



The Iowa Policy Project

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POLICY BRIEF

Public Pensions in Perspective

Why Foundations of Iowa, Many State Pension Systems are Strong

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Introduction

A stable and durable public pension system, efficiently managed and funded, is important to employees, employers, the state, and the economy. Workers seeking a secure retirement, employers concerned about attracting and retaining a qualified, loyal workforce, and policy-makers seeking economic stability all have an interest in maintaining a healthy retirement system.

Our study finds that in Iowa and in most states across the country, public sector pension systems remain strong and healthy, serving as models of the important role pensions play in assuring retirement security to working Americans.

Along with Social Security and personal savings, defined benefit pension programs became a foundation of the twentieth-century U.S. retirement security system that made possible the emergence of a U.S. middle class and eliminated endemic poverty among the elderly. Today, particularly in the private sector where many major employers have eliminated defined benefit pension programs, this system has begun to unravel. The result is creating alarming levels of insecurity for current and future retirees.

Pensions are a form of deferred compensation, in which employees agree to work for a certain income, while a portion of their overall compensation is set aside by the employer in an account to be drawn upon at retirement age. Employees accept terms of employment with the expectation that this portion of compensation they have “loaned” to the employer will be returned to them when they retire. In recent decades, however, many private companies and even some public employers have failed to make good on this promise — failing for years to make their share of contributions to retirement accounts, exploiting loopholes in regulatory rules, or using bankruptcy to shed pension obligations.

Against this backdrop of broken promises, even well-managed, sound public sector pension systems like Iowa’s have come under attack. Most recently, sensational publicity associated with highly unusual cases of pension underfunding in Illinois and the city of Detroit may have clouded the public perception of public pensions in general. Our research shows that contrary to those unusual cases, Iowa and most states have generally healthy and well-managed plans that are built to last over the long term.

As private sector pensions disappear, some have also questioned whether remaining public pension benefits should be maintained. In reality, prior research shows that even when benefits (pension and health insurance) are taken into account, Iowa public sector employees are already

undercompensated in comparison to private sector counterparts with similar levels of education and experience.¹ Our current research further suggests that Iowa’s public pension system is functioning as intended as an efficient, predictable way for public employers to spread risk and affordably share costs of funding retirement for a large pool of employees.

Evidence compiled in this report shows that Iowa’s state plans are working well for employees, public employers, and taxpayers. Iowa has one large state pension plan covering most state and local government employees and three smaller plans covering police, sheriffs, judges and firefighters. Stock market downturns at the end of the last decade hit all investors — including public employee pension plans — but these plans have proven themselves to be remarkably durable and efficient. Iowa’s public pension plans have sufficient assets to pay benefits now and well into the future. And recent improvements in the plans’ designs have already enabled them to begin recouping losses incurred during the recessionary stock market decline.

Indeed, Iowa’s public pension systems today are serving precisely the chief public purposes — promoting “economy and efficiency” and enabling employees “to care for themselves in retirement” — that the state legislature intended. These goals are summarized well in the Iowa Code chapter governing Iowa’s largest state pension plan, IPERS, established 60 years ago:²

97B.2 Purpose of chapter.

The purpose of this chapter is to promote economy and efficiency in the public service by providing an orderly means for employees, without hardship or prejudice, to have a retirement system which will provide for the payment of annuities, enabling the employees to care for themselves in retirement and which will improve public employment within the state, reduce excessive personnel turnover, and offer suitable attraction to high-grade men and women to enter public service in the state.

This paper finds that the foundations of state pension systems in Iowa, as in most states, remain strong, and that these public pension systems illustrate the economic and social value of defined-benefit pension plans.³ Defined-benefit plans are guaranteed by design to achieve the chief purpose of a pension: to assure a secure benefit to a person in retirement. By contrast, defined-contribution plans — 401(k)s — and individual retirement accounts place that security at risk.

- Section 1 of this report explores the financing of pensions, examines the structure of pension plans, and explains the variables that are used in defining the financial health of plans. This section offers an explanation of the concept of “unfunded liability” that is often misconstrued in some political discussions of pension issues.
- Section 2 looks in detail at the four main public pension plans in Iowa, their background, their governing structures, and their overall financial health. The section shows how both employers and employees contribute to these plans, though employers sometimes fail to meet their obligations to make adequate contributions because there is no legal requirement to do so.
- Section 3 compares IPERS to similar plans around the nation. The comparison reveals that Iowa’s plans are among the strongest in the nation. It also finds that the foundations of nearly all states’ plans are strong, though there is room for strengthening them further. We find that in many cases, recent improvements have already set a course toward shoring up plans that faced funding challenges. Lastly, this section recommends areas where further steps could be taken to improve existing pension plans.

Section 1. The Financing of Pensions

1.1 How Does a Defined Benefit (DB) Pension Plan Work?

The purpose of a Defined Benefit (DB) pension plan is to pay a known and “defined” annual benefit to an employee for the duration of his/her retirement. The goal of a pension system is to provide a secure retirement, and this requires an adequate monthly income over the individual’s lifetime, no matter how long. That is what a DB plan is designed to accomplish.

In contrast, Defined Contribution (DC) plans, which have become more common in the private sector, establish the annual contribution into the individual’s retirement account; while the hope is that this account will be sufficient upon retirement to provide the employee with an adequate annual income, there is no guarantee and the size of the employee’s account at retirement is entirely dependent on the way it was invested and the ups and downs of the stock and bond markets during the employee’s working life. While an individual could purchase a lifetime annuity with the amount in his or her account upon retirement, that means that the individual’s lifetime income during retirement is dependent on whether the stock market is up or down when they retire. If you retire in the midst of a recession or a long bear market, that annuity will be far less than it needs to be.

A DB plan is an inherently more efficient way to provide retirement benefits. The monthly contributions per employee to provide a given level of retirement security are less because the risk of longevity — the risk of outliving your income — is pooled across a large number of workers. If the average worker will collect a pension for 15 years, then the contribution for each worker need only be sufficient to provide the average pension — 15 years of benefits. Yet the fund as a whole will still be able to guarantee everyone a lifetime pension because those who collect for fewer than 15 years will offset the cost of those who live longer.

Contrast such a pension fund to a DC plan, like a 401(k), where everyone has a separate individual account. Who would feel secure with an account sufficient to provide a pension for just 15 years, when you might well live another 15? Much more would have to be deposited in each worker’s account during their working years to provide a reasonable level of lifetime retirement security. In addition, a pension fund is likely to earn a higher return on its investments than the average 401(k) account because the fund, unlike the individual account, can afford to invest in higher-risk, higher-return securities because risk is pooled, and because the average worker’s low level of financial literacy can lead to bad investment decisions. Furthermore, the cost of managing a large pension fund is much less per retiree than the cost of managing an individual account, so the contributions to the 401(k) accounts must include the higher management fees.

The DB plan *determines the amount of the annual retirement benefit early in the employee’s career*. Once the total benefit is estimated, and to make future benefit payments possible, the employee and the employer pay for the employee’s future retirement during the course of the employment.⁴ This prepayment into the system should occur on an annual basis. The prepayment is part of the employee’s overall *compensation* package that is *deferred* until retirement. Because the pension system is pre-funded, an implication of a well-functioning pension system is that future generations of taxpayers are not expected to pay for the public services that current taxpayers utilize. Thus, while current taxpayers do pay some part of the cost of all public employees’ retirement plans, they do so only because they are receiving the services of current public employees.

Funding for retirement plans is based on a simple formula of assets equaling liabilities given by the following balance equation:⁵

$$C + I = B + E$$

- C = Contributions (employer and employee)
- I = Investment Income
- B = Benefits Paid
- E = Expenses (administrative)

The left side of the equation constitutes the income of the system while the right side consists of total expenses. If income goes down due to a decline in investment income, and expenses stay the same, the system expects contributions to rise in order to bring income into balance with expenses. Likewise, if benefits rise, and investment income stays the same, contributions have to rise again to bring the equation back into balance.

1.2 Funding Balance Equation⁶

At any given time, only estimates can be made about future benefits to be paid and future income to be received from investment assets. Fortunately, and because of the ongoing nature of the retirement pension system, estimated future incomes are not required to be equal to estimated future expenses at any one point. *What is expected is that if there is an estimated imbalance between income and expenditure, the retirement system will take the necessary steps to move toward balance over time, allowing the retirement plan to meet the funding requirements of the system over the long run.*⁷ To calculate the long-term funding requirements of the pension plan, in an environment where most expenses and income streams must be estimated, pension systems employ actuaries to make an actuarial valuation of all of the financial estimates and to judge whether the system is meeting, or making adequate progress toward, its requirements.⁸

1.3 Pension Funds: Fully Funded Vs. Underfunded

When an employee is just starting out, he or she has not yet accrued any pension benefits. Over time, however, the employee starts to accrue these benefits, which increase with each additional year worked, up to a point. From the perspective of the employer, these benefits are a liability (a promise or obligation to pay someone else). To be able to cover this future liability, annual contributions are made to the fund by the employer (and also the employee).

Normal Costs are the annual contributions that must be made to the pension fund in order to ensure that there are sufficient assets in the fund to pay future benefits. At any point, the stream of future benefits that the employee has earned can be converted to the present value equivalent — the sum of money that, if invested now at a certain interest rate, would grow by the date of retirement to a sum sufficient to provide the promised pension benefits. Ideally, the present value of benefits of all employees is matched by a combination of current assets — funds already accumulated through the payment of past normal costs into the fund — and future normal costs that will occur as employees continue to work and approach retirement. In other words, the fund is considered fully funded if current assets and the present value of additional assets to be contributed in the future equal the present value of pension benefits — the system's assets equal the system's liabilities.

At any point, the sum of the past normal costs needed to fund retirement benefits are called **Actuarially Accrued Liabilities**. While this is the amount that should have been paid into the fund to cover pension liabilities, there is no guarantee that these amounts have actually been deposited in the fund.

Because *actual* payment on retirement benefits does not have to be made until retirement day, the pension system can remain underfunded for some time and the amount by which it is underfunded is denoted by the ***Unfunded Actuarially Accrued Liability (UAAL)***. The reason for the UAAL might be that the employer neglected to pay the full share of the employer contribution in cash. It might also be that the investment income did not grow as expected. Regardless, just as someone may miss a mortgage payment, missing a normal cost payment or not transferring the full amount of cash associated with the normal cost means that future payments will be that much higher to take into account the lower payments of the past.

Once there is unfunded liability (UAAL), it has to be accounted for. The way that actuaries proceed with this accountability is to amortize the UAAL much as one would a home mortgage — that is, periodic payments are determined that will pay off the UAAL over time. The ***Actuarially Required Contribution (ARC)*** simply denotes the combined amount of normal cost and the UAAL amortization cost. Paying the full ARC means that the sponsor of a pension plan is putting aside funds to cover benefits earned in that year plus amortizing any unfunded liability.

1.4 Conclusion

Unfunded liability is not the lone barometer of the health of a pension system. As long as a plan meets the funding needs of the system over the long term, this unfunded actuarial liability has no negative impact on the long-term funding progress of the retirement system. All that is required for short-term solvency is for a retirement plan to have enough assets, at current market value, to pay off the total benefits as they come due each year. Unfunded liability does not mean the plan sponsor has to take drastic and immediate actions to reduce it or pay it off. It is “paid down” the same way a home mortgage is paid off. Each year the sponsor’s contribution includes a payment to pay down the unfunded liability. The health of the plan, therefore, has more to do with the plan sponsor’s ability and willingness to make this minimum required contribution.⁹

DB vs. DC: Defined Benefit Plans are More Efficient than Defined Contribution Plans in Providing Retirement Benefit

If we agree that pension income is desirable, then **defined benefit (DB)** plans offer a less costly and therefore more efficient way of producing this income than the alternative **defined contribution (DC)** plans.

There are structural differences between DB and DC plans. In a defined benefit pension plan workers receive a promise of a lifetime annuity that offers them a fixed monthly benefit starting at the point of retirement. This annuity is based on a formula linked to their salary, time of vesting, and years of employment. (A pension is “vested” when a plan member becomes eligible to receive benefits.) While formulas differ from plan to plan, they all require the worker to be vested in the plan after a number of years at work, and link the amount of benefit to the length of employment. For each month of service, the worker accrues this “defined benefit” and the sponsoring employer accrues an equivalent liability. Employer and employee alike make a monthly contribution. The amount of the contribution may change, but the amount of the benefit does not. Because the benefit is fixed, if the contributions and investment returns on these contributions do not add up to the total amount of the promised benefit, the employer makes up much of the difference.

In a defined contribution (DC) pension plan, workers accrue funds in individual accounts administered by the plan sponsor. Employers and employees alike may make monthly contributions to the individual employee’s account. These contributions are fixed, but the amount of benefit is not. At the time of retirement, the benefits accrued during the working career based on monthly contributions and investment returns will form the total benefit. *Over 30 years, according to a study by the National Institute for Retirement Security and consulting firm Milliman Inc., defined benefit plans delivered an almost 25 percent greater return to participants than defined contribution plans.*

To understand the difference, we look at the structure of risk associated with these plans. The employer bears most of the risks associated with providing an adequate benefit to the employee in DB plans. There is a temporal risk associated with funds coming up short at the time of retirement. However, through the pooling of risk across thousands of employees, the employer knows that all employees will not retire at the same time. This allows the employer to manage the timing risk. The pooling of funds, and therefore risk, also allows the employer to manage general financial/investment risk associated with changing market conditions. Individuals may outlive their expected pensions but spreading this mortality risk across beneficiaries allows the employer to fund for the average mortality rate. Finally, while employees age, pension plans do not. This long-lived nature of pension plans allows the employer to target high return investments with fewer risks. The employee does take on a few risks, however. The employee often bears the risk of inflation deteriorating the purchasing power of her benefits. The employee also bears a risk associated with the lack of portability of DB funds. Longer vesting requirements tend to increase this risk for the employee.

Defined contribution plans, by definition, are always fully funded. Whatever the balance happens to be at the moment is all that is required. This means that the employer is not required to take on the risk of providing a pre-defined amount of retirement funds. It also makes pension fund accounting very easy for the employer. All of the investment risks are borne by the employee. If there is a market downturn at the time of retirement, the employee’s nest egg can be severely reduced, affecting his income for the rest of his lifetime. If interest rates are low at the time of retirement, an annuity that an employee may wish to purchase will be more expensive. The employee also takes on the risk of outliving the pension income. The employee takes on the additional risk of managing a portfolio that he may or may not understand. Research shows that financial literacy is very low among 50- to 60-year-old Americans. In general this means that even when workers have access to DC plans, lack of understanding of financial markets, general myopia regarding decisions about the future, and lack of funds to hire the services of experts, all work against the employee’s ability to save sufficient funds.

Experts manage Defined Benefit plans. These experts have the advantage of professional knowledge of financial markets, the pooled resources of many members to spread risk, and the long horizon of an infinitely lived client — a government. All of this translates into lower costs associated of management and delivery of pension benefits.

Next we take a detailed look at the four major public pension systems in Iowa in terms of the variables we have developed in this section and that are outlined in the table below.

Table 1. Some Basic Definitions of Pension Plans

Defined Benefit Plans (DB)	A majority of state and local pension plans are designed in this form. Provides a safe, steady, and reliable lifetime income support for pensioners in their retirement. Removing DB plans, and/or redefining them in favor of Defined Contribution or hybrid plans would effectively gut the pension system. This should be contemplated only if pension systems have failed. There are no current examples of major failures in public pension systems.
Normal Cost	The annual contribution from system members (employees and employers) making contributions to benefits matches the accrual of benefits. Meeting normal costs means not only that the system is well-funded but also that generational equity is being preserved in terms of current taxpayers paying for current services.
Actuarially Accrued Liability (AAL)	The totality of benefits accrued by members in the system at any given point in time. Current employees continue to accrue benefits while retirees (also members of the system) do not accrue any additional benefits. AAL can change based on changes in the benefit structure as well as changes in demographics and employment trends.
Actuarial Value of Assets (AVA)	The actual value of current assets based on financial market considerations. This value differs somewhat from market values in that smoothing trends (usually three- or five-year smoothing) are used to average out current market fluctuations. Rising AVA shows a robust pension system capable of weathering cyclical financial market fluctuations.
Unfunded Actuarially Accrued Liability (UAAL)	$(AAL) - (AVA)$. This is accrued liability that is not matched by the existing value of assets. A rising UAAL shows the need for changes in a pension system to bring it back into fully funded status. Critics of public pension systems focus almost exclusively on this statistic to make the claim for drastic changes. While important in understanding the overall health of pension systems, this is perhaps a better indicator of the need for reform.
Actuarially Required Contribution (ARC)	Similar to normal cost, the ARC is an indicator that combines normal cost with the cost of amortizing UAAL. Meeting ARC on a regular basis is a good way for pension systems to maintain financial health or move towards recovery once economic, demographic or political conditions have moved them off course.

Section 2. Iowa's Four Major Pension Systems

The state of Iowa has four major pension systems that serve well over 10 percent of the population of the state, and their families. That fact alone and the magnitude of this impact on the state's economy should put policy makers on notice of the care with which they must approach public pension issues.

With over 325,000 members (current and retired employees) and 2,200 covered employers, the **Iowa Public Employees' Retirement System (IPERS)** is far and away the largest of the four systems.¹⁰ IPERS includes most public employees in Iowa. The second largest plan is the **Municipal Fire and Police Retirement System of Iowa (MFPRSI)**, with over 4,000 active members.¹¹ MFPRSI includes most professional police officers and firefighters who are employed by municipalities. The **Peace Officers Retirement System (PORS)** has a total of 1,226 members, 644 of whom are on active duty and the rest either retirees or inactive vested members.¹² This program includes peace officers employed by the Department of Public Safety. The smallest pension system is the **Iowa Judicial Retirement System (JRS)**. This system has 385 members, 197 of whom are active judges. The rest are either retired judges or inactive vested judges.¹³ The Judicial Retirement System includes appellate and trial court judges, district associate judges, and full-time associate juvenile and probate judges.¹⁴

All four plans are defined benefit plans where moneys are contributed to the plan during the person's working lifetime and, upon retirement, the person can withdraw the monies either in a lump sum or periodically in the form of an annuity. Contributions to the plans and accumulations during the working lifetime are tax-free.¹⁵ Each benefit plan uses a formula to define the amount of benefits that employees will receive.

The Iowa Public Employees' Retirement System (IPERS) was established by Code Chapter 97B in 1953 to replace the Iowa Old Age Survivor's Insurance System (IOASI). IPERS members include the vast majority of state employees comprising occupations from school teachers to state social workers, as well as county sheriffs and deputies and police and firefighters in municipalities with populations under 8,000. IPERS members also enroll in Social Security (unlike members of MFPRSI).

IPERS

The Municipal Fire and Police Retirement System of Iowa (MFPRSI) was established by Code Chapter 411.¹⁶ It includes police officers and firefighters in the 49 largest municipalities in Iowa. MFPRSI has been a statewide system since January 1, 1992. This system replaced 87 different local fire and police retirement systems that existed in those 49 cities, consolidating the systems into one governing body with one institutional plan and, perhaps more importantly, one investment policy for the collective resources of the 49 cities. In order for the system to come together, the legislation provided for startup funding by the state — funding that continues off and on to this day. The state has also imposed enhanced benefits and increases in yearly contribution levels.¹⁷ Members of MFPRSI do not participate in the Social Security system (state and local public employees are not required to under Federal law). Thus the MFPRSI system, unlike IPERS, must make up for the absence of Social Security retirement benefits, and the absence of Social Security disability and survivors' insurance as well. The latter two forms of insurance are clearly important in occupations as risky as police work and firefighting.

MFPRSI

The Iowa Department of Public Safety Peace Officers Retirement, Accident and Disability System (PORS) was established by Code Chapter 97A. Members of PORS do not contribute to Social Security and, historically, their benefits and formula have been nearly identical to those provided in MFPRSI.

PORS

The Judicial Retirement System includes most of Iowa’s judges. Magistrates are covered by a special group in IPERS. Unlike the other retirement systems, the Judicial Retirement System is referenced in the Constitution of the State of Iowa. This makes the provision of retirement benefits for judges of the Supreme Court and district courts a requirement of the state. Members of the Judicial Retirement System contribute to, and receive Social Security benefits.

JRS

2.1 Governance

Although private pensions are subject to oversight by federal law requirements stipulated in the Employee Retirement Income Security Act (ERISA) and the Pension Protection Act of 2006, public pension plans are not. They do, however, have to abide by many federal laws that affect employment generally. Laws such as the Americans with Disabilities Act (ADA) and the Age Discrimination in Employment Act (ADEA) do impact several of the options included in state governed retirement pension plans. By and large, state law governs the four main retirement systems in Iowa.¹⁸ Chapter 97D of the Iowa Code establishes some guiding principles for legislative changes to the retirement systems.¹⁹

The Legislature has responsibility for the governance of the entire retirement system. Given that the state has ultimate fiduciary responsibility for the system, lawmakers have created reporting requirements to help facilitate their function. Each public retirement system is required to provide an annual actuarial valuation of the assets and liabilities of the system.²⁰ This valuation contains a description of all of the actuarial assumptions that go into determining the financial health of the system. The report also discusses the ways in which the actuarial assumptions change over time. The findings of this report and other information go into the development of retirement standards and ultimately into developing and maintaining a coherent state policy on public retirement systems. A 10-member legislative committee, the Public Retirement Systems Committee, is tasked with recommending changes in the retirement system to the General Assembly.²¹

The expert analyses of the actuary as well as the analysis of the investment advisor are crucial in understanding the financial health of the overall system. The government relies heavily on the evaluations contained in this annual document of actuarial valuation to make their decisions regarding contractual and statutory changes that might be needed to keep the retirement system solvent. The actuarial valuation, along with Comprehensive Annual Financial Reports (CAFR), are considered to be two aspects of “best practice” in keeping all relevant parties abreast of the financial status of the retirement system. They are also public documents, available at the appropriate websites.²²

In addition to the Public Retirement Systems Committee, each retirement system has its own governing body. IPERS has a Chief Executive Officer who is appointed to a four-year term by the Governor, subject to Senate confirmation. It has an Investment Board of 11 members: the State Treasurer, three general public members with substantial expertise in institutional investment, three IPERS members (two active and one retiree) and four nonvoting legislative members.

MFPRSI works under the direction of a Board of Trustees. The board consists of 13 members including nine voting members and four non-voting members. The nine voting members have two firefighters from different cities, one active and one retired; two police officers from different cities, one active and one retired; a city treasurer, a city financial officer or financial clerk from four participating cities; and a citizen member appointed by the board.²³

PORS is governed by a five-member Board of Trustees. This board includes the Commissioner of Public Safety, the State Treasurer, an active member of the system (future beneficiary) and a retired member of the system (a current beneficiary). The Governor appoints one other member from the general public, with executive experience in the financial sector. The elected members and the appointed member have two-year terms.²⁴

The Judicial Retirement System is administered by the State Court Administrator, who is appointed by the Supreme Court. The State Treasurer invests funds with advisory help, as needed, from institutional investment advisors and consultants.²⁵

2.2 Benefits and Contribution Rates

As with most defined benefit plans, the Iowa retirement system receives contributions from both the employer and the employee. The rates are often mandated by law, which usually sets a bottom limit on what the employer must contribute to the system per employee. The employer can, of course, contribute more to the system than is publicly mandated, and is often asked to do so by the actuarial and financial advisors of the system. But because this is not a requirement, the systems often fail to contribute the amount needed to keep them completely financially successful.²⁶

In IPERS, contribution rates changed slowly prior to July 2007. Employees contributed 3.7 percent of their covered wages, while the employer contributed 5.75 percent for a combination of 9.45 percent. Rates were required to change after July 2007 because of the volatility in the financial markets. Now the total contribution rate established by the Board of Trustees requires that the employer's contribution contributes 60 percent of the funds required by the system and employee's contribution provides 40 percent of the required funds.²⁷ To make that possible, employees currently contribute 5.95 percent of the overall payroll, while employers contribute 8.93 percent of the payroll.

Benefits for retirement under IPERS differ for the three different classes of members in the system. Most of the members are in the regular service class and they are vested in the system after seven years. This vesting requirement was raised recently.²⁸ One benefit of this action to the state might be reduced staff turnover often associated with younger staff. A staff member who joins late in his/her working lifetime is automatically vested at age 65. A member of the special service class in the protection occupation or the sheriff's classification becomes vested after four years of service or at age 55.²⁹ Members of the regular class have a normal retirement age of 65 whereas members of the two special services classification have a normal retirement age of 55.³⁰

Benefits for retirement under MFPRSI follow a similar principle to that of IPERS. The employee contributes at least 9.4 percent of his/her covered salary while the employer has to contribute at least 17 percent. As with IPERS, changes in the law for the 2013 fiscal year require the overall contribution to keep up with the financially required commitment. The employer can expect to pay up to 60 percent of the required commitment while the employee has to cover the other 40 percent.³¹ In the past, the state provided direct assistance to MFPRSI annually to establish an initial bank of assets. That commitment has ended but the state has provided assistance on an ad

hoc basis to keep the system functioning smoothly.³² To get full benefits at retirement, an MFPRSI member must serve at least 22 years and be at least age 55. Members are vested after four years.

Members in PORS contribute in a manner similar to the other retirement systems. An employee in this retirement system, beginning July 1, 2011, must contribute more than the previous rate of 9.35 percent. The employee rate can rise by one-half percentage point each fiscal year until it reaches 11.35 percent. The employer also has to increase its rate to fund the system. This formula is a bit more complex than in the case of the other two plans. The employer started out at a rate of 19 percent and has seen a rise of 2 percent per fiscal year. This rise will continue until it gets to 37 percent of the payroll. However, because of the rising rate on the employee, the employer, after July 1, 2017, will be required to contribute the lesser of 37 percent or the amount needed to fund the system. If both parties reach their statutory limit before the system is funded, then each can expect to fund the system so that 40 percent is borne by the employee and 60 percent by the employer.³³ A member of PORS is fully vested after four years of service. For normal retirement to occur, the member has to be at least 55 years of age and to have been in the employ of a PORS employer for at least 22 years. As with other plans, there are various options for early retirement, opting out, disability pay, etc.³⁴

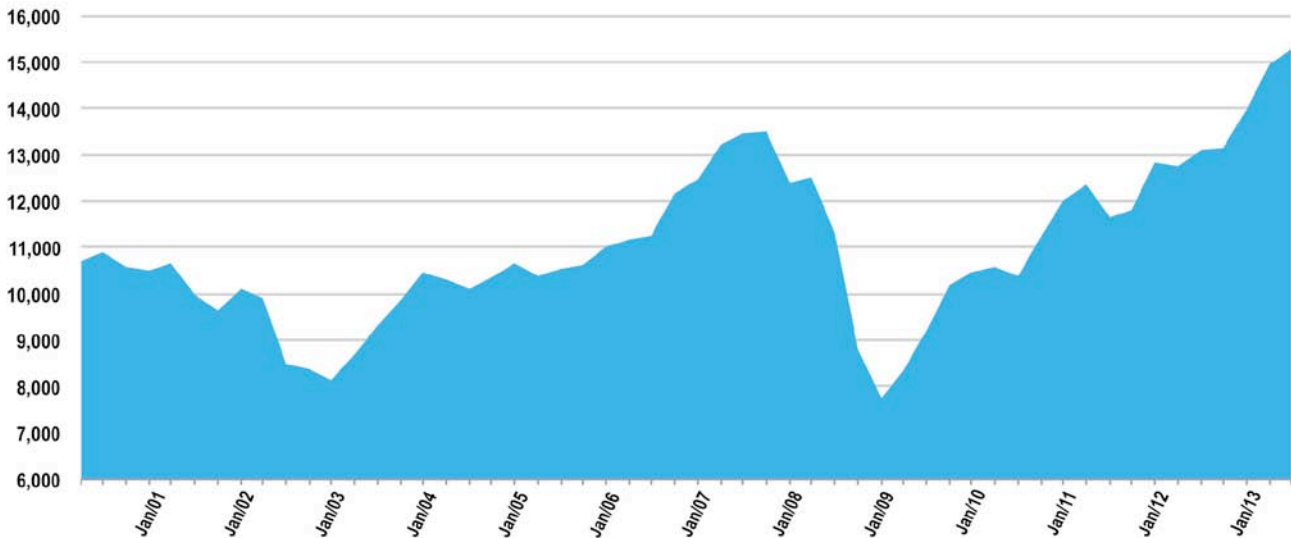
The laws of contribution in the Judicial Retirement System are similar to the PORS. By July 1, 2007, a watershed year for contribution rates in the Iowa system, an employee paid up to 6 percent of his/her salary. By July 2010, the employee was paying 9.3 percent and the employer was paying 30.6 percent. Reaching the “fully funded” status will require further changes in the contributions with additional costs being shared on a 40 to 60 basis between the employee and the employer. A judge must have at least four years of membership service and have attained the age of 65, or have at least 20 years of consecutive membership service and reached age 50.³⁵

Section 3. The Iowa Plans and Plans Around the Country

3.1 Public Pension Funds: Underfunded, but a Solid Foundation

The past decade was not kind to pension plans of any variety, defined benefit or defined contribution, public or private. Figure 3.1 tells much of the story of the financial woes of state and local retirement plans in the past decade.³⁶ Pension shortfalls were caused in substantial part by the 2001 recession and the recession of 2008.³⁷ All state and local pension plans, as well as private 401(k) plans are heavily invested in the financial markets and rely on these very markets to produce financial value in their assets.

Figure 3.1. Stock Market Fluctuates in Early 21st Century
United States Stock Market (Dow Jones) Quarterly Average



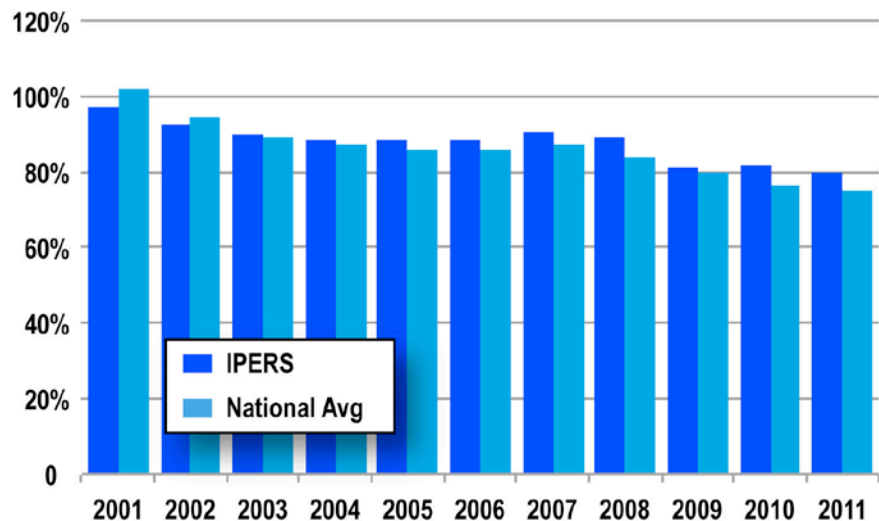
Source: FRED – Federal Reserve Bank of St. Louis³⁸

Like all investors, public employee pension plans were hit by the downturn in the stock market, but they are durable and efficient and, over time, they can recover their losses. Some state plans that did not make adequate pension contributions in the past face bigger issues today, but in the past few years, all states have taken steps to change contribution rates and benefit levels.³⁹

3.1.1 Underfunded

One way states deal with economic downturns or fiscal shortfalls is to cut back on what some might call non-urgent expenditures. For state pension plans, unfortunately, this often means state employers do not always make the required payments to amortize their growing liabilities, resulting in the growth of unfunded accrued liabilities. Figure 3.2 shows this trend for both state plans in general and IPERS in particular over the past decade.

Figure 3.2. Funded Ratios Declining for IPERS and Other State Plans



Source: Munnell (2012), Author's calculations based on various IPERS CAFR reports

Recall that while a 100 percent funded ratio is desirable, funded ratios above 80 percent suggest that a plan has a reasonable chance to become fully funded over time.⁴⁰ We note that at the start of the past decade, most of the nation’s public retirement plans were in pretty decent shape. In fact, IPERS was not quite fully funded while many other plans, flush from a decade of high growth and productivity, were overfunded. The dot-com bust of the early part of the decade brought the average funded ratio below 100 percent and we have lost considerable ground since then. Then the second stock market crash hit in FY2008 and while IPERS appears to have recovered some ground since then, most national plans fell further behind in their ability to fund their previously unfunded accrued liabilities.

To understand why funded ratios tend to drop, view IPERS’ unfunded liabilities from the angle in Table 3.1. Here positive numbers are bad news: factors that drove up unfunded liabilities. Negative numbers represent good news: trends or factors that reduced liabilities.

Table 3.1. Breaking Down the Changes in IPERS’ Unfunded Actuarial Accrued Liability (\$Millions)

	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12
Unfunded Actuarial Liability (Year Begin)	\$1,255	\$1,867	\$2,176	\$2,289	\$2,507	\$2,266	\$2,665	\$4,895	\$4,931	\$5,682
• Expected Change										
— From Amortization Method	\$24	\$36	\$42	\$22	\$49	\$44	\$52	\$95	\$96	\$110
— Contributions Below Act. Rate	\$61	\$87	\$103	\$125	\$118	\$127	\$140	\$248	\$218	\$65
• Investment Experience	\$402	\$75	-\$89	-\$235	-\$622	\$5	\$1,903	\$666	-\$66	\$168
• Liability and Other Experience	\$125	\$82	\$57	\$242	\$187	\$214	\$135	-\$185	-\$17	-\$109
• Benefit Enhancements	\$0	\$29	\$0	\$0	\$0	\$6	\$0	-\$674	\$0	\$0
• Change in Methods/ Assumptions	\$0	\$0	\$0	\$64	\$27	\$3	\$0	-\$114	\$417	\$0
• Change in Actuarial Software	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$103	\$0
Unfunded Actuarial Liability (Year End)	\$1,867	\$2,176	\$2,289	\$2,507	\$2,266	\$2,665	\$4,895	\$4,931	\$5,682	\$5,916

Source: IPERS CAFR 2012

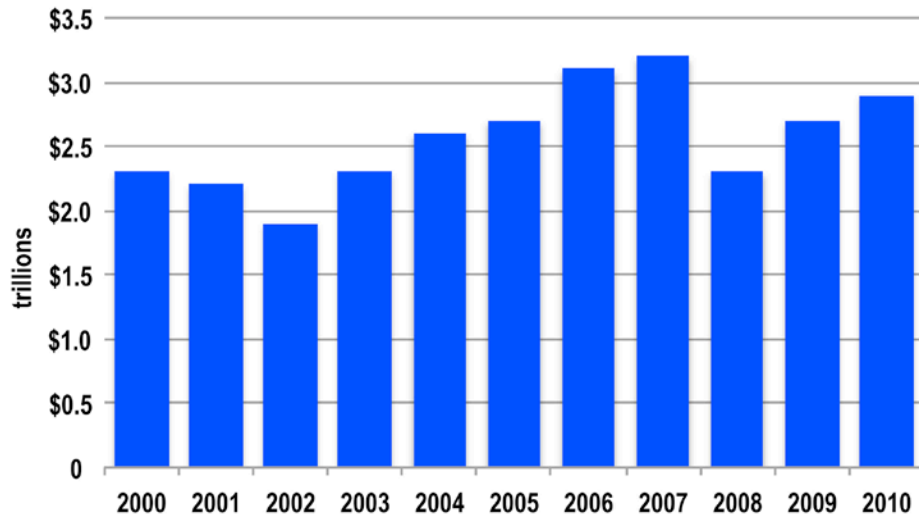
The stock market declines during the financial crisis and recession played a significant role in raising unfunded liabilities in fiscal years 2009 and 2010. But investment changes do not tell the whole story. We note the pervasive influence of contributions not meeting the ARC on UAAL. Also, with the exception of the last three years, liability experience has raised UAAL significantly. Liability experience reflects actual demographic experience that turns out to be either favorable or unfavorable in relation to the demographic assumptions made by the actuary. In this particular case, more members retired than expected in fiscal years prior to 2010, causing an overall increase in liability.

3.1.2 Solid Foundation

What then makes us suggest that public pension plans have a solid foundation? First, there is no immediate shortage of funds to pay benefits. The public funds generally are solvent, though they are still recovering from the devastating effects of a stock market collapse. Collectively they held almost \$3 trillion in assets and have recouped almost two-thirds of the \$ 0.9 trillion that they lost

in the stock market in the most recent downturn. As Figure 3.3 shows, states recovered a lot of their assets.⁴¹

Figure 3.3. Assets in State/Local Pension Trust Funds Recovered Large Share of 2008 Losses



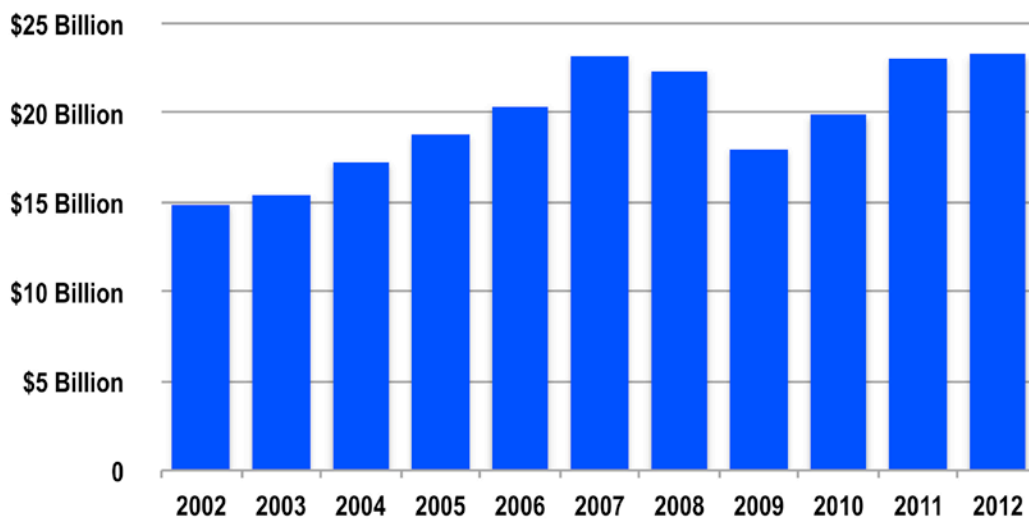
Source: Federal Reserve, in McNichol, Lav (2011)

Because the trust funds are so large, pension expert Professor Alicia Munnell of Boston College points out, they “have a solid foundation in place. ... [E]ven after the worst market crash in decades, state and local plans do not face an immediate liquidity crisis.”⁴²

It is estimated that even if there were no further contributions to state funds from now on, they would be able to pay all retirees in full for close to 30 years. That suggests that public funds have some breathing room to make reasonable and gradual adjustments.

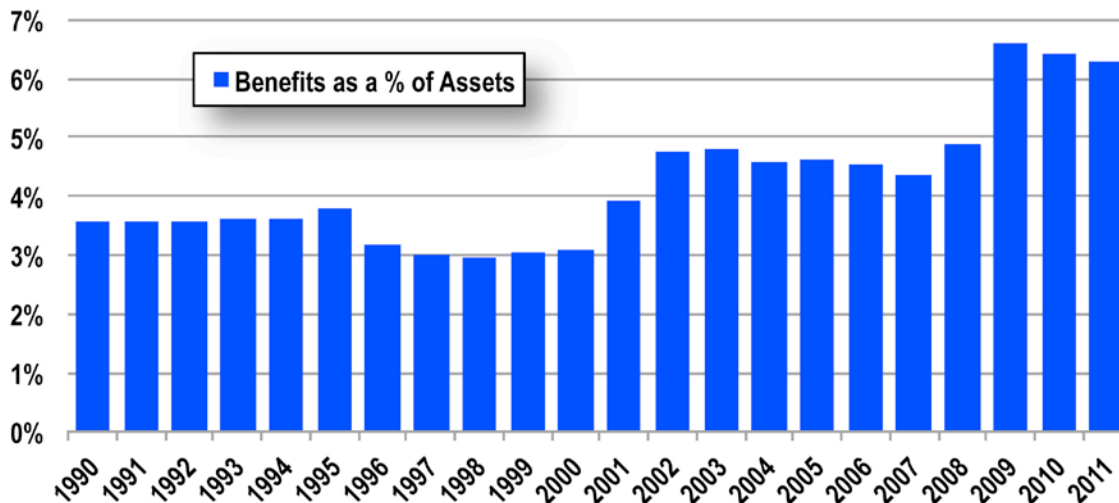
Like other state plans, IPERS has no cash issue. Figure 3.4 below shows net assets in the IPERS portfolio also have made a good recovery. And Figure 3.5 shows IPERS assets have nearly returned to 2007 levels.⁴³ This allows IPERS considerable time to systematically address issues of underfunding.

Figure 3.4 IPERS Assets Have Almost Reached Pre-2009 Levels



Source: IPERS CAFR 2012, pg. 102

Figure 3.5. Benefits Paid Have Increased But Are Still Very Low in Relation to Assets for IPERS



Source: Fiscal Year 2013 Budget briefing, IPERS, pg. 5

3.2 State Actions Bring Gradual Change in Pension Plans

From 2009 through 2011, 43 states enacted major changes in state pension plans for large categories of public employees to address long-term funding issues. Changes were designed to reduce state costs by increasing employee contributions and by cutting benefits, either by raising the length of service and age requirements for receiving a pension, or by reducing the factor that determines the percent of salary that an employee receives as a pension payment for each year.⁴⁴

Such legislation was rare before 2005, but became a national trend from 2009 on. Ten states made such changes in 2009; 21 did so in 2010 and 32 did so in 2011. A total of 43 states made changes over the three years (several states acted more than once).⁴⁵

Referring back to the **Basic Funding Equation** for the actuarial financing of pensions, we note that the investment experience of the last decade translates into lower investment returns on the left side of the equation.

$$C + I = B + E$$

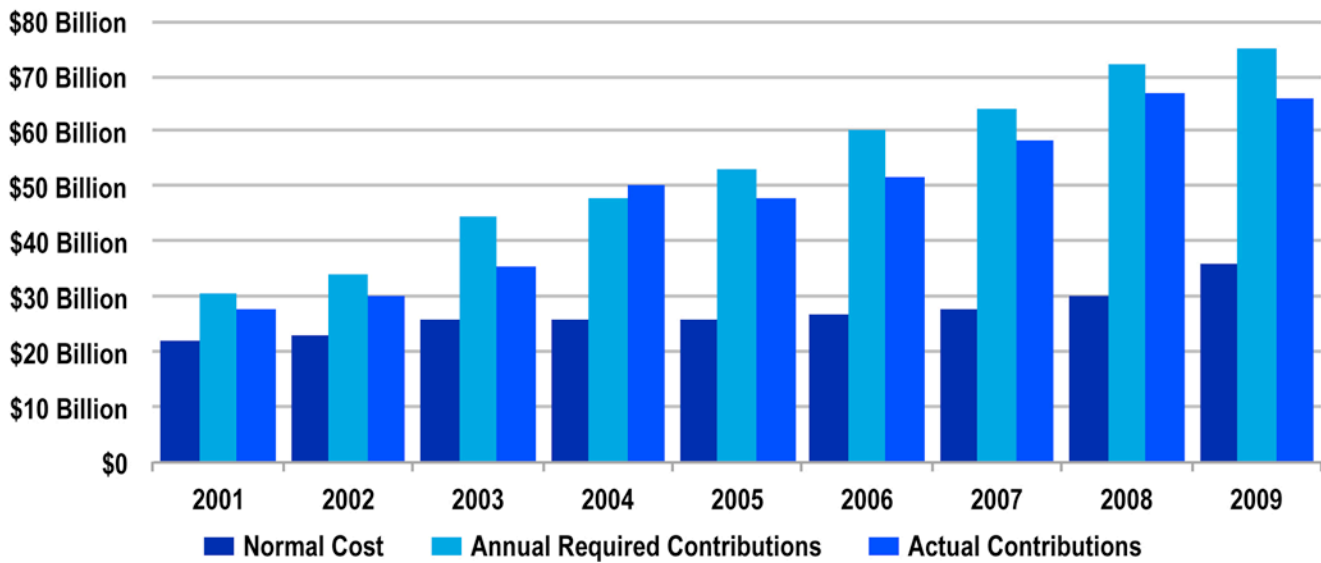
Contributions + Investment = Benefits + Expenses

Consequently, a return to balance requires either a rise in contributions or a decline in benefits, or a combination of the two.⁴⁶

3.2.1 Regular Payment of the Annual Required Contribution (ARC)

Recall that ARC constitutes both the normal cost of amortizing regular accrued liabilities and an additional payment to amortize any unfunded liabilities (based on an amortization period between 25 and 30 years). In Figure 3.6 we see that the actual contributions of state and local governments in the aggregate have fallen short of the annual required contributions in all but one year (2004) since 2001. In this chart, the difference between the annual required contribution and the normal cost represents the additional payment needed to eliminate unfunded liabilities over time. Failure to meet ARC simply means higher and higher required contributions in the future; in the chart we see that the ARC has been rising more rapidly than normal cost, as the contribution needed to eliminate unfunded liabilities rises. There are many reasons why states have failed to make their required contribution. An increase in contribution rates often requires legislative action, and state legislatures are often reluctant to raise these rates.

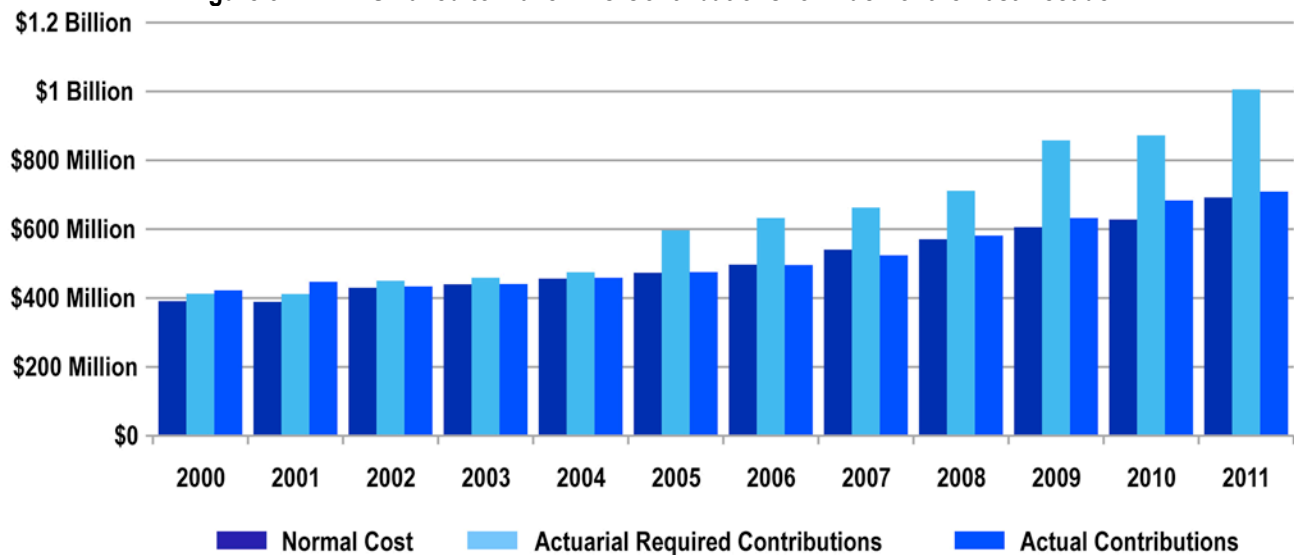
Figure 3.6. Governments Have Been Negligent in Paying Their Required Contributions



Source: Gokhale, Jagadeesh, "State and Local Pension Plans" (2012)

For IPERS, as Figure 3.7 shows, Iowa contributed just about the required amount in the first half of the decade but then the required contributions began to outpace the actual contributions. In the early part of the decade, the ARC was set at the statutory contribution rate of 9.45 percent and did not reflect the rise in the UAAL resulting from the drop in the stock market in 2003. Starting in 2005, the ARC began to rise and the state was urged to raise the statutory rate as well.

Figure 3.7. IPERS Failed to Make ARC Contributions for Much of the Last Decade



Source: Author's calculations from IPERS CAFRs (various years)

Under legislation enacted in 2010, IPERS will have some state constraints loosened and the trustees will be allowed to increase the combined rates for both employees and employers on their own by up to 1 percent per annum, provided the increase is shared on a 40 percent to 60 percent basis between employees and employers. As a result of these changes, IPERS made its full ARC payments in FY2013.⁴⁷ Barring any major changes from the prevailing demographic and economic assumptions, this means IPERS will be fully funded in 30 years or less. Even if funding expectations do not materialize, the process suggests a political will on the part of the state employer and IPERS members to move toward full funding in the long run.

3.2.2 Employee Contributions

An employee contribution is a standard feature of defined benefit public pension plans. In a survey of major pension plans, only six out of 87 were found to not require any contribution from employees.⁴⁸ In 2010, 12 states increased employee contributions. In seven states, the increase affected current employees and in five only new hires.⁴⁹

Iowa public employees are among those contributing more. Since 2010, the IPERS contribution rate for employees had been rising 0.5 percentage points per year. After changes in the law, effective July 2011, there was a one-time increase of 2 percent in contribution rates with the law stipulating that further changes would not exceed 1 percent per annum. IPERS made its full ARC contributions in FY2013.⁵⁰

3.2.3 Employer Contributions

Because collective bargaining agreements have prevented employee contribution rates from rising substantially, employers have absorbed a greater share of increases in contribution rates in the past. However, there has been a temptation, especially in times of fiscal stress, to make inadequate contributions so as to relieve some pressure on tight state and local budgets. This, of course, only makes future costs rise that much more — creating a climate for critics of public employees to propose rash adjustments in an otherwise stable system. However, state employers have been increasing contributions steadily between 2008 and the present.⁵¹

In Iowa, pension spending constituted only 2.2 percent of state and local government expenditures, ranking Iowa 41st in the nation in the percentage spent on pensions.⁵² As Appendix C shows, among neighboring states, Iowa's spending is barely higher than that of Minnesota and Nebraska, and quite a bit lower than that of Illinois, Wisconsin and Missouri.

3.2.4 Retirement Age and Vesting Requirements

Raising the time until a member is fully vested amounts to a reduction in benefits. The vesting requirement in IPERS, until July 2012, had been four years of service. That has been raised to seven years.

Retirement benefits are usually determined on the basis of a formula. The general formula used to determine the payments to retired employees is: Retirement Annuity = (Years Worked x Formula Multiplier)/100 x Average Salary. For example, employees who retire after working 30 years in a state with a formula multiplier of 2.0 would receive an annual pension equal to 60 percent [(30 x 2.0)/100] of their average salary over a set number of years.

Changes in IPERS retirement benefit calculation will now require the salary to be averaged over the last five years of service as opposed to three years. This has the effect of lowering benefits to the extent that an employee's pay had been rising since it brings earlier, lower paying years into the calculation. The benefit multiplier of 2 percent will not change, however. Any reduction in the multiplier would have reduced benefits by a substantial amount. A change in the benefit multiplier to 1.5 percent, while discussed, was not approved.

Many states are raising the age at which an employee qualifies for a full pension to reflect the fact that people on average are staying healthier longer and living longer than in the past. The increased life expectancy that is relevant, however, is not life expectancy at birth but at age 65, and recent evidence has shown clearly that the increase in longevity for those reaching 65 is primarily among those in the upper half of the income distribution. People retiring now at age 65

who have earned below median earnings cannot expect to live much longer than their counterparts of 40 or 50 years ago. States have long recognized that certain jobs, police and firefighters for example, are too physically demanding for older workers to perform. In order to protect the public interest, as well as the safety of police officers and firefighters, most states have a lower retirement age, usually 55, for workers in those professions. Some states, motivated by a desire to lower pension costs, have disregarded these concerns and have raised the retirement age for all police and firefighters.⁵³

In 2011, 17 states enacted higher age and service requirements for benefits, generally for new hires. In Iowa there has been no discussion about the retirement age. But members who choose to retire before their full normal retirement year will now have their lifetime benefits reduced by 6 percent (rather than the previous 3 percent) for each year before normal retirement.

3.2.5 Discount Rate

All assessments of the health of IPERS and the other retirement systems depend on the assumed interest rate earned on investments. The future rate of return earned on the investments that make up a pension fund is referred to as the “discount rate.”¹ It is simply an interest rate, and is currently set at 7.5 percent; that is the rate used by actuaries in evaluating Iowa’s pensions systems. Some critics claim that this rate is too high. We deal with the question of the appropriate discount rate more extensively in Appendix B, but suffice it to say here that historically pension funds have returned rates of in excess of 7.5 percent all over the nation. Assuming the next 30 years will be similar to the previous 30, the rate is appropriate.⁵⁴

3.2.6 Moving Toward Full Funding

After several years of not meeting the actuarial assumptions identified in their actuarial valuations, IPERS staff, their investment board and Benefits Advisory Committee (BAC) reviewed their options and decided upon a set of recommendations regarding the funding of benefits that they then presented to the state Legislature. It should be noted that BAC is composed of four employer and four employee representatives plus one public member. Thus, from the outset, the movement to shore up the pension system and the discussion surrounding the proposals had a fairly broad representation of the major stakeholders. Legislation emerged from this process in 2010 and was phased in over the next two years. This legislation had fairly broad support from both employee and employer groups. It should be noted that Iowa made fairly minor changes compared to those needed for some other state pension systems, the 2010 legislation has put the state’s biggest pension system on a path toward fully amortizing its unfunded liabilities. Further, the Iowa process won the commendation of the Center for State and Local Government Excellence (CSLGE). According to the CSLGE, the following lessons can be learned from the Iowa experience:⁵⁵

- **Realize the magnitude of the problem.** The IPERS administration and the BAC recognized that the system had a significant funding problem requiring material changes. Some Iowa legislators believed that the system could invest its way out of trouble without changing contribution levels or modifying benefits. The IPERS administration and the BAC moved quickly to lay out the facts and provide focused, long-term strategies for addressing the growing unfunded liability.
- **Be pragmatic in approach.** Pension funding issues cannot be solved overnight. Incremental steps to “course-correct” are effective because of the long-term nature of a pension system.

¹ This rate is used to “discount” future pension liabilities back to the present, as discussed earlier, so that one can compare this “present value” of future liabilities with the actual, present value of the assets in the pension fund.

IPERS understood this and elected to make incremental reforms to contribution levels and benefits that would have long-term impacts rather than looking for a short-term solution such as issuing a bond to cover outstanding debt.

- **Survey the possibilities.** Before deciding on changes, IPERS and the BAC considered a wide range of possible adjustments as presented by their professional actuary. While various stakeholders preferred some changes to others, they gave everything serious attention before agreeing on the final change package.
- **Ease pension plan members through the change process.** When changes to a retirement system are discussed publicly, members and retirees often question whether their benefits are secure. To ease their concerns, IPERS made transitional provisions and provided members with accurate and timely communications.

The final arbiter of financial health for any retirement plan has to be the financial markets. The bond rating agencies judge the health of a particular state by rating its bonds. Recently, ratings firms like Moody's and Standard and Poor's have started to include the pension liabilities of state pension funds in their calculations. As Table 3.2 shows, even by adding pension liabilities to overall debt, the debt to GDP ratio of most states remains very low. This has prompted the rating agencies to give all of the state debt very high ratings. Barron's offers this summary, noting, "South

Table 3.2. Barron's: Financial Market Ratings Show State Debt to GDP is Low

State	Debt to GDP	Unfunded Pension Liability to GDP	Debt + Pension Liability to GDP	Bond Ratings**	Spread above AAA Benchmark 10-Yr Muni***
South Dakota	0.7%	0.3%	1.0%	NR/AA+	28
Iowa	0.6	0.7	1.3	Aaa/AAA	18
Tennessee	0.8	0.7	1.5	Aaa/AA+	4
Nebraska*	0.0	1.7	1.7	NR/AAA	23
North Carolina	1.8	0.7	2.5	Aaa/AAA	2
Idaho	1.5	1.3	2.8	Aa1/AA+	23
Minnesota	2.2	0.7	2.9	Aa1/AA+	5
Nevada	1.7	1.3	3.0	Aa2/AA	65
New Hampshire	1.6	1.4	3.0	Aa1/AA	7
Wyoming*	0.1	2.9	3.0	NR/AAA	23
Michigan	2.0	1.1	3.1	Aa2/AA-	53
Ohio	2.4	0.8	3.2	Aa1/AA+	28
Texas	1.2	2.1	3.3	Aaa/AA+	15
Georgia	2.6	1.0	3.6	Aaa/AAA	0
Florida	2.9	0.7	3.6	Aa1/AAA	25
Virginia	2.2	1.5	3.7	Aaa/AAA	2
Colorado*	1.0	2.8	3.8	Aa1/AA	23
North Dakota*	0.5	3.5	4.0	Aa1/AA+	23
Missouri	1.8	2.2	4.0	Aaa/AAA	0
Wisconsin	4.1	0.0	4.1	Aa2/AA	24
Utah	3.2	0.9	4.1	Aaa/AAA	1
Delaware	3.7	1.0	4.7	Aaa/AAA	0
Montana	0.9	3.9	4.8	Aa1/AA	28
South Carolina	2.3	2.6	4.9	Aaa/AA+	8
Oregon	4.0	0.9	4.9	Aa1/AA+	10
Indiana	1.0%	4.2%	5.2%	Aaa/AAA	18
Washington	5.0	0.4	5.4	Aa1/AA+	28
New York	5.4	0.3	5.7	Aa2/AA	20
Vermont	1.9	3.9	5.8	Aaa/AA+	9
Pennsylvania	2.5	3.5	6.0	Aa2/AA	23
Oklahoma	1.5	4.8	6.3	Aa2/AA+	28
Alabama	2.3	4.1	6.4	Aa1/AA	22
Arkansas*	0.9	5.7	6.6	Aa1/AA	21
California	4.9	1.9	6.8	A1/A-	66
Arizona*	2.5	4.5	7.0	Aa3/AA-	30
Alaska	2.0	5.5	7.5	Aaa/AAA	0
Kansas	2.7	4.9	7.6	Aa1/AA+	24
Maryland	3.4	6.2	9.6	Aaa/AAA	1
Louisiana	2.6	7.3	9.9	Aa2/AA	25
Maine	2.2	8.0	10.2	Aa2/AA	16
West Virginia	3.2	8.7	11.9	Aa1/AA	26
New Jersey	7.2	5.0	12.2	Aa3/AA-	38
Massachusetts	8.1	4.7	12.8	Aa1/AA+	21
Rhode Island	4.2	8.8	13.0	Aa2/AA	57
Mississippi	5.3	9.0	14.3	Aa2/AA	25
New Mexico*	3.7	10.6	14.3	Aaa/AA+	13
Kentucky	5.4	10.3	15.7	Aa2/AA-	23
Hawaii	8.0	8.1	16.1	Aa2/AA	20
Illinois	4.9	11.4	16.3	A2/A+	157
Connecticut	7.9	9.2	17.1	Aa3/AA	28
Average					24

* Barron's calculations; all others by Eaton Vance; ** Moody's, S&P ratings; *** Yield spreads expressed in basis points, or hundredths of a percentage point. NR=Not Rated. Sources: Eaton Vance; Thomson Reuters; Janney Capital Markets — all cited by Barron's. (See citation in text above.)

Dakota and Iowa lead the pack in strength of state finances,” based on debt and unfunded pensions compared with state GDPs. “While states vary widely by that measure, the yields of their bonds are relatively similar.”⁵⁶

Iowa’s debt plus pension liabilities together are only 1.3 percent of state GDP, the second lowest percentage among the states, and Iowa has the highest bond ratings possible from both rating agencies. Iowa has a lot of breathing room to get to a fully funded IPERS. We have looked in detail at the largest state pension plan, IPERS. How have the three smaller plans fared in this past decade of turbulent financial markets?

3.3.1 Impact of Investment Decline on MFPRSI

The employer’s contribution to MFPRSI seems exceptionally high, but this is the result of a number of different factors, not all of which will continue in the long run. MFPRSI participants are not eligible Social Security benefits, so the cities’ contribution to MFPRSI includes an amount that the cities save by not be required to contribute to Social Security. The primary cause was the historic decline in the stock market which occurred in 2007-08. The shortfall in return on investments was exacerbated by the fact that the state cut its own contribution to MFPRSI and then required the contributing cities to pay 100 percent of required contributions. The combination of these factors almost doubled the cities’ contribution rate from 16.49 percent in 2008 to 30.12 percent in 2012.

Table 3.3 compares IPERS to the other three Iowa state pension plans in terms of membership, funded ratio, size of assets, and contributions.⁵⁷ Like IPERS, the other three plans are also underfunded but all have a strong foundation based on net assets. In fact, given the small size of the membership in each of the three smaller plans, assets per member are significantly higher in each of these three plans compared to IPERS.

Table 3.3 State Pension Plans Have Low Funded Ratios But High Net Assets

Plans	Total Members – Active and Retired	Funded Ratio	Net Assets	Member Contribution	State/City Contribution
IPERS	258,639	80.2%	\$24,757,000,000	5.95%	8.93%
MFPRSI	8,043	73.9%	\$1,964,266,618	9.40%	30.12%
PORS	1,266	63%	\$288,851,354	9.85%	38.69%
JRS	385	67%	\$109,511,743	9.35%	31.38%

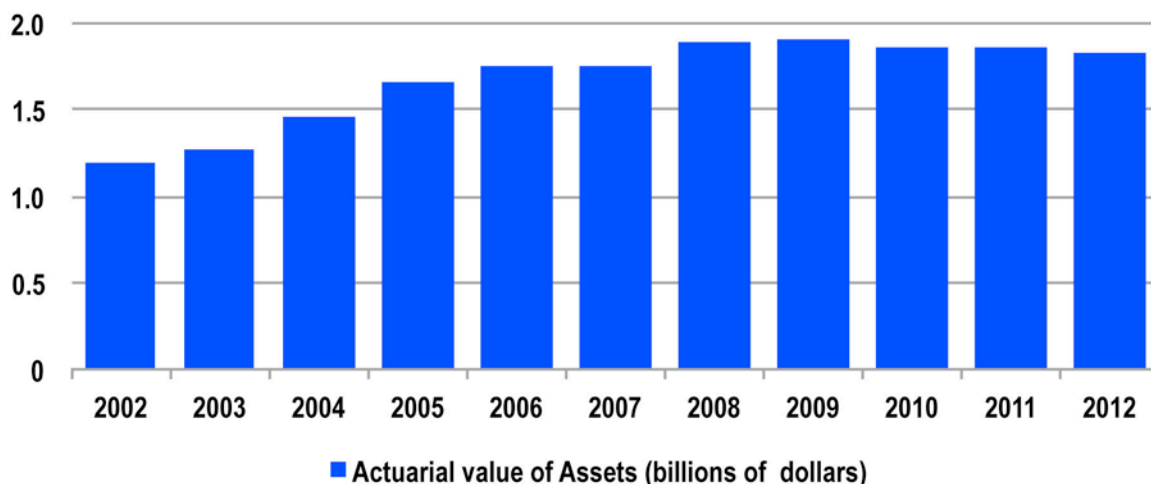
Source: Actuarial valuation reports for IPERS, MFPRSI, PORS, and JRS

More importantly, as Figure 3.8 shows for MFPRSI, the actuarial value of assets has remained fairly steady over the last decade despite the recession in 2008.⁵⁸

Yet, a quick perusal of many local newspapers among the 47 cities represented by MFPRSI would reveal a great deal of short-term budgetary pain associated with MFPRSI contributions in a time of general economic slowdown. In some cases they have raised special tax levies, as allowed by law, to pay for the increased contributions to MFPRSI.⁵⁹

Table 3.3 shows that while the employer contribution for IPERS, paid entirely by the state, is 8.93 percent, the employer contribution for MFPRSI, paid by each city, is 30.12 percent. This difference in contributions does not appear quite as large, however, once we take into consideration the fact

Figure 3.8. Municipal Fire and Police Pension Asset Values Remain Steady in Iowa



Source: Actuarial valuation reports for MFPRSI (several years)

that the city employer does not pay any Social Security contribution or additional permanent disability contribution for an employee covered by MFPRSI. And the employee, in turn, does not receive any Social Security retirement, disability or survivor benefits but is covered by the MFPRSI plan for permanent disability as well as retirement. In the case of IPERS, the state pays a contribution for Social Security as well as workers' compensation in addition to the 8.93 percent contribution to the retirement fund. Nevertheless, sharp increases in employer contributions to MFPRSI have forced cities to make difficult choices.

To understand why city contributions have increased so much in the past few years, we first look at how MFPRSI calculates the required contribution. Table 3.4 shows that the actuary first calculates the amount of money needed to keep the pension system well-funded. This amount, shown in row 3, includes the normal cost as well as an amortization cost for any unfunded accrued liability. Active members then pay 9.4 percent of their wages — a percentage determined by state law — into the system. The city, with or without the help of the state, is required to pay the remaining amount. This amount, shown in row 9, comes to a city contribution of 26.12 percent in FY2011 and 30.12 percent in FY2012.

Table 3.4 Breakdown of MFPRSI Contributions for 2011-12

	2011	As of July 1, 2012
1. Annual Normal Cost	\$45,660,053	\$47,487,380
2. 25-Year Amortization of Unfunded Actuarial Accrued Liability	\$43,496,111	\$54,681,143
3. Total Cost = (1) + (2)	\$89,156,164	\$102,168,523
4. Covered Payroll	\$248,869,476	\$258,518,051
5. Estimated Member Contributions	\$23,393,731	\$24,300,697
6. Member Contributions as a percent of payroll = (5) / (4)	9.40%	9.40%
7. Estimated State Contribution	\$750,000	0
8. State Contributions as a percent of payroll = (7) / (4)	0.30%	0%
9. Preliminary Cities' Contribution = (3) – (5) – (7)	\$65,012,433	\$77,867,826
10. Cities' Contribution as a percent of payroll = (9) / (4)	26.12%	30.12%

Source: MFPRSI Actuarial Valuation (2012)

The city/state contribution is the equivalent of the actuarially required contribution (ARC) with the important difference that the *city actually does pay 100 percent of its required contribution* and

has been doing so for many years. The law requires the city to adjust its contribution based on what the actuary determines to be the correct amount to be paid into the system in that particular year. Recall that in the case of IPERS and many other pension systems, the state often does not pay the full amount of the ARC either because it is statutorily limited to paying a smaller amount or it chooses to do so because of other budget priorities.

Because the city dutifully pays its entire required contribution into MFPRSI, any unforeseen changes in investment returns are immediately translated into changes in the required contribution with all of its ramifications for the overall city budget. To understand these changes better, we look at the city’s required contribution from another angle. Table 3.5 shows the effects of changes in investment experience and other factors on the cities’ contribution rate.

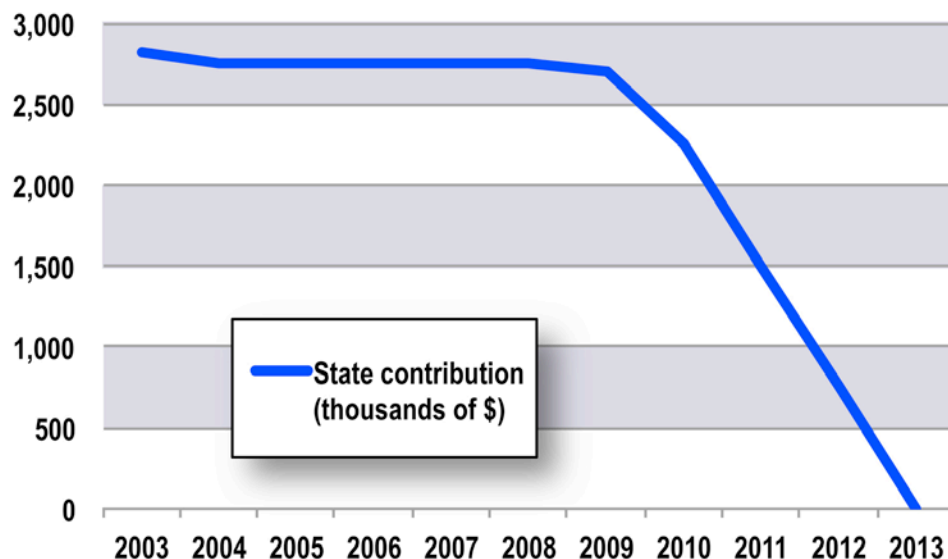
Table 3.5 Cities’ Contribution Rates Rise, Fall With Investment Returns⁶⁰

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Funded Ratio	80%	88%	92%	97%	107%	99%	72%	74%	85%	
Cities Contribution Rate	24.92%	28.21%	27.75%	25.48%	18.75%	16.49%	19.90%	24.76%	28.08%	31.40%
<i>Experience:</i>										
Asset Return	4.49%	2.82%	-1%	-3.34%	-5.76%	-2.34%	3.57%	4.70%	3.02%	
Actuarial Factors	-0.12%	0.38%	-0.36%	-0.79%	-1.10%	-1.12%	-0.30%	-0.30%	-0.02%	
State Contributions	0.07%	0.09%	0.07%	0.07%	0.04%	0.06%	0.15%	0.46%	0.32%	
Benefit Improvements					-0.53%		-0.10%			
Assumption Changes			0.57%	1.79%	0.62%	1.14%				
Net Change	4.44%	3.29%	-0.46%	-2.27%	-6.73%	-2.26%	3.41%	4.86%	3.32%	

Source: Report by the Board of Trustees of the MPRSI to the Public Retirements Systems Committee, November 9, 2011

The rise in the stock market after 2004 is manifested in the decline in city contribution rates (as well as the rise in the funded ratio) through 2008, with a large decline of nearly 7 percent in contribution rates for FY2007. But from 2009 onward, the stock market decline results in 3

Figure 3.9 State Contributions Drop Precipitously



Source: Various MFPRSI annual reports

percent to 4 percent annual increases in contribution rates. In addition to declining asset returns, declines in state contributions cause a further steady increase in cities' contribution rates as the cities then have to pick up the slack for a declining state contribution. As Figure 3.9 above shows, just when they need it most, cities can no longer rely on state contributions to help buffer the impact of declining investments on city contribution rates and city budgets.

3.3.2 Improving MFPRSI

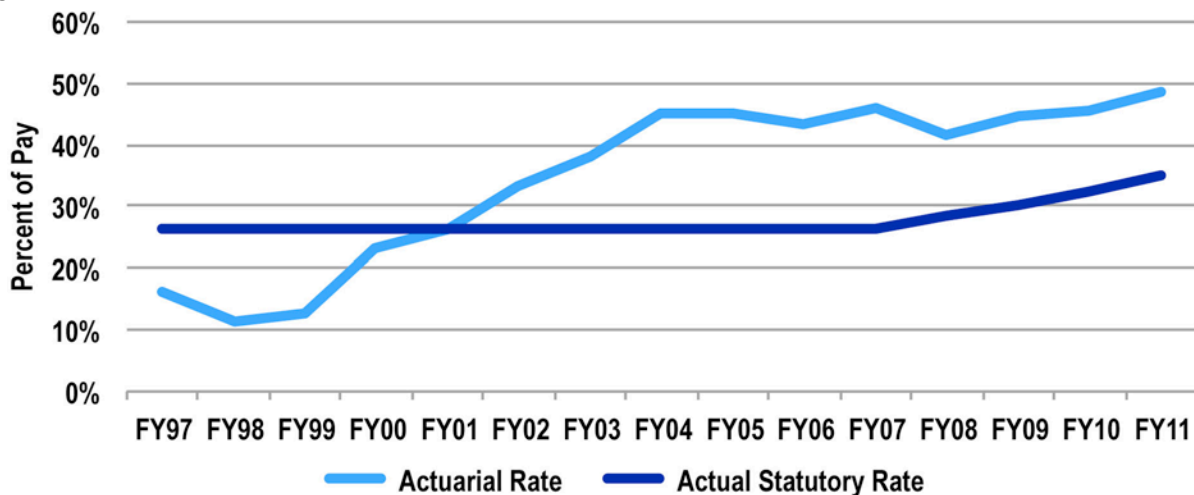
Over the long run, the performance of the MFPRSI investment portfolio has been among the best in public pension plans nationwide. And because cities continue to pay the full amount of their required contributions, MFPRSI remains on solid financial footing. The cost to city budgets of following this policy, however, is often quite high. Not only must cities raise their contributions in times of stock market declines, the overall volatility of contribution rates makes budgeting decisions more difficult. To that end, we recommend that the state resume its 3.79 percent contribution as it would not only ease some of the acute financial burdens that cities face in times of investment declines, but also help to smooth out some of the volatility in city contribution rates.

Another improvement that has been suggested is that new members in MFPRSI be required to share increases in contribution rates on a 40/60 basis with their city employers.⁶¹ Given that this would help in alleviating short-term fluctuations in budgets and that this is a reform that has already been adopted by IPERS, it is worthy of consideration.

3.4.1 Impact of Investment Decline on PORS

Contribution rates for PORS are calculated in a similar way to the rate for MFPRSI. The state actuarial contributions come to a rather high 38 percent whereas the employee pays a fairly steady 9 to 10 percent. There are two underlying reasons behind these large differences. First, the initial funding of this pension plan was not adequate. As a result, the state employer and the employees have a lot of catching up to do. Given that the size and scope of the overall fund is relatively small, increases in contribution rates should not distress the fiscal situation of employers too much. Second, as we see in Figure 3.10 below, after the stock market downturn in 2002-03, the state did not raise its statutory rate to match the rising ARC.

Figure 3.10. Contribution Rates for PORS Below Actuarial Required Contribution (ARC) Since Market Downturn

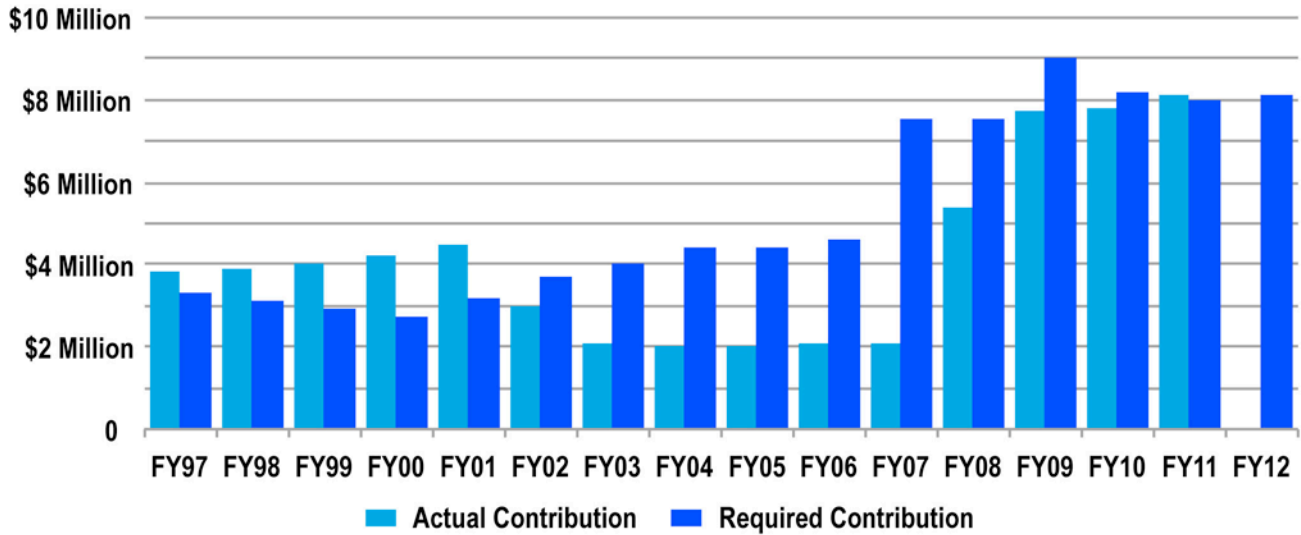


Source: PORS actuarial valuation for 2011

We see in the case of the Judicial Retirement System that the rate differentials are about the same as they are for PORs. Again, this is a relatively small plan that can be easily funded through state General Fund monies to get to a point where investment returns on assets will defray some of the costs to the state as well as the members.

In the figure below we can see that actual contributions stopped matching required contributions starting around 2002; declines in investment contributed greatly to the shortfall in funding. The required contributions have risen considerably in order to amortize unfunded liabilities and lately the actual contributions appear to have started to match the required contributions once again.

Figure 3.11 Contribution Rates for Judicial Retirement System Often Below Actuarial Required Contribution (ARC)



Source: JRS actuarial valuation for 2012

Conclusion

IPERS was established in 1953 to replace the Iowa Old Age and Survivor's Insurance System (IOASI), which existed from 1946 until July 1, 1953. IPERS is governed by Code Chapter 97B. In concluding we quote parts of Code Chapter 97B to remind ourselves of why the state's pension plans exist:⁶²

97B.2 Purpose of chapter.

The purpose of this chapter is to promote economy and efficiency in the public service by providing an orderly means for employees, without hardship or prejudice, to have a retirement system which will provide for the payment of annuities, enabling the employees to care for themselves in retirement and which will improve public employment within the state, reduce excessive personnel turnover, and offer suitable attraction to high-grade men and women to enter public service in the state.

If we still believe in the need for a viable retirement plan to help attract qualified people to public service in the state, then defined benefit plans such as those we have studied in the preceding pages provide a less costly and more efficient way of structuring a retirement system because they allow greater pooling of risk among the participants.

Despite a turbulent decade, the foundations of all four Iowa public pension plans remain strong. These foundations, based on strong asset values and a low debt to GDP ratio, allow for restructuring to be gradual and inclusive.

We make the following recommendations:

- Iowa, with one of the lowest percentages of state expenditures devoted to pension plans, should increase its overall expenditures devoted to these pension plans.
- The state should make every effort to meet its actuarially recommended contribution (ARC).
- The present value of pension liabilities should continue to be calculated at the actuarially determined discount rates based on long-term returns in the investment portfolio.
- The state should renew its commitment to the MFPRSI fund by re-starting its contributions at the 3.79 percent level.
- Future increases in contributions should be shared on a 40 percent to 60 percent basis between employees and employers.
- When changes are made, plans should ease members through the process with effective and timely communication.
- Incremental steps to "course-correct" are more effective than quick fixes because of the long-term nature of a pension system.

Appendix A

Some Basic Pension Math — A Hypothetical Case

Peter joins IPERS and will work there for 10 years until retirement.

Assuming that Peter is vested right away, the actuary uses his salary tables to calculate Peter's annual benefit equal to \$50,000.

The mortality tables suggest that Peter is expected to live for 20 years in retirement.

Armed with this knowledge and an interest rate of 7 percent, the actuary looks at annuity tables in the back of an accounting textbook and calculates an annuity factor of 10.594

Multiplying \$50,000 with 10.594 gives us a present value for the annuity (PVB) of \$529,700

The annual cost using the PUC method and spread evenly across the 10 years is \$52,970. Summarizing the data below, we get the following amortization table:

1. work for 10 years
2. benefit of \$50,000 annual
3. Interest rate of .07
4. annuity factor is 10.594 based on 20 years after retirement
5. pvb of annuity paying 50000 annually starting 10 years from the end of the first year is \$529,700
6. annual cost over 10-year period is 52970

Years	Annual Cost	Discount Factor	Normal Cost	Accrued Liability
1	52970	0.508349292	26927.262	26927.262
2	52970	0.543933743	28812.17034	57624.34069
3	52970	0.582009105	30829.02227	92487.06681
4	52970	0.622749742	32987.05383	131948.2153
5	52970	0.666342224	35296.1476	176480.738
6	52970	0.712986179	37766.87793	226601.2676
7	52970	0.762895212	40410.55938	282873.9157
8	52970	0.816297877	43239.29854	345914.3883
9	52970	0.873438728	46266.04944	416394.4449
10	52970	0.934579439	49504.6729	495046.729
				529700

- The present discounted value of the annual cost is given by multiplying the annual cost by the discount factor.
- The discount factor is given by the formula $1/(1+.07)^n$. The interest rate of .07 in the denominator of the discount factor is the discount rate.
- The discount factor gets larger each year as the normal cost for each year is discounted with fewer and fewer years left till retirement. In year 1, the "n" in the discount factor is 10, as we are 10 years from retirement. In year 2, the n is equal to 9 and so on.

- In the second year, we get the accrued liability by (2 * 28812.1703). The present value of the annual normal cost at the end of the second year is \$28812 and we have worked for two years and accrued two years' worth of benefits.
- If, as the assets grow at the expected rate of 7 percent, the value of the assets will exactly match the accrued liability and we will be fully funded.

Suppose our economic assumptions are wrong and the assets instead grow at 9 percent.

Years	Annual Cost	Discount Factor	Normal Cost	Accrued Liability	AVA	Funded Ratio
1	52970	0.508349292	26927.262	26927.262	26927.262	100%
2	52970	0.543933743	28812.17034	57624.34069	58162.88593	101%
3	52970	0.582009105	30829.02227	92487.06681	94226.56793	102%
4	52970	0.622749742	32987.05383	131948.2153	135694.0129	103%
5	52970	0.666342224	35296.1476	176480.738	183202.6216	104%
6	52970	0.712986179	37766.87793	226601.2676	237457.7355	105%
7	52970	0.762895212	40410.55938	282873.9157	299239.4911	106%
8	52970	0.816297877	43239.29854	345914.3883	369410.3438	107%
9	52970	0.873438728	46266.04944	416394.4449	448923.3242	108%
10	52970	0.934579439	49504.6729	495046.729	538831.0963	109%
				529700	587325.8949	111%

- Because the assets grew at a higher percent, the rate of return gave us an AVA greater than the accrued liability and our funded ratio (AVA/AAL) was higher than 100 percent.
- Our plan is overfunded.

Suppose our economic assumptions are wrong once again, and our returns this time are only 5 percent:

Years	Annual Cost	Discount Factor	Normal Cost	Accrued Liability	AVA	Funded Ratio
1	52970	0.508349292	26927.262	26927.262	26927.262	1
2	52970	0.543933743	28812.17034	57624.34069	57085.79545	0.990654206
3	52970	0.582009105	30829.02227	92487.06681	90769.10749	0.98142487
4	52970	0.622749742	32987.05383	131948.2153	128294.6167	0.97231036
5	52970	0.666342224	35296.1476	176480.738	170005.4951	0.963309067
6	52970	0.712986179	37766.87793	226601.2676	216272.6478	0.954419409
7	52970	0.762895212	40410.55938	282873.9157	267496.8396	0.945639823
8	52970	0.816297877	43239.29854	345914.3883	324110.9801	0.936968773
9	52970	0.873438728	46266.04944	416394.4449	386582.5785	0.928404745
10	52970	0.934579439	49504.6729	495046.729	455416.3804	0.919946247
				529700	478187.1994	0.90275099

This time our pension plan is underfunded at 90 percent.

Suppose we decided to use the “riskless” rate of Municipal Bonds at 3 percent for our discount rate.

Years	Annual Cost	Discount Factor	Normal Cost	Accrued Liability
1	74387.5	0.744093915	55351.28609	55351.28609
2	74387.5	0.766416732	57011.82468	114023.6494
3	74387.5	0.789409234	58722.17942	176166.5383
4	74387.5	0.813091511	60483.8448	241935.3792
5	74387.5	0.837484257	62298.36014	311491.8007
6	74387.5	0.862608784	64167.31095	385003.8657
7	74387.5	0.888487048	66092.33028	462646.3119
8	74387.5	0.915141659	68075.10019	544600.8015
9	74387.5	0.942595909	70117.35319	631056.1787
10	74387.5	0.970873786	72220.87379	722208.7379
				743875

- Our present value will be higher at \$743,875 because we are using a lower interest rate in our annuity tables and getting a larger annuity factor.
- Our annual normal costs will be higher, but if our investments grow at 3 percent, as they do in this example, then we will be fully funded and Peter will receive his annuity of \$50,000 per year after retirement.

Appendix B

Choosing the Right Discount Rate to Accurately Describe the Funding Status of Pension Plans

The choice of discount rates has a direct bearing on the financial health of a defined benefit plan. First, a discount rate helps to determine the present value of future benefits — that is, the cost today of the liabilities that the employer has taken on to fund the pensions of employees. The higher the discount rate, the lower the present value of these liabilities. Second, the present value of liabilities, along with the actuarial (smoothed) value of current assets, helps to determine the amount of underfunding, if any, in the accrued liabilities of a pension system. Thus, holding all other factors the same, high discount rates are associated with low underfunded liabilities and low discount rates are associated with high underfunded liabilities. Based on a discount rate of 8 percent, the underfunded liabilities of state and local pension funds are estimated to be close to \$1 trillion. If we lower the discount rate to 4 percent, the liabilities balloon to over \$3 trillion. This fact alone makes the choice of a discount rate an actuarial decision, an economic decision, and a political decision.

The 8 percent figure is the historical average rate of return on investments and as such is considered to be the appropriate discount rate, from an actuarial point of view, for discounting pension fund obligations. This method of choosing the average rate of return on investments as the discount rate is also recommended by the Governmental Accounting Standards Board (GASB). But GASB is now considering another argument in favor of choosing the rate associated with the riskiness of the financial asset. Given that the risk associated with pension fund obligations is relatively low because of the long-lived nature of state and local governments, many economists believe that a more accurate discount rate for pension obligations would be closer to the “riskless” rate associated with municipal bonds — currently around 3.5 percent, a considerably lower discounting rate.

There are arguments to be made for both methods of choosing discount rates. The lower, “riskless” rate is more accurate in that it associates the discount rate with the actual risk characteristics of the pension financial instrument. Choosing the riskless rate also means that the present value of liabilities, the normal costs of amortizing those liabilities, and the associated contribution rates would be considerably higher than they are today. However, given the experience of the past decade of lower than expected returns, had pension obligations been amortized by the riskless rate, the system wide underfunding of liabilities would have been considerably lower than it is today. However, in previous decades, this assumption would have led to overfunding of pensions.

Choosing the rate of return on investments as the discount rate makes sense from an actuarial perspective that has to match the valuation of liabilities with the performance of assets. Given the long-lived nature of the governments that issue pension obligations, it makes sense to take a long-run perspective on expected returns on investment (the 20-year average is over 8 percent) and not be unduly alarmed by the low investment returns of a particular decade.

In the ideal world, the funding of pension obligations would accurately reflect the cost of pensions. In the actual world of uncertain economic performance, the risk of underfunding pensions is particularly high with the actuarially determined rate. In times of economic crises when governments have increasing pressures on their budgets, the underfunding of pensions adds to

the overall obligations of governments. Fortunately, and given competing demands, full funding of pension obligations need not have the same immediacy as some other expenditure.

In times of plenty, the “riskless” rate-based amortization of funding obligations has a particularly high risk of overfunding pension obligations. While overfunding might not appear to be a major issue these days, when it does happen, it tends to take away government resources from other needs. Also, experience shows that overfunding tends to lead to employee demands for increase in benefits, citizen demand for cut in taxes, and government desire to skip current payments. Once taken, these steps are not easily undone.

At this point GASB is recommending that rates of return on assets — the actuarial approach — be blended with the riskless rate to form an overall discount rate. The precise blend would depend upon various factors related to the funding status of the pension fund.

Appendix C*

The level of spending on pensions as a percentage of total spending

	State	Percent of Spending		State	Percent of Spending
1	Nevada	7.60%	26	Florida	3.20%
2	Rhode Island	5.70%	27	Idaho	3.20%
3	New York	5.30%	28	Kentucky	3.20%
4	California	5.20%	29	Maine	3.20%
5	Connecticut	4.90%	30	Alaska	3.10%
6	Virginia	4.80%	31	Michigan	3.10%
7	Oklahoma	4.70%	32	Colorado	3.00%
8	West Virginia	4.70%	33	South Carolina	3.00%
9	Illinois	4.50%	34	Tennessee	3.00%
10	Hawaii	4.40%	35	Montana	2.90%
11	Louisiana	4.20%	36	Georgia	2.80%
12	Massachusetts	4.20%	37	Texas	2.70%
13	Missouri	4.20%	38	Kansas	2.50%
	United States	3.80%	39	New Hampshire	2.40%
14	Alabama	3.80%	40	South Dakota	2.30%
15	Arkansas	3.80%	41	Iowa	2.20%
16	New Mexico	3.80%	42	Washington	2.20%
17	Ohio	3.80%	43	Minnesota	2.10%
18	Utah	3.70%	44	Nebraska	2.10%
19	Wisconsin	3.60%	45	Pennsylvania	2.10%
20	Arizona	3.50%	46	Delaware	1.90%
21	Indiana	3.50%	47	DC	1.80%
22	Mississippi	3.50%	48	North Dakota	1.80%
23	New Jersey	3.50%	49	Wyoming	1.80%
24	Oregon	3.50%	50	North Carolina	1.20%
25	Maryland	3.40%	51	Vermont	1.20%

*McNichol, Elizabeth, and Iris J. Lav, Center on Budget and Policy Priorities, "A Common Sense Strategy For Fixing State Pension Problems in Tough Economic Times," (May 2011), (<http://www.cbpp.org/cms/index.cfm?fa=view&id=3492>), Accessed on November 30, 2012 pg 5

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- ¹ Cannon, Andrew, The Iowa Policy Project. "Apples to Apples: Private-Sector and Public-Sector Compensation in Iowa," February 22, 2011. <http://www.iowapolicyproject.org/110222-pubpvtpayxs.html>
- ² CHAPTER 97B IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM (IPERS), <https://www.legis.iowa.gov/DOCS/ACO/IC/LINC/Chapter.97b.html>
- ³ Tegeler, Gretchen, "Iowa View: What's the state of our state's pension system?" *The Des Moines Register*, September 28, 2013.
- ⁴ The total benefit, of course, cannot be pre-determined as no one knows for sure how long the employee will live in his retirement.
- ⁵ Boyken, Grant, "Actuarially Speaking: A Plain Language Summary of Public Employee Pension and Other Post –Employment Benefits," California Research Bureau, (2008) , (<http://www.library.ca.gov/crb/08/08-003.pdf>), accessed on October 30, 2012, pg. 5
- ⁶ For a mathematical example see Appendix B
- ⁷ Florida Public Pension Trustees Association, *Understanding Public Pension Plan's Unfunded Liability*, February, 2011, (http://www.houstontx.gov/finance/11_07_2011_FPPTA_%20UAL_%20Report.pdf), accessed on January 13, 2013, pg. 2
- ⁸ Each year the actuaries employed by IPERS and other similar Plan Trusts are required by law to conduct these valuations, the results of which are, in the case of IPERS, available to the general public online.
- ⁹ Florida Public Pension Trustees Association, (2011), pg.7
- ¹⁰ Sunshine Review , "Iowa Public Pensions," http://sunshinereview.org/index.php/iowa_public_pensions#Pension_Plans , retrieved September 30, 2012
- ¹¹ Ibid
- ¹² State of Iowa Peace Officers' Retirement, Accident, and Disability System, "Actuarial Valuation Report as of July 1, 2011
- ¹³ State of Iowa Judicial Retirement Fund, "Actuarial Valuation Report as of July 1, 2011
- ¹⁴ Legislative Services Agency (LSA), "Legislative Guide: Iowa Public Retirement Systems," October 2011, pg. 2
- ¹⁵ Legislative Services Agency (LSA), "Legislative Guide: Iowa Public Retirement Systems," October 2011, pg. 1
- ¹⁶ Sometimes it is simply referred to as the 411 system.
- ¹⁷ LSA (Oct. 2011), pg.27
- ¹⁸ LSA (Oct. 2011), pg.2
- ¹⁹ See Appendix A for a list of the guiding principles laid out in Section 97D.1 of Iowa law.
- ²⁰ LSA (Oct. 2011), pg.3
- ²¹ Ibid.pg. 5
- ²² We stress the need for the importance of these documents as one element of a well-functioning financial system because lack of transparency has been identified as a major underlying issue in the realm of pension systems nationwide. At the same time we are aware that the availability of information would be greatly improved if the rather arcane world of actuarial valuation was more easily interpretable by the general public.
- ²³ LSA (Oct. 2011), pg.26
- ²⁴ LSA (Oct. 2011), pg. 38
- ²⁵ LSA (Oct. 2011), pg. 48, Interestingly enough, the Treasurer is exempt from most statutory requirements and restrictions applied to public funding when investing Judicial Retirement System funds. This is not the case when he invests IPERS funds.
- ²⁶ This is different from saying that contributions are too low and risk creating a financial default. When "required" contributions differ from the legal minimum, the financial system is often unstable in the long run though still viable in the short term.
- ²⁷ LSA (Oct. 2011), pg. 11
- ²⁸ Ibid. pg. 13
- ²⁹ Ibid. pg. 13
- ³⁰ Ibid. pg. 14
- ³¹ Ibid. pg. 17
- ³² Ibid. pg. 29
- ³³ Ibid. pg. 39
- ³⁴ Ibid pg. 40
- ³⁵ Ibid pg. 49
- ³⁶ <http://www.tradingeconomics.com/united-states/stock-market>, Accessed December 15, 2012
- ³⁷ McNichol, Elizabeth, and Iris J. Lav, Center on Budget and Policy Priorities, "A Common Sense Strategy For Fixing State Pension Problems in Tough Economic Times,"(May 2011), (<http://www.cbpp.org/cms/index.cfm?fa=view&id=3492>), Accessed on November 30, 2012 pg. 1
- ³⁸ <http://research.stlouisfed.org/fred2/series/DJIA/>, (accessed on June 19, 2013)
- ³⁹ Twalker, "Four Things You Need to Know about the Pension "Crisis", " Neatoday, (March 17, 2011) <http://neatoday.org/2011/03/17/four-things-you-need-to-know-about-pensions/>
- ⁴⁰ For an interesting dissent see the following: American Academy of Actuaries: Issue Brief, "The80% Pension Funding Standard Myth," (July 2012), (http://actuary.org/files/80_Percent_Funding_IB_071912.pdf), Accessed on November 30, 2012
- ⁴¹ McNichol, Elizabeth, and Iris J. Lav, Center on Budget and Policy Priorities, "A Common Sense Strategy For Fixing State Pension Problems in Tough Economic Times," (May 2011), (<http://www.cbpp.org/cms/index.cfm?fa=view&id=3492>), Accessed on November 30, 2012 pg 5

⁴² Ibid pg. pg. 4

⁴³ Iowa Public Employees Retirement System, "Fiscal Year 2013: Budget Briefing." November 23, 2011.

<<http://www.ipers.org/publications/misc/pdf/legis/2011fy13budgettogovfinal.pdf>>

⁴⁴ Iris J. Lav and Elizabeth McNichol, "Misunderstandings Regarding State Debt, Pension, and Retiree Health Costs Create Unnecessary Alarm, Center for Budget and Policy Priorities," (January 20, 2011) <http://www.cbpp.org/files/1-20-11sfp.pdf>

⁴⁵ Ron Snell, State Pension Reform, 2009-2011, March 2012, for National Council of State Legislatures <http://www.ncsl.org/issues-research/labor/state-pension-reform-2009-to-2011.aspx>

⁴⁶ The funding equation is given by: $I + C = B + E$; we are ignoring the costs of running the system (E) as it is a relatively minor part of overall finances.

⁴⁷ Cavanaugh Macdonald Consulting, LLC, *IPERS Actuarial Valuation Report as of June 30, 2013*,

<http://www.ipers.org/publications/misc/pdf/financial/fy2013valuation.pdf>

⁴⁸ McNichol, Elizabeth, and Iris J. Lav, Center on Budget and Policy Priorities, "A Common Sense Strategy For Fixing State Pension Problems in Tough Economic Times," (May 2011), (<http://www.cbpp.org/cms/index.cfm?fa=view&id=3492>), Accessed on November 30, 2012 pg. 21

⁴⁹ Snell, (2012), pg. 3

⁵⁰ Iowa Public Employees Retirement System, "Q and A 2010 -2012 IPERS Law Changes," June 2010, pg. 7

http://www.ipers.org/publications/misc/pdf/other/q+a2010_2012lawchanges.pdf; Cavanaugh Macdonald Consulting, LLC, *IPERS Actuarial Valuation Report as of June 30, 2013*, <http://www.ipers.org/publications/misc/pdf/financial/fy2013valuation.pdf>

⁵¹ States, on average, can eliminate most, if not all of their unfunded liabilities by raising their pension expenditure to 5% of their total state and local government expenditure. Iris J. Lav and Elizabeth McNichol, "Misunderstandings Regarding State Debt, Pension, and Retiree Health Costs Create Unnecessary Alarm, Center for Budget and Policy Priorities," (January 20, 2011) pg. 17 <http://www.cbpp.org/files/1-20-11sfp.pdf>

⁵² Ibid pg. 10, see also table in Appendix C

⁵³ McNichol (2011), pg. 23

⁵⁴ See Appendix B for a more detailed discussion of discount rates

⁵⁵ CSLGE, (2011) pg. 14

⁵⁶ Barry, Andrew, "State of the States," Barron's, (Monday, August 27, 2012),

http://online.barrons.com/article/SB50001424053111904881404577603301566976464.html#articleTabs_article%3D0

⁵⁷ Each plan publishes an actuarial valuation report that contains the information shown in the tables above. The reports can be viewed at the following sites:

http://www.ipers.org/publications/pubs_financial.html for IPERS

<http://www.mfprsi.org/mfprsi-info/publications/> for MFPRSI

<http://www.docstoc.com/docs/21043609/IOWA-PEACE-OFFICERS-RETIREMENT-ACCIDENT-AND-DISABILITY-SYSTEM> for PORS

http://books.google.com/books/about/Report_and_Actuarial_Review_of_the_Iowa.html?id=MhXdXwAACAAJ for the Judicial Retirement System

⁵⁸ Because these are actuarial values, this means that spikes in the market value of assets which did occur in the 2008 -2011 period have been smoothed over a 5 year period. Had there not been a recession, we would expect to see a steady rise in the actuarial value of assets over the last decade.

⁵⁹ See for example: Hennigan, Gregg, "Pensions costs put crimp in Iowa cities' budgets," Cedar Rapids Gazette, 11 March, 2012, <<http://thegazette.com/2012/12/07/upgrade-leaves-cedar-rapids-police-without-video-from-recent-high-profile-cases/>>

Ignatius, Jeff, "How Public- Safety Pensions are Increasing Your Taxes," River Cities Reader, 02 February, 2012, <<http://www.rcreader.com/news/how-pensions-are-increasing-taxes/>>

⁶⁰ This table is similar to table 3.1 which looked at the breakdown of the UAAL for IPERS. Because MFPRSI did not use the Entry Level Normal method of accounting until 2011, it was not required to report a UAAL. The UAAL is implicit in the Funded Ratio as well as the changing city contribution

⁶¹ See Iowa League of Cities Public Retirement Public Retirement System Committee, November 9, 2011,

<https://www.legis.iowa.gov/DOCS/LSA/IntComHand/2012/IHEGC000.PDF>

⁶² CHAPTER 97B IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM (IPERS),

<https://www.legis.iowa.gov/DOCS/ACO/IC/LINC/Chapter.97b.html>