans and contact information for each plan is included at Chart 1.

Plans

COUNTY EMPLOYEES' RETIREMENT FUND
Plan Year Ended December 31, 2012 *

Chart 1:

General Information

Statutory Authorization: Section 50.1000, RSMo
Year Established: 1994
Covered Members: 16,387
Annual Covered Payroll: $357.4 million
Members also covered by Social Security: Yes
Trustees: 9 Members, 2 Non-members

Key Actuarial Assumptions

Investment Rate of Return: 8.0%
Wage Inflation: 3.0% plus an allowance for merit, seniority, and promotional wage increases based on age and service
Asset Valuation Method: 5-year smoothed
Actuarial Cost Method: Entry age normal
Liability amortization period: 20-year, closed

Web Site: http://www.mocerf.org/

Chart 2: Funded Ratio*

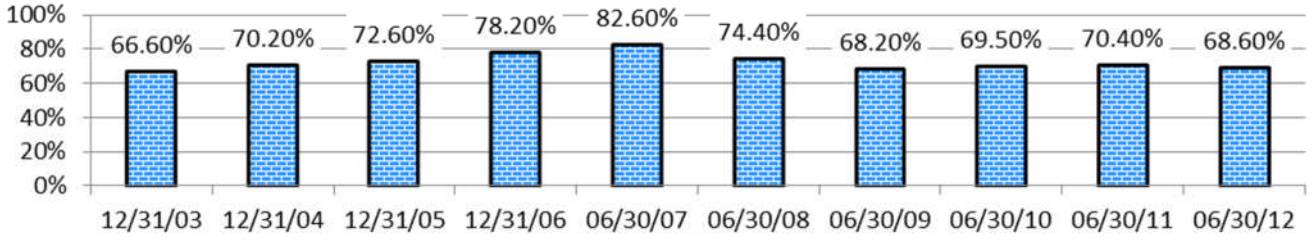


Chart 3: Actuarial Assets and Liabilities (millions)*

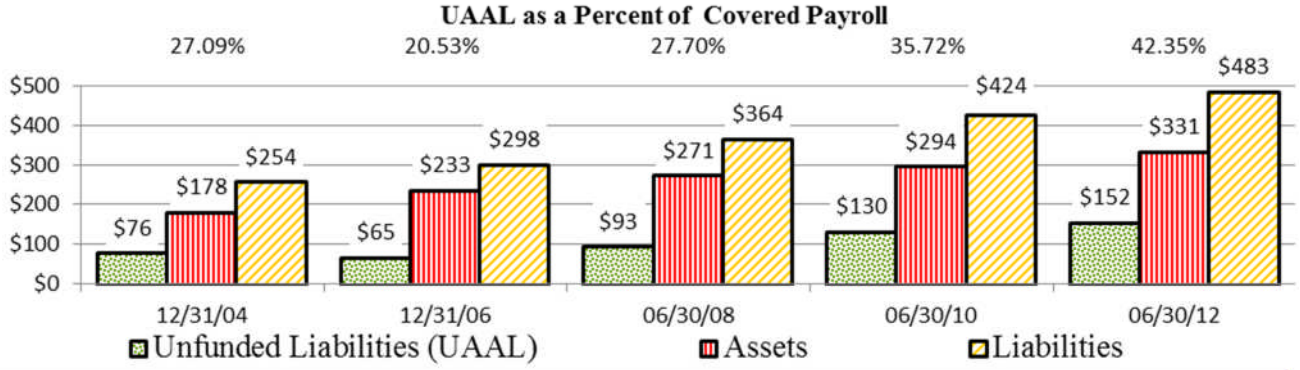
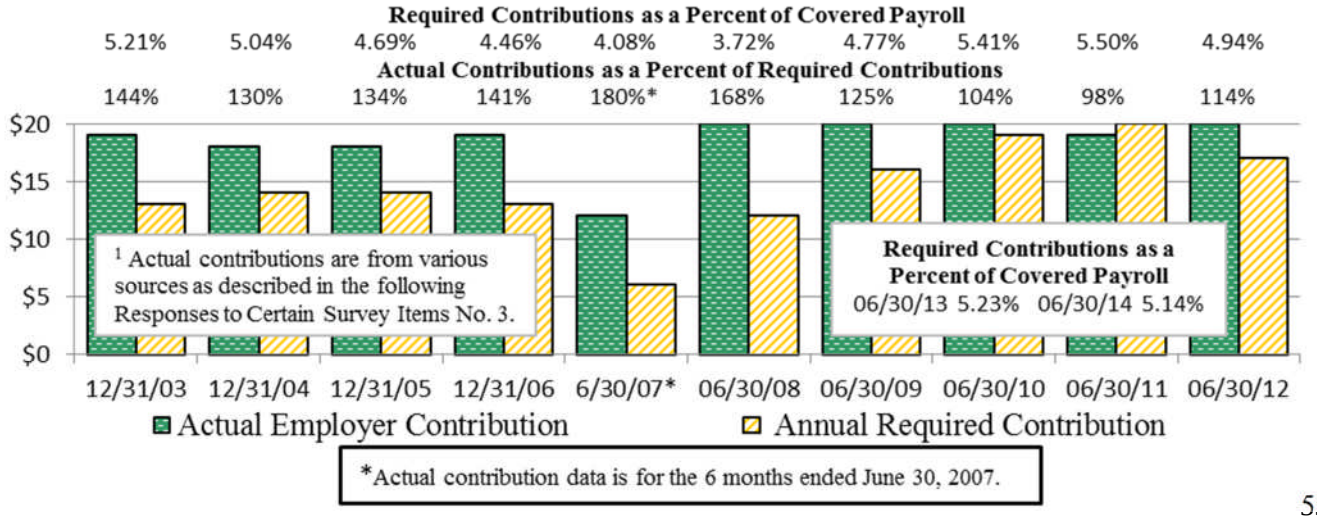


Chart 4: Employer Contributions - Required and Actual[1] (millions)[2]



[2] The plan changed actuarial valuation dates in 2007. Actuarial projections for 2003 through 2007 are based on valuations as of January 1 of the respective year. Actuarial projections for 2008 through 2014 are based on valuations as of July 1 of the preceding year.

COUNTY EMPLOYEES' RETIREMENT FUND
Plan Year Ended December 31, 2012

Chart 5: Actual Employee Contributions (millions)

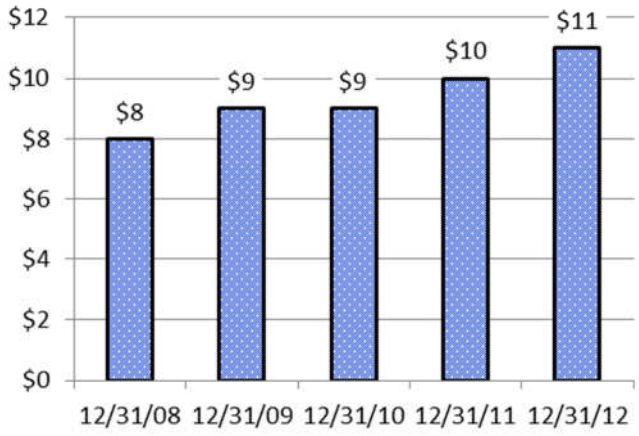


Chart 6: Asset Allocation - Market Basis (millions)

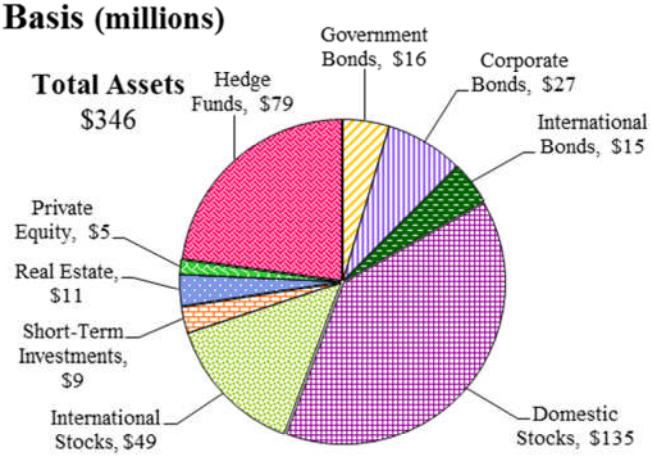


Chart 7: Investment Return - Actual, Smoothed, and Assumed

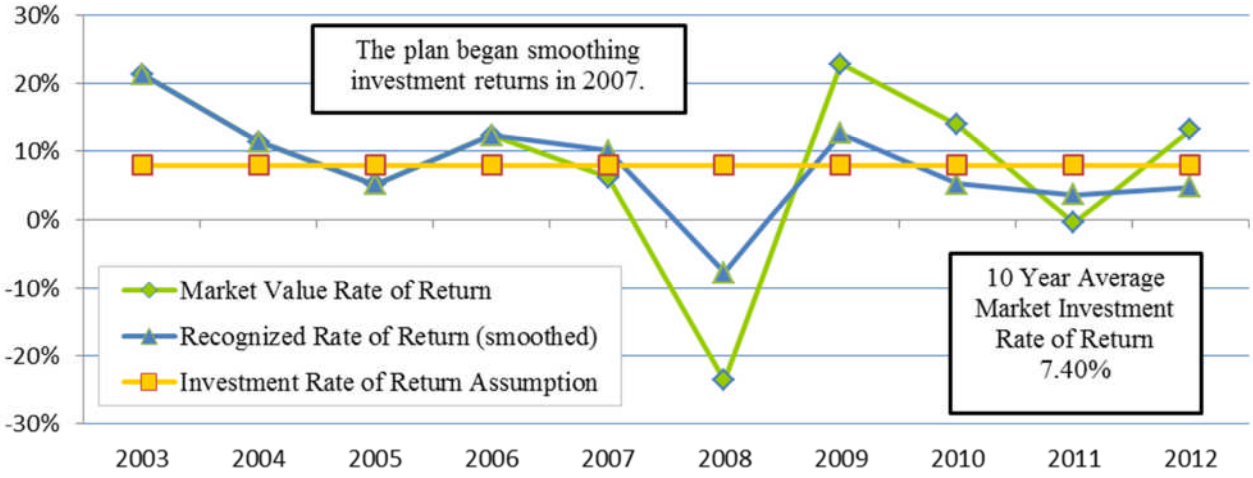


Chart 8: Actuarial Investment Rate of Return Assumptions

COUNTY EMPLOYEES' RETIREMENT FUND
Plan Year Ended December 31, 2012

Chart 9: Benefit and Employee Contribution Summary[1]		
Name of Tier or Group	**LAGERS**	**Non-LAGERS**
Full Vesting: Years of Service	8	8
Normal Retirement	Age 62 with 8 years of service	Age 62 with 8 years of service
Basic Annual Benefit Formula including temporary benefit	2/3 of Non-LAGERS	See below
Guaranteed COLA	Yes	Yes
Required Member Contributions	4% of payroll	6% of payroll
Optional Member Contributions	Not available	Not available

[1] The benefit and contributions summary above does not include all provisions applicable to the plan. See the plan's web site for additional details.

Non-LAGERS Basic Annual Benefit Formula (Replacement Ratio Formula):

(Not available for those who terminated before January 1, 2000.)

The Replacement Ratio (see Replacement Ratio table below)
x
The Average Final Compensation (average of the highest 2 years of compensation)
-
The age 62 Social Security Primary Insurance Amount
x
Years of Creditable Service

Replacement Ratios

	Average Final Compensation Range Termination Date	
	On or After	Before
Ratio (%)	October 1, 2007	
80	Below $36,000	Below $30,000
77	$36,000 to $48,000	$30,000 to $40,000
72	Over $48,000	$40,000 to $50,000
70	Not applicable	Over $50,000

Credited Service is limited to 25 years. The Replacement Ratio Formula is prorated for less than 25 years.

For those who terminate on or after October 1, 2007, with more than 25 Years of Creditable Service, an additional 1% of Average Final Compensation is added in the Replacement Ratio Formula for each Year of Creditable Service in excess of 25 but not in excess of 29.

A minimum benefit is provided so that the monthly benefit is at least $29 x years of service, not in excess of 29 years.

The normal form is a life annuity. Various optional forms are available.

COUNTY EMPLOYEES' RETIREMENT FUND
Plan Year Ended December 31, 2012

Responses to Certain Survey Items:

1. What significant changes, if any, has the plan implemented since the recent economic decline to address the impact on the plan's financial condition?

After in-depth actuarial analyses, the County Employees' Retirement Fund (CERF) determined that its revenue sources were sufficient to support the plan and no special action was necessary.

2. If the funded ratio of your plan has changed significantly during the 10-year period, please provide the primary factors contributing to the funding level fluctuations.

Five percentage points of drop from 2007 to 2008 was because of benefit improvement.

3. Please list the primary reasons for significant changes in contribution rates for the last 5 years, if applicable. In addition, please provide any known or expected significant changes to contribution rates in future years.

The year 2008 was very negative for CERF and all pension plans. As a result, the required contribution rates after 2008 went up. Actuarial analyses determined that CERF's revenue sources were sufficient to support the higher contribution rates. Also plan assets have steadily recovered since 2008.

Actual contributions include payroll-based amounts from employers and employee payroll deductions, late filing fees from county property assessments, 3/7 of penalty and interest for delinquent and back property tax payments, a $6 fee for recording or filing official documents, an additional $1 fee on each document recorded, a $20 fee for county merchant licenses, and any interest earned on investment of these collections prior to remitting to CERF.

KANSAS CITY EMPLOYEES' RETIREMENT SYSTEM
Plan Year Ended April 30, 2012

Chart 1:

General Information

Statutory Authorization: Local Legislation
Year Established: 1962
Covered Members: 5,597
Annual Covered Payroll: $161.1 million
Members also covered by Social Security: Yes
Trustees: 2 Members, 8 Non-members

Key Actuarial Assumptions

Investment Rate of Return: 7.5%
Wage Inflation: 4.0%
Asset Valuation Method: 4-year smoothed
Actuarial Cost Method: Entry age normal
Liability amortization period: 20-year layered amortization, level percent of pay

Web Site: http://kcmo.gov/humanresources/retirement-information/

Chart 2: Funded Ratio

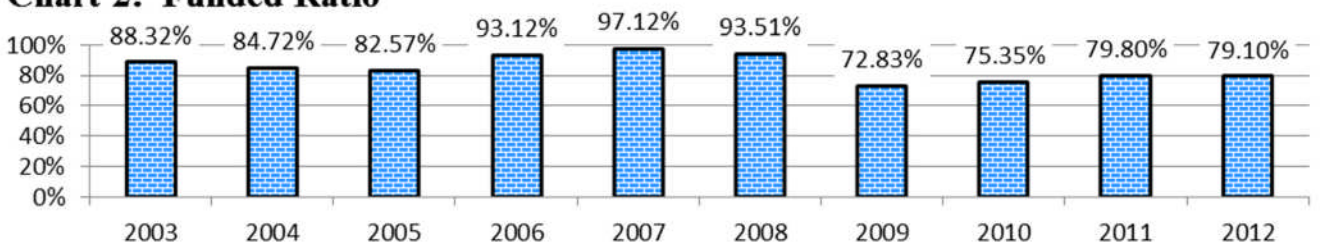


Chart 3: Actuarial Assets and Liabilities (millions)

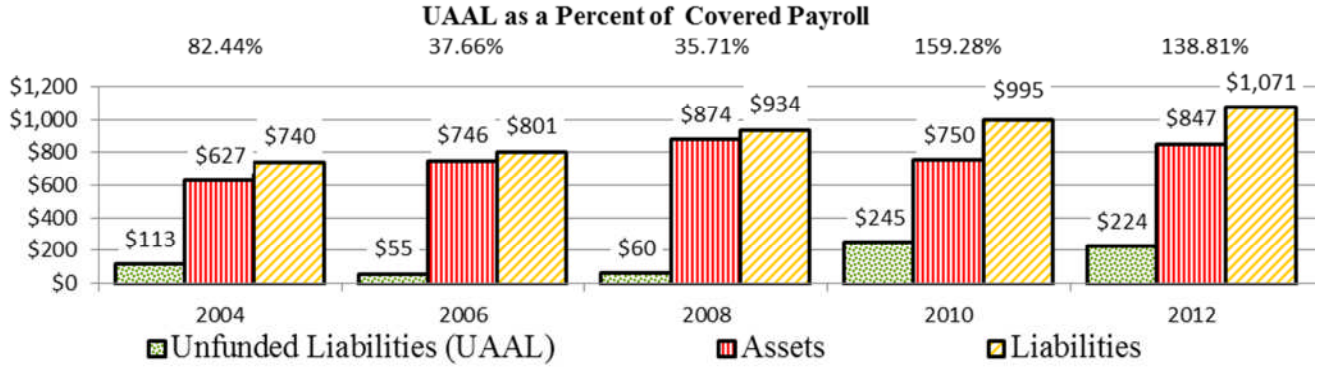
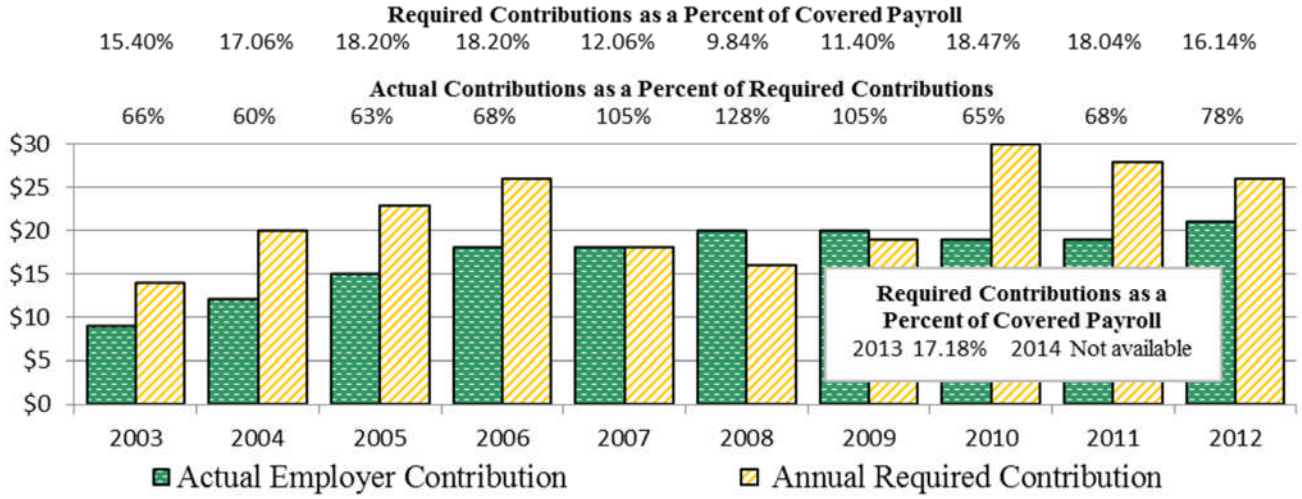


Chart 4: Employer Contributions - Required and Actual (millions)



KANSAS CITY EMPLOYEES' RETIREMENT SYSTEM
Plan Year Ended April 30, 2012

Chart 5: Actual Employee Contributions (millions)

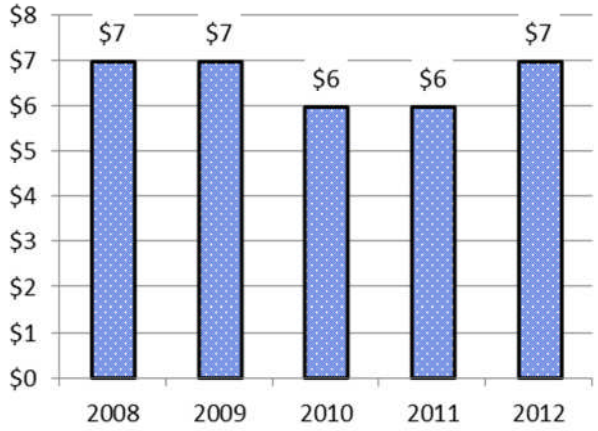


Chart 6: Asset Allocation - Market Basis (millions)

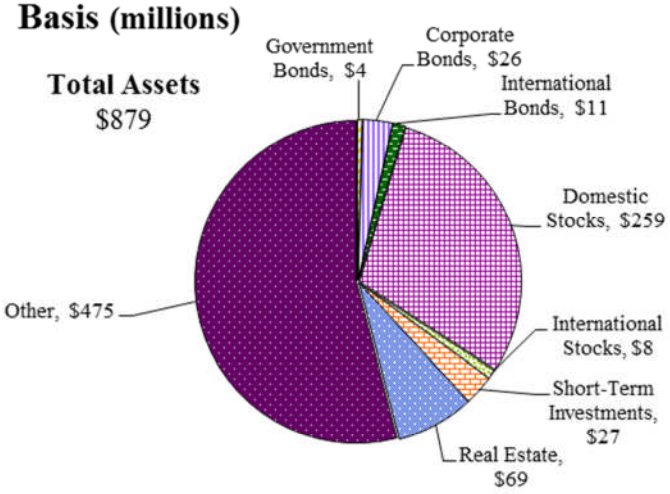


Chart 7: Investment Return - Actual, Smoothed, and Assumed

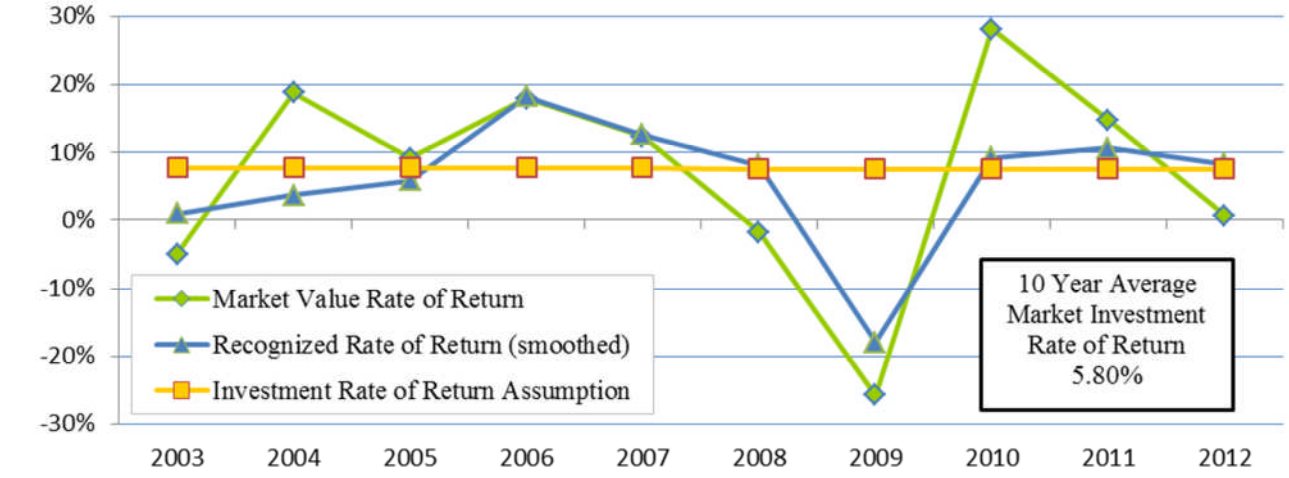
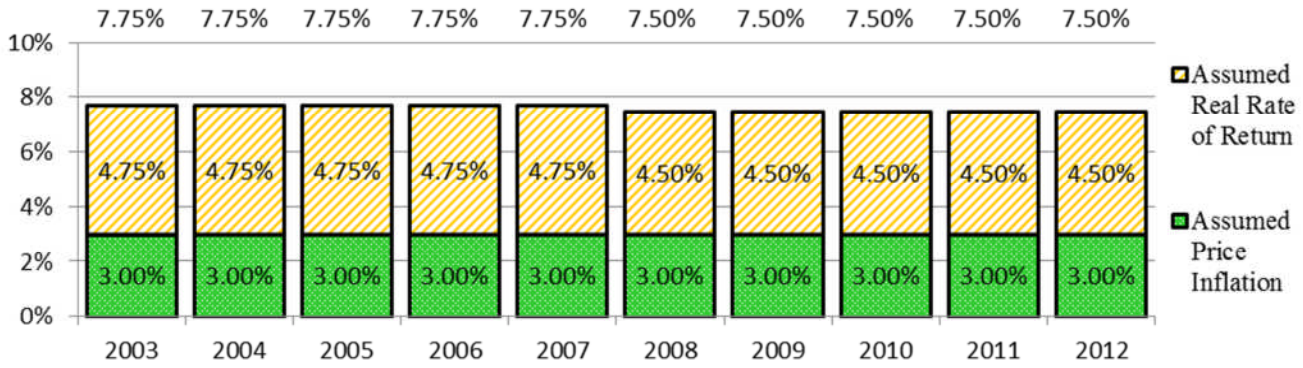


Chart 8: Actuarial Investment Rate of Return Assumptions



KANSAS CITY EMPLOYEES' RETIREMENT SYSTEM
Plan Year Ended April 30, 2012

Chart 9: Benefit and Employee Contribution Summary[1]		
Name of Tier or Group	**General**	**Elected Officials**
Full Vesting: Years of Service	5	Serve a full term
Normal Retirement Option 1	Age 65 with 5 years of service	60
Normal Retirement Option 2	Age 50 with 10 years of service	Rule 80 where age plus credited service is greater than or equal to 80
Normal Retirement Option 3	Rule 80 where age plus credited service is greater than or equal to 80	N/A
Basic Annual Benefit Formula including temporary benefit	.02 x Years of Service x Final Average Compensation	.0222 x Years of Service x Final Average Compensation
Guaranteed COLA	Yes	Yes
Required Member Contributions	4% of payroll	4% of payroll
Optional Member Contributions	Not available	Not available

[1] The benefit and contributions summary above does not include all provisions applicable to the plan. See the plan's web site for additional details.

Responses to Certain Survey Items:

1. What significant changes, if any, has the plan implemented since the recent economic decline to address the impact on the plan's financial condition?

A Mayor's Blue Ribbon Task Force on pension reform was created and recommended changes were then considered by a Pension Project Team (made up of City leaders and pension system representatives). The results are as follows:

Plan design changes for the Employees' system have been agreed to and ratified.

a. Requires City to fully fund the Actuarially Required Contribution (ARC)

b. Tier 2 benefit plan (see the following chart)

c. Increased contributions from employees (see the following chart)

KANSAS CITY EMPLOYEES' RETIREMENT SYSTEM
Plan Year Ended April 30, 2012

Tier 2 Benefit Plan and Employee Contributions		
Name of Group	**Current Employees**[1]	**New Hires Beginning 9/1/2013**
Benefit multiplier	2.22% unmarried 2.00% married	1.75% for all
Normal retirement eligibility	Age 65 Age 60 with 10 years of service 80 points (age + service)	Age 67 Age 62 with 10 years of service Age 55 with 30 years of service 85 points (age + service)
Early retirement eligibility	Age 55 with 10 years of service Age 60 with 5 years of service	Age 57 with 10 years of service
COLA	3% simple	Ad hoc payable at age 62[2]
Vesting	5 years	10 years
Interest on employee account balance	3.00%	3.00%
Increase to previously established member contribution rate	1.00%[3]	1.00%
Final average earnings period	2 years	3 years

[1] "Current employees," as used herein, shall include all vested and non-vested employees currently working for the City, all current retirees, and all employees hired prior to September 1, 2013. Current employees who transfer to new positions or who receive promotions will remain "current employees" for purposes of this agreement.

[2] The ad hoc cola will be payable if the prior year funding ratio is greater than or equal to eighty percent (80%). The rate of the COLA will be equal to the percentage increase in the consumer price index, up to a maximum of two and one-half percent (2.5%). The consumer price index used for purposes of this agreement shall be the final national CPI for All Urban Consumers (CPI-U), that is published prior to December 31 in advance of the next year's COLA adjustment.

[3] The one-percent (1%) increase in employee contribution rates will become effective on the first pay period starting immediately after ratification of this agreement, or on such date thereafter as the City shall establish. If for any reason the Police Retirement System amendments are not approved by the Missouri Legislature and signed into law by the Governor, then all monies withheld under this provision shall be returned/refunded to each affected employee as earned wages.

2. If the funded ratio of your plan has changed significantly during the 10-year period, please provide the primary factors contributing to the funding level fluctuations.

Fluctuations are due to market change. No changes in contribution rates or benefits have occurred during this time.

3. Please list the primary reasons for significant changes in contribution rates for the last 5 years, if applicable. In addition, please provide any known or expected significant changes to contribution rates in future years.

The City of Kansas City's 2014 fiscal year runs from May 1, 2013 through April 30, 2014. The City of Kansas City started contributing the ARC in fiscal 2014.

KANSAS CITY PUBLIC SCHOOL RETIREMENT SYSTEM
Plan Year Ended December 31, 2012

Chart 1:

General Information

Statutory Authorization: Section 169.280, RSMo
Year Established: 1944
Covered Members: 9,942
Annual Covered Payroll: $157.3 million
Members also covered by Social Security: Yes
Trustees: 6 Members, 6 Non-members

Key Actuarial Assumptions

Investment Rate of Return: 8.0%
Wage Inflation: 5.0%
Asset Valuation Method: 5-year smoothed
Actuarial Cost Method: Entry age normal
Liability amortization period: 30-year, open

Web Site: http://www.kcpsrs.org/

Chart 2: Funded Ratio

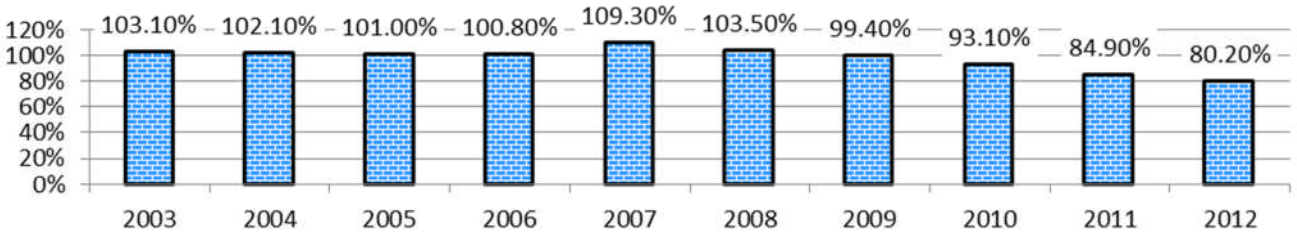


Chart 3: Actuarial Assets and Liabilities (millions)

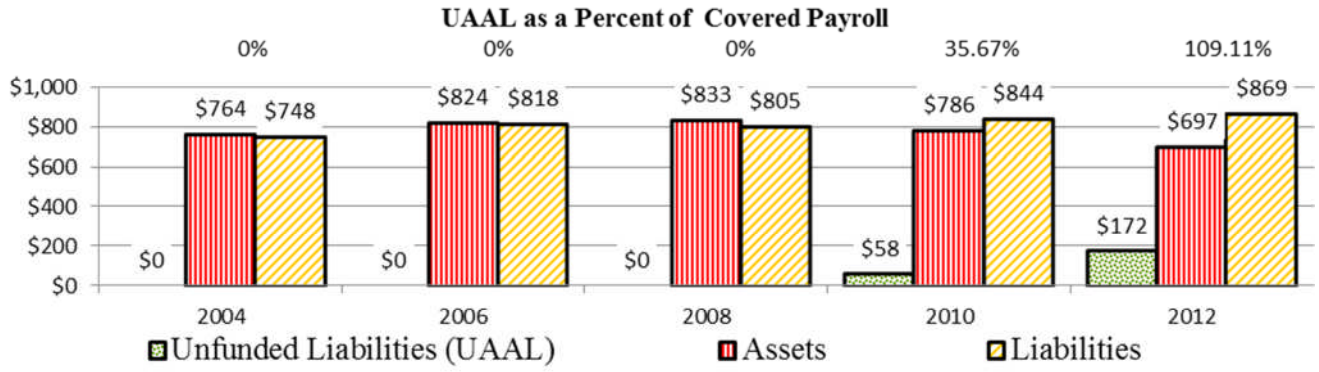
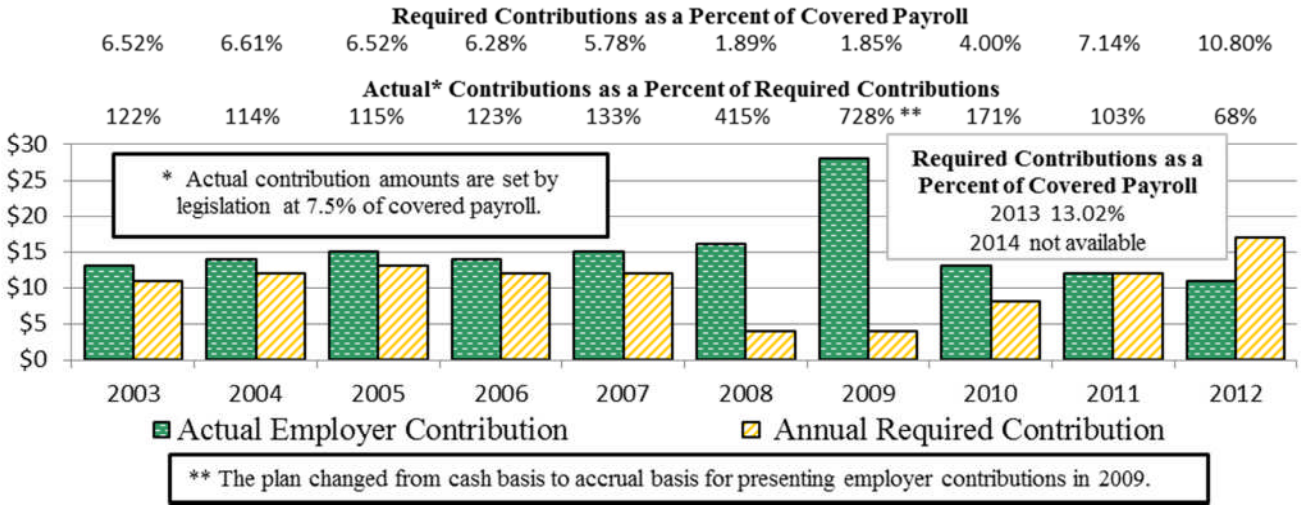


Chart 4: Employer Contributions - Required and Actual* (millions)



KANSAS CITY PUBLIC SCHOOL RETIREMENT SYSTEM
Plan Year Ended December 31, 2012

Chart 5: Actual Employee Contributions (millions)

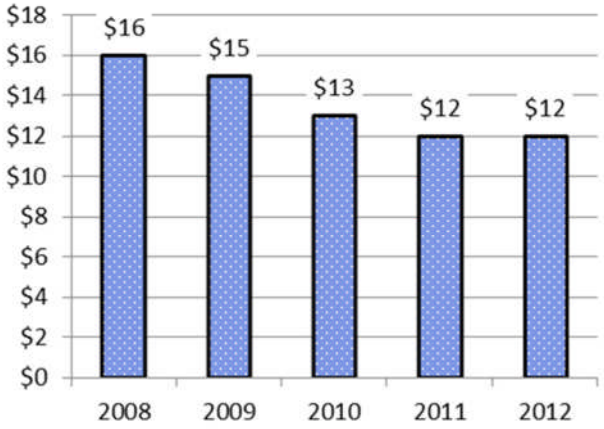


Chart 6: Asset Allocation - Market Basis (millions)

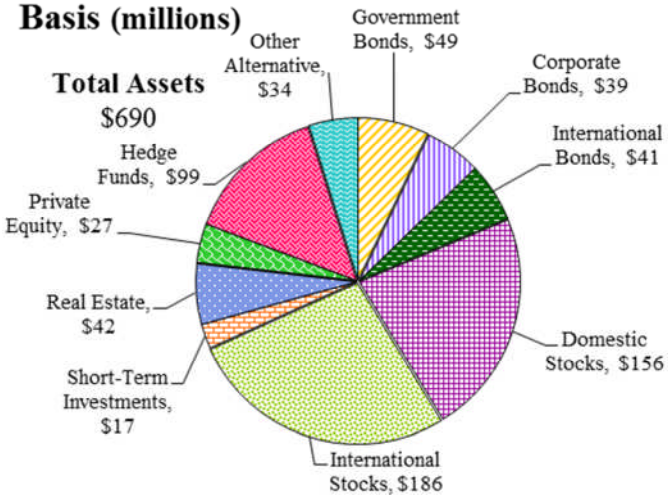


Chart 7: Investment Return - Actual, Smoothed, and Assumed

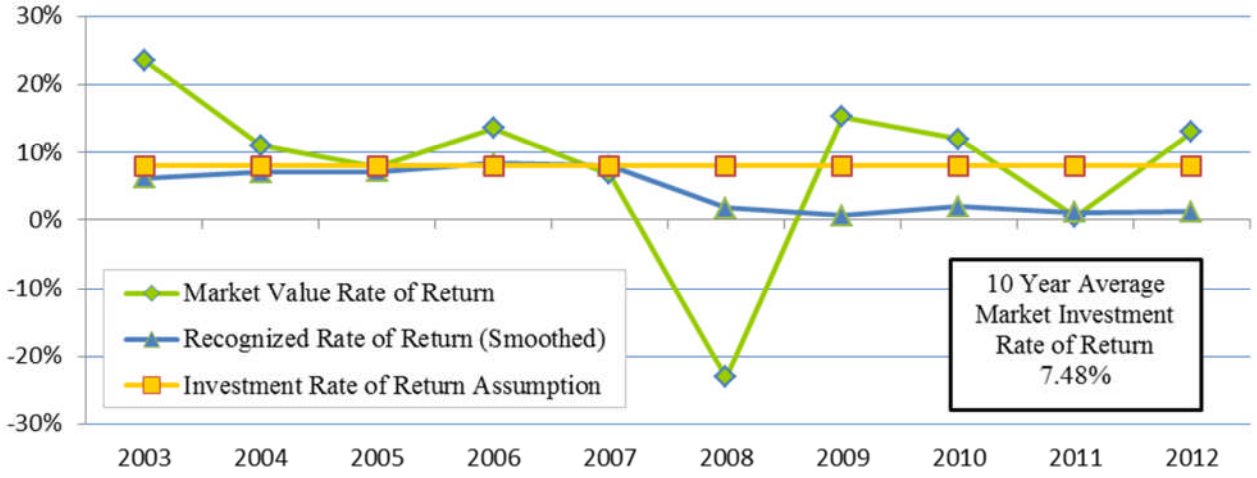
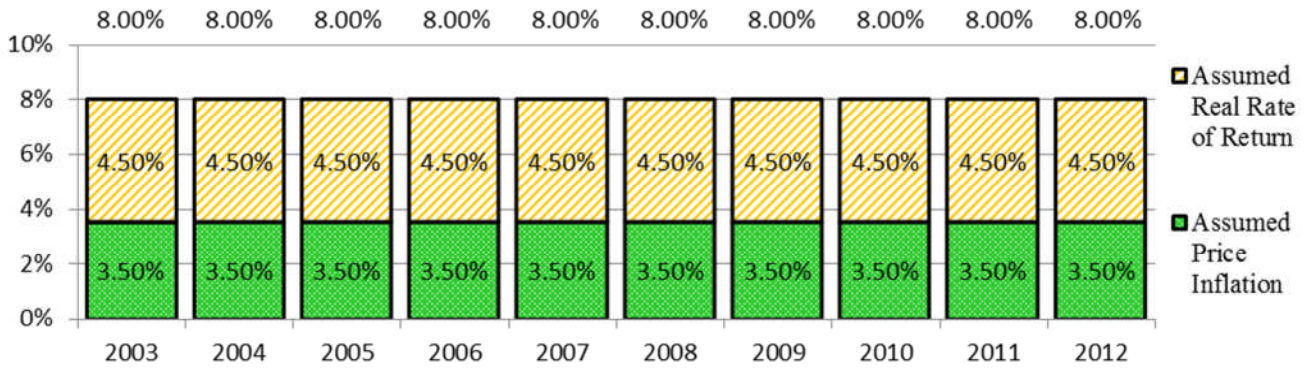


Chart 8: Actuarial Investment Rate of Return Assumptions



KANSAS CITY PUBLIC SCHOOL RETIREMENT SYSTEM
Plan Year Ended December 31, 2012

Chart 9: Benefit and Employee Contribution Summary[1]		
Name of Tier or Group	**Members as of 12/31/13**	**Members effective 1/1/2014**
Full Vesting: Years of Service	5	5
Normal Retirement Option 1	Age 60 with 5 years of service	Age 62 with 5 years of service
Normal Retirement Option 2	Age + Service Years = 75	Age + Service Years = 80
Basic Annual Benefit Formula including temporary benefit	Years of Service x 2% of Average Final Compensation subject to maximum of 60% of Average Final Compensation	Years of Service x 1.75% of Average Final Compensation subject to maximum of 60% of Average Final Compensation
Guaranteed COLA	No	No
Required Member Contributions	7.5% rate through 2013. For 2014 and each year after the rate is actuarially determined to be no less than 7.5% and no more than 9.0% with a maximum increase or decrease each year of 0.5%	For 2014 and each year after the rate is actuarially determined to be no less than 7.5% and no more than 9.0% with a maximum increase or decrease each year of 0.5%
Optional Member Contributions	Not available	Not available

[1] The benefit and contributions summary above does not include all provisions applicable to the plan. See the plan's web site for additional details.

Responses to Certain Survey Items:

1. What significant changes, if any, has the plan implemented since the recent economic decline to address the impact on the plan's financial condition?

Legislation was passed in June 2013. New members, effective on or after January 1, 2014, will receive full retirement at the Rule of 80 (where age plus credited service is greater than or equal to 80) or age 62 with a multiplier of 1.75% versus the current benefit at the Rule of 75 (where age plus credited service is greater than or equal to 75) or age 60 with a multiplier of 2.0%. Legislation provides for a variable contribution rate recommended by the actuary. The contribution rate for both the employer and the employee will not be less than 7.5% and the contribution rate will not exceed 9.0% and changes to the contribution rate from year to year shall be in increments of one-half percent. Also, in November 2011 our investment policy changed to further diversify the investment program by adding other asset classes that were not strongly correlated to each other to increase the return potential and reduce the overall volatility of the investment program.

2. If the funded ratio of your plan has changed significantly during the 10-year period, please provide the primary factors contributing to the funding level fluctuations.

The economic crisis of 2007-2009 affected the funded ratio. Also, during 2010, there was an increase in retirees and decrease in active members due to "right-sizing plan" by the Kansas City School District, which affected the funded ratio.

3. Please list the primary reasons for significant changes in contribution rates for the last 5 years, if applicable. In addition, please provide any known or expected significant changes to contribution rates in future years.

KANSAS CITY PUBLIC SCHOOL RETIREMENT SYSTEM
Plan Year Ended December 31, 2012

Due to the funding status of the plan, legislation was passed in June 2013 to provide for variable contributions for both the Employers and Employees. The rate will be no less than 7.5% with an increase or decrease of no more or no less than 0.5% per year with a maximum rate of 9.0%.

LOCAL GOVERNMENT EMPLOYEES' RETIREMENT SYSTEM
Plan Year Ended June 30, 2012

Chart 1:

General Information

Statutory Authorization: Sections 70.600 to 70.755, RSMo
Year Established: 1967
Covered Members: 54,467
Annual Covered Payroll: $1.360 billion
Members also covered by Social Security: Yes, except for a limited number of non-OASDI employers
Trustees: 3 Members, 4 Non-members

Key Actuarial Assumptions

Investment Rate of Return: 7.25%
Wage Inflation: 3.5%
Asset Valuation Method: 5-year smoothed
Actuarial Cost Method: Entry age normal
Liability amortization period: varies between 15 and 30 years by participating employer. Closed amortization is required for all periods in excess of 15 years and open amortization is used for periods of 15 years or less.

Web Site: http://www.molagers.org/

Chart 2: Funded Ratio

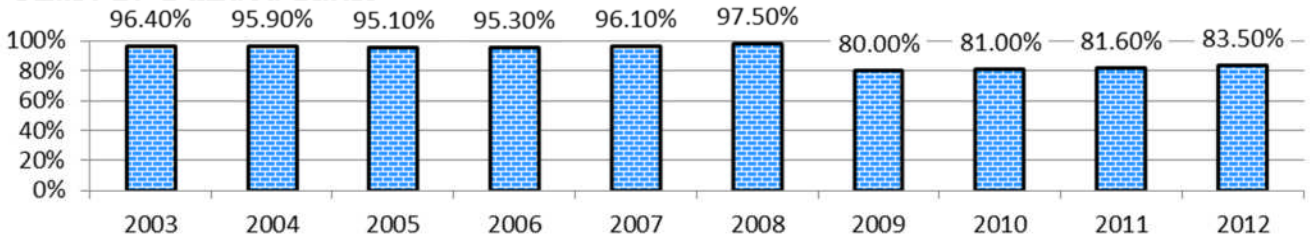


Chart 3: Actuarial Assets and Liabilities (millions)

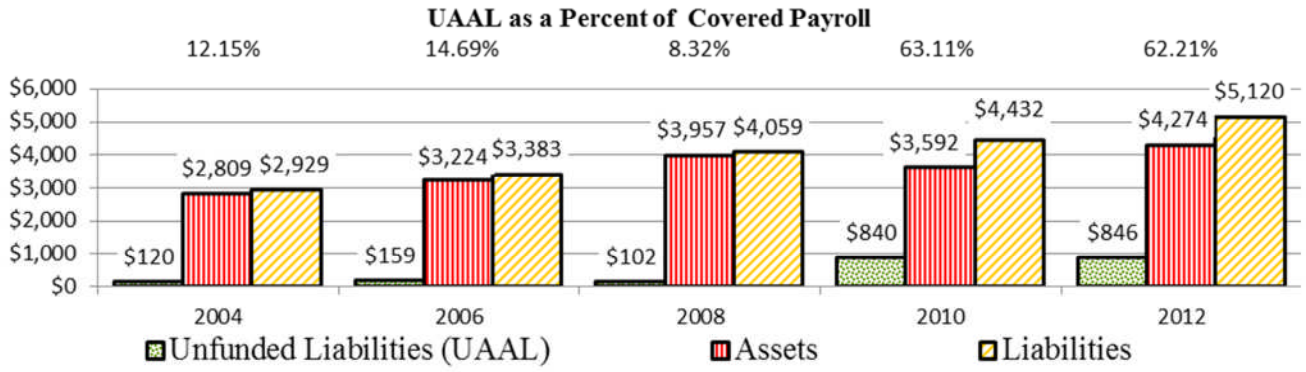
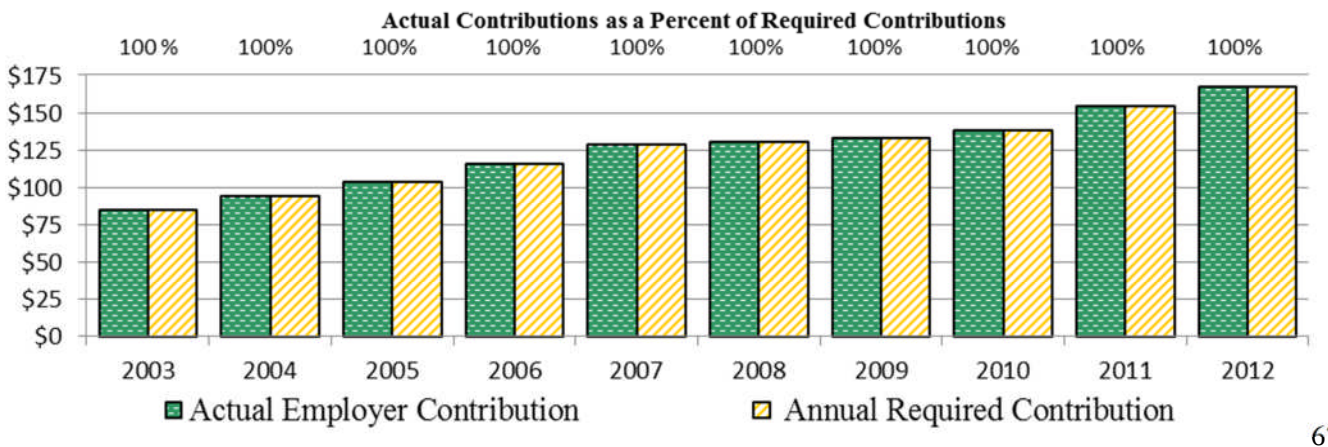


Chart 4: Employer Contributions - Required and Actual (millions)

Required Contributions as a Percent of Covered Payroll
Varies for each participating employer.



LOCAL GOVERNMENT EMPLOYEES' RETIREMENT SYSTEM
Plan Year Ended June 30, 2012

Chart 5: Actual Employee Contributions (millions)

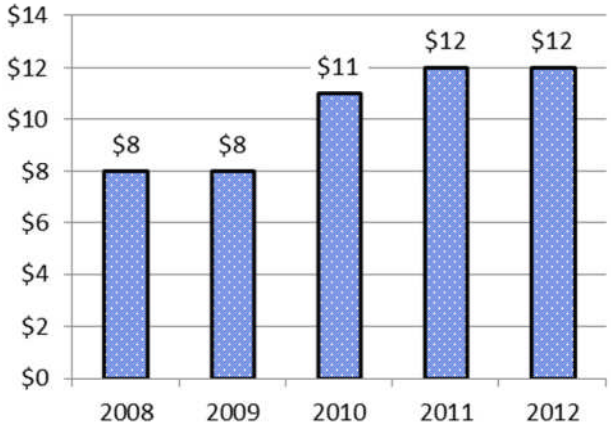


Chart 6: Asset Allocation - Market Basis (millions)

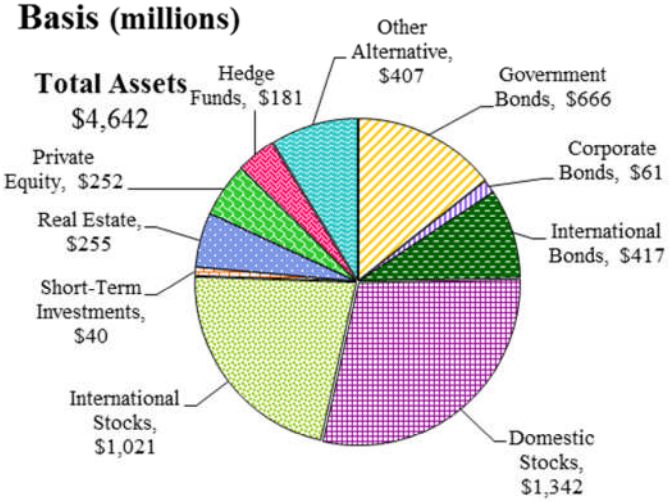


Chart 7: Investment Return - Actual, Smoothed, and Assumed

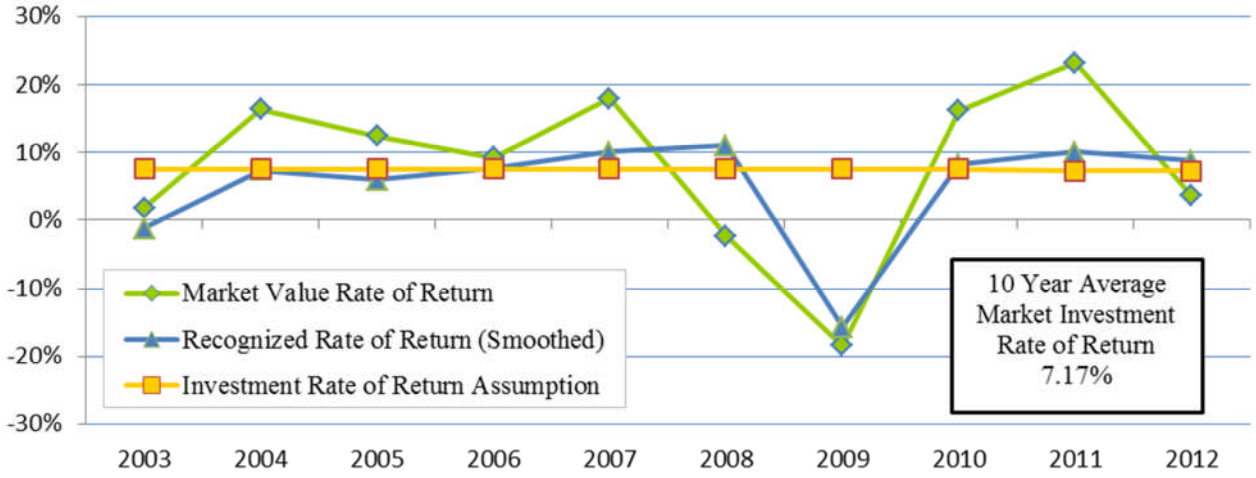


Chart 8: Actuarial Investment Rate of Return Assumptions

* The plan calculates assumed real rate of return using assumed wage inflation (price inflation plus other wage increases) while other plans generally use price inflation only in their calculation.

LOCAL GOVERNMENT EMPLOYEES' RETIREMENT SYSTEM
Plan Year Ended June 30, 2012

Chart 9: Benefit and Employee Contribution Summary[1]			
Name of Tier or Group	**General**	**Police**	**Fire**
Full Vesting: Years of Service	5	5	5
Normal Retirement Option 1	Age 60	Age 55	Age 55
Normal Retirement Option 2	Employer may elect "Rule of 80" for ALL employees where age plus credited service is greater than or equal to 80	Employer may elect "Rule of 80" for ALL employees where age plus credited service is greater than or equal to 80	Employer may elect "Rule of 80" for ALL Employees where age plus credited service is greater than or equal to 80
Basic Annual Benefit Formula including temporary benefit	See below	See below	See below
Guaranteed COLA	No	No	No
Required Member Contributions	4% of payroll if employer elects contributory method	4% of payroll if employer elects contributory method	4% of payroll if employer elects contributory method
Optional Member Contributions	Not available	Not available	Not available

[1] The benefit and contributions summary above does not include all provisions applicable to the plan. See the plan's web site for additional details.

Basic Annual Benefit Formula:
The Local Government Employees' Retirement System (LAGERS) is an agent-multiple employer retirement system and each individual employer selects one of the following benefit formulas, established by Section 70.655, RSMo, for the employer's entire workforce:

- L-1 (1.0% for life)
- L-3 (1.25% for life)
- LT-4(65) (1.0% for life, 1.0% to age 65)
- LT-5(65) (1.25% for life, 0.75% to age 65)
- L-6 (2.0% for life)
- L-7 (1.5% for life)
- LT-8(65) (1.5% for life, 0.5% to age 65)
- L-12 (1.75% for life); LT-14(65) (1.75% for life, 0.25% to age 65)
- L-11 (2.5% for life – non-OASDI coverage only).

All LT programs denoted LT(62) extend temporary benefits to age 62, rather than age 65.

LAGERS consists of 622 different employers with 1,007 unique contribution rates. Each of the employer and primary departments have their own funded ratio and amortization schedules with unique employer contribution rates. The statistics provided above represent aggregate numbers of the system.

Responses to Certain Survey Items:

1. What significant changes, if any, has the plan implemented since the recent economic decline to address the impact on the plan's financial condition?

As part of a periodic review in 2011, LAGERS changed the system's investment return assumption to 7.25% (from 7.5%). The components of the assumption are 3.5% inflation, 3.75% assumed real rate of return.

LOCAL GOVERNMENT EMPLOYEES' RETIREMENT SYSTEM
Plan Year Ended June 30, 2012

2. If the funded ratio of your plan has changed significantly during the 10-year period, please provide the primary factors contributing to the funding level fluctuations.

LAGERS uses a 5-year smoothing technique for valuing assets and the recent recession of 2007-2009 impacted valuation assets.

3. Please list the primary reasons for significant changes in contribution rates for the last 5 years, if applicable. In addition, please provide any known or expected significant changes to contribution rates in future years.

The numbers presented above are the aggregate amounts for the 620+ employers participating in LAGERS. The increase in contribution rates is related to the lower asset valuation due to the recent recession of 2007-2009. The recent 2013 actuarial valuation indicates that rate changes for 2014 are: 359 increases, 77 unchanged and 595 decreases.

MISSOURI DEPARTMENT OF TRANSPORTATION & HIGHWAY PATROL EMPLOYEES' RETIREMENT SYSTEM
Year Ended June 30, 2012

Chart 1:

General Information

Statutory Authorization: Section 104.020, RSMo
Year Established: 1955
Covered Members: 17,564
Annual Covered Payroll: $341.6 million
Members also covered by Social Security: Yes
Trustees: 6 Members, 5 Non-members

Key Actuarial Assumptions

Investment Rate of Return: 8.25%
Wage Inflation: 3.75%
Asset Valuation Method: 3-year smoothed
Actuarial Cost Method: Entry age normal
Liability amortization period: 20-year, closed

Web Site: http://www.mpers.org/

Chart 2: Funded Ratio

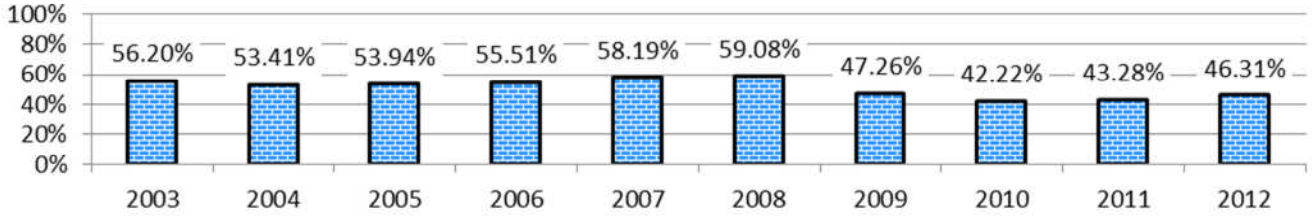


Chart 3: Actuarial Assets and Liabilities (millions)

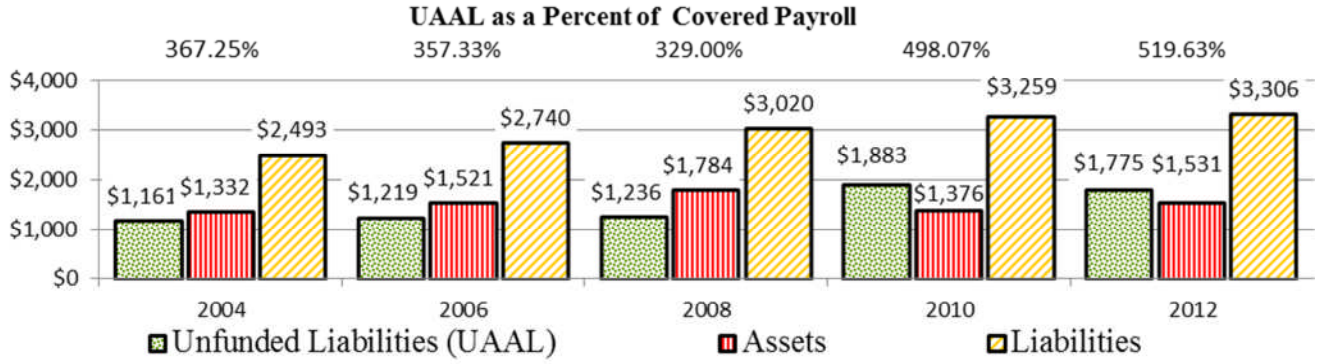
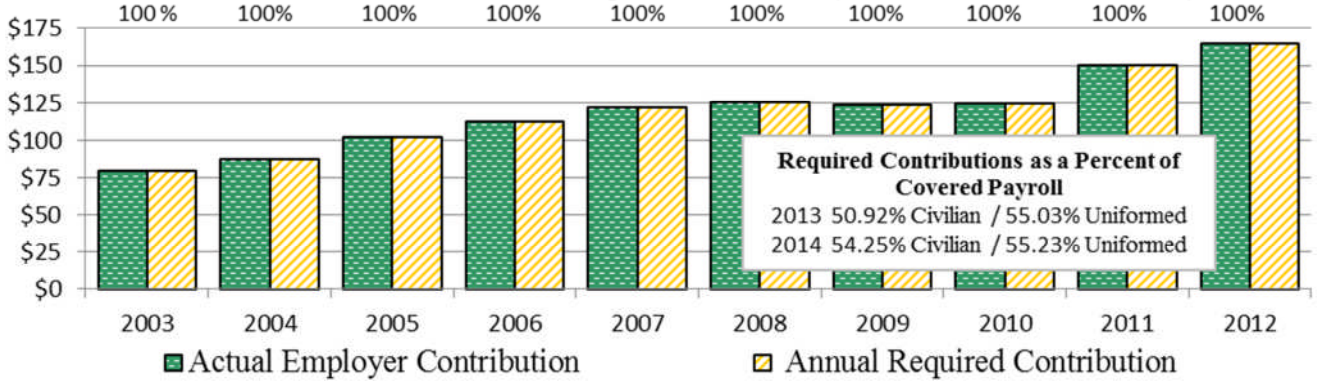


Chart 4: Employer Contributions - Required and Actual (millions)

Required Contributions as a Percent of Covered Payroll

Civilian	23.29%	25.54%	28.28%	30.49%	31.10%	31.04%	30.72%	31.40%	39.46%	45.45%
Uniformed	34.94%	38.40%	43.54%	44.27%	44.28%	42.64%	40.22%	39.95%	49.53%	58.63%

Actual Contributions as a Percent of Required Contributions (combined Civilian and Uniformed)



**MISSOURI DEPARTMENT OF TRANSPORTATION &
HIGHWAY PATROL EMPLOYEES' RETIREMENT SYSTEM
Year Ended June 30, 2012**

Chart 5: Actual Employee Contributions (millions)

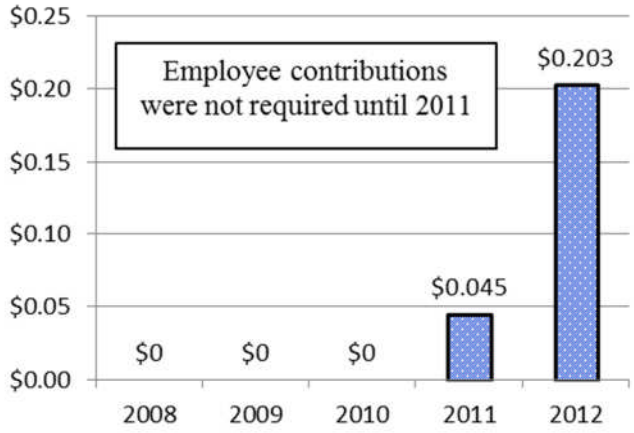


Chart 6: Asset Allocation - Market Basis (millions)

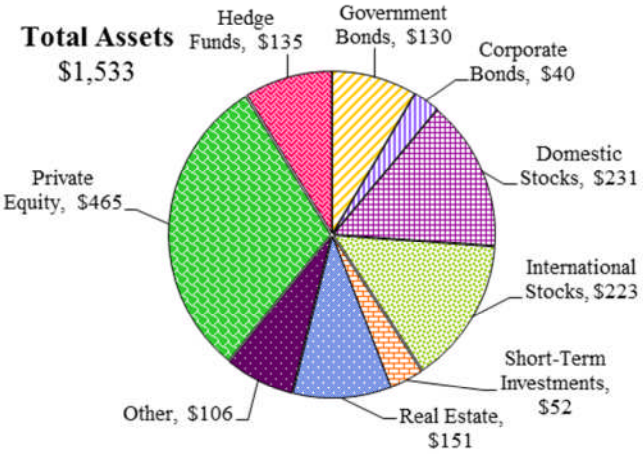


Chart 7: Investment Return - Actual, Smoothed, and Assumed

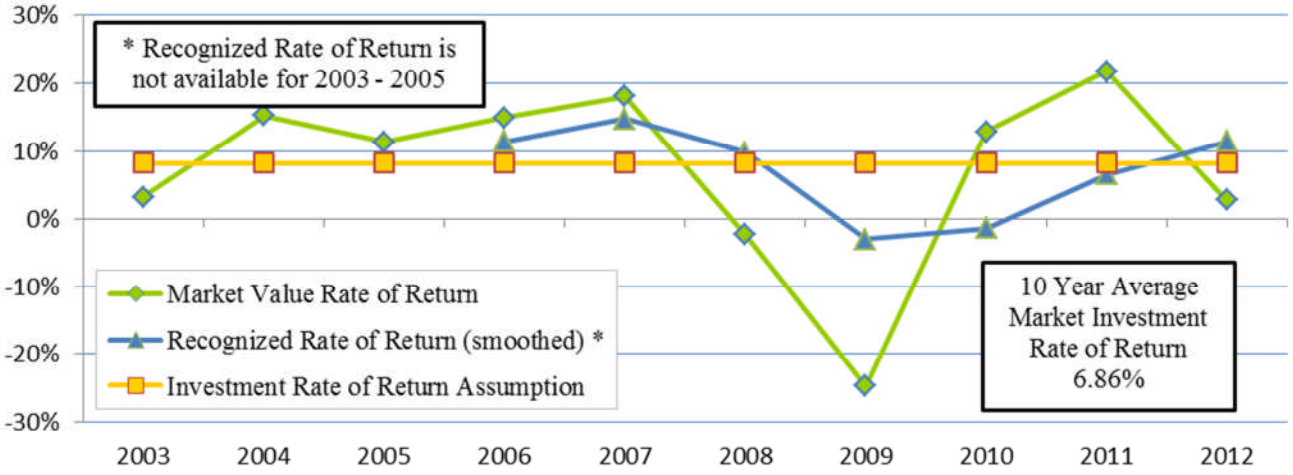
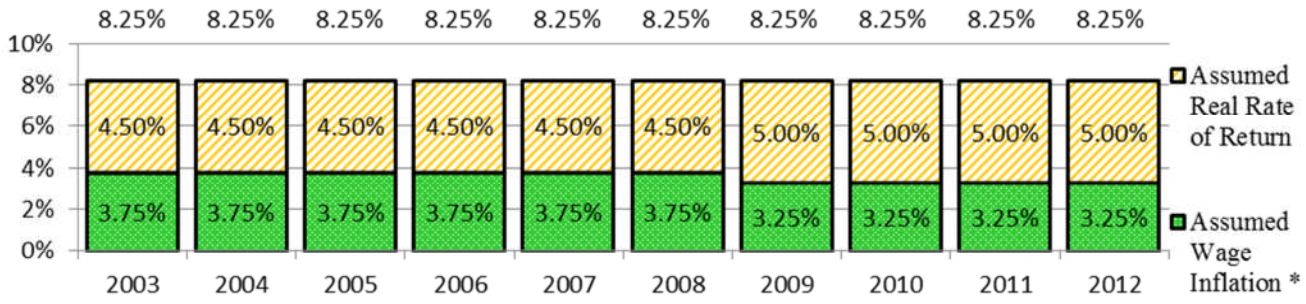


Chart 8: Actuarial Investment Rate of Return Assumptions



* The plan calculates assumed real rate of return using assumed wage inflation (price inflation plus other wage increases) while other plans generally use price inflation only in their calculation.

**MISSOURI DEPARTMENT OF TRANSPORTATION &
HIGHWAY PATROL EMPLOYEES' RETIREMENT SYSTEM
Year Ended June 30, 2012**

Chart 9: Benefit and Employee Contribution Summary[1]			
Name of Tier or Group	**Closed Plan[2]**	**Year 2000 Plan**	**2011 Tier**
Employees eligible	Hired before July 1, 2000	First hired before January 1, 2011	Hired on or after January 1, 2011
Full Vesting: Years of Service	5	5	10
Normal Retirement Option 1	Age 65[3] and active employee with 4 years of service	Age 62 with 5 years of service	Age 67 with 10 years of service
Normal Retirement Option 2	Age 65[3] with 5 years of service	Not applicable	Not applicable
Normal Retirement Option 3	Age 60 with 15 years of service[4]	Not applicable	Not applicable
Normal Retirement Option 4	Rule of 80 – at least age 48 with age and service equaling 80 or more	Rule of 80 – at least age 48 with age and service equaling 80 or more	Rule of 90 – at least age 55 with age and service equaling 90 or more.
Basic Annual Benefit Formula including temporary benefit	0.016 x Final Average Pay x Service[5]	0.017 x Final Average Pay x Service plus a temporary benefit of 0.008% of Final Average Pay x Service	.017 x Final Average Pay x Service plus a temporary benefit of 0.008% of Final Average Pay x Service
Guaranteed COLA	Yes, subject to maximums	Yes, subject to maximums	Yes, subject to maximums
Required Member Contributions	None	None	4% of payroll
Optional Member Contributions	Not available	Not available	Not available

[1] The benefit and contributions summary above does not include all provisions applicable to the plan. See the plan's web site for additional details.
[2] Uniformed members of the Highway Patrol have a mandatory retirement age of 60.
[3] Age 55 for uniformed members of the Highway Patrol
[4] N/A for uniformed members of the Highway Patrol
[5] For uniformed members of the Highway Patrol, the base benefit is calculated by multiplying this amount by 1.333333.

Responses to Certain Survey Items:

1. What significant changes, if any, has the plan implemented since the recent economic decline to address the impact on the plan's financial condition?

Lowered assumed rate of return on investments to 7.75% effective July 1, 2012, for plan year ended June 30, 2013.

2. If the funded ratio of your plan has changed significantly during the 10-year period, please provide the primary factors contributing to the funding level fluctuations.

Market downturns/unfavorable investment returns in 2009 and 2008.

MISSOURI DEPARTMENT OF TRANSPORTATION & HIGHWAY PATROL EMPLOYEES' RETIREMENT SYSTEM
Year Ended June 30, 2012

The Missouri Department of Transportation & Highway Patrol Employees' Retirement System (MPERS) provided an additional response regarding the funded ratio of 46 percent at June 30, 2012. Plan officials indicated the low funded ratio is due to many factors that occurred over a number of years; however, the primary factors include:

- Contribution rates were set by statute until 1976; and as a result, the ARC was not met prior to that date.
- Benefit increases were granted by the legislature without changes to the contribution rates.
- Employee contributions were originally required, but eliminated in 1976 and refunded to employees, with no replacement funds given to MPERS.
- MPERS first hired a dedicated Executive Director in 1988, an investment manager in 1997, and internal investment staff in 2003.

3. Please list the primary reasons for significant changes in contribution rates for the last 5 years, if applicable. In addition, please provide any known or expected significant changes to contribution rates in future years.

Significant decrease in number of active employees and decrease in funded ratio.

MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM - JUDICIAL PLAN
Plan Year Ended June 30, 2012

Chart 1:

General Information

Statutory Authorization: Sections 476.445 to 476.690, RSMo
Year Established: 1951
Covered Members: 927
Annual Covered Payroll: $45.8 million
Members also covered by Social Security: Yes
Trustees: 10 Members, 1 Non-member

Key Actuarial Assumptions

Investment Rate of Return: 8.0%
Wage Inflation: 3.0%
Asset Valuation Method: 5-year smoothed
Actuarial Cost Method: Entry age normal
Liability amortization period: 30-year, open

Web Site: http://www.mosers.org/

Chart 2: Funded Ratio

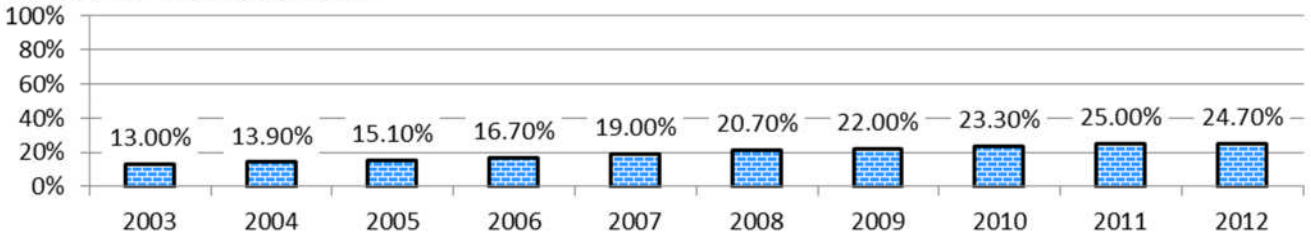


Chart 3: Actuarial Assets and Liabilities (millions)

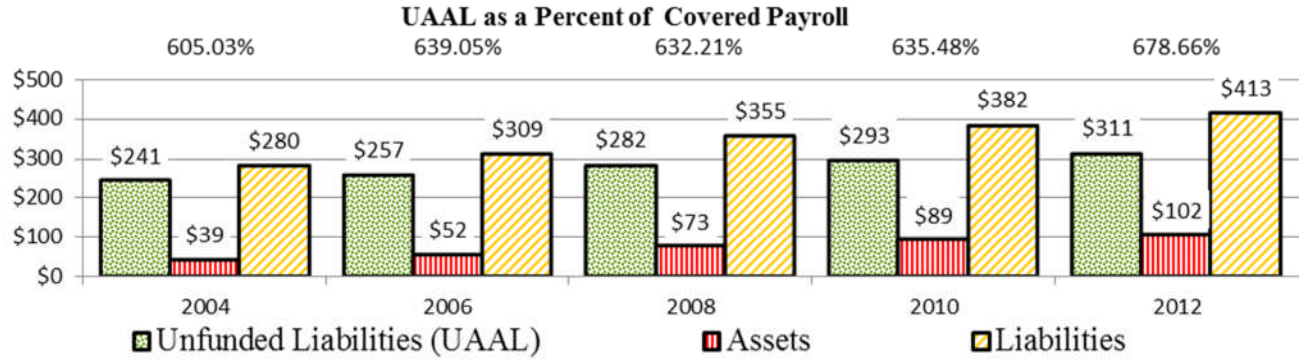
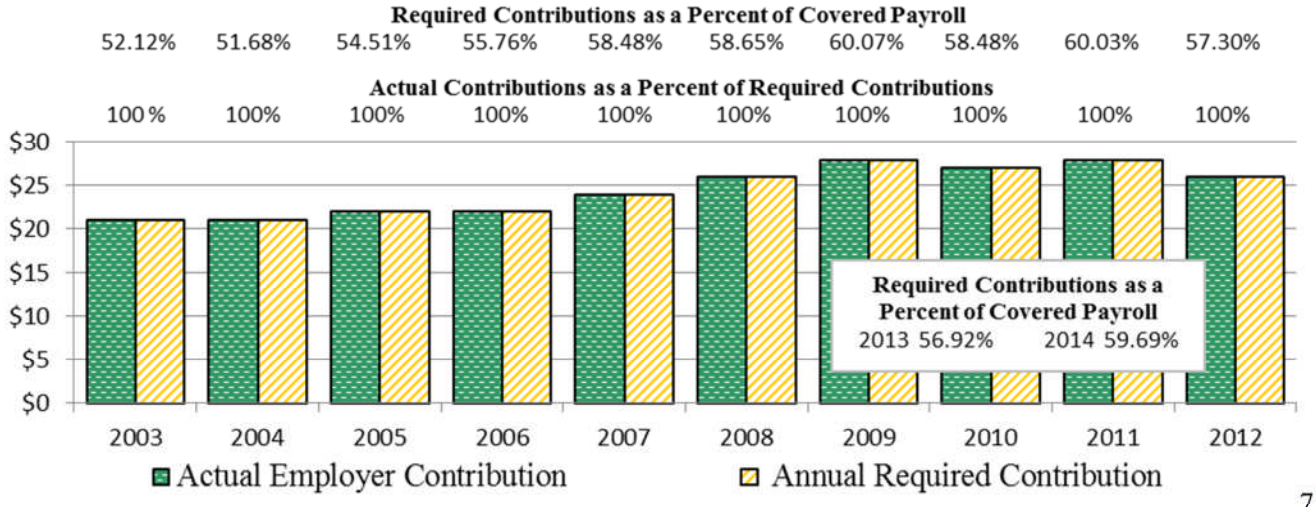


Chart 4: Employer Contributions - Required and Actual (millions)



MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM - JUDICIAL PLAN
Plan Year Ended June 30, 2012

Chart 5: Actual Employee Contributions (millions)

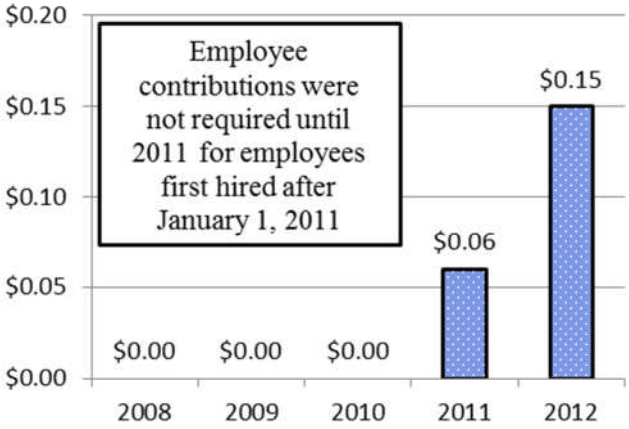


Chart 6: Asset Allocation - Market Basis (millions)

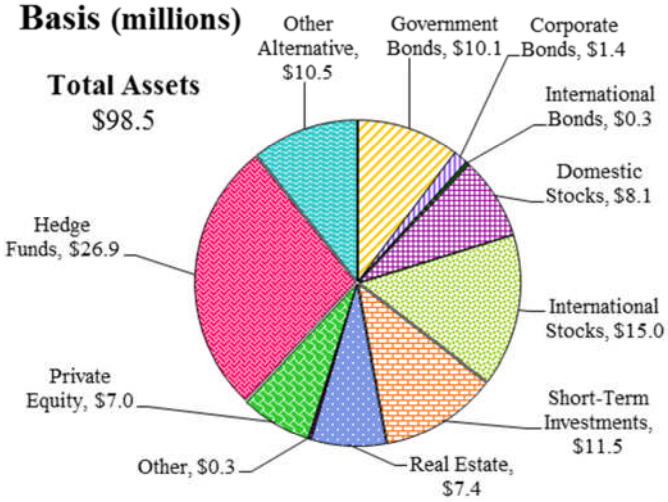


Chart 7: Investment Return - Actual, Smoothed, and Assumed

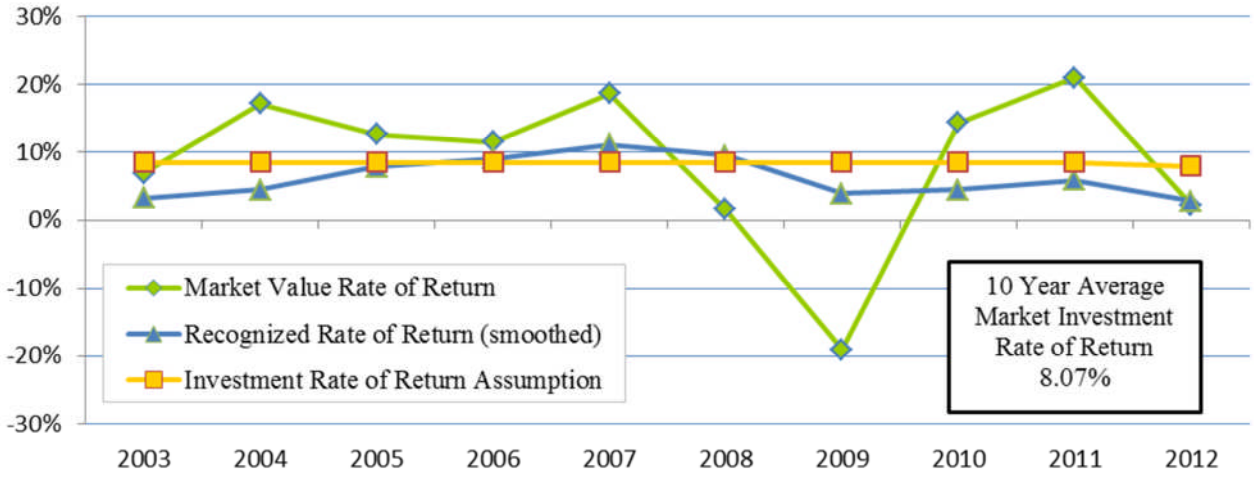
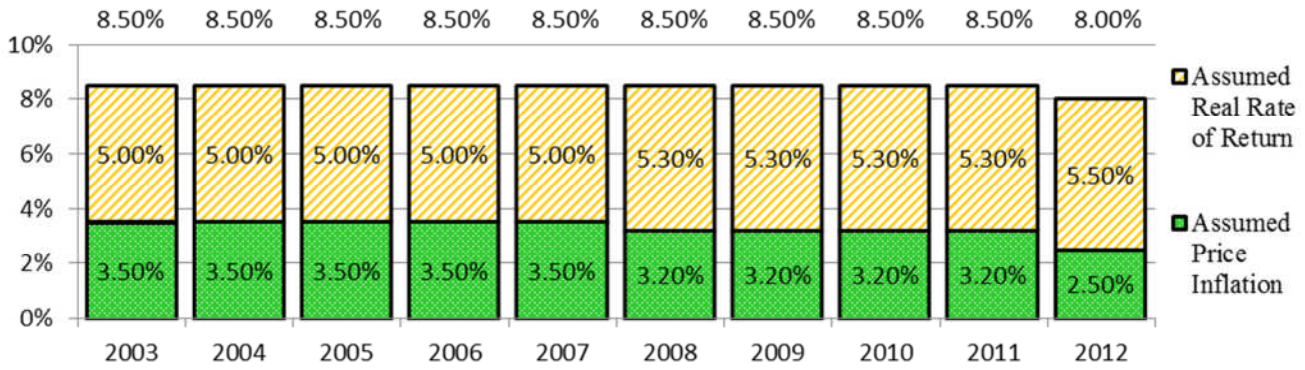


Chart 8: Actuarial Investment Rate of Return Assumptions



MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM - JUDICIAL PLAN
Plan Year Ended June 30, 2012

Chart 9: Benefit and Employee Contribution Summary[1]		
Name of Tier or Group	**Judicial Plan**	**Judicial Plan 2011**
Full Vesting: Years of Service	Automatic on the day the individual becomes a member	Automatic on the day the individual becomes a member
Normal Retirement Option 1	Age 62 with 12 years of service	Age 67 with 12 years of service
Normal Retirement Option 2	Age 60 with 15 years of service	Age 62 with 20 years of service
Normal Retirement Option 3	Age 55 with 20 years of service	Not applicable
Basic Annual Benefit Formula including temporary benefit	Monthly pay x 0.50 = Monthly base benefit	Monthly pay x 0.50 = Monthly base benefit
Guaranteed COLA	Yes, subject to maximums	Yes, subject to maximums
Required Member Contributions	None	4% of payroll
Optional Member Contributions	Not available	Not available

[1] The benefit and contributions summary above does not include all provisions applicable to the plan. See the plan's web site for additional details.

Responses to Certain Survey Items:

1. What significant changes, if any, has the plan implemented since the recent economic decline to address the impact on the plan's financial condition?

Changes in Plan Provisions

Chart 9 includes the changes in plan provisions for benefits and employee contribution summary.

Changes in Investment Policy

During 2012, the Missouri State Employees' Retirement System (MOSERS) board adopted the staff recommendations of beta balancing 80% of the total fund, with 20% of the total fund to be invested in illiquid assets. Five broad asset classes (global equities, nominal bonds, inflation indexed bonds, commodities and hedge fund betas) will be targeted for beta balancing. The beta balanced portfolio will have a leveraged notional exposure limit of 1.25 times beta balanced capital and a cash buffer target of 25% of synthetic exposure. The illiquid portfolio will consist of two broad categories – growth sensitive investments and inflation sensitive investments, targeted at 10% each with benchmarks. A transition period from the current policy benchmark to the new policy benchmark was also approved.

Changes in Actuarial Assumptions

In September 2009, the MOSERS board adopted a temporary change to increase the upper limit on the amount by which the actuarial value of assets could exceed the market value of assets (the corridor) from 20% to 30%, with the FY 2011 corridor being 30%; the FY 2012 corridor being 25%; and the FY 2013 corridor reverting to 20%.

MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM - JUDICIAL PLAN
Plan Year Ended June 30, 2012

In June 2012, the MOSERS board approved the changes to the demographic assumptions recommended in the 4-year experience study (July 1, 2007 through June 30, 2011). The demographic assumption categories include pay increase rates, normal retirement experience, early retirement experience, rates of withdrawal, disability rates, death-in-service mortality rates, and retired life mortality. For additional information on the most recent experience study and the impact of the demographic assumptions, see the plan's web site.

In July 2012, the MOSERS board adopted revised economic actuarial assumptions, see Chart 8.

In June 2013, the MOSERS board replaced the existing policy and board rules on sound actuarial condition with a formal funding policy. In addition, the board adopted changes to existing policies in the following two areas:

a). Amortization Policy: The amortization change will go from the use of a rolling 30-year period for amortization of the unfunded liability to a period that is decremented by 1 year annually until reaching 1 year. However, the board shall reexamine the amortization period in connection with the 2030 actuarial valuation to determine whether or not it should be reduced below 15 years.

b). Asset Smoothing Policy: The asset smoothing change will combine all deferred gains and losses with the current year's gains and recognize one-third of that total in the current year and defer two-thirds of it to the future. In the following year, the gain or loss for that year will be combined with the amount deferred the previous year and, in like fashion, one-third of it will be recognized that year with two-thirds of it deferred to the future, and so on.

2. If the funded ratio of your plan has changed significantly during the 10-year period, please provide the primary factors contributing to the funding level fluctuations.

The Judicial Retirement Plan funded ratio is 24.7 percent at June 30, 2012, because the plan operated on a pay-as-you-go basis through June 30, 1998. As a result, the contribution to finance retirement benefits prior to that date was exactly equal to the benefits being paid out with no assets being accumulated to fund future benefit payments. Accordingly, the funded ratio was zero through June 30, 1998. The actuarial funding program for benefits commenced July 1, 1998, and since that time, the funded ratio has gone from zero to 26% at June 30, 2013. It is anticipated that the funded position will, on a going forward basis, increase 2% to 3% per year.

3. Please list the primary reasons for significant changes in contribution rates for the last 5 years, if applicable. In addition, please provide any known or expected significant changes to contribution rates in future years.

Chart 4 shows the changes in the contribution rate. The employer contribution rate for the last 5 years has changed from 58.48% in FY 2010 to 59.69% in FY 2014, an overall increase of 1.21%. We do not view these fluctuations as significant.

Future Years: We anticipate that as the number of new hires becomes a larger portion of our active member population, the employer contributions will decrease over time, given that the new tier is a lower cost plan as compared to the previous tier for judges.

MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM - MSEP
Plan Year Ended June 30, 2012

Chart 1:

General Information

Statutory Authorization: Section 104.320, RSMo
Year Established: 1957
Covered Members: 106,915
Annual Covered Payroll: $1.864 billion
Members also covered by Social Security: Yes
Trustees: 10 Members, 1 Non-member

Key Actuarial Assumptions

Investment Rate of Return: 8.0%
Wage Inflation: 3.0%
Asset Valuation Method: 5-year smoothed
Actuarial Cost Method: Entry age normal
Liability amortization period: 30-year, open

Web Site: http://www.mosers.org/

Chart 2: Funded Ratio

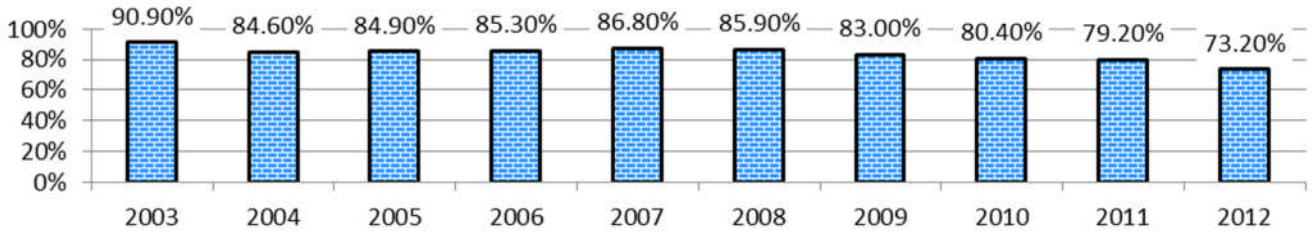


Chart 3: Actuarial Assets and Liabilities (millions)

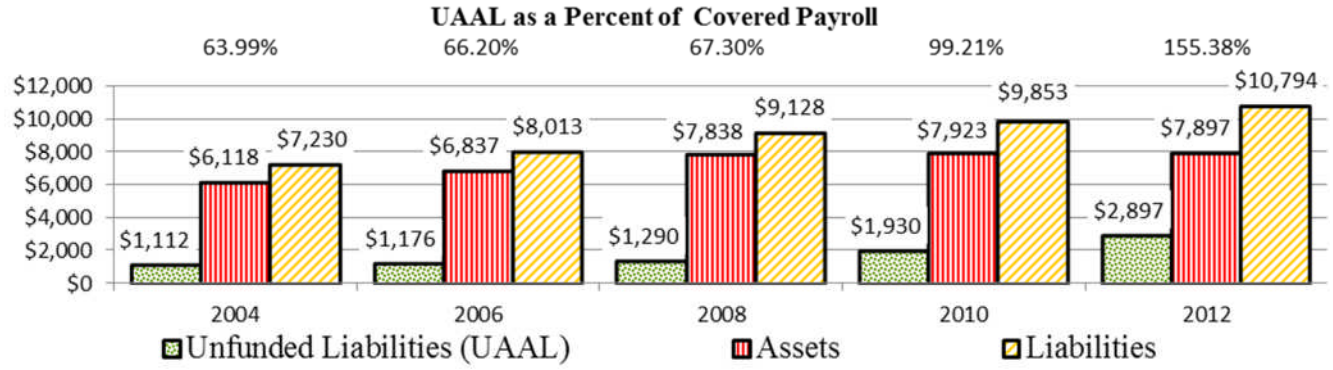
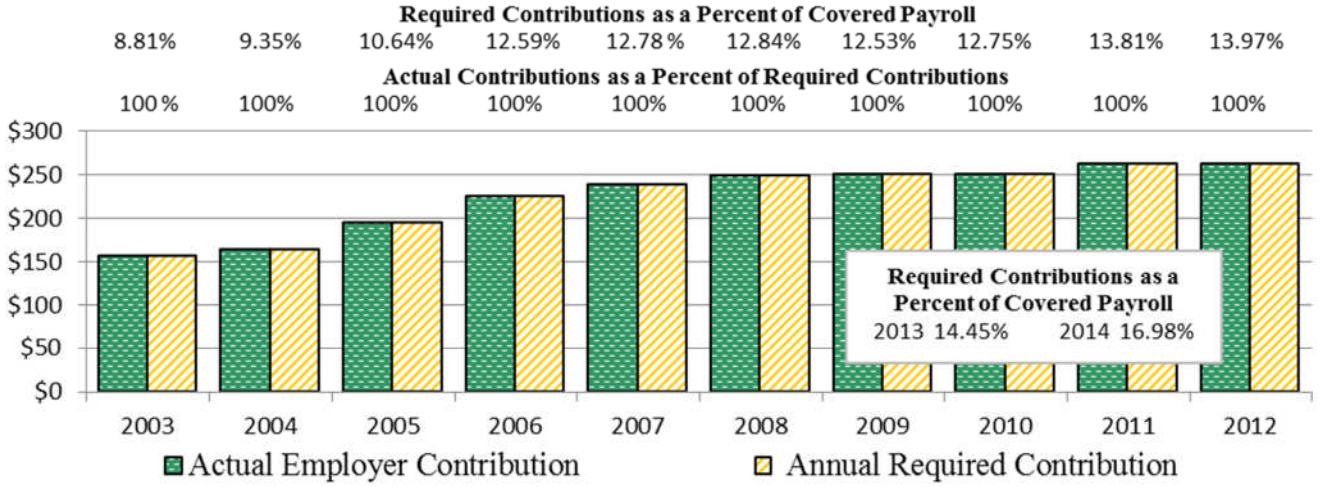


Chart 4: Employer Contributions - Required and Actual (millions)



MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM - MSEP
Plan Year Ended June 30, 2012

Chart 5: Actual Employee Contributions (millions)

Chart 6: Asset Allocation - Market Basis (millions)

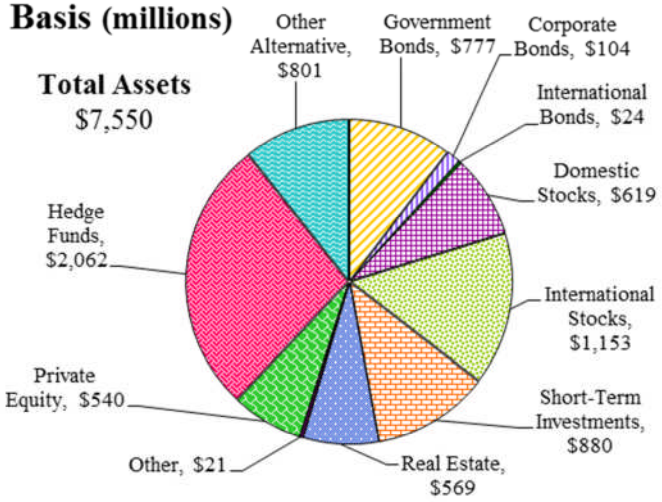


Chart 7: Investment Return - Actual, Smoothed, and Assumed

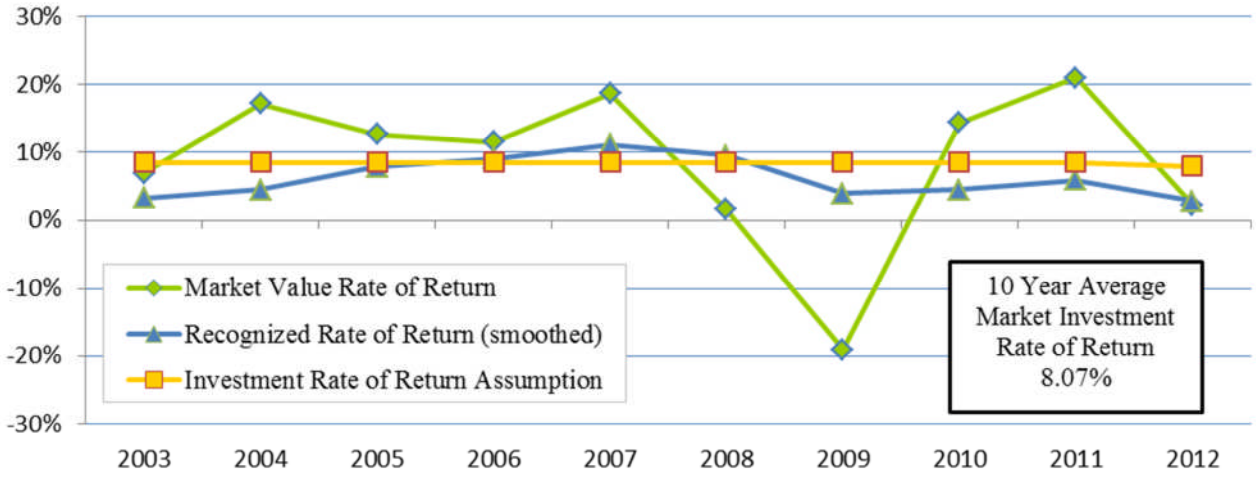


Chart 8: Actuarial Investment Rate of Return Assumptions

MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM - MSEP
Plan Year Ended June 30, 2012

Chart 9: Benefit and Employee Contribution Summary[1]			
Name of Tier or Group	**MSEP**	**MSEP 2000**	**MSEP 2011**
Employees eligible	Hired before July 1, 2000	First hired before January 1, 2011	Hired on or after January 1, 2011
Full Vesting: Years of Service	5	5	10
Normal Retirement Option 1	Age 65 with 5 years of service	Age 62 with 5 years of service	Age 67 with 10 years of service
Normal Retirement Option 2	Age 60 with 15 years of service	Not applicable	Not applicable
Normal Retirement Option 3	Rule of 80 – at least age 48 with age and service equaling 80 or more	Rule of 80 – at least age 48 with age and service equaling 80 or more	Rule of 90 – at least age 55 with age and service equaling 90 or more.
Basic Annual Benefit Formula including temporary benefit	0.016 x Final Average Pay x Service	0.017 x Final Average Pay x Service A temporary benefit of 0.8% of Final Average Pay x Service is payable to age 62 for those retiring under rule of 80.	0.017 x Final Average Pay x Service A temporary benefit of 0.8% of Final Average Pay x Service is payable to age 62 for those retiring under rule of 90.
Guaranteed COLA	Yes, subject to maximums	Yes, subject to maximums	Yes, subject to maximums
Required Member Contributions	None	None	4% of payroll
Optional Member Contributions	Not available	Not available	Not available

[1] The benefit and contributions summary above does not include all provisions applicable to the plan. See the plan's web site for additional details.

Responses to Certain Survey Items:

1. What significant changes, if any, has the plan implemented since the recent economic decline to address the impact on the plan's financial condition?

Changes in Plan Provisions

Chart 9 includes the changes in plan provisions for benefits and employee contribution summary.

Changes in Investment Policy

During 2012, the MOSERS board adopted the staff recommendations of beta balancing 80% of the total fund, with 20% of the total fund to be invested in illiquid assets. Five broad asset classes (global equities, nominal bonds, inflation indexed bonds, commodities and hedge fund betas) will be targeted for beta balancing. The beta balanced portfolio will have a leveraged notional exposure limit of 1.25 times beta balanced capital and a cash buffer target of 25% of synthetic exposure. The illiquid portfolio will consist of two broad categories – growth sensitive investments and inflation sensitive investments, targeted at 10% each with benchmarks. A transition period from the current policy benchmark to the new policy benchmark was also approved.

Changes in Actuarial Assumptions

In September 2009, the MOSERS board adopted a temporary change to increase the upper limit on the amount by which the actuarial value of assets could exceed the market value of assets (the corridor) from 20% to 30%, with the FY 2011 corridor being 30%; the FY 2012 corridor being 25%; and the FY 2013 corridor reverting to 20%.

MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM - MSEP
Plan Year Ended June 30, 2012

In June 2012, the MOSERS board approved the changes to the demographic assumptions recommended in the 4-year experience study (July 1, 2007 through June 30, 2011). The demographic assumption categories include pay increase rates, normal retirement experience, rates of withdrawal, disability rates, death-in-service mortality rates, retired life mortality, and other liability adjustments. For additional information on the most recent experience study and the impact of the demographic assumptions, see the plan's web site.

In July 2012, the MOSERS board adopted revised economic actuarial assumptions, see Chart 8.

In June 2013, the MOSERS board replaced the existing policy and board rules on sound actuarial condition with a formal funding policy. In addition, the board adopted changes to existing policies in the following two areas:

a). Amortization Policy: The amortization change will go from the use of a rolling 30-year period for amortization of the unfunded liability to a period that is decremented by 1 year annually until reaching 1 year. However, the board shall reexamine the amortization period in connection with the 2030 actuarial valuation to determine whether or not it should be reduced below 15 years.

b). Asset Smoothing Policy: The asset smoothing change will combine all deferred gains and losses with the current year's gains and recognize one-third of that total in the current year and defer two-thirds of it to the future. In the following year, the gain or loss for that year will be combined with the amount deferred the previous year and, in like fashion, one-third of it will be recognized that year with two-thirds of it deferred to the future, and so on.

2. If the funded ratio of your plan has changed significantly during the 10-year period, please provide the primary factors contributing to the funding level fluctuations.

The annual net change in the funded ratio is a product of favorable and unfavorable factors. The primary unfavorable factor was the investment losses attributable to the market decline in FY 2009.

3. Please list the primary reasons for significant changes in contribution rates for the last 5 years, if applicable. In addition, please provide any known or expected significant changes to contribution rates in future years.

Chart 4 shows the changes in the contribution rate. The changes in the contribution rate have been products of many factors. A few of the explanations for the variation in the employer contribution rate include the changes in actuarial assumptions (see the response to question number 1), experience losses including the large recognized loss on valuation assets, and change in normal cost as the proportion of active members in the 2011 plan increases.

Future Years: We anticipate that as the number of new hires becomes a larger portion of our active member population, the employer contributions will decrease over time, given that the new tier is a lower cost plan as compared to the MSEP and MSEP 2000 tiers.

PROSECUTING ATTORNEYS' & CIRCUIT ATTORNEYS' RETIREMENT SYSTEM
Year Ended June 30, 2012

Chart 1:

General Information

Statutory Authorization: Section 56.800, RSMo
Year Established: 1989
Covered Members: 198
Annual Covered Payroll: $8.5 million
Members also covered by Social Security: Yes
Trustees: 5 Members

Key Actuarial Assumptions

Investment Rate of Return: 7.25%
Wage Inflation: 4.0%
Asset Valuation Method: 5-year smoothed
Actuarial Cost Method: Entry age normal
Liability amortization period: 20-year level dollar, open

Telephone: (573) 556-7985

Chart 2: Funded Ratio

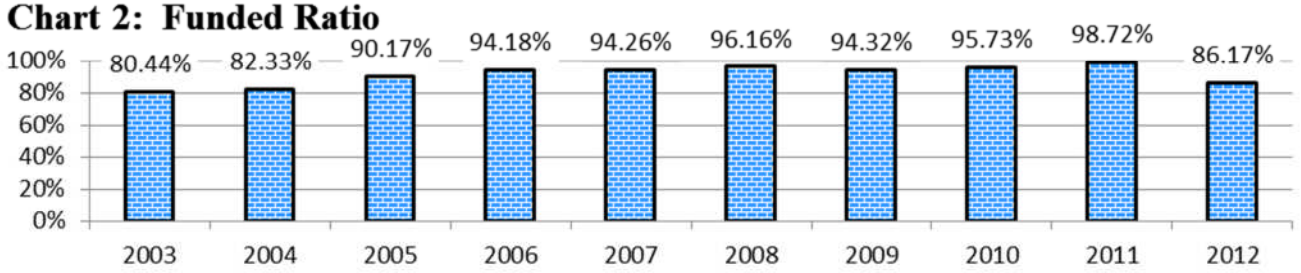


Chart 3: Actuarial Assets and Liabilities (millions)

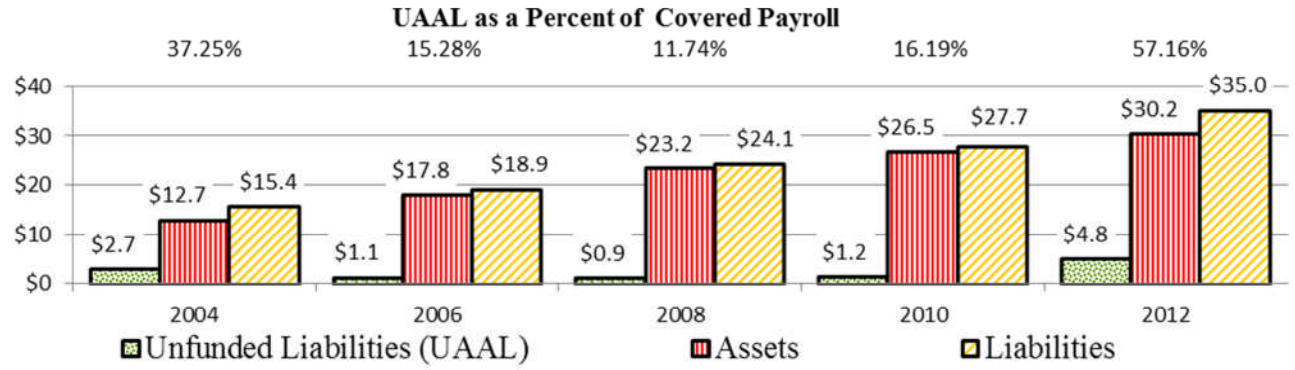
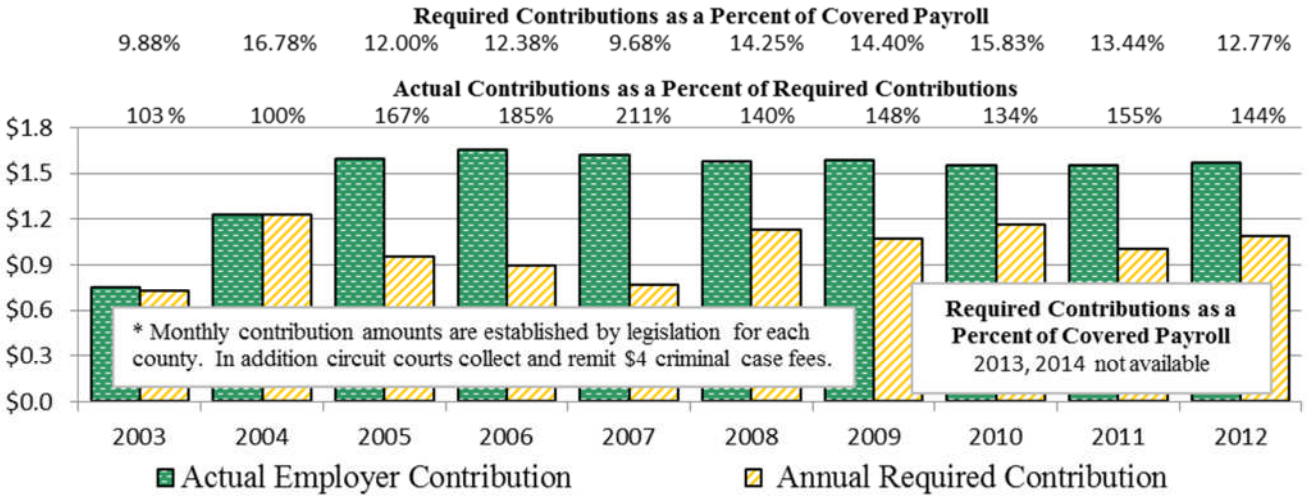


Chart 4: Employer Contributions * - Required and Actual (millions)



PROSECUTING ATTORNEYS' & CIRCUIT ATTORNEYS' RETIREMENT SYSTEM
Year Ended June 30, 2012

Chart 5: Actual Employee Contributions

The plan's funding policy does not require employee contributions

Chart 6: Asset Allocation - Market Basis (millions)

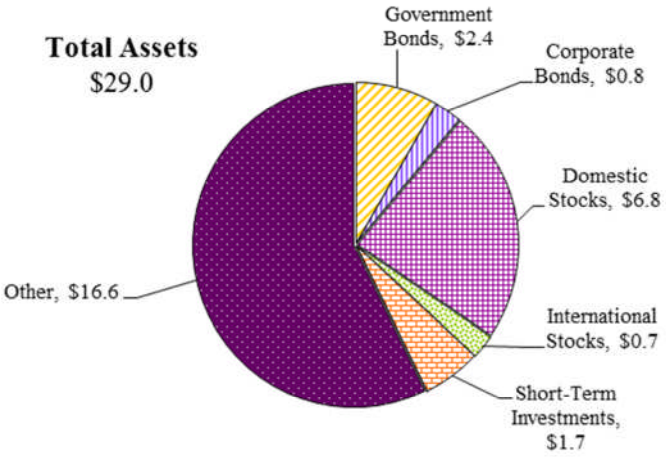


Chart 7: Investment Return - Actual, Smoothed, and Assumed

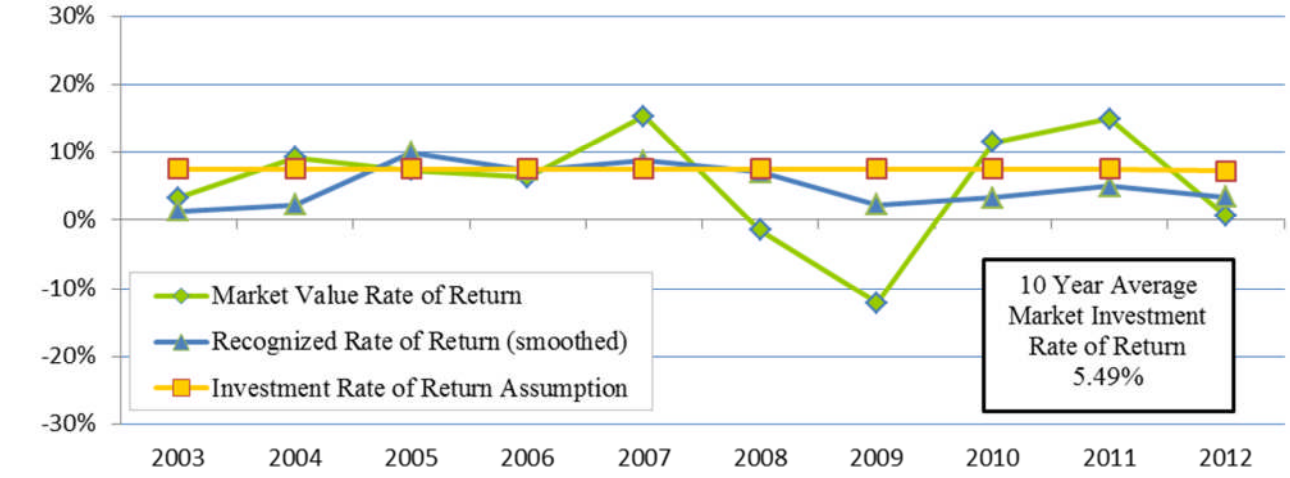
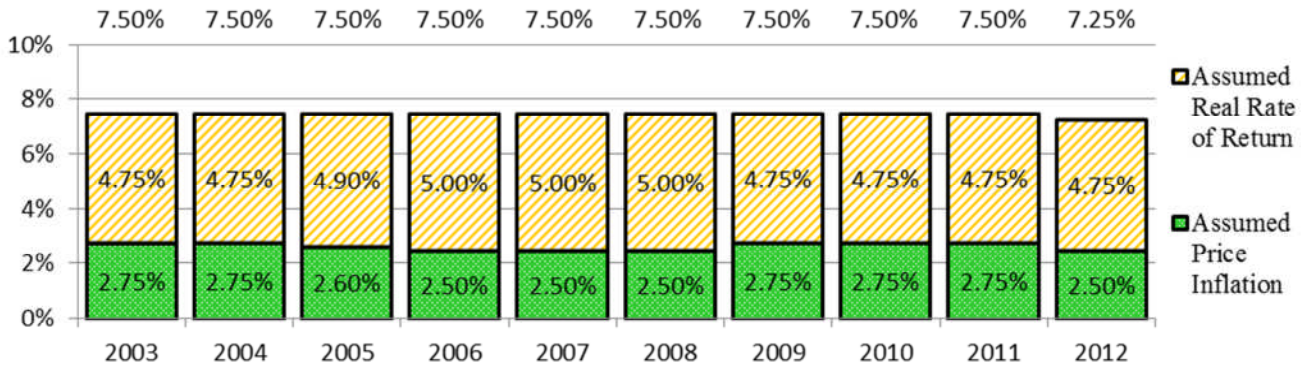


Chart 8: Actuarial Investment Rate of Return Assumptions



PROSECUTING ATTORNEYS' & CIRCUIT ATTORNEYS' RETIREMENT SYSTEM
Year Ended June 30, 2012

Chart 9: Benefit and Employee Contribution Summary[1]		
Name of Tier or Group	**Class 1 and 2 (Full time participants who serve a county that contributes at the 1st or 2nd Class county rate)**	**Class 3 and 4 (Participants who serve a county that contributes at the 3rd or 4th Class county rate)**
Full Vesting: Years of Service	12	12
Normal Retirement	Age 62 with 12 years of service	Age 62 with 12 years of service
Basic Annual Benefit Formula including temporary benefit	50% of Final Average Compensation, based on the Highest 2 Consecutive Years of Compensation	Less than 20 Years of Service: $1,260 x Credited Service divided by 2 Greater than or equal to 20 Years of Service: $1,560 x Credited Service divided by 2
Guaranteed COLA	None	None
Required Member Contributions	None	None
Optional Member Contributions	Not available	Not available

[1] The benefit and contributions summary above does not include all provisions applicable to the plan. Contact the plan for additional details.

Responses to Certain Survey Items:

1. What significant changes, if any, has the plan implemented since the recent economic decline to address the impact on the plan's financial condition?

The plan implemented the following actuarial assumption changes between July 1, 2008 and July 1, 2012: Effective July 1, 2012, in order to better reflect future plan experience, the investment return assumption was changed from 7.5% to 7.25%, and the mortality assumption was changed from the RP 2000 Mortality Table, male and female rates, to the RP 2000 Mortality Table, male and female rates, projected generationally using Scale AA.

2. If the funded ratio of your plan has changed significantly during the 10-year period, please provide the primary factors contributing to the funding level fluctuations.

The significant decrease from 2011 to 2012 is due to:

1. A change to more conservative assumptions (see response to Item 1 above) and,
2. Investment return for year ended June 30, 2012 less favorable than assumed.

3. Please list the primary reasons for significant changes in contribution rates for the last 5 years, if applicable. In addition, please provide any known or expected significant changes to contribution rates in future years.

Contributions are not related to payroll. Contributions are from two primary sources:

1. A fixed dollar monthly contribution paid by the individual counties as set forth in statute.
2. A $4 per court case surcharge (except for cases sent to the Fine Collection Center)

PUBLIC EDUCATION EMPLOYEES' RETIREMENT SYSTEM
Year Ended June 30, 2012

Chart 1:

General Information

Statutory Authorization: Section 169.610, RSMo
Year Established: 1965
Covered Members: 99,359
Annual Covered Payroll: $1.437 billion
Members also covered by Social Security: Yes
Trustees: 5 Members, 2 Non-members

Key Actuarial Assumptions

Investment Rate of Return: 8.0%
Wage Inflation: 3.75%
Asset Valuation Method: 5-year smoothed
Actuarial Cost Method: Entry age normal
Liability amortization period: 30-year, closed

Web Site: http://www.psrs-peers.org/

Chart 2: Funded Ratio

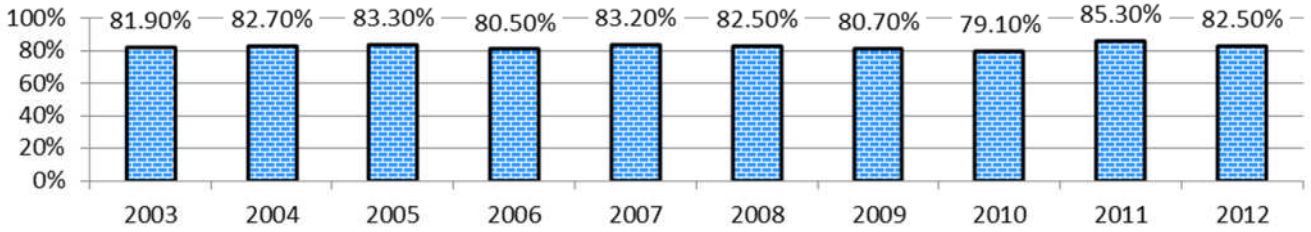


Chart 3: Actuarial Assets and Liabilities (millions)

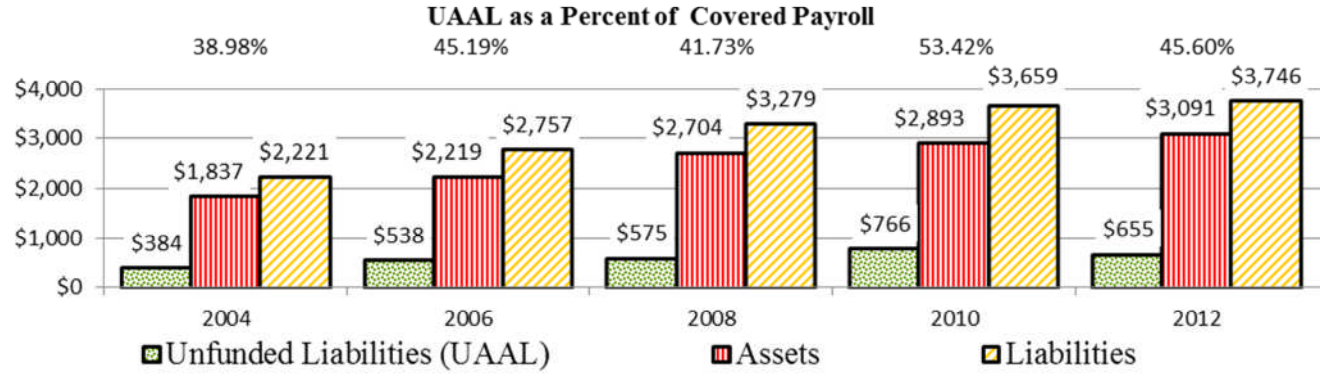
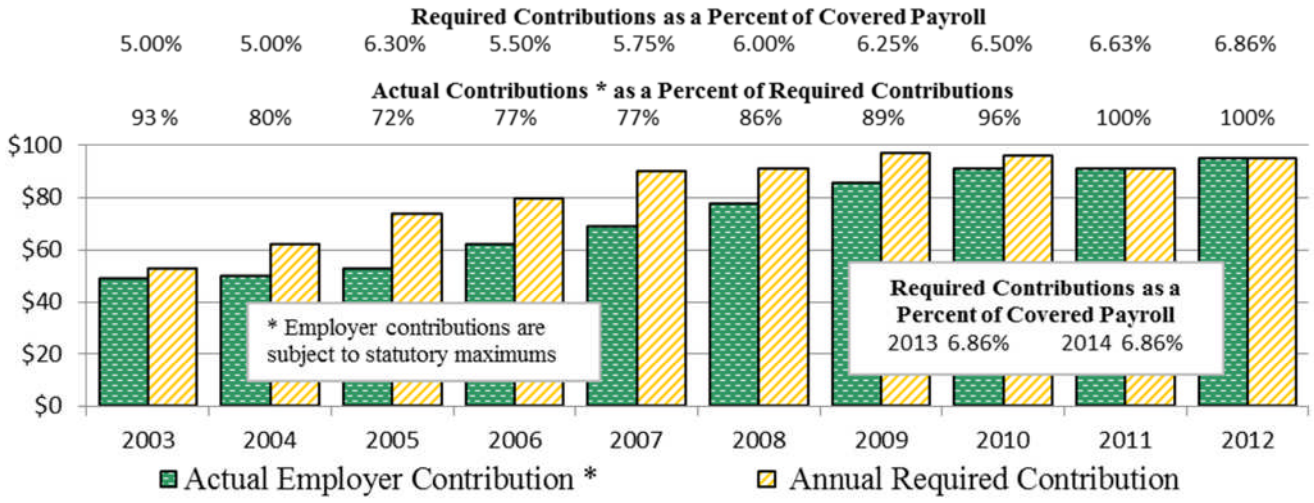


Chart 4: Employer Contributions - Required and Actual * (millions)



PUBLIC EDUCATION EMPLOYEES' RETIREMENT SYSTEM
Year Ended June 30, 2012

Chart 5: Actual Employee Contributions (millions)

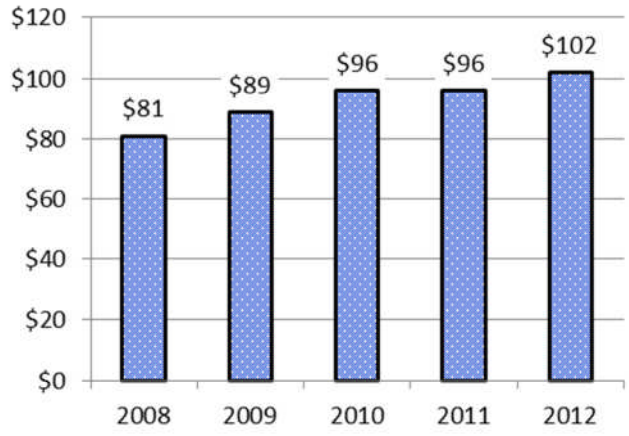


Chart 6: Asset Allocation - Market Basis (millions)

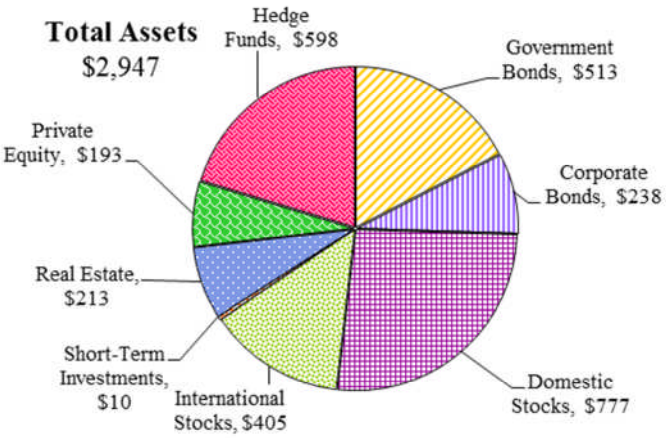


Chart 7: Investment Return - Actual, Smoothed, and Assumed

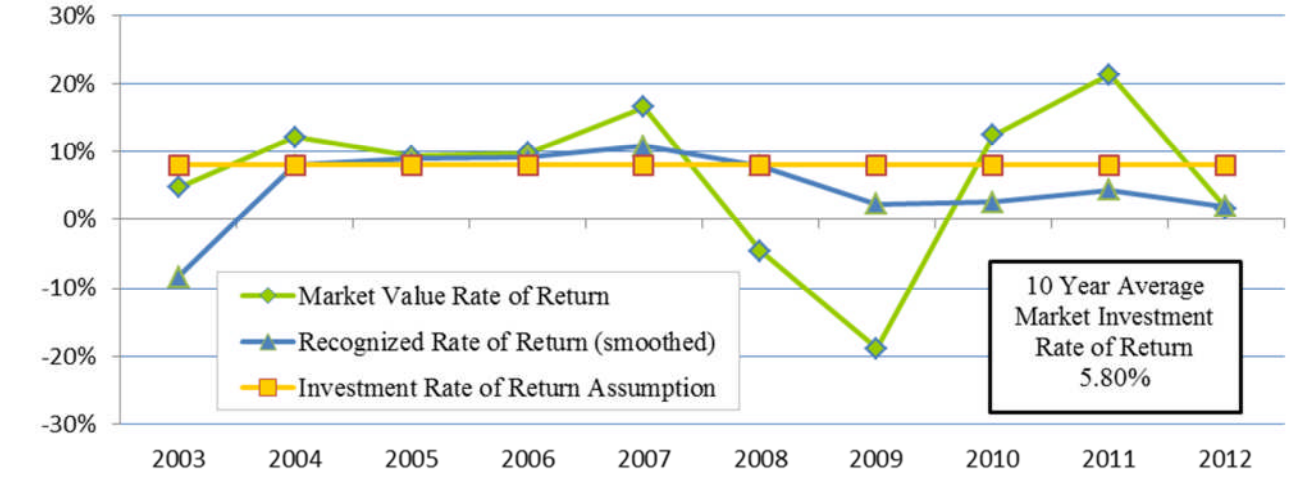
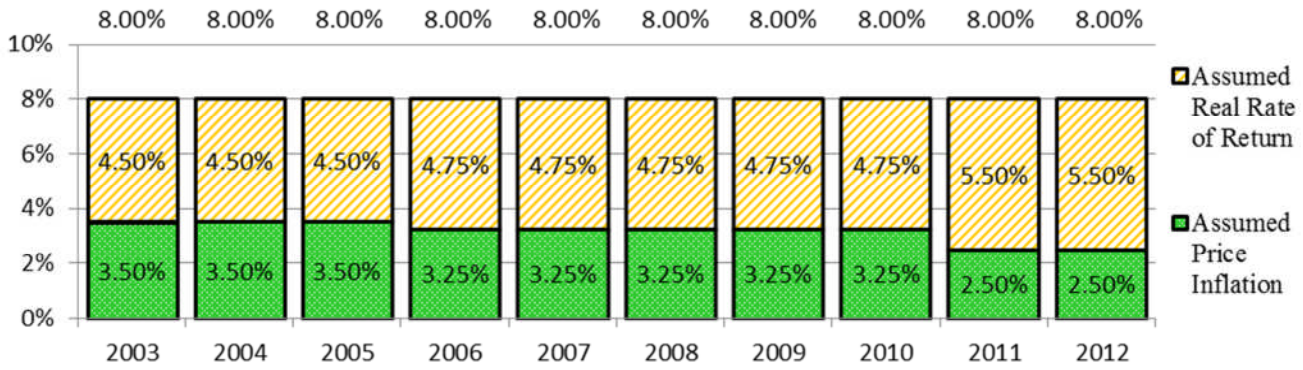


Chart 8: Actuarial Investment Rate of Return Assumptions



PUBLIC EDUCATION EMPLOYEES' RETIREMENT SYSTEM
Year Ended June 30, 2012

Chart 9: Benefit and Employee Contribution Summary[1]	
Full Vesting: Years of Service	5
Normal Retirement Option 1	Age 60 with 5 years of service
Normal Retirement Option 2	Any age with 30 years of service
Normal Retirement Option 3	Rule of 80 where age plus credited service is greater than or equal to 80
Basic Annual Benefit Formula including temporary benefit	1.61% x Final Average Salary x Years of Service A temporary benefit of 0.8% of Final Average Salary x Service is payable until reaching minimum eligibility age for Social Security
Guaranteed COLA	Yes, subject to maximums
Required Member Contributions	6.86% of payroll
Optional Member Contributions	Not available

[1] The benefit and contributions summary above does not include all provisions applicable to the plan. See the plan's web site for additional details.

Responses to Certain Survey Items:

1. What significant changes, if any, has the plan implemented since the recent economic decline to address the impact on the plan's financial condition?

COLAs have been capped at 2.0% where allowable by statute, employee and employer contributions have been increased where allowable per statute and in 2013 and 2014 we have overfunded the ARC.

2. If the funded ratio of your plan has changed significantly during the 10-year period, please provide the primary factors contributing to the funding level fluctuations.

No significant fluctuations are noted. Smaller fluctuations were due to updated actuarial assumptions, increased contribution rates, and capped COLAs. Larger fluctuations were due to the performance of the investment markets in 2008 and 2009.

3. Please list the primary reasons for significant changes in contribution rates for the last 5 years, if applicable. In addition, please provide any known or expected significant changes to contribution rates in future years.

Rates increased in 2010 by 0.25%, in 2011 by 0.13% and in 2012 by 0.23% for both the employer and the member. Rates are not expected to increase in the future.

PUBLIC SCHOOL RETIREMENT SYSTEM
Year Ended June 30, 2012

Chart 1:

General Information

Statutory Authorization: Section 169.010, RSMo
Year Established: 1946
Covered Members: 142,466
Annual Covered Payroll: $4.379 billion
Members also covered by Social Security: No
Trustees: 5 Members, 2 Non-members

Key Actuarial Assumptions

Investment Rate of Return: 8.0%
Wage Inflation: 3.5%
Asset Valuation Method: 5-year smoothed
Actuarial Cost Method: Entry age normal
Liability amortization period: 30-year, closed

Web Site: http://www.psrs-peers.org/

Chart 2: Funded Ratio

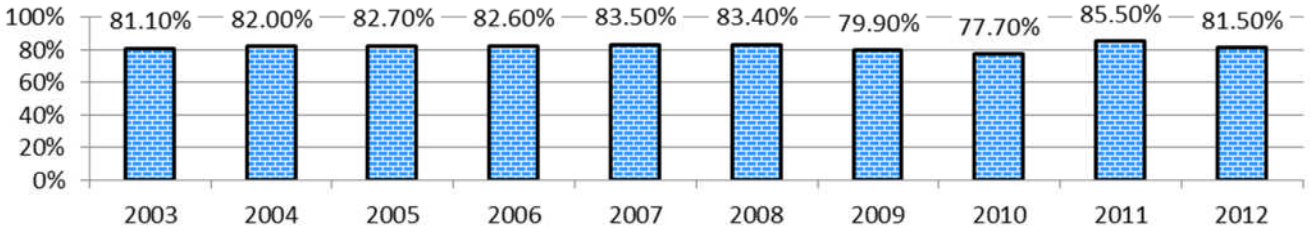


Chart 3: Actuarial Assets and Liabilities (millions)

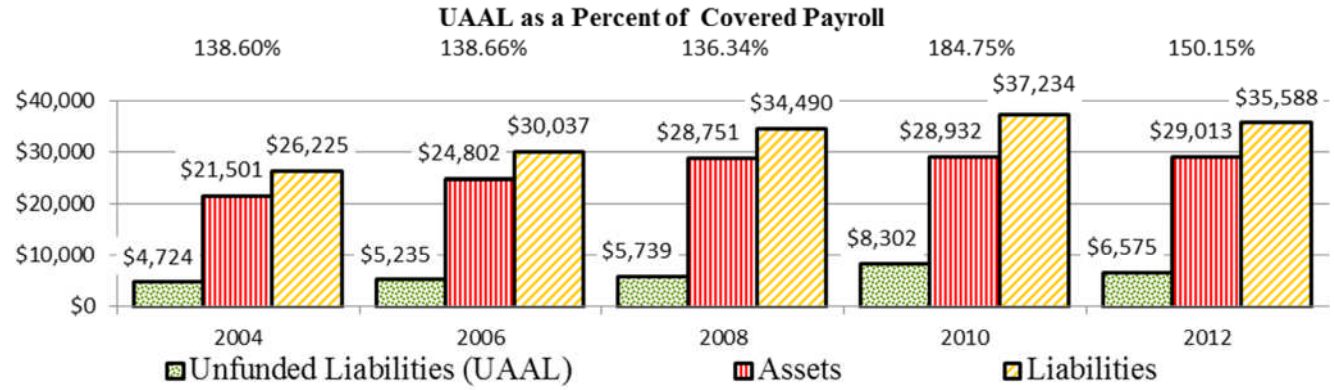
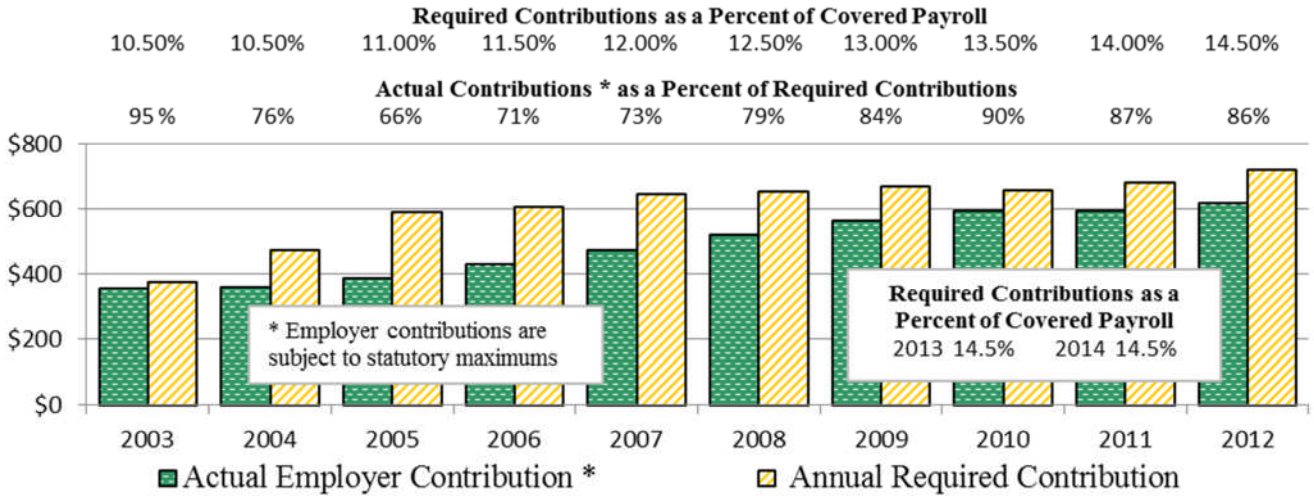


Chart 4: Employer Contributions - Required and Actual * (millions)



PUBLIC SCHOOL RETIREMENT SYSTEM
Year Ended June 30, 2012

Chart 5: Actual Employee Contributions (millions)

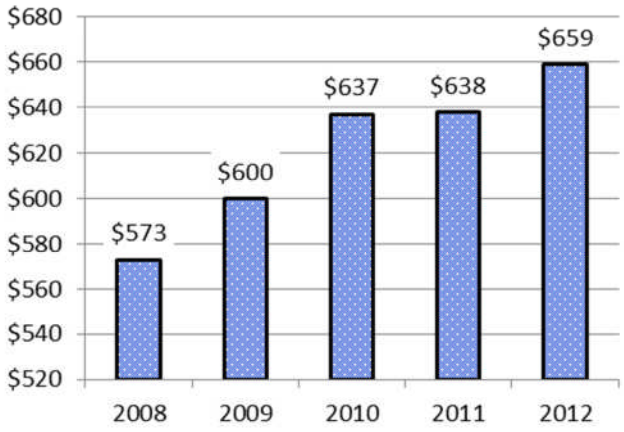


Chart 6: Asset Allocation - Market Basis (millions)

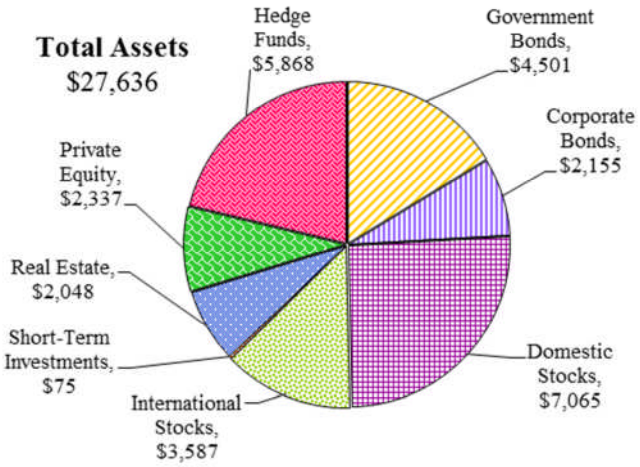


Chart 7: Investment Return - Actual, Smoothed, and Assumed

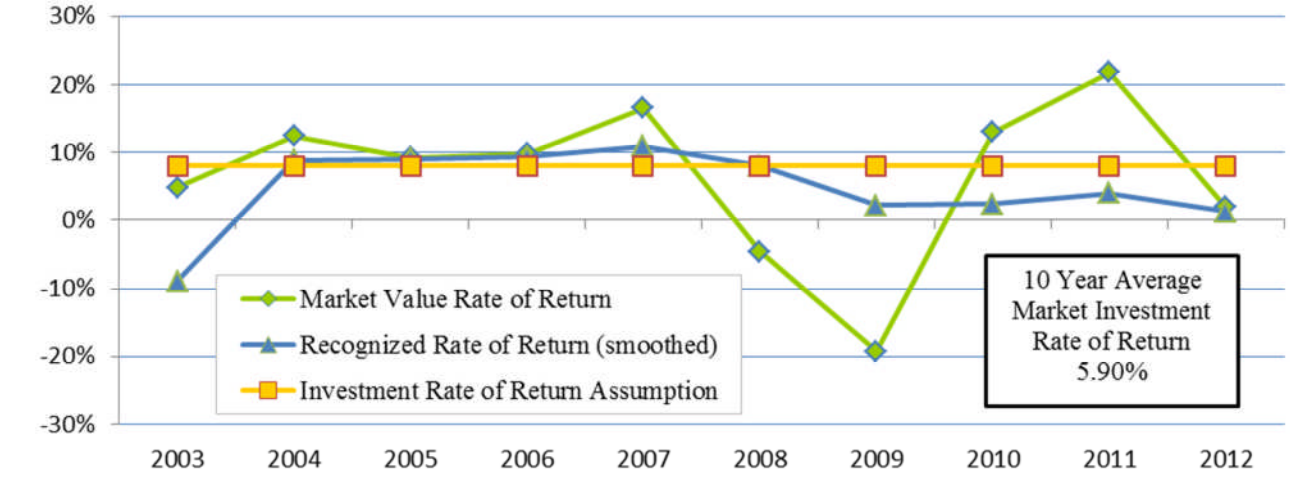
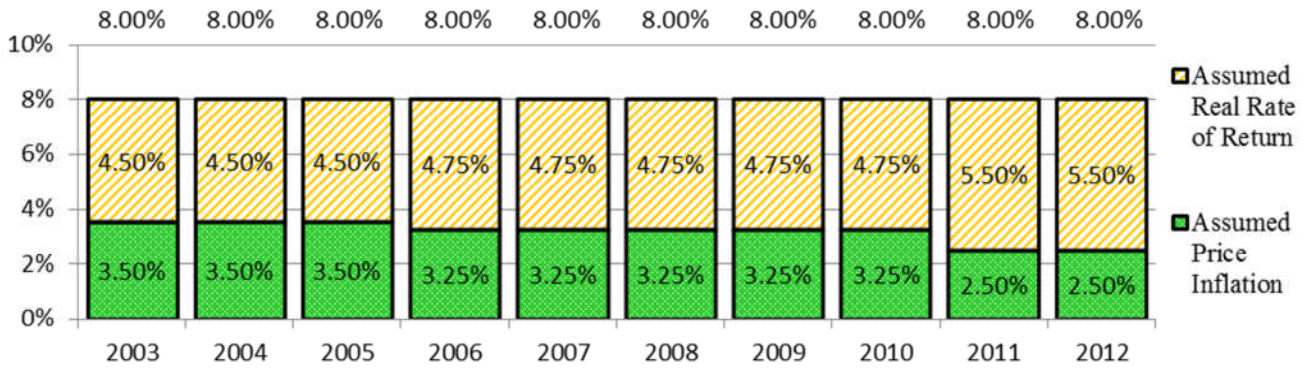


Chart 8: Actuarial Investment Rate of Return Assumptions



PUBLIC SCHOOL RETIREMENT SYSTEM
Year Ended June 30, 2012

Chart 9: Benefit and Employee Contribution Summary[1]	
Full Vesting: Years of Service	5
Normal Retirement Option 1	Age 60 with 5 years of service
Normal Retirement Option 2	Any age with 30 years of service
Normal Retirement Option 3	Rule of 80 where age plus credited service is greater than or equal to 80
Basic Annual Benefit Formula including temporary benefit	Between 2.5% and 2.55% x Final Average Salary x Years of Service
Guaranteed COLA	Yes, subject to maximums
Required Member Contributions	14.5% of payroll if the member is not also contributing to the Social Security Administration 9.67 of payroll if the member is contributing to the Social Security Administration
Optional Member Contributions	Not available

[1] The benefit and contributions summary above does not include all provisions applicable to the plan. See the plan's web site for additional details.

Responses to Certain Survey Items:

1. What significant changes, if any, has the plan implemented since the recent economic decline to address the impact on the plan's financial condition?

COLAs have been capped at 2.0% where allowable by statute, employee and employer contributions have been increased where allowable per statute and in 2013 and 2014 we have overfunded the ARC.

2. If the funded ratio of your plan has changed significantly during the 10-year period, please provide the primary factors contributing to the funding level fluctuations.

No significant fluctuations are noted. Smaller fluctuations were due to updated actuarial assumptions, increased contribution rates, and capped COLAs. Larger fluctuations were due to the performance of the investment markets in 2008 and 2009.

3. Please list the primary reasons for significant changes in contribution rates for the last 5 years, if applicable. In addition, please provide any known or expected significant changes to contribution rates in future years.

The rates increased by 0.5% in 2010, 2011, and 2012. Rates are not expected to increase in the future.

SHERIFF'S RETIREMENT SYSTEM
Year Ended December 31, 2012

Chart 1:

General Information

Statutory Authorization: Section 57.949, RSMo
Year Established: 1983
Covered Members: 302
Annual Covered Payroll: $5.9 million
Members also covered by Social Security: Yes
Trustees: 5 Members

Key Actuarial Assumptions

Investment Rate of Return: 7.5%
Wage Inflation: 1.5%
Asset Valuation Method: 5-year smoothed
Actuarial Cost Method: Entry age normal
Liability amortization period: 30-year, open

Telephone: (573) 634-3858

Chart 2: Funded Ratio

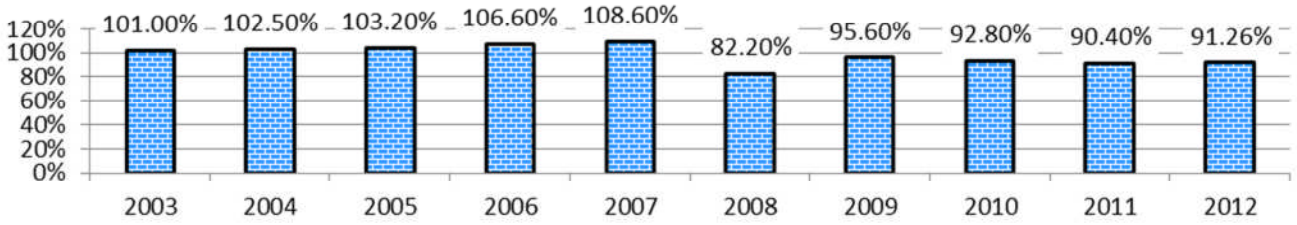


Chart 3: Actuarial Assets and Liabilities (millions)

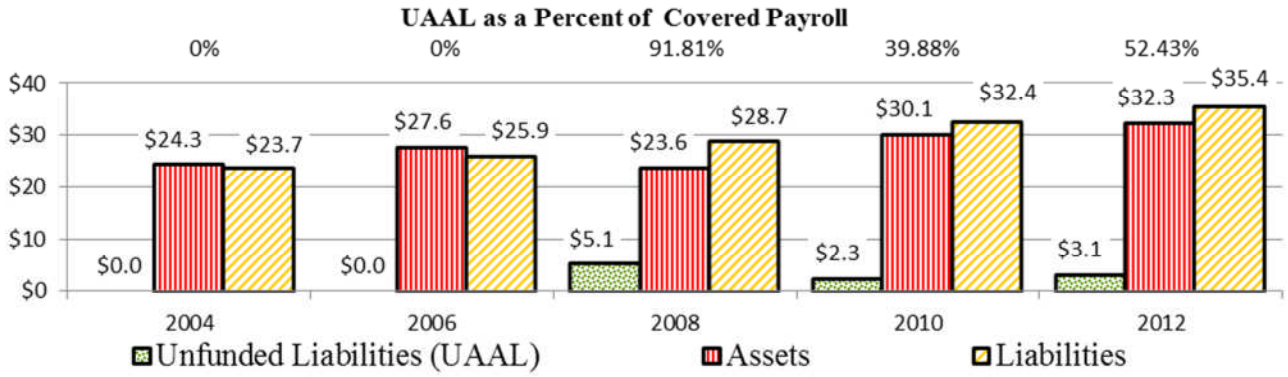
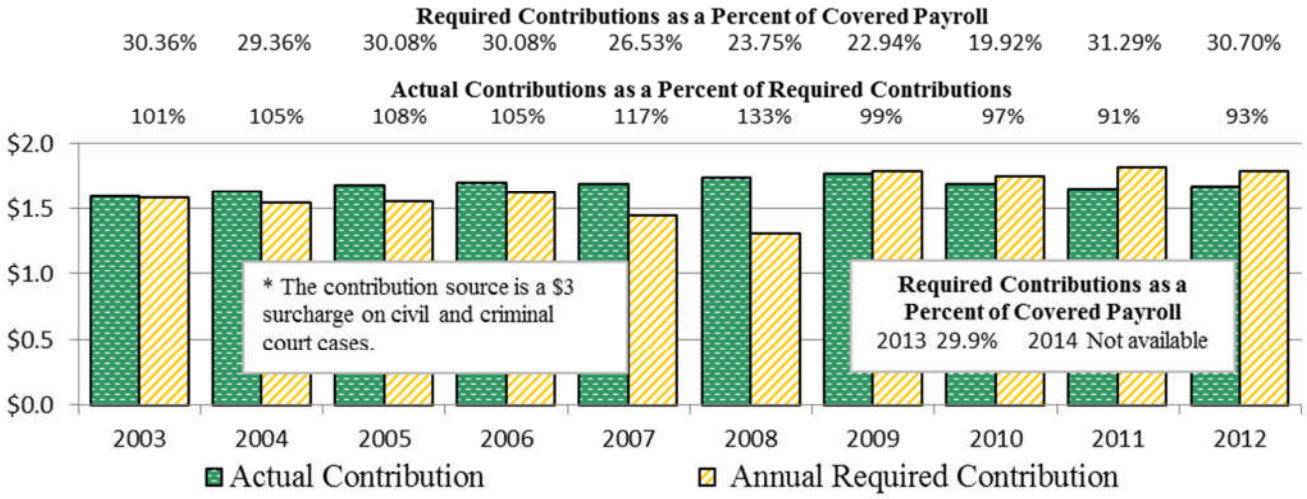


Chart 4: Contributions * - Required and Actual (millions)



SHERIFF'S RETIREMENT SYSTEM
Year Ended December 31, 2012

Chart 5: Actual Employee Contributions

The plan's funding policy does not require employee contributions

Chart 6: Asset Allocation - Market Basis (millions)

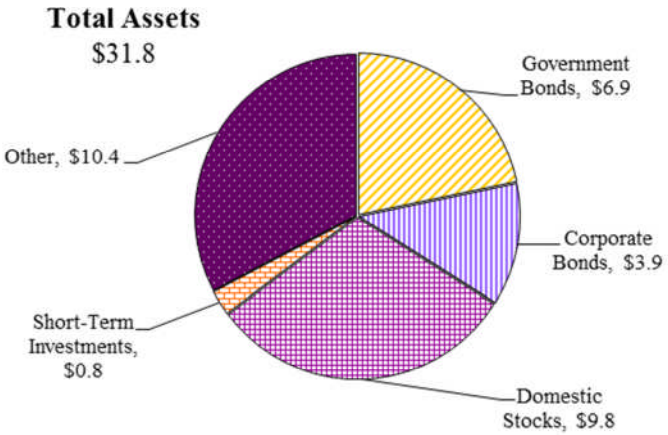


Chart 7: Investment Return - Actual, Smoothed, and Assumed

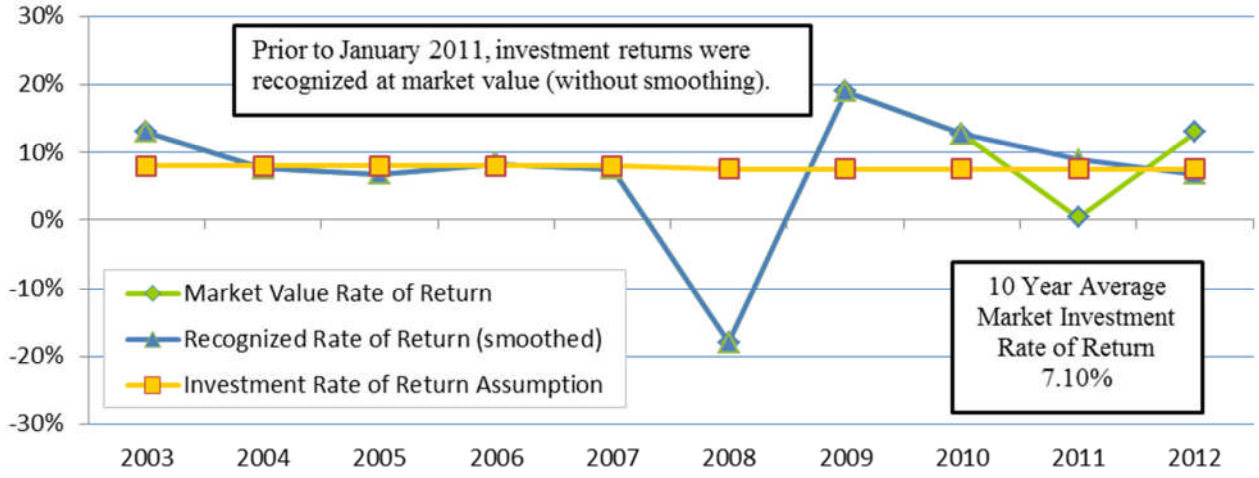
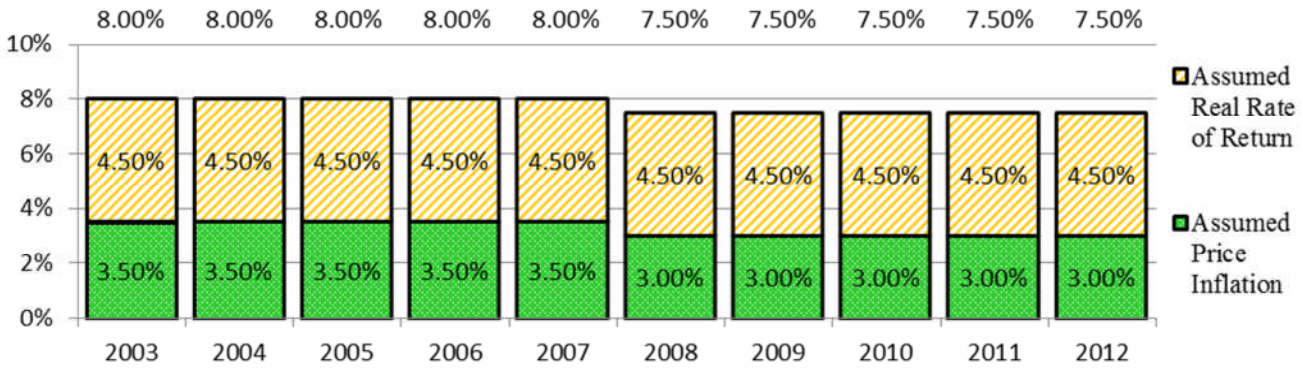


Chart 8: Actuarial Investment Rate of Return Assumptions



SHERIFF'S RETIREMENT SYSTEM
Year Ended December 31, 2012

Chart 9: Benefit and Employee Contribution Summary[1]	
Full Vesting: Years of Service	8
Normal Retirement Option 1	Age 55 with 12 years of service
Normal Retirement Option 2	Age 62 with 8 years of service
Basic Annual Benefit Formula including temporary benefit	2% of Final Average Pay x Years of Creditable Service
Guaranteed COLA	None
Required Member Contributions	None
Optional Member Contributions	Not available

[1] The benefit and contributions summary above does not include all provisions applicable to the plan. Contact the plan for additional details.

Responses to Certain Survey Items:

1. What significant changes, if any, has the plan implemented since the recent economic decline to address the impact on the plan's financial condition?

- Lower assumed interest rate (2008) 8.0% to 7.5%
- New mortality table assumption (2012)
- Asset-smoothing method (2012)

2. If the funded ratio of your plan has changed significantly during the 10-year period, please provide the primary factors contributing to the funding level fluctuations.

A response was not provided.

3. Please list the primary reasons for significant changes in contribution rates for the last 5 years, if applicable. In addition, please provide any known or expected significant changes to contribution rates in future years.

The contribution source is a $3 surcharge on civil and criminal court cases in the state, and is unrelated to payroll. There is no "employer," per se, that makes the contributions.

ST. LOUIS COUNTY EMPLOYEES' RETIREMENT PLAN
Year Ended December 31, 2012

Chart 1:

General Information

Statutory Authorization: Section 50.337, RSMo
Year Established: 1967
Covered Members: 7,586
Annual Covered Payroll: $176.5 million
Members also covered by Social Security: Yes
Trustees: 3 Members, 4 Non-members

Key Actuarial Assumptions

Investment Rate of Return: 8.0%
Wage Inflation: 4.5%
Asset Valuation Method: 4-year smoothed
Actuarial Cost Method: Projected unit credit
Liability amortization period: 30-year, open

Web Site:

http://www.stlouisco.com/YourGovernment/CountyDepartments/Personnel/InformationforRetirees

Chart 2: Funded Ratio

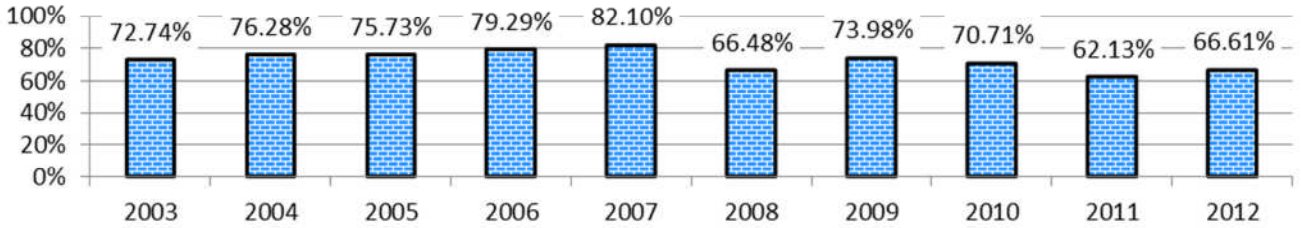


Chart 3: Actuarial Assets and Liabilities (millions)

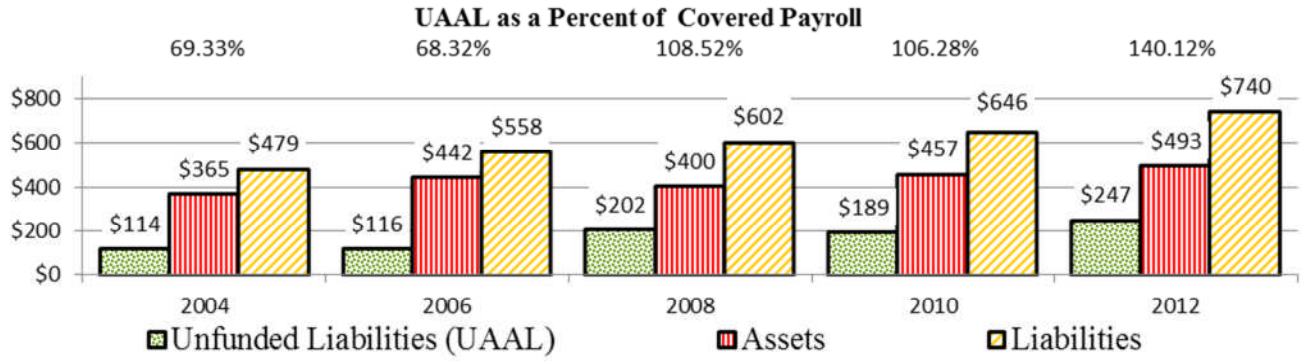


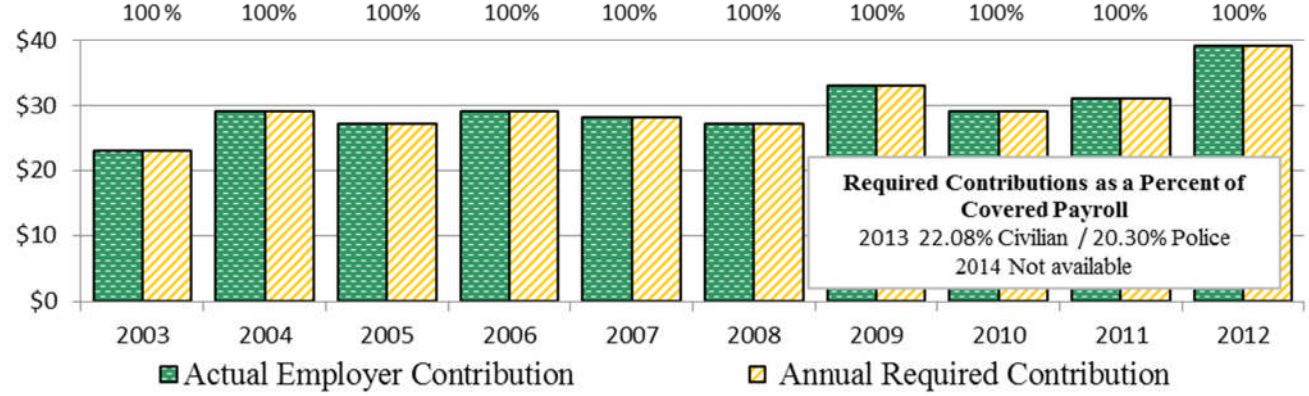
Chart 4: Employer Contributions - Required and Actual (millions)

Required Contributions as a Percent of Covered Payroll

Civilian	15.77%	16.05%	17.47%	17.47%	16.23%	15.19%	17.43%	15.82%	17.04%	21.14%
Police	17.21%	17.20%	17.20%	18.09%	18.09%	16.74%	18.38%	16.49%	18.44%	22.75%

Actual Contributions as a Percent of Required Contributions (combined Civilian and Police)

	100 %	100%	100%	100%	100%	100%	100%	100%	100%	100%



ST. LOUIS COUNTY EMPLOYEES' RETIREMENT PLAN
Year Ended December 31, 2012

Chart 5: Actual Employee Contributions

The plan's funding policy does not require employee contributions

Chart 6: Asset Allocation - Market Basis (millions)

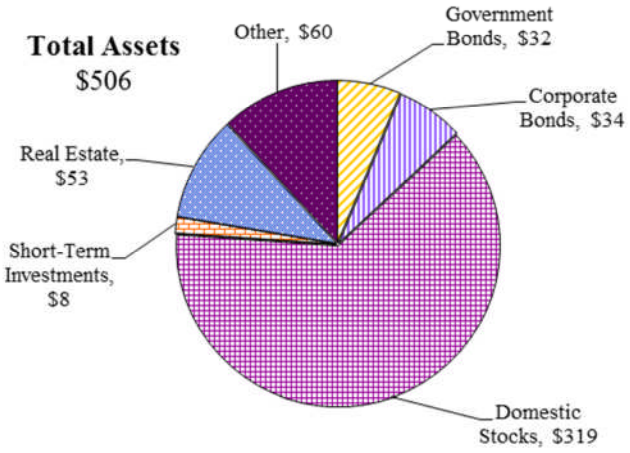


Chart 7: Investment Return - Actual, Smoothed, and Assumed

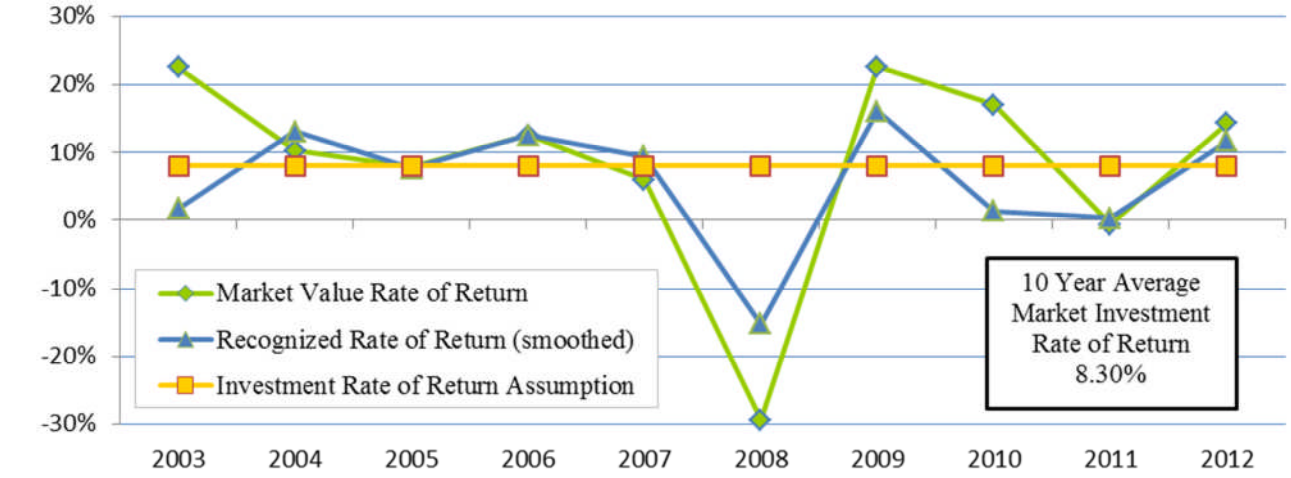
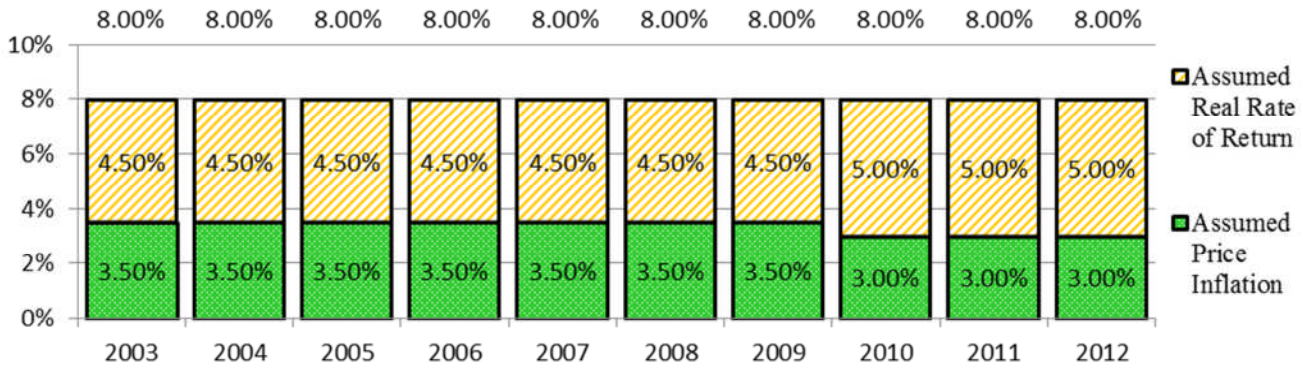


Chart 8: Actuarial Investment Rate of Return Assumptions



ST. LOUIS COUNTY EMPLOYEES' RETIREMENT PLAN
Year Ended December 31, 2012

Chart 9: Benefit and Employee Contribution Summary[1]		
Name of Tier or Group	**Plan A - Civilian**	**Plan B - Police**
Full Vesting: Years of Service	5	5
Normal Retirement Option 1	Age 65 with 3 years of service	Age 60 with 10 years of service
Normal Retirement Option 2	Age + Service = 80	Age + Service = 80
Basic Annual Benefit Formula including temporary benefit	1.5% x Monthly average of highest 3 consecutive years of salary (within the last 10 years) x Years of service Plus $15 for each year of service Benefit for lifetime of retiree	1.6% x Monthly average of highest 3 consecutive years of salary (within the last 10 years) x Years of service. Plus $30 for each year of service until the age of 65 then $5 for each year of service from age 65 on Benefit for lifetime of retiree
Guaranteed COLA	None	None
Required Member Contributions	None	None
Optional Member Contributions	Not available	Not available

[1]The benefit and contributions summary above does not include all provisions applicable to the plan. See the plan's web site for additional details.

Responses to Certain Survey Items:

1. What significant changes, if any, has the plan implemented since the recent economic decline to address the impact on the plan's financial condition?

The County uses a 30-year (was 15-year) amortization of unfunded accrued liability or 10-year amortization if the assets exceed the accrued liability, effective as of January 1, 2009.

2. If the funded ratio of your plan has changed significantly during the 10-year period, please provide the primary factors contributing to the funding level fluctuations.

Primarily investment earnings/losses.

3. Please list the primary reasons for significant changes in contribution rates for the last 5 years, if applicable. In addition, please provide any known or expected significant changes to contribution rates in future years.

A response was not provided.

ST. LOUIS EMPLOYEES' RETIREMENT SYSTEM
Year Ended September 30, 2012

Chart 1:

General Information

Statutory Authorization: Section 95.540, RSMo
Year Established: 1960
Covered Members: 11,913
Annual Covered Payroll: $224.8 million
Members also covered by Social Security: Yes
Trustees: 3 Members, 3 Non-members

Key Actuarial Assumptions

Investment Rate of Return: 8.0%
Wage Inflation: Varies by age from 3.50% to 7.017%.
Asset Valuation Method: 5-year smoothed
Actuarial Cost Method: Projected unit credit
Liability amortization period: 30-year, open

Web Site: http://stlouis-mo.gov/government/departments/employee-retirement/index.cfm

Chart 2: Funded Ratio

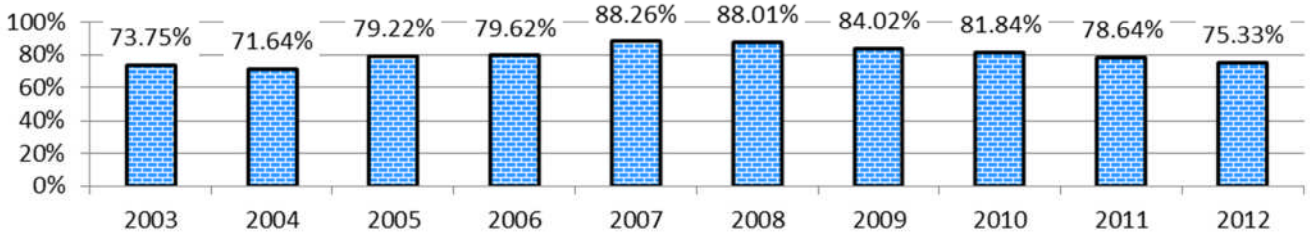


Chart 3: Actuarial Assets and Liabilities (millions)

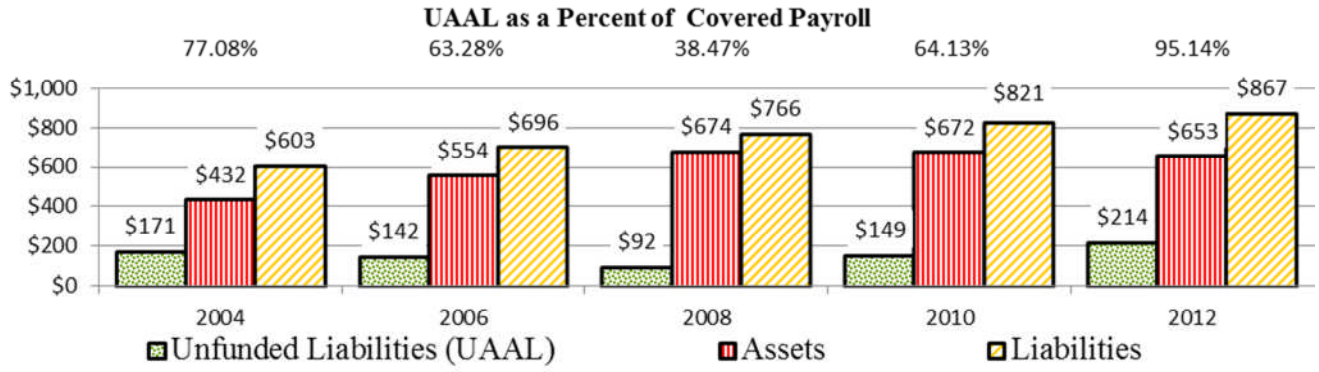
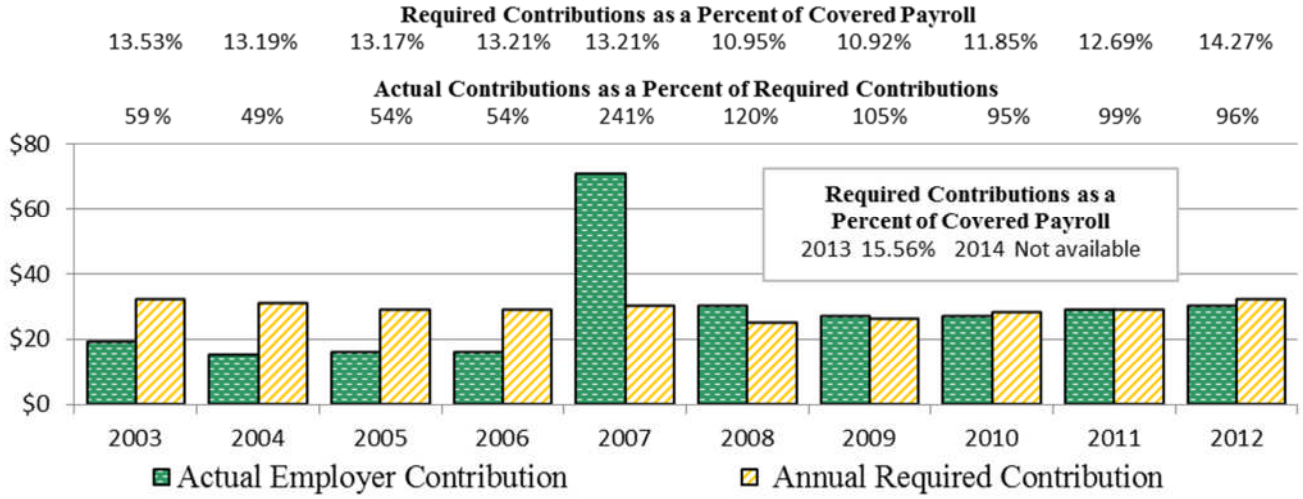


Chart 4: Employer Contributions - Required and Actual (millions)



ST. LOUIS EMPLOYEES' RETIREMENT SYSTEM
Year Ended September 30, 2012

Chart 5: Actual Employee Contributions

The plan's funding policy does not require employee contributions

Chart 6: Asset Allocation - Market Basis (millions)

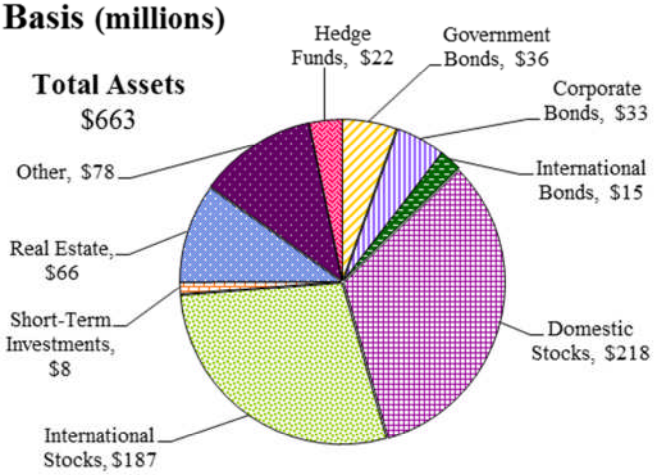


Chart 7: Investment Return - Actual, Smoothed, and Assumed

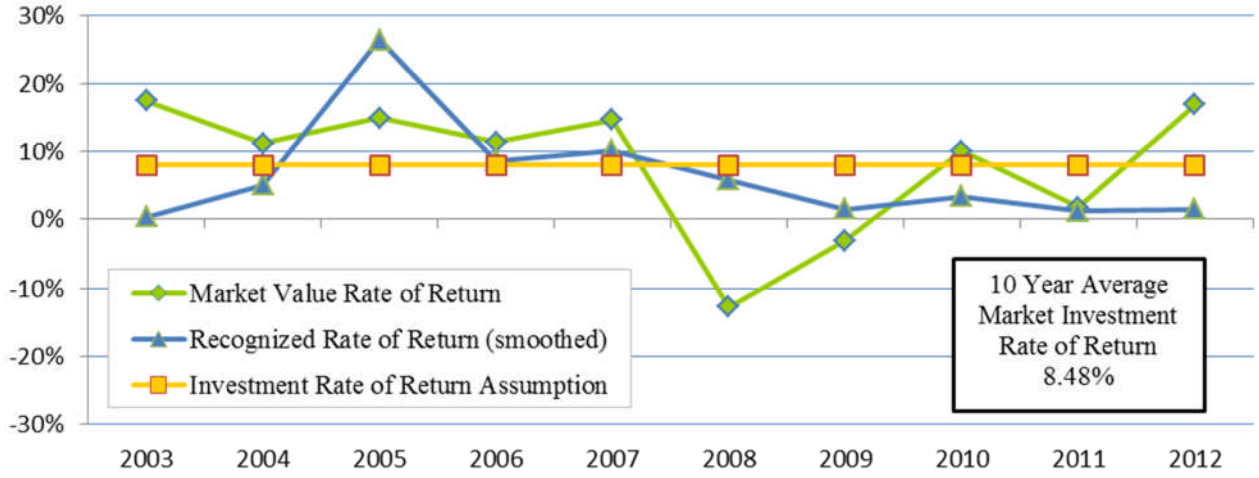


Chart 8: Actuarial Investment Rate of Return Assumptions

ST. LOUIS EMPLOYEES' RETIREMENT SYSTEM
Year Ended September 30, 2012

Chart 9: Benefit and Employee Contribution Summary[1]	
Full Vesting: Years of Service	5
Retirement Eligibility Option 1	Age 65 with 5 years of service
Retirement Eligibility Option 2	Age 60 with 5 years of service
Retirement Eligibility Option 3	Age 55 with 20 years of service
Retirement Eligibility Option 4	Any age with 30 years of service
Retirement Eligibility Option 5	Rule of 85 (no minimum age) where age plus credited service is greater than or equal to 85
Basic Annual Benefit Formula including temporary benefit	1.3% x the portion of Final Average Compensation up to the annual compensation with respect to which old age and survivor's insurance benefits would have been provided to the member by the Social Security Act at the termination of the member's employment plus 2.05% x the portion of Final Average Compensation which exceeds the annual compensation with respect to which old age and survivor's insurance benefits would have been provided to the member by the Social Security Act at the termination of the member's employment The sum of the two previous calculations is then multiplied by the member's Years of Creditable Service
Guaranteed COLA	Yes, subject to maximums
Required Member Contributions	None
Optional Member Contributions	Not available

[1] The benefit and contributions summary above does not include all provisions applicable to the plan. See the plan's web site for additional details.

Responses to Certain Survey Items:

1. What significant changes, if any, has the plan implemented since the recent economic decline to address the impact on the plan's financial condition?

A response was not provided.

2. If the funded ratio of your plan has changed significantly during the 10-year period, please provide the primary factors contributing to the funding level fluctuations.

A response was not provided.

3. Please list the primary reasons for significant changes in contribution rates for the last 5 years, if applicable. In addition, please provide any known or expected significant changes to contribution rates in future years.

A response was not provided.

ST. LOUIS PUBLIC SCHOOL RETIREMENT SYSTEM
Year Ended December 31, 2012

Chart 1:

General Information

Statutory Authorization: Section 169.410 to 169.540, RSMo
Year Established: 1944
Covered Members: 10,945
Annual Covered Payroll: $225.9 million
Members also covered by Social Security: Yes
Trustees: 7 Members, 4 Non-members

Key Actuarial Assumptions

Investment Rate of Return: 8.0%
Wage Inflation: 4.5%
Asset Valuation Method: Assumed yield method
Actuarial Cost Method: Frozen entry age
Liability amortization period: 30-year, closed

Web Site: http://www.psrsstl.org/

Chart 2: Funded Ratio

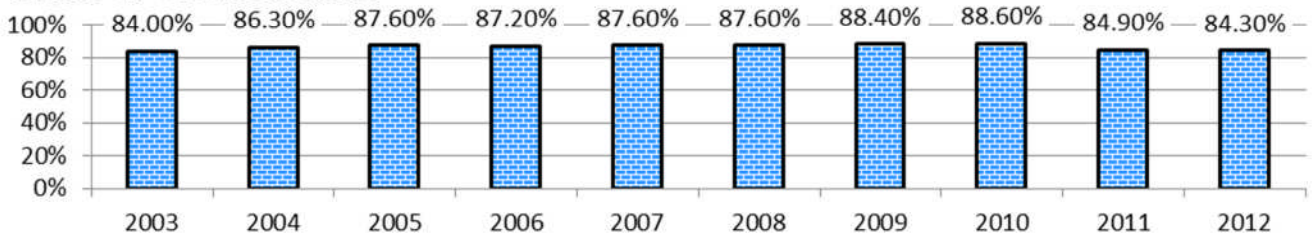


Chart 3: Actuarial Assets and Liabilities (millions)

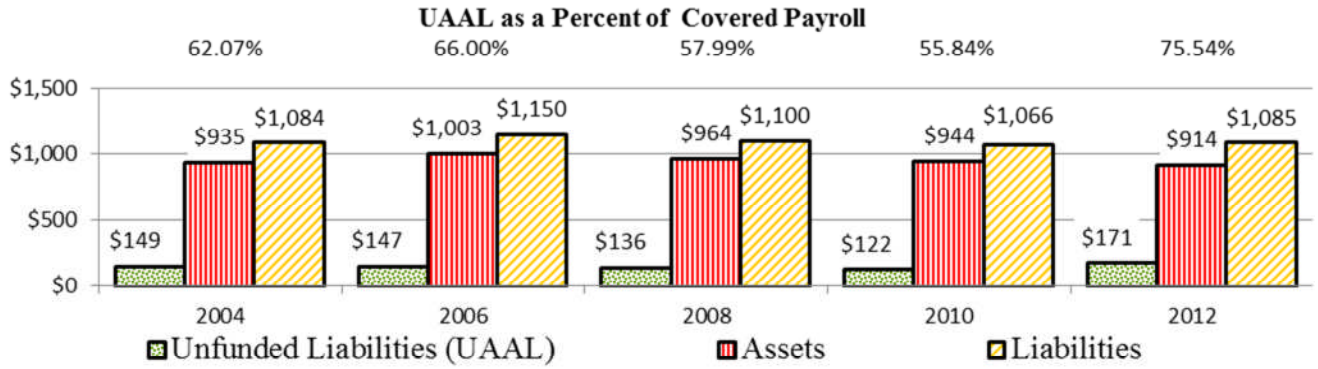
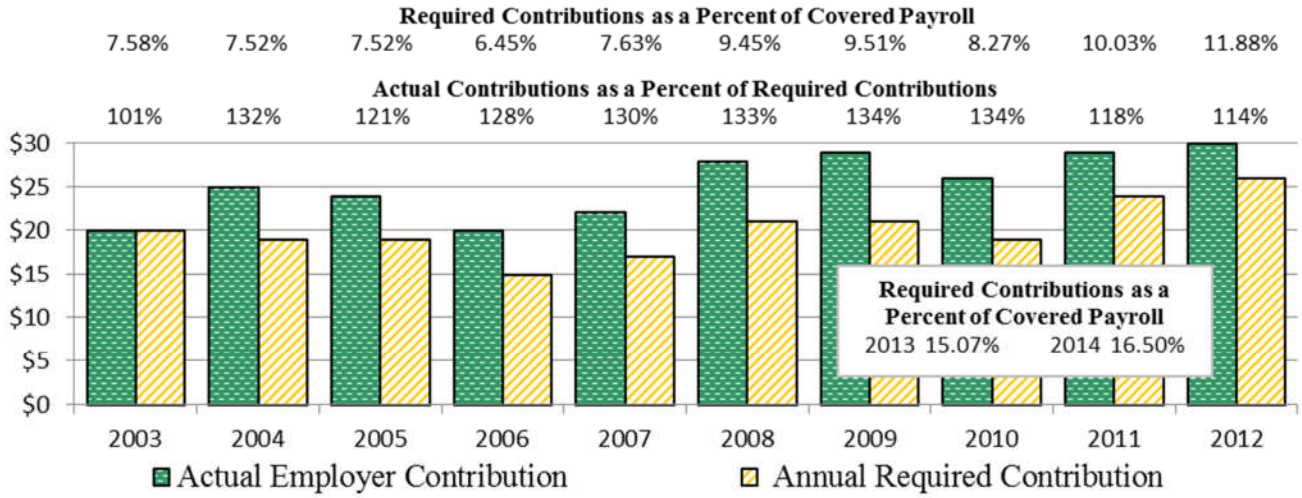


Chart 4: Employer Contributions - Required and Actual (millions)



ST. LOUIS PUBLIC SCHOOL RETIREMENT SYSTEM
Year Ended December 31, 2012

Chart 5: Actual Employee Contributions (millions)

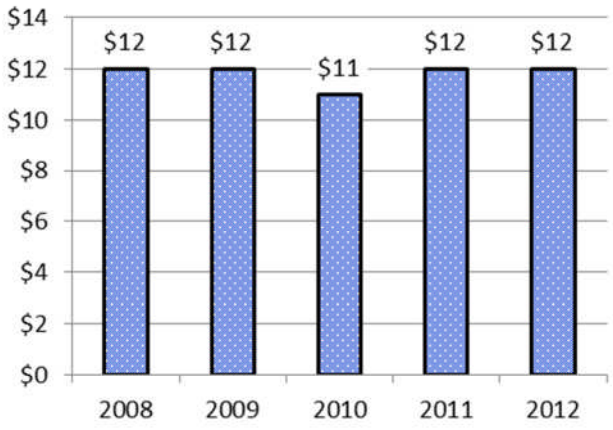


Chart 6: Asset Allocation - Market Basis (millions)

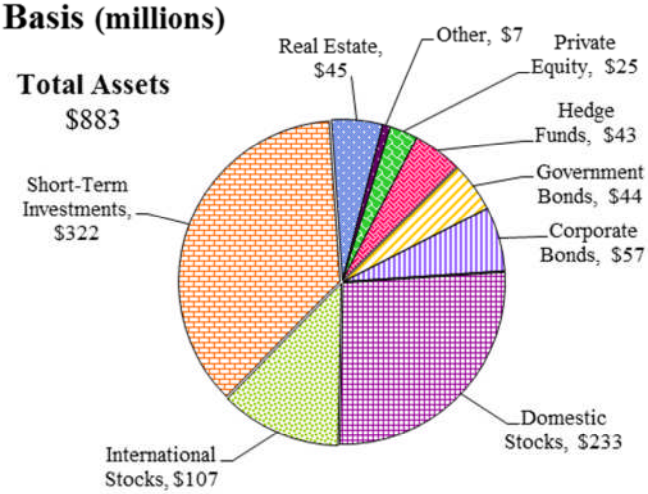


Chart 7: Investment Return - Actual, Smoothed, and Assumed

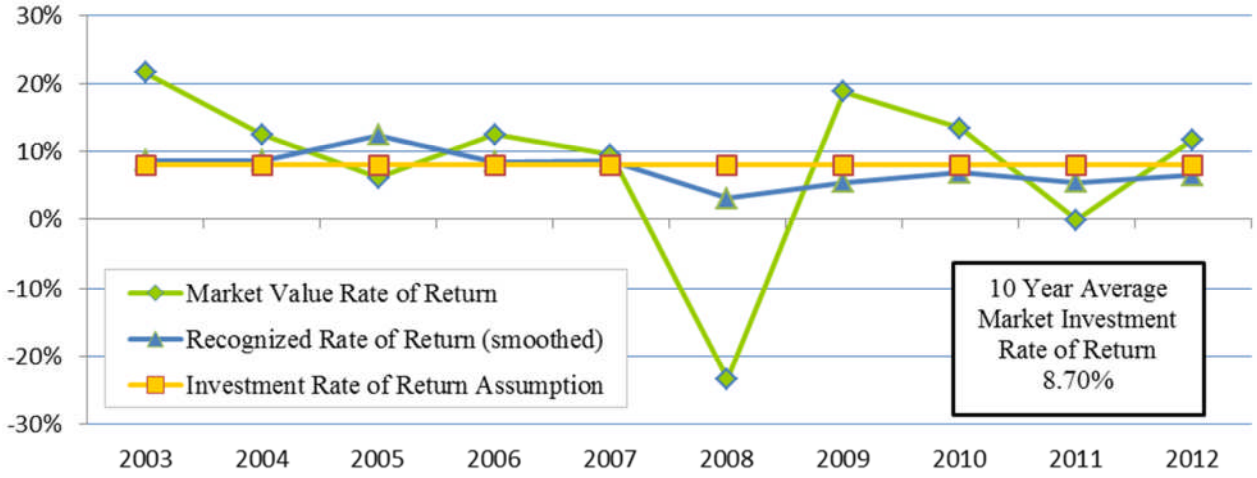
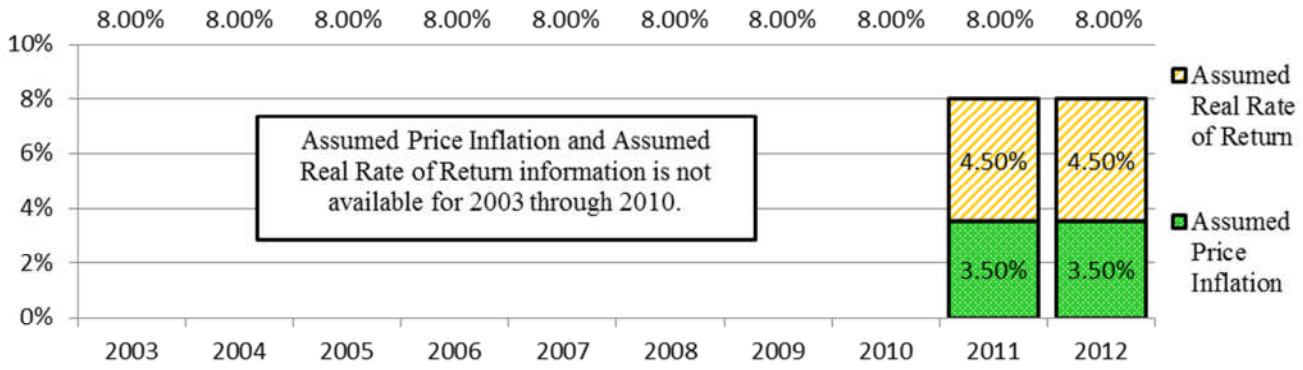


Chart 8: Actuarial Investment Rate of Return Assumptions



ST. LOUIS PUBLIC SCHOOL RETIREMENT SYSTEM
Year Ended December 31, 2012

Chart 9: Benefit and Employee Contribution Summary[1]	
Full Vesting: Years of Service	5 years or 65 years of age while still working
Normal Retirement Option 1	Age 65 with 5 years of service
Normal Retirement Option 2	Age 65 with less than 5 years of service while still working
Normal Retirement Option 3	"Rule of 85" where age plus credited service is greater than or equal to 85
Basic Annual Benefit Formula including temporary benefit	2.0% x highest 3-year average compensation out of last 10 years x years of credited service
Guaranteed COLA	None
Required Member Contributions	5% of payroll
Optional Member Contributions	Yes, subject to restrictions

[1] The benefit and contributions summary above does not include all provisions applicable to the plan. See the plan's web site for additional details.

Responses to Certain Survey Items:

1. What significant changes, if any, has the plan implemented since the recent economic decline to address the impact on the plan's financial condition?

Although not related or in response to economic conditions, the plan has changed actuarial assumptions by updating to the Internal Revenue Service (IRS) mortality tables & modifying the investment policy as needed.

2. If the funded ratio of your plan has changed significantly during the 10-year period, please provide the primary factors contributing to the funding level fluctuations.

The funding ratio under Governmental Accounting Standards Board No. 25 has remained fairly stable, and for 2013 is 84.3%.

3. Please list the primary reasons for significant changes in contribution rates for the last 5 years, if applicable. In addition, please provide any known or expected significant changes to contribution rates in future years.

The large increase for 2013 was primarily due to the change in actuarial assumptions or the update to the use of the more current IRS Mortality Tables & RP-2000 Disability Mortality Tables from the RP-2000 Health Lives Tables. No known significant changes to future contributions.

UNIVERSITY OF MISSOURI RETIREMENT, DISABILITY & DEATH BENEFIT PLAN
Year Ended September 30, 2012

Chart 1:

General Information

Statutory Authorization: Section 172.300, RSMo
Year Established: 1958
Covered Members: 29,840
Annual Covered Payroll: $1.046 billion
Members also covered by Social Security: Yes
Trustees: 9 Non-members

Key Actuarial Assumptions

Investment Rate of Return: 8.0%
Wage Inflation: 5.0%
Asset Valuation Method: 5-year smoothed
Actuarial Cost Method: Entry age normal
Liability amortization period: 20-year, open

Web Site: http://www.umsystem.edu/totalrewards/retirement

Chart 2: Funded Ratio

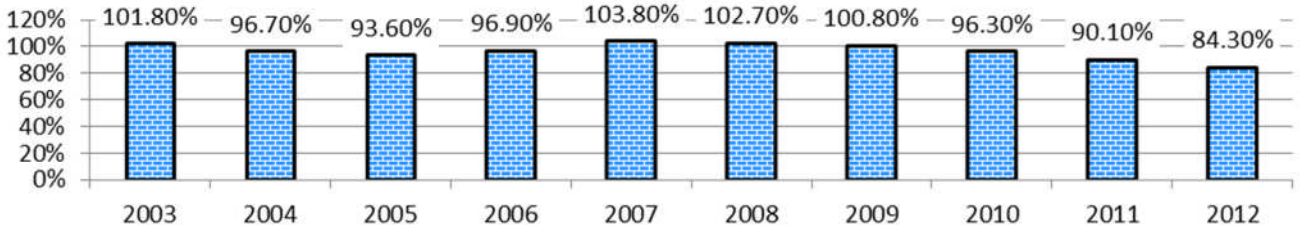


Chart 3: Actuarial Assets and Liabilities (millions)

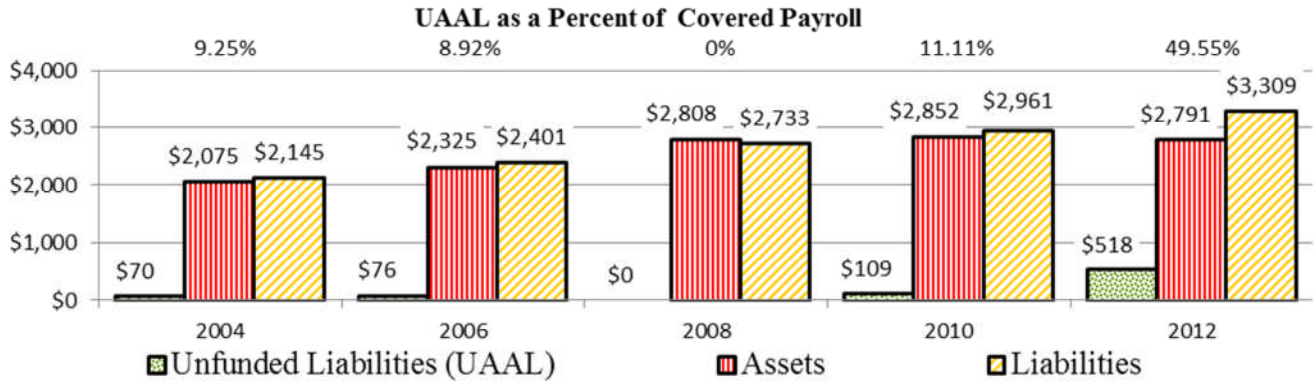
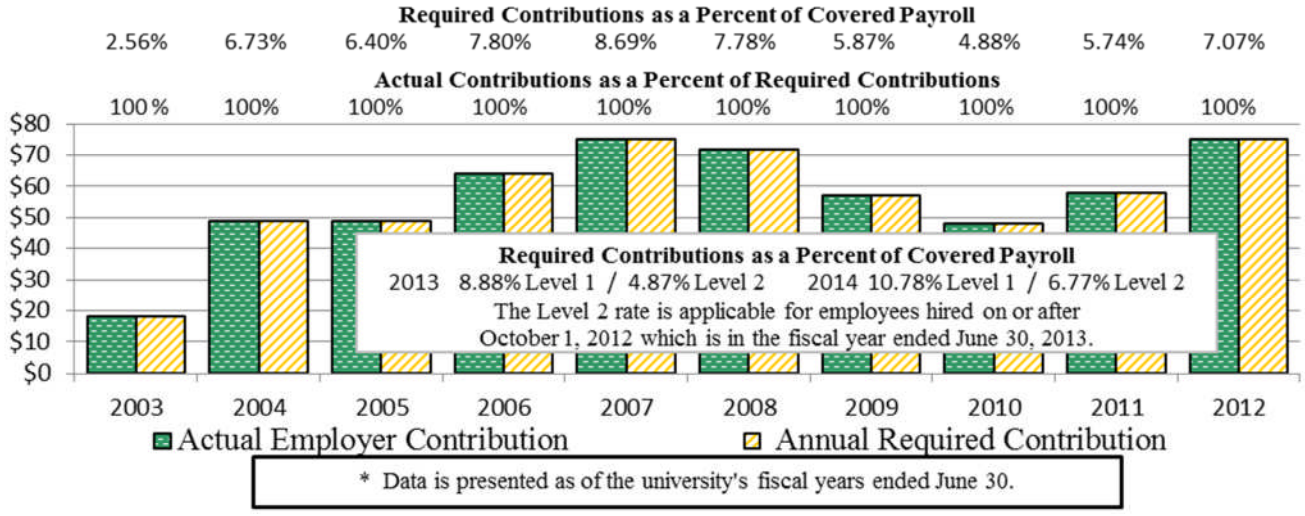


Chart 4: Employer Contributions * - Required and Actual (millions)



UNIVERSITY OF MISSOURI RETIREMENT, DISABILITY & DEATH BENEFIT PLAN
Year Ended September 30, 2012

Chart 5: Actual Employee Contributions * (millions)

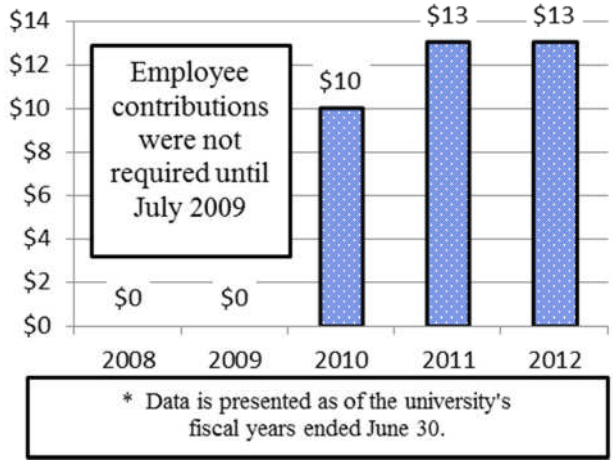


Chart 6: Asset Allocation - Market Basis (millions)

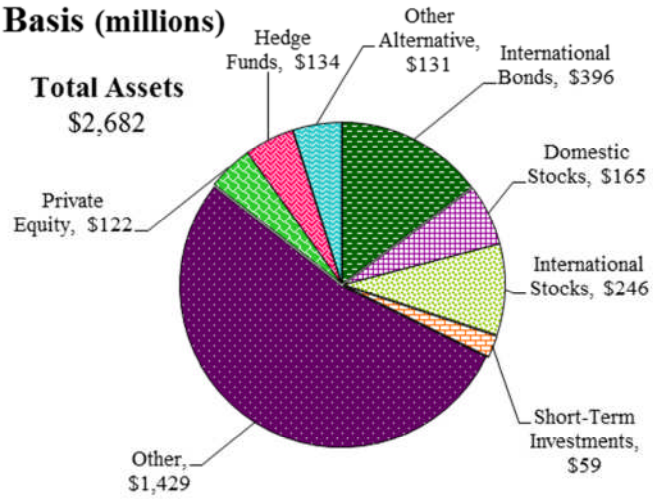


Chart 7: Investment Return - Actual, Smoothed, and Assumed

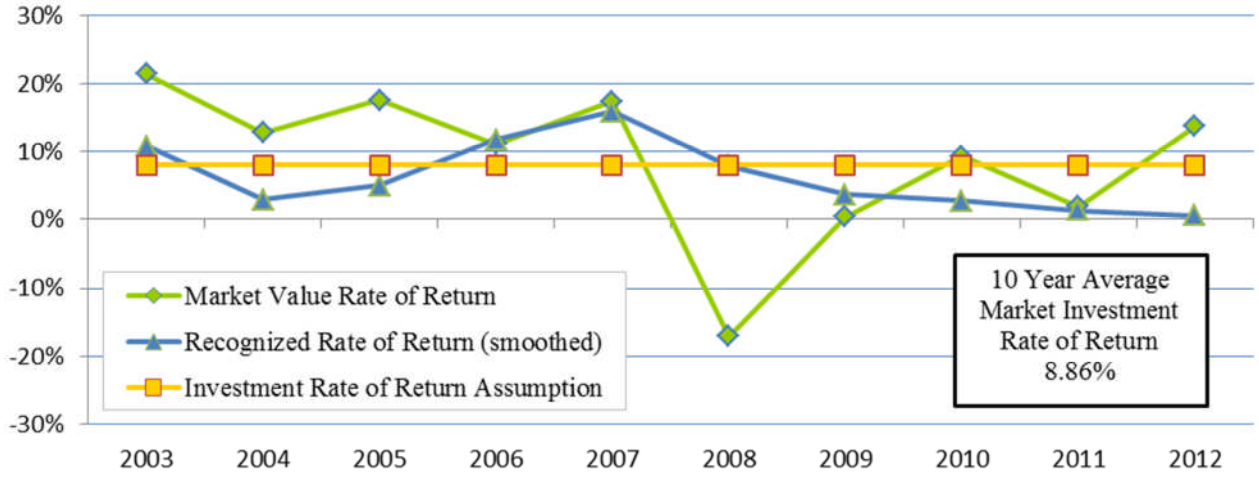
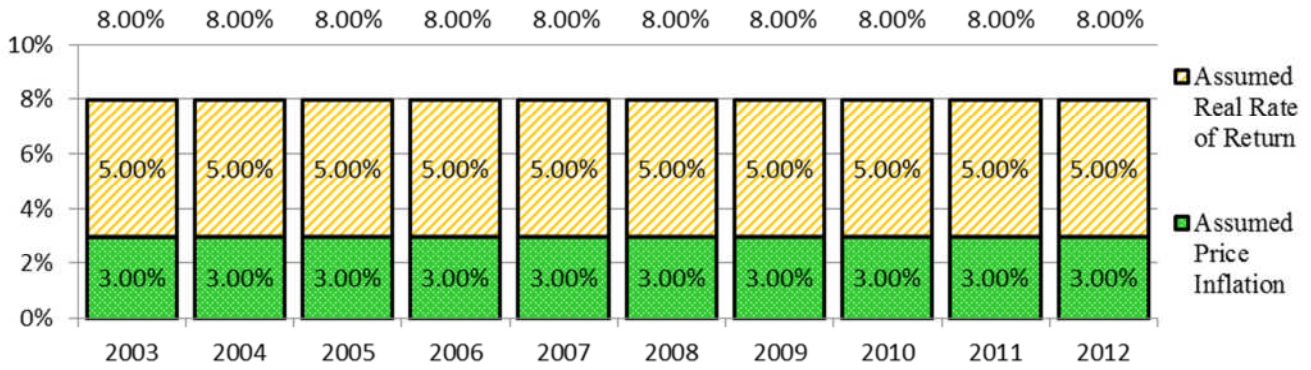


Chart 8: Actuarial Investment Rate of Return Assumptions



UNIVERSITY OF MISSOURI RETIREMENT, DISABILITY & DEATH BENEFIT PLAN
Year Ended September 30, 2012

Chart 9: Benefit and Employee Contribution Summary[1]		
Name of Level or Group	**Level 1 (hired before 10/1/2012)**	**Level 2 (hired after 10/1/2012)**
Full Vesting: Years of Service	5	5
Normal Retirement Option 1	Age 65 with 5 years of service	Age 65 with 5 years of service
Normal Retirement Option 2	Age 62 with 25 years of service	Age 62 with 25 years of service
Early Retirement Option 3	Age 55 with 10 years of service	Age 55 with 10 years of service
Basic Annual Benefit Formula including temporary benefit	2.2% x Final 5-year average base salary x years of credited service	1.0% x Final 5-year average base salary x years of credited service
Guaranteed COLA	None	None
Required Member Contributions	1.0% x salary up to $50,000 plus 2.0% of salary in excess of $50,000	1.0% x salary up to $50,000 plus 2.0% of salary in excess of $50,000
Optional Member Contributions	Not available	Not available

[1] The benefit and contributions summary above does not include all provisions applicable to the plan. See the plan's web site for additional details.

Responses to Certain Survey Items:

1. What significant changes, if any, has the plan implemented since the recent economic decline to address the impact on the plan's financial condition?

- Employee required contributions were added to the Plan in 2009
- A new Level (Level 2) for employees hired on or after October 1, 2012 was adopted which among other changes reduced annual benefit accruals from 2.2% to 1.0% of salary. To offset the reduction in the Defined Benefit plan, a Defined Contribution plan was created with a 2% base employer contribution and a 100% match up to 3%. Employees hired October 1, 2012 or after have both benefits.
- No ad hoc retiree increases since 2007
- The President of the University of Missouri System has appointed a special Benefits Task Force to study current retirement plan options, among other items. Evaluation regarding future options has not begun.

2. If the funded ratio of your plan has changed significantly during the 10-year period, please provide the primary factors contributing to the funding level fluctuations.

Reduction in funded ratio was the result of the investment market declines of 2008/2009

3. Please list the primary reasons for significant changes in contribution rates for the last 5 years, if applicable. In addition, please provide any known or expected significant changes to contribution rates in future years.

Increase in contribution rates over the last 5 years is the result of the market declines of 2008/2009. A complete review of actuarial assumptions was recently completed, with recommendations submitted to the Board of Curators for consideration. The University is also studying the impact of GASB Statement No. 67, *Financial Reporting for Pension Plans*, and GASB Statement No. 68, *Accounting and Financial Reporting for Pensions* – both of which will be implemented by the University at June 30, 2014. It is unknown at this time what impact these items may have on contribution rates in future years.

Missouri Public Employee Defined Benefit Retirement Plans - Abbreviated Key Plan Data Reported to the JCPER
Plan Years Ended January 1, 2011 to December 31, 2011 (unless otherwise noted)

This appendix presents certain key financial and actuarial data reported to the JCPER for all 89 Missouri public employee defined benefit plans, including funded ratios for certain plan years during the 10-year period 2003 through 2012; percentage of ARC paid for plan years 2010 and 2012; and the number of covered members, actuarial assets, unfunded liabilities, and assumed investment rate of return for plan year 2011. The 15 selected largest/statewide plans are listed first, followed by the 74 remaining plans. Additional data for each plan is presented in Appendix C.

Plan year 2011 data was the most current data available for all plans at the time of our initial data collection, thus certain data is presented as of that plan year. Once plan year 2012 data became available, certain limited data for that plan year was downloaded and included in this appendix.

The data presented in this appendix was reported to the JCPER by each of the plans. This data was not subjected to audit procedures, and could contain some inaccurate and/or incomplete data as some limitations with that data were identified in our survey.

Plan Years Ended January 1, 2011 to December 31, 2011 (unless otherwise noted)

Retirement Plan	Funded Ratio 2012	2011	2009	2007	2005	2003	Covered Members	Actuarial Assets	Unfunded Actuarial Liabilities	Assumed Investment Rate of Return	Plan Year 2012 Percentage of ARC Paid	Plan Year 2010 Percentage of ARC Paid
15 Selected Large/Statewide Plans												
Public School Retirement System	82%	86%	80%	84%	83%	81%	140,164	$29,387,487,000	$4,995,944,000	8.00%	86%	90%
Missouri State Employees' Retirement System - MSEP	73%	79%	83%	87%	85%	91%	104,687	$8,022,481,000	$2,101,063,000	8.50%	100%	100%
Public Education Employees' Retirement System	83%	85%	81%	83%	83%	82%	97,257	$3,028,757,000	$520,591,000	8.00%	100%	96%
Local Government Employees Retirement System	84%	82%	80%	96%	95%	96%	49,230	$3,945,086,000	$892,337,000	7.25%	100%	100%
University of Missouri Retirement, Disability & Death Benefit Plan	84%	90%	101%	104%	94%	102%	29,459	$2,828,697,000	$309,493,000	8.00%	100%	100%
Missouri Department of Transportation & Highway Patrol Employees' Retirement System	46%	43%	47%	58%	54%	56%	17,869	$1,427,291,000	$1,870,299,000	8.25%	100%	100%
County Employees Retirement Fund Ⓐ	69%	70%	68%	83%	73%	67%	16,127	$318,320,000	$134,046,000	8.00%	114%	104%
St. Louis Employees Retirement System	75%	79%	84%	88%	79%	74%	11,797	$661,932,000	$179,831,000	8.00%	96%	95%
St. Louis Public School Retirement System	84%	85%	88%	88%	88%	84%	11,287	$925,390,000	$164,929,000	8.00%	114%	134%
Kansas City Public School Retirement System	80%	85%	99%	109%	101%	103%	9,682	$742,280,000	$132,007,000	8.00%	68%	171%
St. Louis County Employees Retirement Plan	67%	62%	74%	82%	76%	73%	7,537	$446,678,000	$272,262,000	8.00%	100%	100%
Kansas City Employees' Retirement System	79%	80%	73%	97%	83%	88%	5,639	$806,792,000	$204,204,000	7.50%	78%	65%
Missouri State Employees' Retirement System - Judicial Plan	25%	25%	22%	19%	15%	13%	930	$98,399,000	$295,086,000	8.50%	100%	100%
Sheriff's Retirement System	91%	90%	96%	109%	103%	101%	282	$31,010,000	$3,293,000	7.50%	93%	97%
Prosecuting Attorneys' & Circuit Attorneys' Retirement System	86%	99%	94%	94%	90%	80%	191	$28,650,000	$372,000	7.50%	144%	134%

See footnote descriptions on page 114

Plan Years Ended January 1, 2011 to December 31, 2011 (unless otherwise noted)

Retirement Plan	Funded Ratio 2012	2011	2009	2007	2005	2003	Covered Members	Actuarial Assets	Unfunded Actuarial Liabilities	Assumed Investment Rate of Return	Plan Year 2012 Percentage of ARC Paid	Plan Year 2010 Percentage of ARC Paid
74 Remaining Plans												
Affton Fire Protection District Retirement Plan	65%	53%	52%	64%	61%	64%	52	$4,931,000	$4,298,000	7.50%	296%	74%
Antonia Fire Protection District Pension Plan	66%	67%	57%	60%	95%	60%	21	$1,261,000	$617,000	6.25%	100%	100%
Arnold Police Pension Plan	98%	94%	81%	100%	100%	107%	50	$6,481,000	$448,000	6.50%	116%	118%
Berkeley Police & Fire Pension Fund	66%	64%	78%	103%	100%	100%	121	$10,862,000	$6,152,000	7.50%	18%	27%
Bi-State Development Agency Division 788, A.T.U.	52%	53%	61%	64%	65%	65%	2,341	$91,133,000	$79,305,000	7.25%	100%	100%
Bi-state Development Agency Local 2 I.B.E.W.	74%	71%	71%	63%	51%	73%	67	$1,897,000	$759,000	7.25%	100%	100%
Bi-state Division 788 Clerical Unit A.T.U.	46%	49%	60%	68%	71%	84%	117	$5,514,000	$5,688,000	7.25%	82%	100%
Bi-state Salaried Employees	76%	80%	102%	104%	101%	100%	948	$47,128,000	$11,446,000	7.50%	95%	100%
Black Jack Fire Protection District Retirement Plan	77%	66%	65%	77%	62%	54%	46	$7,509,000	$3,902,000	7.00%	173%	113%
Bothwell Regional Health Center Retirement Plan	89%	86%	83%	87%	86%	81%	972	$38,730,000	$6,427,000	8.00%	100%	115%
Brentwood Police & Firemen's Retirement Fund	79%	82%	85%	94%	100%	97%	77	$24,871,000	$5,449,000	7.50%	92%	120%
Bridgeton Employees Retirement Plan	62%	61%	71%	82%	79%	100%	262	$21,771,000	$13,838,000	7.50%	57%	64%
Carthage Policemen's & Firemen's Pension Plan	79%	83%	88%	96%	96%	101%	91	$6,380,000	$1,347,000	8.00%	91%	103%
Cedar Hill Fire Protection District Length of Service Awards Program	10%	76%	72%	65%	46%	Ⓑ	31	$120,000	$37,000	4.75%	153%	106%
Clayton Non-Uniformed Employee Pension Plan	79%	87%	92%	101%	102%	109%	149	$10,815,000	$1,617,000	7.00%	103%	46%

See footnote descriptions on page 114

Plan Years Ended January 1, 2011 to December 31, 2011 (unless otherwise noted)

Retirement Plan	Funded Ratio 2012	2011	2009	2007	2005	2003	Covered Members	Actuarial Assets	Unfunded Actuarial Liabilities	Assumed Investment Rate of Return	Plan Year 2012 Percentage of ARC Paid	Plan Year 2010 Percentage of ARC Paid
Clayton Uniformed Employees Pension Plan	85%	81%	77%	92%	83%	77%	152	$28,919,000	$6,602,000	7.00%	100%	100%
Columbia Firemens' Retirement Plan	54%	53%	61%	66%	64%	69%	255	$53,951,000	$47,388,000	7.50%	100%	100%
Columbia Police Retirement Plan	54%	53%	63%	67%	64%	64%	293	$36,776,000	$32,487,000	7.50%	100%	100%
Community Fire Protection District Retirement Plan	98%	92%	104%	©	©	©	61	$14,712,000	$1,343,000	7.00%	145%	178%
Creve Coeur Employees Retirement Plan	67%	63%	75%	90%	84%	80%	153	$15,103,000	$9,047,000	7.50%	104%	105%
Creve Coeur Fire Protection District Retirement Plan	85%	76%	72%	81%	57%	44%	85	$7,306,000	$2,277,000	7.50%	100%	100%
Eureka Fire Protection District Retirement Plan	79%	77%	83%	106%	98%	89%	53	$7,034,000	$2,111,000	7.00%	51%	50%
Fenton Fire Protection District Retirement Plan	83%	86%	85%	99%	100%	96%	81	$23,551,000	$3,859,000	7.50%	72%	90%
Ferguson Pension Plan	100%	101%	107%	120%	100%	100%	237	$20,798,000	$0	7.50%	100%	100%
Florissant Employees Pension Plan	73%	83%	78%	79%	71%	66%	74	$9,867,000	$2,044,000	7.50%	129%	126%
Florissant Valley Fire Protection District Retirement Plan	96%	90%	83%	84%	56%	41%	72	$16,247,000	$1,903,000	6.75%	404%	255%
Glendale Pension Plan	72%	73%	74%	86%	100%	100%	45	$4,792,000	$1,738,000	7.50%	43%	43%
Hannibal Police & Fire Retirement Plan	49%	48%	37%	53%	55%	60%	138	$10,829,000	$11,674,000	7.50%	125%	80%
Hazelwood City Council Members Retirement Plan	100%	100%	NR	NR	NR	NR	19	$96,000	$0	7.50%	0%	0%
Hazelwood Retirement Plan	85%	79%	92%	89%	86%	84%	273	$23,793,000	$6,452,000	7.50%	122%	105%
High Ridge Fire Protection District Pension Plan	87%	87%	81%	NR	NR	NR	41	$5,732,000	$877,000	7.50%	111%	108%

See footnote descriptions on page 114

Plan Years Ended January 1, 2011 to December 31, 2011 (unless otherwise noted)

Retirement Plan	Funded Ratio 2012	2011	2009	2007	2005	2003	Covered Members	Actuarial Assets	Unfunded Actuarial Liabilities	Assumed Investment Rate of Return	Plan Year 2012 Percentage of ARC Paid	Plan Year 2010 Percentage of ARC Paid
Jackson County Employees Pension Plan	84%	78%	81%	71%	69%	79%	3,421	$165,356,000	$45,349,000	7.00%	100.00%	108%
Jefferson City Firemen's Retirement System	101%	104%	57%	69%	64%	75%	61	$18,197,000	$0	6.00%	Ⓓ	100%
Jennings Police & Firemen's Retirement Fund	72%	74%	75%	76%	76%	77%	47	$5,984,000	$2,050,000	6.00%	97%	100%
Joplin Police & Fire Pension Plan	54%	53%	55%	58%	59%	59%	326	$27,464,000	$24,032,000	7.00%	112%	81%
Kansas City Area Transportation Authority Salaried Employees Pension Plan	82%	80%	77%	77%	72%	84%	154	$13,314,000	$3,250,000	7.50%	102%	101%
Kansas City Civilian Police Employees' Retirement System	76%	75%	69%	81%	75%	82%	763	$102,523,000	$34,518,000	7.75%	64%	83%
Kansas City Firefighter's Pension System	79%	82%	70%	92%	85%	82%	1,802	$432,541,000	$95,940,000	7.75%	91%	61%
Kansas City Police Retirement System	76%	76%	72%	86%	82%	90%	2,613	$715,764,000	$224,845,000	7.75%	52%	70%
Kansas City Transportation Authority Union Employees Pension Plan	69%	65%	59%	71%	71%	75%	806	$36,766,000	$19,977,000	7.50%	89%	87%
Ladue Non-Uniformed Employees Retirement System	82%	82%	88%	88%	100%	100%	43	$3,501,000	$763,000	7.50%	100%	162%
Ladue Police & Fire Pension Plan	64%	70%	72%	70%	67%	74%	112	$22,950,000	$9,909,000	7.50%	100%	155%
Little River Drainage District Retirement Plan	99%	94%	40%	42%	60%	65%	14	$872,000	$53,000	5.00%	733%	986%
Local Government Employees Retirement System Staff	87%	84%	73%	90%	80%	64%	30	$5,641,000	$1,075,000	7.25%	269%	100%
Maplewood Police & Fire Retirement Fund	164%	167%	65%	90%	93%	88%	24	$12,070,000	$0	7.00%	Ⓓ	86%
Mehlville Fire Protection District Retirement Plan	44%	58%	89%	86%	88%	89%	32	$7,787,000	$5,587,000	5.00%	0%	0%
Metro North Fire Protection District Retirement Plan	126%	136%	Ⓔ	Ⓔ	Ⓔ	Ⓔ	15	$559,000	$0	7.00%	122%	Ⓔ

See footnote descriptions on page 114

Plan Years Ended January 1, 2011 to December 31, 2011 (unless otherwise noted)

Retirement Plan	Funded Ratio 2012	2011	2009	2007	2005	2003	Covered Members	Actuarial Assets	Unfunded Actuarial Liabilities	Assumed Investment Rate of Return	Plan Year 2012 Percentage of ARC Paid	Plan Year 2010 Percentage of ARC Paid
Metro St. Louis Sewer District Employees Pension Plan	83%	81%	83%	95%	89%	84%	1,617	$205,792,000	$49,205,000	7.25%	100%	100%
Metro West Fire Protection District Retirement Plan	73%	70%	66%	79%	69%	66%	149	$33,453,000	$14,408,000	7.00%	109%	92%
Mid-County Fire Protection District Retirement Plan	91%	96%	88%	81%	72%	52%	23	$1,753,000	$78,000	7.00%	131%	277%
Missouri Higher Education Loan Authority Pension Plan	100%	110%	90%	98%	NR	NR	217	$26,964,000	$0	7.00%	100%	100%
North Kansas City Hospital Retirement Plan	103%	96%	95%	91%	100%	NR	3,726	$192,634,000	$7,736,000	7.50%	119%	58%
North Kansas City Policemen's & Firemen's Retirement Fund	86%	78%	83%	89%	97%	100%	164	$34,604,000	$9,837,000	6.50%	59%	73%
Olivette Salaried Employees' Retirement Plan	73%	69%	66%	104%	96%	100%	116	$15,737,000	$7,109,000	7.25%	72%	81%
Overland Non-Uniform Pension Fund	85%	88%	88%	100%	93%	92%	112	$9,634,000	$1,329,000	7.50%	130%	69%
Overland Police Retirement Fund	66%	78%	82%	100%	100%	100%	82	$14,264,000	$3,999,000	7.50%	39%	46%
Pattonville-Bridgeton Fire Protection District Retirement Plan	76%	73%	77%	84%	84%	72%	89	$21,436,000	$7,884,000	7.75%	64%	95%
Poplar Bluff Police & Fire Pension Plan	100%	100%	100%	100%	100%	100%	136	$11,021,000	$0	6.25%	57%	128%
Raytown Policemen's Retirement Fund	55%	54%	53%	69%	68%	81%	79	$8,765,000	$7,561,000	7.50%	101%	83%
Richmond Heights Police & Fire Retirement Plan	109%	98%	113%	107%	103%	108%	97	$32,328,000	$505,000	7.50%	96%	148%
Rock Community Fire Protection District Retirement Plan	82%	85%	73%	75%	71%	68%	85	$9,435,000	$1,727,000	7.50%	98%	81%
Rock Hill Police & Firemen's Pension Plan	48%	42%	42%	43%	72%	100%	30	$1,420,000	$1,999,000	6.00%	72%	48%
Saline Valley Fire Protection District Retirement Plan	79%	68%	55%	Ⓕ	Ⓕ	Ⓕ	40	$1,033,000	$490,000	7.00%	162%	148%

See footnote descriptions on page 114

Plan Years Ended January 1, 2011 to December 31, 2011 (unless otherwise noted)

Retirement Plan	Funded Ratio 2012	2011	2009	2007	2005	2003	Covered Members	Actuarial Assets	Unfunded Actuarial Liabilities	Assumed Investment Rate of Return	Plan Year 2012 Percentage of ARC Paid	Plan Year 2010 Percentage of ARC Paid
Sedalia Firemen's Retirement Fund	74%	75%	63%	83%	73%	71%	80	$6,436,000	$2,110,000	7.00%	111%	89%
Sedalia Police Retirement Fund	40%	45%	39%	67%	67%	66%	76	$3,448,000	$4,273,000	7.50%	64%	36%
Springfield Police & Fire Retirement Fund	59%	54%	46%	50%	52%	66%	891	$183,460,000	$156,703,000	7.50%	171%	243%
St. Joseph Policemen's Pension Fund	73%	67%	62%	71%	59%	49%	206	$27,093,000	$13,174,000	7.50%	104%	104%
St. Louis County Library District Employees Pension Plan	87%	89%	105%	100%	100%	100%	654	$33,529,000	$4,005,000	7.50%	100%	71%
St. Louis Firemen's Retirement System	94%	94%	92%	93%	91%	91%	1,686	$404,101,000	$26,654,000	7.62%	65%	100%
St. Louis Police Retirement System	78%	81%	91%	97%	100%	88%	3,267	$695,422,000	$160,196,000	7.75%	129%	116%
University City Non-Uniformed Retirement Plan	78%	77%	80%	87%	94%	101%	225	$17,115,000	$5,000,000	6.50%	84%	100%
University City Police & Fire Retirement Fund	80%	85%	92%	106%	111%	136%	214	$26,498,000	$4,729,000	6.50%	95%	134%
Valley Park Fire Protection District Retirement Plan	94%	85%	84%	99%	96%	93%	32	$3,166,000	$556,000	7.50%	26%	80%
Warrenton Fire Protection District Length of Service Awards Program	69%	69%	NR	NR	NR	©	33	$136,000	$62,000	4.50%	188%	100%
Statewide Totals							533,904	$56,850,125,000	$13,305,566,000			
Statewide Aggregate Funded Ratio	78%	81%	79%	85%	83%	83%						

See footnote descriptions on page 114

Plan Years Ended January 1, 2011 to December 31, 2011 (unless otherwise noted)

NR - Data was not reported to JCPER by the plan.

Ⓐ Plan changed actuarial valuation dates in 2007. Actuarial projections for 2003 through 2007 are based on valuations as of January 1 of the respective year. Actuarial projections for 2008 through 2012 are based on valuations as of July 1 of the preceding year.

Ⓑ Plan established in 2003.

Ⓒ Plan converted from a defined contribution to a defined benefit plan in 2009.

Ⓓ No ARC required.

Ⓔ Plan did not offer a defined benefit component until 2010. Actuarial valuation calculations are first available for plan year 2011.

Ⓕ Plan established in 2008.

Ⓖ Plan established in 2004.

Missouri Public Employee Defined Benefit Retirement Plans - Key Plan Data Reported to the JCPER
Plan Years Ended January 1, 2011 to December 31, 2011 (unless otherwise noted)

This appendix presents expanded key financial and actuarial data reported to the JCPER for all 89 Missouri public employee defined benefit plans, including general information, asset/liability information, key actuarial assumptions, and contribution information for certain plan years during the period 2002 through 2012. Plan year 2011 data was the most current data available for all plans at the time of our initial data collection, thus most data is presented as of that plan year. Once plan year 2012 data became available, certain limited data for that plan year was downloaded and included in this appendix.

The data presented in this appendix was reported to the JCPER by each of the plans. This data was not subjected to audit procedures, and could contain some inaccurate and/or incomplete data as some limitations with that data were identified in our survey. The appendix provides certain key elements of each plan. Complete financial information can be obtained from the plans.

GENERAL INFORMATION					
Plan Name	**Affton Fire Protection District Retirement Plan**	**Antonia Fire Protection District Pension Plan**	**Arnold Police Pension Plan**	**Berkeley Police & Fire Pension Fund**	**Bi-State Development Agency Division 788, A.T.U.**
Year Established	1987	1986	1978	1960	1976
Created by	Section 321.600, RSMo	Section 105.675, RSMo	Section 86.583, RSMo	Local Legislation	Section 70.370, RSMo
Member/Non-Member Trustees	2 / 3	2 / 3	Ⓐ	2 / 4	3 / 3
Covered Members	52	21	50	121	2,341
Annual Covered Payroll	$2,194,000	$696,000	$2,095,000	$3,130,000	$54,299,000
Social Security Coverage	Yes	Yes	Yes	Yes	Yes
Funded Ratio	53.43%	67.14%	93.53%	63.84%	53.47%
2002 Funded Ratio Ⓑ	58.95%	62.64%	105.80%	100.00%	70.33%
ASSET/LIABILITY INFORMATION					
Market Value of Investments	$4,529,000	$1,340,000	$6,481,000	$11,971,000	$91,396,000
Actuarial Value of Assets	$4,931,000	$1,261,000	$6,481,000	$10,862,000	$91,133,000
Actuarial Value of Accrued Liabilities	$9,229,000	$1,878,000	$6,929,000	$17,014,000	$170,438,000
Unfunded Liabilities (UAAL)	$4,298,000	$617,000	$448,000	$6,152,000	$79,305,000
UAAL as a Percent of Covered Payroll	195.92%	88.67%	21.40%	196.57%	146.05%
2002 UAAL as a Percent of Covered Payroll Ⓑ	115.26%	56.49%	n/a - no UAAL	n/a - no UAAL	75.63%
KEY ACTUARIAL ASSUMPTIONS					
Assumed Investment Rate of Return	7.50%	6.25%	6.50%	7.50%	7.25%
Wage Inflation	4.50%	Not reported	4.50%	4.00%	Not reported
Asset Valuation Method (smoothing policy)	5 Years	Market Value	Market Value	5 Years	Assumed Yield Method
Actuarial Cost Method	Entry Age Normal	Unit Credit	Aggregate	Aggregate	Entry Age Normal
Amortization Period (for liabilities)	30 Years	18 Years	0 Years	0 Years	22 Years
CONTRIBUTION INFORMATION					
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$438,000 / 296%	$58,000 / 100%	$376,000 / 116%	$1,245,000 / 18%	$6,905,000 / 100%
2012 ARC as a Percent of Covered Payroll	19.30%	9.16%	17.60%	38.42%	12.75%
2012 Employee Contributions	$177,000	$0	$211,000	$227,000	$2,345,000
2010 ARC / Percentage of ARC Paid	$385,000 / 74%	$63,000 / 100%	$426,000 / 118%	$855,000 / 27%	$4,954,000 / 100%
2010 ARC as a Percent of Covered Payroll	16.73%	7.17%	19.97%	29.19%	9.44%
2010 Employee Contributions	$148,000	$0	$214,000	$193,000	$1,888,000
2006 ARC / Percentage of ARC Paid	$462,000 / 80%	$160,000 / 44%	$394,000 / 84%	$431,000 / 49%	$4,775,000 / 100%
2006 ARC as a Percent of Covered Payroll	21.28%	21.87%	22.18%	14.94%	9.50%
2006 Employee Contributions	$0	$0	$189,000	$181,000	$1,794,000

See footnote descriptions on page 135.

GENERAL INFORMATION					
Plan Name	**Bi-state Development Agency Local 2 I.B.E.W.**	**Bi-state Division 788 Clerical Unit A.T.U.**	**Bi-state Salaried Employees**	**Black Jack Fire Protection District Retirement Plan**	**Bothwell Regional Health Center Retirement Plan**
Year Established	1976	1976	1964	1968	1974
Created by	Section 70.370, RSMo	Section 70.370, RSMo	Section 70.370, RSMo	Section 321.600, RSMo	Not reported
Member/Non-Member Trustees	3 / 3	3 / 3	0 / 7	0 / 3	0 / 7
Covered Members	67	117	948	46	972
Annual Covered Payroll	$3,035,000	$1,516,000	$26,579,000	$3,706,000	$23,491,000
Social Security Coverage	Yes	Yes	Yes	Yes	Yes
Funded Ratio	71.43%	49.22%	80.46%	65.80%	85.77%
2002 Funded Ratio Ⓑ	77.86%	88.43%	97.39%	44.55%	79.69%
ASSET/LIABILITY INFORMATION					
Market Value of Investments	$1,949,000	$5,517,000	$45,889,000	$7,509,000	$39,093,000
Actuarial Value of Assets	$1,897,000	$5,514,000	$47,128,000	$7,509,000	$38,730,000
Actuarial Value of Accrued Liabilities	$2,656,000	$11,202,000	$58,574,000	$11,411,000	$45,157,000
Unfunded Liabilities (UAAL)	$759,000	$5,688,000	$11,446,000	$3,902,000	$6,427,000
UAAL as a Percent of Covered Payroll	25.01%	375.23%	43.06%	105.30%	27.36%
2002 UAAL as a Percent of Covered Payroll Ⓑ	15.59%	46.40%	4.09%	141.02%	22.83%
KEY ACTUARIAL ASSUMPTIONS					
Assumed Investment Rate of Return	7.25%	7.25%	7.50%	7.00%	8.00%
Wage Inflation	Not reported	Not reported	4.50%	0.00%	5.50%
Asset Valuation Method (smoothing policy)	Assumed Yield Method	Assumed Yield Method	Assumed Yield Method	Market Value	Market Value
Actuarial Cost Method	Entry Age Normal	Entry Age Normal	Projected Unit Credit	Aggregate Entry Age	Projected Unit Credit
Amortization Period (for liabilities)	24 Years	23 Years	29 Years	30 Years	20 Years
CONTRIBUTION INFORMATION					
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$146,000 / 100%	$622,000 / 82%	$3,284,000 / 95%	$481,000 / 173%	$2,477,000 / 100%
2012 ARC as a Percent of Covered Payroll	4.66%	39.87%	12.48%	12.48%	11.68%
2012 Employee Contributions	$62,000	$107,000	$0	$0	$0
2010 ARC / Percentage of ARC Paid	$122,000 / 100%	$224,000 / 100%	$1,925,000 / 100%	$471,000 / 113%	$2,626,000 / 115%
2010 ARC as a Percent of Covered Payroll	4.17%	13.38%	7.56%	13.71%	9.63%
2010 Employee Contributions	$53,000	$99,000	$0	$0	$0
2006 ARC / Percentage of ARC Paid	$88,000 / 100%	$222,000 / 100%	$1,768,000 / 100%	$431,000 / 310%	$2,018,000 / 75%
2006 ARC as a Percent of Covered Payroll	5.70%	10.50%	6.70%	13.97%	7.00%
2006 Employee Contributions	$38,000	$75,000	$0	$0	$0

See footnote descriptions on page 135.

GENERAL INFORMATION					
Plan Name	**Brentwood Police & Firemen's Retirement Fund**	**Bridgeton Employees Retirement Plan**	**Carthage Policemen's & Firemen's Pension Plan**	**Cedar Hill Fire Protection District Length of Service Awards Program**	**Clayton Non-Uniformed Employee Pension Plan**
Year Established	1950	1971	1974	2003	1969
Created by	Sections 86.583 & 70.615, RSMo	Local Legislation	Section 86.583, RSMo	Section 321.600(16), RSMo	Local Legislation
Member/Non-Member Trustees	4 / 3	0 / 5	4 / 3	3 / 0	2 / 5
Covered Members	77	262	91	31	149
Annual Covered Payroll	$3,423,000	$7,708,000	$2,053,000	Not reported	$4,368,000
Social Security Coverage	No	Yes	Yes	Yes	Yes
Funded Ratio	82.03%	61.14%	82.57%	76.23%	86.99%
2002 Funded Ratio Ⓑ	91.05%	100.00%	112.29%	46.23% (2005)	102.46%
ASSET/LIABILITY INFORMATION					
Market Value of Investments	$24,059,000	$20,076,000	$5,447,000	$120,000	$9,588,000
Actuarial Value of Assets	$24,871,000	$21,771,000	$6,380,000	$120,000	$10,815,000
Actuarial Value of Accrued Liabilities	$30,320,000	$35,609,000	$7,727,000	$157,000	$12,432,000
Unfunded Liabilities (UAAL)	$5,449,000	$13,838,000	$1,347,000	$37,000	$1,617,000
UAAL as a Percent of Covered Payroll	159.19%	179.51%	65.62%	Not reported	37.02%
2002 UAAL as a Percent of Covered Payroll Ⓑ	47.86%	n/a - no UAAL	n/a - no UAAL	Not reported (2005)	n/a - no UAAL
KEY ACTUARIAL ASSUMPTIONS					
Assumed Investment Rate of Return	7.50%	7.50%	8.00%	4.75%	7.00%
Wage Inflation	5.50%	4.50%	4.00%	Not reported	4.50%
Asset Valuation Method (smoothing policy)	Market Value	3 Years	5 Years	Market Value	5 Years
Actuarial Cost Method	Entry Age Normal	Entry Age Normal	Entry Age Normal	Modified Aggregate	Entry Age Normal
Amortization Period (for liabilities)	25 Years	30 Years	30 Years	0 Years	15 Years
CONTRIBUTION INFORMATION					
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$939,000 / 92%	$1,745,000 / 57%	$328,000 / 91%	$19,000 / 153%	$352,000 / 103%
2012 ARC as a Percent of Covered Payroll	26.05%	23.24%	16.72%	Not reported	8.13%
2012 Employee Contributions	$239,000	$0	$0	$0	$68,000
2010 ARC / Percentage of ARC Paid	$804,000 / 120%	$1,401,000 / 64%	$260,000 / 103%	$26,000 / 106%	$354,000 / 46%
2010 ARC as a Percent of Covered Payroll	29.77%	18.72%	14.15%	4.35%	7.50%
2010 Employee Contributions	$240,000	$0	$0	$0	$0
2006 ARC / Percentage of ARC Paid	$469,000 / 196%	$963,000 / 92%	$177,000 / 99%	$19,000 / 107%	$240,000 / 0%
2006 ARC as a Percent of Covered Payroll	17.60%	14.40%	10.70%	Not reported	6.14%
2006 Employee Contributions	$193,000	$0	$0	$0	$0

See footnote descriptions on page 135.

GENERAL INFORMATION					
Plan Name	**Clayton Uniformed Employees Pension Plan**	**Columbia Firemens' Retirement Plan**	**Columbia Police Retirement Plan**	**Community Fire Protection District Retirement Plan**	**County Employees Retirement Fund**
Year Established	1994	1947	1954	1987	1994
Created by	Not reported	Local Legislation	Local Legislation	Section 321.600, RSMo	Section 50.1000, RSMo
Member/Non-Member Trustees	3 / 4	2 / 3	2 / 3	2 / 3	9 / 2
Covered Members	152	255	293	61	16,127
Annual Covered Payroll	$5,512,000	$7,171,000	$8,476,000	$5,274,000	$353,991,000
Social Security Coverage	Yes	No	Yes	Yes	Yes
Funded Ratio	81.41%	53.24%	53.10%	91.63%	70.40%
2002 Funded Ratio Ⓑ	72.91%	71.99%	67.72%	104.16% (plan year 2009)	56.00%
ASSET/LIABILITY INFORMATION					
Market Value of Investments	$27,669,000	$49,606,000	$34,256,000	$14,711,000	$301,869,000
Actuarial Value of Assets	$28,919,000	$53,951,000	$36,776,000	$14,712,000	$318,320,000
Actuarial Value of Accrued Liabilities	$35,521,000	$101,339,000	$69,263,000	$16,055,000	$452,366,000
Unfunded Liabilities (UAAL)	$6,602,000	$47,388,000	$32,487,000	$1,343,000	$134,046,000
UAAL as a Percent of Covered Payroll	119.78%	660.83%	383.28%	25.47%	37.87%
2002 UAAL as a Percent of Covered Payroll Ⓑ	163.25%	255.67%	188.45%	n/a - no UAAL (2009)	34.61%
KEY ACTUARIAL ASSUMPTIONS					
Assumed Investment Rate of Return	7.00%	7.50%	7.50%	7.00%	8.00%
Wage Inflation	3.50%	3.50%	3.50%	4.00%	Ⓛ
Asset Valuation Method (smoothing policy)	Market Value	4 Years	4 Years	Market Value	5 Years
Actuarial Cost Method	Entry Age Normal	Entry Age Normal	Entry Age Normal	Aggregate	Entry Age Normal
Amortization Period (for liabilities)	22 Years	28 Years	28 Years	30 Years	20 Years
CONTRIBUTION INFORMATION					
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$966,000 / 100%	$3,996,000 / 100%	$3,153,000 / 100%	$815,000 / 145%	$17,486,000 / 114% Ⓜ
2012 ARC as a Percent of Covered Payroll	19.67%	55.43%	38.08%	14.55%	4.94%
2012 Employee Contributions	$229,000	$1,207,000	$303,000	$0	$10,563,000
2010 ARC / Percentage of ARC Paid	$1,125,000 / 100%	$3,330,000 / 100%	$2,693,000 / 100%	$591,000 / 178%	$19,095,000 / 104%
2010 ARC as a Percent of Covered Payroll	20.70%	44.70%	31.75%	11.90%	5.41%
2010 Employee Contributions	$228,000	$1,216,000	$299,000	$0	$9,484,000
2006 ARC / Percentage of ARC Paid	$798,000 / 100%	$2,214,000 / 100%	$2,233,000 / 100%	Ⓗ / Ⓗ	$13,448,000 / 141%
2006 ARC as a Percent of Covered Payroll	15.20%	41.00%	30.56%	Ⓗ	4.46%
2006 Employee Contributions	$216,000	$1,042,000	$261,000	Ⓗ	$6,449,000

See footnote descriptions on page 135.

GENERAL INFORMATION					
Plan Name	**Creve Coeur Employees Retirement Plan**	**Creve Coeur Fire Protection District Retirement Plan**	**Eureka Fire Protection District Retirement Plan**	**Fenton Fire Protection District Retirement Plan**	**Ferguson Pension Plan**
Year Established	1967	1968	1982	1968	1969
Created by	Local Legislation	Section 321.240, RSMo	Section 321.240, RSMo	Section 321.600, RSMo	Local Legislation
Member/Non-Member Trustees	2 / 7	3 / 2	2 / 3	2 / 3	3 / 4
Covered Members	153	85	53	81	237
Annual Covered Payroll	$4,252,000	$5,089,000	$2,117,000	$5,082,000	$5,998,000
Social Security Coverage	Yes	Yes	Yes	Yes	Yes
Funded Ratio	62.54%	76.24%	76.91%	85.92%	100.58%
2002 Funded Ratio Ⓑ	88.19%	34.78%	100.00%	96.28%	100.00%
ASSET/LIABILITY INFORMATION					
Market Value of Investments	$16,440,000	$7,729,000	$7,021,000	$21,156,000	$20,331,000
Actuarial Value of Assets	$15,103,000	$7,306,000	$7,034,000	$23,551,000	$20,798,000
Actuarial Value of Accrued Liabilities	$24,150,000	$9,583,000	$9,145,000	$27,410,000	$20,678,000
Unfunded Liabilities (UAAL)	$9,047,000	$2,277,000	$2,111,000	$3,859,000	$0
UAAL as a Percent of Covered Payroll	212.76%	44.74%	99.75%	75.94%	n/a - no UAAL
2002 UAAL as a Percent of Covered Payroll Ⓑ	33.21%	113.72%	n/a - no UAAL	16.47%	n/a - no UAAL
KEY ACTUARIAL ASSUMPTIONS					
Assumed Investment Rate of Return	7.50%	7.50%	7.00%	7.50%	7.50%
Wage Inflation	5.00%	4.25%	2.30%	3.00%	3.25%
Asset Valuation Method (smoothing policy)	3 Years	3 Years	4 Years	5 Years	5 Years
Actuarial Cost Method	Entry Age Normal	Projected Unit Credit	Entry Age Normal	Frozen Initial Liability	Entry Age Normal
Amortization Period (for liabilities)	15 Years	15 Years	20 Years	15 Years	0 Years
CONTRIBUTION INFORMATION					
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$1,339,000 / 104%	$593,000 / 100%	$564,000 / 51%	$1,307,000 / 72%	$480,000 / 100%
2012 ARC as a Percent of Covered Payroll	32.88%	11.36%	27.49%	26.18%	7.76%
2012 Employee Contributions	$41,000	$0	$0	$0	$0
2010 ARC / Percentage of ARC Paid	$1,005,000 / 105%	$572,000 / 100%	$496,000 / 50%	$1,320,000 / 90%	$108,000 / 100%
2010 ARC as a Percent of Covered Payroll	20.72%	10.40%	22.82%	26.63%	1.81%
2010 Employee Contributions	$0	$0	$0	$0	$0
2006 ARC / Percentage of ARC Paid	$655,000 / 100%	$615,000 / 100%	$304,000 / 77%	$962,000 / 103%	Ⓓ / Ⓓ
2006 ARC as a Percent of Covered Payroll	13.94%	11.60%	15.57%	21.00%	Ⓓ
2006 Employee Contributions	$0	$0	$0	$0	$0

See footnote descriptions on page 135.

GENERAL INFORMATION					
Plan Name	**Florissant Employees Pension Plan**	**Florissant Valley Fire Protection District Retirement Plan**	**Glendale Pension Plan**	**Hannibal Police & Fire Retirement Plan**	**Hazelwood City Council Members Retirement Plan**
Year Established	2001	1970	1971	1952	1984
Created by	Local Legislation	Section 321.600, RSMo	Sections 86.583 & 87.010, RSMo	Local Legislation	Section 70.615, RSMo
Member/Non-Member Trustees	Ⓐ	2 / 3	2 / 3	4 / 5	2 / 3
Covered Members	74	72	45	138	19
Annual Covered Payroll	$656,000	$5,147,000	$1,669,000	$3,253,000	$22,000
Social Security Coverage	Yes	Yes	Yes	No	Yes
Funded Ratio	82.84%	89.52%	73.38%	48.12%	100.00%
2002 Funded Ratio Ⓑ	65.56%	43.06%	100.00%	61.23%	100.00% (plan year 2010)
ASSET/LIABILITY INFORMATION					
Market Value of Investments	$9,867,000	$17,039,000	$4,829,000	$10,829,000	$96,000
Actuarial Value of Assets	$9,867,000	$16,247,000	$4,792,000	$10,829,000	$96,000
Actuarial Value of Accrued Liabilities	$11,911,000	$18,150,000	$6,530,000	$22,503,000	$96,000
Unfunded Liabilities (UAAL)	$2,044,000	$1,903,000	$1,738,000	$11,674,000	$0
UAAL as a Percent of Covered Payroll	311.61%	36.97%	104.17%	358.81%	n/a - no UAAL
2002 UAAL as a Percent of Covered Payroll Ⓑ	184.85%	159.80%	n/a - no UAAL	220.26%	n/a - no UAAL (2010)
KEY ACTUARIAL ASSUMPTIONS					
Assumed Investment Rate of Return	7.50%	6.75%	7.50%	7.50%	7.50%
Wage Inflation	5.00%	2.00%	3.75%	4.00%	Not reported
Asset Valuation Method (smoothing policy)	Market Value	Market Value	5 Years	Market Value	Market Value
Actuarial Cost Method	Frozen Entry Age	Entry Age Normal	Aggregate	Entry Age Normal	Aggregate
Amortization Period (for liabilities)	26 Years	30 Years	0 Years	20 Years	0 Years
CONTRIBUTION INFORMATION					
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$806,000 / 129%	$268,000 / 404%	$305,000 / 43%	$921,000 / 125%	$12,000 / 0%
2012 ARC as a Percent of Covered Payroll	167.39%	5.19%	18.38%	27.55%	53.91%
2012 Employee Contributions	$0	$52,000	$53,000	$412,000	$0
2010 ARC / Percentage of ARC Paid	$1,033,000 / 126%	$453,000 / 255%	$305,000 / 43%	$1,169,000 / 80%	Insufficient data
2010 ARC as a Percent of Covered Payroll	111.00%	9.49%	19.34%	34.54%	Insufficient data
2010 Employee Contributions	$0	$50,000	$53,000	$325,000	$0
2006 ARC / Percentage of ARC Paid	$665,000 / 147%	$962,000 / 111%	$160,000 / 97%	$726,000 / 95%	Not reported / Not reported
2006 ARC as a Percent of Covered Payroll	36.74%	23.59%	13.10%	24.10%	Not reported
2006 Employee Contributions	$0	$44,000	$46,000	$228,000	Not reported

See footnote descriptions on page 135.

GENERAL INFORMATION					
Plan Name	**Hazelwood Retirement Plan**	**High Ridge Fire Protection District Pension Plan**	**Jackson County Employees Pension Plan**	**Jefferson City Firemen's Retirement System**	**Jennings Police & Firemen's Retirement Fund**
Year Established	1985	1982	1967	1947	1962
Created by	Section 70.615, RSMo	Section 321.220, RSMo	Section 50.337, RSMo	Section 70.615, RSMo	Section 86.583, RSMo
Member/Non-Member Trustees	2 / 5	2 / 3	4 / 7	3 / 6	3 / 7
Covered Members	273	41	3,421	61	47
Annual Covered Payroll	$9,908,000	$2,359,000	$62,081,000	$0	$255,000
Social Security Coverage	Yes	Yes	Yes	No	Yes
Funded Ratio	78.67%	86.74%	78.48%	103.66%	74.48%
2002 Funded Ratio Ⓑ	88.12%	66.56% (plan year 2008)	88.26%	77.66%	83.08%
ASSET/LIABILITY INFORMATION					
Market Value of Investments	$25,917,000	$5,314,000	$180,779,000	$18,170,000	$5,892,000
Actuarial Value of Assets	$23,793,000	$5,732,000	$165,356,000	$18,197,000	$5,984,000
Actuarial Value of Accrued Liabilities	$30,245,000	$6,609,000	$210,705,000	$17,554,000	$8,034,000
Unfunded Liabilities (UAAL)	$6,452,000	$877,000	$45,349,000	$0	$2,050,000
UAAL as a Percent of Covered Payroll	65.12%	37.16%	73.05%	n/a - no UAAL	804.34%
2002 UAAL as a Percent of Covered Payroll Ⓑ	27.96%	92.19% (2008)	28.88%	146.13%	158.96%
KEY ACTUARIAL ASSUMPTIONS					
Assumed Investment Rate of Return	7.50%	7.50%	7.00%	6.00%	6.00%
Wage Inflation	4.50%	Not reported	4.00%	0.00%	4.00%
Asset Valuation Method (smoothing policy)	3 Years	Market Value	5 Years	Market Value	Market Value
Actuarial Cost Method	Entry Age	Aggregate	Individual Entry Age	Entry Age Normal	Entry Age Normal
Amortization Period (for liabilities)	15 Years	0 Years	30 Years	23 Years	17 Years
CONTRIBUTION INFORMATION					
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$1,225,000 / 122%	$287,000 / 111%	$7,748,000 / 100%	Ⓓ / Ⓓ	$209,000 / 97%
2012 ARC as a Percent of Covered Payroll	11.96%	12.22%	11.91%	Ⓓ	74.41%
2012 Employee Contributions	$0	$0	$24,000	$0	$10,000
2010 ARC / Percentage of ARC Paid	$1,057,000 / 105%	$299,000 / 108%	$7,345,000 / 108%	$1,361,000 / 100%	$218,000 / 100%
2010 ARC as a Percent of Covered Payroll	10.70%	14.09%	11.15%	29.25%	40.20%
2010 Employee Contributions	$0	$0	$21,000	$133,000	$19,000
2006 ARC / Percentage of ARC Paid	$1,006,000 / 104%	Not reported / Not reported	$8,494,000 / 78%	$1,001,000 / 100%	$210,000 / 77%
2006 ARC as a Percent of Covered Payroll	11.96%	Not reported	13.20%	29.97%	26.35%
2006 Employee Contributions	$0	Not reported	$43,000	$134,000	$23,000

See footnote descriptions on page 135.

GENERAL INFORMATION					
Plan Name	**Joplin Police & Fire Pension Plan**	**Kansas City Civilian Police Employees' Retirement System**	**Kansas City Police Retirement System**	**Kansas City Employees' Retirement System**	**Kansas City Firefighter's Pension System**
Year Established	1947	1965	1946	1962	1953
Created by	Local Legislation	Sections 86.1310 to 86.1640, RSMo	Sections 86.900 to 86.1280, RSMo	Local Legislation	Section 87.010, RSMo
Member/Non-Member Trustees	4 / 3	5 / 4	5 / 4	2 / 8	3 / 4
Covered Members	326	763	2,613	5,639	1,802
Annual Covered Payroll	$8,201,000	$25,239,000	$93,480,000	$163,114,000	$51,983,000
Social Security Coverage	No	Yes	No	Yes	No
Funded Ratio	53.33%	74.81%	76.10%	79.80%	81.85%
2002 Funded Ratio Ⓑ	58.81%	97.92%	95.73%	100.53%	87.44%
ASSET/LIABILITY INFORMATION					
Market Value of Investments	$27,053,000	$102,336,000	$714,542,000	$915,790,000	$413,496,000
Actuarial Value of Assets	$27,464,000	$102,523,000	$715,764,000	$806,792,000	$432,541,000
Actuarial Value of Accrued Liabilities	$51,496,000	$137,041,000	$940,609,000	$1,010,996,000	$528,481,000
Unfunded Liabilities (UAAL)	$24,032,000	$34,518,000	$224,845,000	$204,204,000	$95,940,000
UAAL as a Percent of Covered Payroll	293.03%	136.77%	240.53%	125.19%	184.56%
2002 UAAL as a Percent of Covered Payroll Ⓑ	189.57%	6.51%	48.84%	n/a - no UAAL	108.08%
KEY ACTUARIAL ASSUMPTIONS					
Assumed Investment Rate of Return	7.00%	7.75%	7.75%	7.50%	7.75%
Wage Inflation	2.50%	4.00%	4.00%	4.00%	3.00%
Asset Valuation Method (smoothing policy)	5 Years	5 Years	5 Years	4 Years	5 Years
Actuarial Cost Method	Entry Age Normal	Individual Entry Age	Individual Entry Age	Entry Age Normal	Entry Age Normal
Amortization Period (for liabilities)	25 Years	24 Years	24 Years	20 Years	30 Years
CONTRIBUTION INFORMATION					
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$2,214,000 / 112%	$4,944,000 / 64%	$31,757,000 / 52%	$26,327,000 / 78%	$14,046,000 / 91%
2012 ARC as a Percent of Covered Payroll	26.23%	19.58%	36.14%	16.14%	23.39%
2012 Employee Contributions	$1,462,000	$1,225,000	$8,894,000	$6,612,000	$5,649,000
2010 ARC / Percentage of ARC Paid	$2,207,000 / 81%	$4,014,000 / 83%	$23,642,000 / 70%	$29,589,000 / 65%	$17,124,000 / 61%
2010 ARC as a Percent of Covered Payroll	28.65%	14.27%	26.30%	18.47%	31.94%
2010 Employee Contributions	$1,334,000	$1,312,000	$8,935,000	$6,332,000	$5,622,000
2006 ARC / Percentage of ARC Paid	$1,374,000 / 102%	$3,481,000 / 62%	$18,993,000 / 72%	$25,771,000 / 68%	$9,808,000 / 93%
2006 ARC as a Percent of Covered Payroll	22.22%	15.87%	29.06%	18.20%	19.60%
2006 Employee Contributions	$1,099,000	$1,262,000	$7,473,000	$5,532,000	$4,661,000

See footnote descriptions on page 135.

GENERAL INFORMATION				
Plan Name	**Kansas City Public School Retirement System**	**Kansas City Transportation Authority Union Employees Pension Plan**	**Kansas City Area Transportation Authority Salaried Employees Pension Plan**	**Ladue Non-Uniformed Employees Retirement System**
Year Established	1944	1971	1979	1968
Created by	Section 169.280, RSMo	Section 238.100, RSMo	Not reported	Section 70.615, RSMo
Member/Non-Member Trustees	6 / 6	3 / 13	0 / 4	3 / 3
Covered Members	9,682	806	154	43
Annual Covered Payroll	$155,893,000	$28,259,000	$6,345,000	$1,638,000
Social Security Coverage	Yes	Yes	Yes	Yes
Funded Ratio	84.90%	64.79%	80.38%	82.11%
2002 Funded Ratio Ⓑ	102.36%	83.75%	82.49%	100.00%
ASSET/LIABILITY INFORMATION				
Market Value of Investments	$667,766,000	$35,254,000	$12,528,000	$3,289,000
Actuarial Value of Assets	$742,280,000	$36,766,000	$13,314,000	$3,501,000
Actuarial Value of Accrued Liabilities	$874,287,000	$56,743,000	$16,564,000	$4,264,000
Unfunded Liabilities (UAAL)	$132,007,000	$19,977,000	$3,250,000	$763,000
UAAL as a Percent of Covered Payroll	84.68%	70.69%	51.23%	46.57%
2002 UAAL as a Percent of Covered Payroll Ⓑ	n/a - no UAAL	31.09%	35.93%	n/a - no UAAL
KEY ACTUARIAL ASSUMPTIONS				
Assumed Investment Rate of Return	8.00%	7.50%	7.50%	7.50%
Wage Inflation	5.00%	4.25%	4.00%	5.00%
Asset Valuation Method (smoothing policy)	5 Years	5 Years	5 Years	5 Years
Actuarial Cost Method	Entry Age Normal	Entry Age Normal	Frozen Entry Age	Aggregate
Amortization Period (for liabilities)	30 Years	30 Years	5 Years	0 Years
CONTRIBUTION INFORMATION				
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$16,836,000 / 68% Ⓝ	$2,349,000 / 89%	$882,000 / 102%	$201,000 / 100%
2012 ARC as a Percent of Covered Payroll	10.80%	8.73%	14.68%	13.46%
2012 Employee Contributions	$11,578,000	$1,068,000	$0	$0
2010 ARC / Percentage of ARC Paid	$7,779,000 / 171%	$2,371,000 / 87%	$854,000 / 101%	$161,000 / 162%
2010 ARC as a Percent of Covered Payroll	4.00%	7.50%	13.90%	8.94%
2010 Employee Contributions	$13,282,000	$1,060,000	$117,000	$0
2006 ARC / Percentage of ARC Paid	$11,774,000 / 123%	$1,926,000 / 85%	$736,000 / 100%	$121,000 / 100%
2006 ARC as a Percent of Covered Payroll	6.28%	7.80%	14.06%	7.69%
2006 Employee Contributions	$14,925,000	$787,000	$0	$0

See footnote descriptions on page 135.

GENERAL INFORMATION					
Plan Name	**Ladue Police & Fire Pension Plan**	**Little River Drainage District Retirement Plan**	**Local Government Employees Retirement System**	**Local Government Employees Retirement System Staff**	**Maplewood Police & Fire Retirement Fund**
Year Established	1947	1968	1967	1974	1948
Created by	Sections 70.615 & 87.010, RSMo	Section 70.615, RSMo	Sections 70.600 to 70.755, RSMo	Not reported	Local Legislation
Member/Non-Member Trustees	2 / 5	0 / 5	3 / 4	3 / 4	2 / 3
Covered Members	112	14	49,230	30	24
Annual Covered Payroll	$4,107,000	$369,000	$1,350,647,000	$1,454,000	$0
Social Security Coverage	No	Yes	Yes	Yes	No
Funded Ratio	69.84%	94.27%	81.60%	83.99%	166.61%
2002 Funded Ratio Ⓑ	88.14%	61.68%	100.40%	64.52%	89.50%
ASSET/LIABILITY INFORMATION					
Market Value of Investments	$21,433,000	$872,000	$4,512,773,000	$5,643,000	$12,893,000
Actuarial Value of Assets	$22,950,000	$872,000	$3,945,086,000	$5,641,000	$12,070,000
Actuarial Value of Accrued Liabilities	$32,859,000	$925,000	$4,837,423,000	$6,716,000	$7,245,000
Unfunded Liabilities (UAAL)	$9,909,000	$53,000	$892,337,000	$1,075,000	$0
UAAL as a Percent of Covered Payroll	241.26%	14.35%	66.07%	73.97%	n/a - no UAAL
2002 UAAL as a Percent of Covered Payroll Ⓑ	66.72%	38.80%	n/a - no UAAL	140.30%	52.93%
KEY ACTUARIAL ASSUMPTIONS					
Assumed Investment Rate of Return	7.50%	5.00%	7.25%	7.25%	7.00%
Wage Inflation	4.75%	3.50%	3.50%	3.50%	0.00%
Asset Valuation Method (smoothing policy)	5 Years	Market Value	5 Years	5 Years	Market Value
Actuarial Cost Method	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal
Amortization Period (for liabilities)	20 Years	15 Years	Ⓙ	15 Years	18 Years
CONTRIBUTION INFORMATION					
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$1,183,000 / 100%	$19,000 / 733%	$166,947,000 / 100%	$348,000 / 269%	Ⓓ / Ⓓ
2012 ARC as a Percent of Covered Payroll	30.02%	4.26%	Ⓚ	20.84%	Ⓓ
2012 Employee Contributions	$141,000	$13,000	$12,158,000	$0	$66,000
2010 ARC / Percentage of ARC Paid	$1,093,000 / 155%	$56,000 / 986%	$137,850,000 / 100%	$222,000 / 100%	$1,014,000 / 86%
2010 ARC as a Percent of Covered Payroll	24.57%	13.66%	Ⓚ	16.03%	25.43%
2010 Employee Contributions	$130,000	$31,000	$10,563,000	$0	$218,000
2006 ARC / Percentage of ARC Paid	$1,130,000 / 100%	$56,000 / 0%	$115,550,000 / 100%	$151,000 / 298%	$577,000 / 81%
2006 ARC as a Percent of Covered Payroll	29.86%	14.88%	Ⓚ	14.28%	16.71%
2006 Employee Contributions	$117,000	$16,000	$7,190,000	$0	$157,000

See footnote descriptions on page 135.

GENERAL INFORMATION					
Plan Name	**Mehlville Fire Protection District Retirement Plan**	**Metro North Fire Protection District Retirement Plan**	**Metro St. Louis Sewer District Employees Pension Plan**	**Metro West Fire Protection District Retirement Plan**	**Mid-County Fire Protection District Retirement Plan**
Year Established	1968	2010	1967	1969	1967
Created by	Section 321.600, RSMo	Not reported	Section 70.615, RSMo	Section 321.240, RSMo	Section 321.600, RSMo
Member/Non-Member Trustees	0 / 3	Not reported	0 / 6	0 / 3	2 / 4
Covered Members	32	15	1,617	149	23
Annual Covered Payroll	$0	$1,411,000	$49,432,000	$8,400,000	$1,741,000
Social Security Coverage	Yes	Yes	Yes	Yes	Yes
Funded Ratio	58.22%	136.47%	80.70%	69.90%	95.72%
2002 Funded Ratio Ⓑ	90.85%	Ⓒ	86.29%	62.84%	42.61%
ASSET/LIABILITY INFORMATION					
Market Value of Investments	$6,645,000	$559,000	$200,040,000	$30,557,000	$1,726,000
Actuarial Value of Assets	$7,787,000	$559,000	$205,792,000	$33,453,000	$1,753,000
Actuarial Value of Accrued Liabilities	$13,374,000	$410,000	$254,997,000	$47,861,000	$1,831,000
Unfunded Liabilities (UAAL)	$5,587,000	$0	$49,205,000	$14,408,000	$78,000
UAAL as a Percent of Covered Payroll	n/a - no covered payroll	n/a - no UAAL	99.54%	171.51%	4.50%
2002 UAAL as a Percent of Covered Payroll Ⓑ	38.80%	Ⓒ	53.06%	162.91%	48.12%
KEY ACTUARIAL ASSUMPTIONS					
Assumed Investment Rate of Return	5.00%	7.00%	7.25%	7.00%	7.00%
Wage Inflation	0.00%	0.00%	4.00%	3.00%	Not reported
Asset Valuation Method (smoothing policy)	5 Years	Market Value	3 Years	Market Value	Market Value
Actuarial Cost Method	Entry Age Normal	Unit Credit	Entry Age Normal	Entry Age Normal Frozen Initial Liability	Aggregate
Amortization Period (for liabilities)	20 Years	0 Years	20 Years	30 Years	30 Years
CONTRIBUTION INFORMATION					
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$427,000 / 0%	$212,000 / 122%	$11,737,000 / 100%	$1,960,000 / 109%	$42,000 / 131%
2012 ARC as a Percent of Covered Payroll	n/a - no covered payroll	14.86%	24.28%	22.98%	2.46%
2012 Employee Contributions	$0	$0	$0	$244,000	$0
2010 ARC / Percentage of ARC Paid	$35,000 / 0%	Ⓒ / Ⓒ	$10,307,000 / 100%	$2,295,000 / 92%	$72,000 / 277%
2010 ARC as a Percent of Covered Payroll	n/a - no covered payroll	Ⓒ	19.72%	26.20%	4.10%
2010 Employee Contributions	$0	Ⓒ	$0	$243,000	$0
2006 ARC / Percentage of ARC Paid	$1,758,000 / 0%	Ⓒ / Ⓒ	$6,847,000 / 100%	$2,413,000 / 71%	$89,000 / 159%
2006 ARC as a Percent of Covered Payroll	18.61%	Ⓒ	17.06%	34.88%	11.82%
2006 Employee Contributions	$0	Ⓒ	$0	$0	$0

See footnote descriptions on page 135.

GENERAL INFORMATION				
Plan Name	**Missouri Department of Transportation & Highway Patrol Employees' Retirement System**	**Missouri Higher Education Loan Authority Pension Plan**	**Missouri State Employees' Retirement System - Judicial Plan**	**Missouri State Employees' Retirement System - MSEP**
Year Established	1955	2000	1951	1957
Created by	Section 104.020, RSMo	Section 173.415, RSMo	Sections 476.445 to 476.690, RSMo	Section 104.320, RSMo
Member/Non-Member Trustees	6 / 5	Ⓐ	11 / 0	11 / 0
Covered Members	17,869	217	930	104,687
Annual Covered Payroll	$362,654,000	$10,158,000	$45,888,000	$1,875,570,000
Social Security Coverage	Yes	Yes	Yes	Yes
Funded Ratio	43.28%	110.35%	25.00%	79.20%
2002 Funded Ratio Ⓑ	61.50%	100.00% (plan year 2006)	11.58%	95.85%
ASSET/LIABILITY INFORMATION				
Market Value of Investments	$1,548,230,000	$26,964,000	$97,371,000	$7,783,373,000
Actuarial Value of Assets	$1,427,291,000	$26,964,000	$98,399,000	$8,022,481,000
Actuarial Value of Accrued Liabilities	$3,297,590,000	$24,434,000	$393,485,000	$10,123,544,000
Unfunded Liabilities (UAAL)	$1,870,299,000	$0	$295,086,000	$2,101,063,000
UAAL as a Percent of Covered Payroll	515.72%	n/a - no UAAL	643.06%	112.02%
2002 UAAL as a Percent of Covered Payroll Ⓑ	280.12%	n/a - no UAAL (2006)	565.19%	14.73%
KEY ACTUARIAL ASSUMPTIONS				
Assumed Investment Rate of Return	8.25%	7.00%	8.50%	8.50%
Wage Inflation	3.75%	5.00%	4.00%	4.00%
Asset Valuation Method (smoothing policy)	3 Years	Market Value	5 Years	5 Years
Actuarial Cost Method	Entry Age Normal	Aggregate	Entry Age Normal	Entry Age Normal
Amortization Period (for liabilities)	21 Years	10 Years	30 Years	30 Years
CONTRIBUTION INFORMATION				
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$164,880,000 / 100%	$1,394,000 / 100%	$26,325,000 / 100%	$263,374,000 / 100%
2012 ARC as a Percent of Covered Payroll	45.45% civilian / 58.63% uniformed	7.87%	57.30%	13.97%
2012 Employee Contributions	$203,000	$0	$150,000	$4,955,000
2010 ARC / Percentage of ARC Paid	$124,477,000 / 100%	$2,016,000 / 100%	$27,029,000 / 100%	$251,226,000 / 100%
2010 ARC as a Percent of Covered Payroll	31.40% civilian / 39.95% uniformed	19.29%	58.48%	12.75%
2010 Employee Contributions	$0	$0	$0	$0
2006 ARC / Percentage of ARC Paid	$111,543,000 / 100%	$1,867,000 / 100%	$22,402,000 / 100%	$226,338,000 / 100%
2006 ARC as a Percent of Covered Payroll	30.49% civilian / 44.27% uniformed	16.93%	55.76%	12.59%
2006 Employee Contributions	$0	$0	$0	$0

See footnote descriptions on page 135.

GENERAL INFORMATION					
Plan Name	**North Kansas City Hospital Retirement Plan**	**North Kansas City Policemen's & Firemen's Retirement Fund**	**Olivette Salaried Employees' Retirement Plan**	**Overland Non-Uniform Pension Fund**	**Overland Police Retirement Fund**
Year Established	1971	1956	1964	1968	1956
Created by	Sections 96.150 to 96.228, RSMo	Sections 70.615 & 87.010, RSMo	Local Legislation	Section 70.600, RSMo	Section 86.583, RSMo
Member/Non-Member Trustees	0 / 3	2 / 5	1 / 6	2 / 3	2 / 5
Covered Members	3,726	164	116	112	82
Annual Covered Payroll	$133,345,000	$5,571,000	$2,656,000	$1,905,000	$2,320,000
Social Security Coverage	Yes	Yes	Yes	Yes	Yes
Funded Ratio	96.14%	77.87%	68.88%	87.88%	78.10%
2002 Funded Ratio Ⓑ	100.00% (plan year 2005)	100.00%	100.00%	94.90%	100.00%
ASSET/LIABILITY INFORMATION					
Market Value of Investments	$192,634,000	$34,526,000	$15,737,000	$8,980,000	$13,356,000
Actuarial Value of Assets	$192,634,000	$34,604,000	$15,737,000	$9,634,000	$14,264,000
Actuarial Value of Accrued Liabilities	$200,370,000	$44,441,000	$22,846,000	$10,963,000	$18,263,000
Unfunded Liabilities (UAAL)	$7,736,000	$9,837,000	$7,109,000	$1,329,000	$3,999,000
UAAL as a Percent of Covered Payroll	5.80%	176.58%	267.69%	69.75%	172.38%
2002 UAAL as a Percent of Covered Payroll Ⓑ	n/a - no UAAL (2005)	n/a - no UAAL	n/a - no UAAL	22.88%	n/a - no UAAL
KEY ACTUARIAL ASSUMPTIONS					
Assumed Investment Rate of Return	7.50%	6.50%	7.25%	7.50%	7.50%
Wage Inflation	5.00%	5.00%	4.50%	4.00%	4.00%
Asset Valuation Method (smoothing policy)	Market Value	5 Years	Market Value	4 Years	4 Years
Actuarial Cost Method	Aggregate	Entry Age	Entry Age Normal	Aggregate	Aggregate
Amortization Period (for liabilities)	0 Years	20 Years	30 Years	0 Years	0 Years
CONTRIBUTION INFORMATION					
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$6,719,000 / 119%	$1,546,000 / 59%	$762,000 / 72%	$318,000 / 130%	$694,000 / 39%
2012 ARC as a Percent of Covered Payroll	5.13%	30.63%	29.83%	16.28%	29.51%
2012 Employee Contributions	$0	$51,000	$148,000	$130,000	$131,000
2010 ARC / Percentage of ARC Paid	$8,695,000 / 58%	$1,433,000 / 73%	$842,000 / 81%	$355,000 / 69%	$569,000 / 46%
2010 ARC as a Percent of Covered Payroll	6.34%	24.80%	29.57%	17.00%	24.82%
2010 Employee Contributions	$0	$59,000	$149,000	$116,000	$119,000
2006 ARC / Percentage of ARC Paid	$9,163,000 / 117%	$1,155,000 / 80%	$344,000 / 140%	$406,000 / 98%	$346,000 / 84%
2006 ARC as a Percent of Covered Payroll	8.81%	25.11%	12.02%	20.92%	17.08%
2006 Employee Contributions	$0	$54,000	$180,000	$112,000	$109,000

See footnote descriptions on page 135.

GENERAL INFORMATION					
Plan Name	**Pattonville-Bridgeton Fire Protection District Retirement Plan**	**Poplar Bluff Police & Fire Pension Plan**	**Prosecuting Attorneys' & Circuit Attorneys' Retirement System**	**Public Education Employees' Retirement System**	**Public School Retirement System**
Year Established	2002	1978	1989	1965	1946
Created by	Section 321.600, RSMo	Not reported	Section 56.800, RSMo	Section 169.610, RSMo	Section 169.010, RSMo
Member/Non-Member Trustees	2 / 3	4 / 4	5 / 0	5 / 2	5 / 2
Covered Members	89	136	191	97,257	140,164
Annual Covered Payroll	$5,898,000	$3,442,000	$7,428,000	$1,414,442,000	$4,338,976,000
Social Security Coverage	Yes	No	Yes	Yes	No
Funded Ratio	73.11%	100.00%	98.72%	85.30%	85.50%
2002 Funded Ratio Ⓑ	52.56%	100.00%	89.48%	97.56%	95.30%
ASSET/LIABILITY INFORMATION					
Market Value of Investments	$20,044,000	$11,129,000	$28,305,000	$2,902,398,000	$27,929,148,000
Actuarial Value of Assets	$21,436,000	$11,021,000	$28,650,000	$3,028,757,000	$29,387,487,000
Actuarial Value of Accrued Liabilities	$29,320,000	$11,021,000	$29,022,000	$3,549,348,000	$34,383,431,000
Unfunded Liabilities (UAAL)	$7,884,000	$0	$372,000	$520,591,000	$4,995,944,000
UAAL as a Percent of Covered Payroll	133.68%	n/a - no UAAL	5.00%	36.81%	115.14%
2002 UAAL as a Percent of Covered Payroll Ⓑ	159.88%	n/a - no UAAL	20.05%	5.07%	34.16%
KEY ACTUARIAL ASSUMPTIONS					
Assumed Investment Rate of Return	7.75%	6.25%	7.50%	8.00%	8.00%
Wage Inflation	2.50%	3.50%	4.00%	3.75%	3.50%
Asset Valuation Method (smoothing policy)	5 Years	4 Years	5 Years	5 Years	5 Years
Actuarial Cost Method	Aggregate	Aggregate	Entry Age Normal	Entry Age Normal	Entry Age Normal
Amortization Period (for liabilities)	0 Years	0 Years	20 Years	30 Years	30 Years
CONTRIBUTION INFORMATION					
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$1,865,000 / 64%	$334,000 / 57%	$1,083,000 / 144% Ⓔ	$95,095,000 / 100% Ⓕ	$720,304,000 / 86% Ⓕ
2012 ARC as a Percent of Covered Payroll	31.87%	9.37%	12.77%	6.86%	14.50%
2012 Employee Contributions	$0	$209,000	$0	$101,931,000	$658,936,000
2010 ARC / Percentage of ARC Paid	$1,435,000 / 95%	$121,000 / 128%	$1,158,000 / 134% Ⓔ	$95,560,000 / 96% Ⓕ	$658,161,000 / 90% Ⓕ
2010 ARC as a Percent of Covered Payroll	24.95%	3.75%	15.83%	6.50%	13.50%
2010 Employee Contributions	$0	$200,000	$0	$95,924,000	$636,633,000
2006 ARC / Percentage of ARC Paid	$1,137,000 / 87%	$171,000 / 113%	$893,000 / 185% Ⓔ	$79,708,000 / 77% Ⓕ	$608,134,000 / 71% Ⓕ
2006 ARC as a Percent of Covered Payroll	21.49%	5.98%	12.38%	5.50%	11.50%
2006 Employee Contributions	$0	$160,000	$0	$68,018,000	$502,980,000

See footnote descriptions on page 135.

GENERAL INFORMATION					
Plan Name	**Raytown Policemen's Retirement Fund**	**Richmond Heights Police & Fire Retirement Plan**	**Rock Community Fire Protection District Retirement Plan**	**Rock Hill Police & Firemen's Pension Plan**	**Saline Valley Fire Protection District Retirement Plan**
Year Established	1966	1952	1977	1966	2008
Created by	Section 70.615, RSMo	Sections 70.615 & 87.010, RSMo	Section 321.600, RSMo	Section 70.655, RSMo	Section 321.220, RSMo
Member/Non-Member Trustees	0 / 5	2 / 5	2 / 3	2 / 3	2 / 3
Covered Members	79	97	85	30	40
Annual Covered Payroll	$3,065,000	$4,012,000	$4,496,000	$978,000	$1,595,000
Social Security Coverage	Yes	Yes	Yes	Yes	Yes
Funded Ratio	53.69%	98.46%	84.52%	41.54%	67.84%
2002 Funded Ratio Ⓑ	82.17%	103.80%	80.71%	100.00%	71.67% (plan year 2008)
ASSET/LIABILITY INFORMATION					
Market Value of Investments	$8,765,000	$34,811,000	$8,765,000	$1,660,000	$1,033,000
Actuarial Value of Assets	$8,765,000	$32,328,000	$9,435,000	$1,420,000	$1,033,000
Actuarial Value of Accrued Liabilities	$16,326,000	$32,833,000	$11,162,000	$3,419,000	$1,523,000
Unfunded Liabilities (UAAL)	$7,561,000	$505,000	$1,727,000	$1,999,000	$490,000
UAAL as a Percent of Covered Payroll	246.70%	12.59%	38.42%	204.33%	30.70%
2002 UAAL as a Percent of Covered Payroll Ⓑ	70.27%	n/a - no UAAL	32.26%	n/a - no UAAL	32.61% (2008)
KEY ACTUARIAL ASSUMPTIONS					
Assumed Investment Rate of Return	7.50%	7.50%	7.50%	6.00%	7.00%
Wage Inflation	4.00%	5.00%	3.00%	2.50%	0.00%
Asset Valuation Method (smoothing policy)	Market Value	Assured Yield	5 Years	Market Value	Market Value
Actuarial Cost Method	Entry Age Normal	Entry Age Normal	Projected Unit Method	Aggregate	Aggregate
Amortization Period (for liabilities)	30 Years	30 Years	30 Years	0 Years	0 Years
CONTRIBUTION INFORMATION					
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$679,000 / 101%	$1,006,000 / 96%	$662,000 / 98%	$294,000 / 72%	$124,000 / 162%
2012 ARC as a Percent of Covered Payroll	21.74%	23.67%	14.65%	49.76%	7.28%
2012 Employee Contributions	$0	$120,000	$0	$0	$0
2010 ARC / Percentage of ARC Paid	$866,000 / 83%	$614,000 / 148%	$801,000 / 81%	$294,000 / 48%	$139,000 / 148%
2010 ARC as a Percent of Covered Payroll	24.83%	16.15%	18.13%	54.01%	9.93%
2010 Employee Contributions	$0	$111,000	$0	$0	$0
2006 ARC / Percentage of ARC Paid	$420,000 / 67%	$659,000 / 146%	$478,000 / 139%	$237,000 / 0%	Ⓘ / Ⓘ
2006 ARC as a Percent of Covered Payroll	17.80%	19.30%	25.47%	41.57%	Ⓘ
2006 Employee Contributions	$0	$110,000	$0	$0	Ⓘ

See footnote descriptions on page 135.

GENERAL INFORMATION					
Plan Name	**Sedalia Firemen's Retirement Fund**	**Sedalia Police Retirement Fund**	**Sheriff's Retirement System**	**Springfield Police & Fire Retirement Fund**	**St. Joseph Policemen's Pension Fund**
Year Established	1946	1970	1983	1946	1921
Created by	Section 86.583, RSMo	Section 70.615, RSMo	Section 57.949, RSMo	Local Legislation	Section 86.513, RSMo
Member/Non-Member Trustees	5 / 5	3 / 7	5 / 0	5 / 6	4 / 5
Covered Members	80	76	282	891	206
Annual Covered Payroll	$1,871,000	Not reported	$5,850,000	$20,498,000	$5,200,000
Social Security Coverage	No	Yes	Yes	No	No
Funded Ratio	75.31%	44.66%	90.40%	53.93%	67.28%
2002 Funded Ratio Ⓑ	62.39%	72.06%	92.76%	72.49%	52.54%
ASSET/LIABILITY INFORMATION					
Market Value of Investments	$6,302,000	$3,448,000	$28,811,000	$180,268,000	$27,796,000
Actuarial Value of Assets	$6,436,000	$3,448,000	$31,010,000	$183,460,000	$27,093,000
Actuarial Value of Accrued Liabilities	$8,546,000	$7,721,000	$34,303,000	$340,163,000	$40,267,000
Unfunded Liabilities (UAAL)	$2,110,000	$4,273,000	$3,293,000	$156,703,000	$13,174,000
UAAL as a Percent of Covered Payroll	112.79%	Not reported	56.28%	764.47%	253.35%
2002 UAAL as a Percent of Covered Payroll Ⓑ	174.09%	86.46%	30.09%	222.52%	289.40%
KEY ACTUARIAL ASSUMPTIONS					
Assumed Investment Rate of Return	7.00%	7.50%	7.50%	7.50%	7.50%
Wage Inflation	3.00%	Not reported	1.50%	Varies	4.00%
Asset Valuation Method (smoothing policy)	Market Value	Market Value	5 Years	4 Years	Market Value
Actuarial Cost Method	Entry Age Normal	Projected Unit Credit	Entry Age Normal	Entry Age Normal	Entry Age
Amortization Period (for liabilities)	30 Years	28 Years	30 Years	20 Years	20 Years
CONTRIBUTION INFORMATION					
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$332,000 / 111%	$365,000 / 64%	$1,798,000 / 93% Ⓖ	$20,882,000 / 171%	$1,654,000 / 104%
2012 ARC as a Percent of Covered Payroll	17.67%	Not reported	30.70%	104.53%	33.97%
2012 Employee Contributions	$102,000	$0	$0	$2,997,000	$221,000
2010 ARC / Percentage of ARC Paid	$379,000 / 89%	$598,000 / 36%	$1,754,000 / 97% Ⓖ	$13,137,000 / 243%	$1,898,000 / 104%
2010 ARC as a Percent of Covered Payroll	21.00%	32.33%	19.92%	52.36%	35.95%
2010 Employee Contributions	$91,000	$5,000	$0	$2,772,000	$218,000
2006 ARC / Percentage of ARC Paid	$315,000 / 97%	$337,000 / 58%	$1,628,000 / 105% Ⓖ	$9,835,000 / 69%	$1,473,000 / 113%
2006 ARC as a Percent of Covered Payroll	20.61%	24.69%	30.08%	40.02%	28.68%
2006 Employee Contributions	$77,000	$8,000	$0	$2,907,000	$213,000

See footnote descriptions on page 135.

GENERAL INFORMATION				
Plan Name	**St. Louis County Employees Retirement Plan**	**St. Louis County Library District Employees Pension Plan**	**St. Louis Employees Retirement System**	**St. Louis Firemen's Retirement System**
Year Established	1967	1967	1960	1960
Created by	Section 50.337, RSMo	Section 70.615, RSMo	Section 95.540, RSMo	Sections 87.125 to 87.370, RSMo
Member/Non-Member Trustees	3 / 4	2 / 3	3 / 3	4 / 4
Covered Members	7,537	654	11,797	1,686
Annual Covered Payroll	$180,827,000	$13,522,000	$223,061,000	$37,157,000
Social Security Coverage	Yes	Yes	Yes	No
Funded Ratio	62.13%	89.33%	78.64%	93.81%
2002 Funded Ratio Ⓑ	77.73%	100.00%	75.26%	91.61%
ASSET/LIABILITY INFORMATION				
Market Value of Investments	$441,265,000	$32,750,000	$583,118,000	$368,148,000
Actuarial Value of Assets	$446,678,000	$33,529,000	$661,932,000	$404,101,000
Actuarial Value of Accrued Liabilities	$718,940,000	$37,534,000	$841,763,000	$430,755,000
Unfunded Liabilities (UAAL)	$272,262,000	$4,005,000	$179,831,000	$26,654,000
UAAL as a Percent of Covered Payroll	150.57%	29.62%	80.62%	71.73%
2002 UAAL as a Percent of Covered Payroll Ⓑ	54.14%	n/a - no UAAL	61.79%	113.30%
KEY ACTUARIAL ASSUMPTIONS				
Assumed Investment Rate of Return	8.00%	7.50%	8.00%	7.625%
Wage Inflation	4.50%	4.50%	Varies	3.35%
Asset Valuation Method (smoothing policy)	4 Years	4 Years	5 Years	3 Years
Actuarial Cost Method	Projected Unit Credit	Aggregate	Projected Unit Credit	Entry Age Frozen Initial Liability
Amortization Period (for liabilities)	30 Years	0 Years	30 Years	30 Years
CONTRIBUTION INFORMATION				
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$38,960,000 / 100%	$1,404,000 / 100%	$31,840,000 / 96%	$22,598,000 / 65%
2012 ARC as a Percent of Covered Payroll	21.14% Civilian / 22.75% Police	10.05%	14.27%	62.75%
2012 Employee Contributions	$0	$0	$0	$2,570,000
2010 ARC / Percentage of ARC Paid	$29,106,000 / 100%	$1,089,000 / 71%	$28,499,000 / 95%	$17,855,000 / 100%
2010 ARC as a Percent of Covered Payroll	15.82% Civilian / 16.49% Police	7.10%	11.85%	43.80%
2010 Employee Contributions	$0	$0	$0	$2,942,000
2006 ARC / Percentage of ARC Paid	$28,527,000 / 100%	$570,000 / 88%	$29,478,000 / 54%	$18,180,000 / 23%
2006 ARC as a Percent of Covered Payroll	17.47% Civilian / 18.09% Police	4.48%	13.21%	39.99%
2006 Employee Contributions	$0	$0	$0	$2,853,000

See footnote descriptions on page 135.

GENERAL INFORMATION					
Plan Name	**St. Louis Police Retirement System**	**St. Louis Public School Retirement System**	**University City Non-Uniformed Retirement Plan**	**University City Police & Fire Retirement Fund**	**University of Missouri Retirement, Disability & Death Benefit Plan**
Year Established	1957	1944	1966	1963	1958
Created by	Section 86.200, RSMo	Sections 169.410 to 169.540, RSMo	Local Legislation	Local Legislation	Section 172.300, RSMo
Member/Non-Member Trustees	5 / 5	7 / 4	2 / 9	2 / 9	Ⓐ
Covered Members	3,267	11,287	225	214	29,459
Annual Covered Payroll	$67,594,000	$234,760,000	$6,340,000	$7,976,000	$1,031,891,000
Social Security Coverage	No	Yes	Yes	No	Yes
Funded Ratio	81.28%	84.90%	77.39%	84.85%	90.10%
2002 Funded Ratio Ⓑ	89.49%	82.13%	111.08%	133.87%	100.63%
ASSET/LIABILITY INFORMATION					
Market Value of Investments	$589,082,000	$854,075,000	$16,283,000	$23,402,000	$2,826,285,000
Actuarial Value of Assets	$695,422,000	$925,390,000	$17,115,000	$26,498,000	$2,828,697,000
Actuarial Value of Accrued Liabilities	$855,618,000	$1,090,319,000	$22,115,000	$31,227,000	$3,138,190,000
Unfunded Liabilities (UAAL)	$160,196,000	$164,929,000	$5,000,000	$4,729,000	$309,493,000
UAAL as a Percent of Covered Payroll	237.00%	70.25%	78.87%	59.29%	29.99%
2002 UAAL as a Percent of Covered Payroll Ⓑ	125.47%	66.90%	n/a - no UAAL	n/a - no UAAL	n/a - no UAAL
KEY ACTUARIAL ASSUMPTIONS					
Assumed Investment Rate of Return	7.75%	8.00%	6.50%	6.50%	8.00%
Wage Inflation	5.00%	4.50%	3.00%	3.00%	5.00%
Asset Valuation Method (smoothing policy)	5 Years	Assumed Yield	5 Years	5 Years	5 Years
Actuarial Cost Method	Aggregate	Frozen Entry Age	Entry Age	Entry Age Normal	Entry Age Normal
Amortization Period (for liabilities)	0 Years	30 Years	30 Years	30 Years	20 Years
CONTRIBUTION INFORMATION					
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$22,146,000 / 129%	$25,929,000 / 114%	$646,000 / 84%	$1,009,000 / 95%	$74,618,000 / 100%
2012 ARC as a Percent of Covered Payroll	31.60%	11.88%	9.85%	12.63%	7.07%
2012 Employee Contributions	$4,155,000	$12,148,000	$195,000	$0	$13,379,000
2010 ARC / Percentage of ARC Paid	$15,108,000 / 116%	$19,408,000 / 134%	$591,000 / 100%	$700,000 / 134%	$48,040,000 / 100%
2010 ARC as a Percent of Covered Payroll	22.03%	8.27%	8.65%	10.30%	4.88%
2010 Employee Contributions	$4,463,000	$11,189,000	$185,000	$0	$11,459,000
2006 ARC / Percentage of ARC Paid	$15,525,000 / 52%	$15,490,000 / 128%	$189,000 / 114%	Ⓓ / Ⓓ	$64,399,000 / 100%
2006 ARC as a Percent of Covered Payroll	23.09%	6.45%	4.60%	Ⓓ	7.80%
2006 Employee Contributions	$4,102,000	$10,511,000	$145,000	$3,000	$0

See footnote descriptions on page 135.

GENERAL INFORMATION		
Plan Name	**Valley Park Fire Protection District Retirement Plan**	**Warrenton Fire Protection District Length of Service Awards Program**
Year Established	1993	2004
Created by	Not reported	Section 321.600(16), RSMo
Member/Non-Member Trustees	2 / 3	Ⓐ
Covered Members	32	33
Annual Covered Payroll	$1,578,000	Not reported
Social Security Coverage	Yes	Yes
Funded Ratio	85.05%	68.80%
2002 Funded Ratio Ⓑ	90.05%	67.22% (2010)
ASSET/LIABILITY INFORMATION		
Market Value of Investments	$3,166,000	$136,000
Actuarial Value of Assets	$3,166,000	$136,000
Actuarial Value of Accrued Liabilities	$3,722,000	$198,000
Unfunded Liabilities (UAAL)	$556,000	$62,000
UAAL as a Percent of Covered Payroll	35.26%	Not reported
2002 UAAL as a Percent of Covered Payroll Ⓑ	13.26%	Not reported (2010)
KEY ACTUARIAL ASSUMPTIONS		
Assumed Investment Rate of Return	7.50%	4.50%
Wage Inflation	4.00%	Not reported
Asset Valuation Method (smoothing policy)	Market Value	Market Value
Actuarial Cost Method	Projected Unit Credit	Modified Aggregate
Amortization Period (for liabilities)	10 Years	0 Years
CONTRIBUTION INFORMATION		
2012 Actuarially Required Contribution (ARC) / Percentage of ARC paid	$951,000 / 26%	$18,000 / 188%
2012 ARC as a Percent of Covered Payroll	59.61%	Not reported
2012 Employee Contributions	$0	$0
2010 ARC / Percentage of ARC Paid	$239,000 / 80%	$36,000 / 100%
2010 ARC as a Percent of Covered Payroll	13.80%	Not reported
2010 Employee Contributions	$0	$0
2006 ARC / Percentage of ARC Paid	$154,000 / 114%	$17,000 / 100%
2006 ARC as a Percent of Covered Payroll	12.00%	Not reported
2006 Employee Contributions	$0	Not reported

See footnote descriptions on page 135.

Ⓐ N/A, the plan is administered by the sponsoring government or others.

Ⓑ Plan year 2002 data, except as noted.

Ⓒ Plan did not offer a defined benefit component until 2010. Actuarial valuation calculations are first available for plan year 2011.

Ⓓ No ARC required.

Ⓔ Contributions are determined by state statute and are partially fee based.

Ⓕ Contributions are subject to statutory maximums.

Ⓖ Contributions are determined by state statute and are entirely fee based.

Ⓗ Plan converted from a defined contribution plan to a defined benefit plan in 2009.

Ⓘ Plan established in 2008.

Ⓙ Liability amortization periods vary between 15 and 30 years by participating employer. Closed amortization is required for all periods in excess of 15 years and open amortization is used for periods of 15 years or less.

Ⓚ Varies for each participating employer.

Ⓛ 3.0% plus an allowance for merit, seniority, and promotional wage increases based on age and service.

Ⓜ Actual contributions include payroll-based amounts from employers and employee payroll deductions, late filing fees from county property assessments, 3/7 of penalty and interest for delinquent and back property tax payments, a $6 fee for recording or filing official documents, an additional $1 fee on each document recorded, a $20 fee for county merchant licenses, and any interest earned on investment of these collections prior to remitting to the plan.

Ⓝ Actual contribution amounts are set by legislation at 7.5% of covered payroll.

Government Finance Officers Association (GFOA) Resources

Our research identified valuable best practices resources and other guidance published by the GFOA. A full listing of GFOA best practices guidance, other advisories, and publications is available at http://www.gfoa.org/products-and-services/resources. Other organizations and authors publish similar resources and technical papers, which are generally available for download or purchase by sponsoring governments and retirement plans. Several of the available GFOA retirement system management resources most applicable to issues discussed in this survey are listed below.

BEST PRACTICES

- Actuarial Audits (May 2014)
- Core Elements of a Funding Policy (March 2013)
- The Role of the Actuarial Valuation Report in Plan Funding (February 2013)
- Procuring Actuarial Services (October 2012)
- Disclosures of Pension Funding Obligations in Official Statements (October 2012)
- Funding Defined Benefit Pensions (June 2012)
- Sustainable Pension Benefit Tiers (May 2011)
- Governance of Public Employee Postretirement Benefits Systems (March 2010)
- Public Employee Retirement System Investments (October 2009)
- Sustainable Funding Practices of Defined Benefit Pension Plans (October 2009)
- Asset Allocation for Defined Benefit Plans (October 2009)
- Design Elements of Defined Benefit Retirement Plans (February 2008)
- Developing a Policy for Retirement Plan Design Options (March 2007)

ADVISORIES

- Responsible Management and Design Practices for Defined Benefit Pension Plans (October 2010)
- Using Alternative Investments for Public Employee Retirement Systems and OPEB Established Trusts (October 2008)

In addition to the above resources, GFOA best practices and advisories cover other topics related to DB plans including communicating the plan design, educating members, developing retirement incentives, understanding pension fund risk, investing plan assets, and using pension obligation bonds to fund pensions. The available GFOA resources also cover other types of retirement plans including defined contribution and hybrid plans.