



Public Fund Survey Summary of Findings for FY 2008

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Abstract

The Public Fund Survey is an online compendium of key characteristics of the nation's largest public retirement systems and is sponsored by the National Association of State Retirement Administrators and the National Council on Teacher Retirement for the purpose of increasing knowledge and understanding of the public pension community. A Summary of Findings is conducted annually to provide an objective overview of overall plan financing, membership and design within these systems. This year's Summary is the first following the sharp drop in global investment markets that occurred in 2008.

As expected, State and local retirement systems have sufficient assets set aside, even after the market downturn, to continue paying promised benefits for decades. However, in the wake of this unprecedented decline, most are in the process of examining benefit levels, financing structures and asset allocations to rebuild reserves and ensure sustainability well beyond that time period. While State and local government employee retirement systems have a long time horizon that allows for a patient and metered approach, the uniqueness in plan design, benefit structure, and governance arrangement between systems will require diversified responses among them.

The fall in asset values has caused aggregate funding levels to move downward from 86.7 percent in FY 07 to 85.3 percent in FY 08. Because public pension actuarial methods are designed to temper the effect of market volatility, public pensions will recognize the investment losses incurred in 2008 over several years. During this recognition period, funding levels are expected to decline, although losses may be partially offset with investment gains. Future funding levels will also be influenced to the extent sponsoring state and local governments consider adjustments to benefit levels and financing arrangements, such as reduced benefits for future hires, reduced future accruals, and/or higher contributions for both employers and employees.

About the Public Fund Survey

The Public Fund Survey is an online compendium of key characteristics of most of the nation's largest public retirement systems. The Survey is sponsored by the National Association of State Retirement Administrators and the National Council on Teacher Retirement.

Beginning with fiscal year 2001, the Survey contains data on public retirement systems that provide pension and other benefits for 13.5 million active (working) members and 6.65 million annuitants (those receiving a regular benefit, including retirees, disabilitants and beneficiaries). Based on the latest information published in annual financial reports, systems in the Survey hold assets of \$2.6 trillion. The membership and assets of systems included in the Survey comprise approximately 85 percent of the entire state and local government retirement system community.

The primary source of Survey data is public retirement system annual financial reports. Data also is taken from actuarial valuations, benefits guides, system websites, and input from system representatives. The Survey is updated continuously as new information, particularly annual financial reports, becomes available. This report focuses on fiscal year 2008, which is reported for 93 of the 101 systems in the survey.

The Public Fund Survey captures key information from public retirement systems that account for some 85 percent of all public pension assets and participants in the U.S.

A key objective of the Survey is to increase the transparency and understanding of the public pension community and public pension funding concepts, by providing a factual and objective basis

on which to discuss many issues related to retirement benefits for public employees. The Public Fund Survey is accessible online at www.publicfundsurvey.org.

This Summary of Findings provides objective descriptions and perspective regarding key areas of public pension activity, such as changes in plans' funding condition, investment returns, membership, contribution rates, and others.

Overview of the public pension community

According to a 2007 study by the U.S. Government Accountability Office, employees of state and local government comprise 12 percent of the nation's full-time workforce. These employees perform a broad range of functions in such roles as public school teachers and administrators, firefighters, judges, police officers, public health officials, correctional officers, transportation workers, game wardens, nurses, engineers, health inspectors, bus drivers, procurement specialists, computer programmers, custodians, and many others.

Retirement benefits play a key role in attracting and retaining qualified employees needed to perform essential public services. These pension plans also provide stable and adequate income replacement in retirement for long-term workers, and ancillary casualty benefits related to disability and death before retirement. Unlike government programs funded out of general revenues, state and local government retirement systems generally are funded in advance, by investing employee and employer contributions during employees' public service. These benefits are distributed in the form of a lifetime payout in retirement. This allows for long-term financing and the majority of revenues to be generated from investment earnings and employee contributions, while also ensuring retirees do not outlive their retirement assets.

The long-term nature of the financing requires funding and asset allocation to be evaluated

regularly to ensure that plans and benefits are sustainable over a long time horizon and continue to accommodate the changing needs of the workforce and policy goals of the sponsoring government.

Like most investors, public pension funds have experienced exceptional market volatility in recent years, punctuated by the sharp decline in equities and other asset classes in 2008. The market decline in 2008 resulted in a median investment return for public pension funds of -25.3 percent for the year,ⁱ and is estimated to have reduced the aggregate market value of all public pension funds by more than \$800 billion.

Public pension plans are designed to withstand market volatility. Even after the market decline, through the use of strategies such as portfolio diversification, long investment and funding horizons, actuarial smoothing of investment gains and losses, and risk-pooling, the vast majority of public pension plans are able to pay promised benefits to retirees for decades into the future. While significant, the loss in assets was less severe than the losses experienced by many individual investors, particularly those with defined contribution plans as their primary retirement benefit, and has been partially offset with strong investment gains to-date in 2009.

Most individuals nearing retirement age who experience a decline in assets similar to that seen by public pension funds likely would be forced to postpone retirement, requiring additional years of work to make up for the losses. A recent study by the Employee Benefits Research Institute (EBRI) found that “nearly one in four (401(k) plan participants) ages 56-65 had more than 90 percent of their account balances in equities at year-end 2007, and more than two in five had more than 70 percent (in equities).”ⁱⁱ As a result, EBRI concluded, depending on several factors (e.g., age, salary, future investment returns), many 401(k) plan

participants would be required to work up to several additional years to recoup the losses from 2008.

Even after the 2008 market decline, with no changes in benefits or financing structures, pension funds covering the vast majority of public employees are able to continue to pay benefits as promised, for decades. This difference between public pension funds and individual retirement accounts is a result of public pension methods and strategies that temper the effects of market volatility, and helps illustrate the important role defined benefit plans play in promoting retirement security.

Effects of the 2008 market decline

The 2008 market decline, combined with other factors, will increase unfunded liabilities—and the cost of amortizing them—for most public pension plans. The extent of cost increases will vary by plan and will depend on several factors, especially the plan’s funding condition prior to the market decline; the adequacy of contributions to the plan by employers and employees; and the plan’s demographic composition. The cost to amortize unfunded liabilities also will be affected by the plan’s actuarial methods, assumptions, and past and future investment returns.

The timing of required cost increases also will vary by plan and will be affected mostly by the date of the plan’s actuarial valuation. Roughly three-fourths of the systems in the Public Fund Survey have a fiscal year-end date of June 30; most of the remaining systems have a fiscal year- end of 12/31. Because the steepest portion of the market decline occurred in October and November 2008, public pension plans with an actuarial valuation date prior

With no changes in benefits or financing structures, pension funds covering the vast majority of public employees are able to continue to pay benefits as promised, for decades.

to that period have not yet begun to incorporate those investment losses. Moreover, for many plans, the actuarial valuation date lags the system's fiscal year-end date. In these cases, the process of recognizing investment losses will be delayed further, typically by one year. In the interim, the performance of investment markets will offset or exacerbate the investment experience of the last few years. (Through the first three quarters of 2009, global equities experienced a robust recovery.)

The lag time between an actuarial event and a plan's actuarial valuation date, combined with other strategies employed to cushion the effects of market volatility, serves as an early warning signal of the future direction of the plan's funding level and required costs, giving plan administrators and policymakers an opportunity to plan and budget for changes to a pension plan's contribution rates and, if necessary, to its design and financing arrangements. In addition to contribution rate adjustments, these changes might also include some combination of lower benefits for future participants, or lower future benefit accruals for current participants, or both; and modifications to actuarial methods, assumptions, and processes.

Authority to revise benefit and financing arrangements varies widely among states, depending on a combination of constitutional and statutory provisions, and case laws. In some cases, policymakers may modify future benefit accrual patterns for existing plan participants. In other cases, once an employee has begun participating in the pension plan, that employee is entitled to continue to accrue benefits throughout her or his employment with the plan sponsor, with little or no change permitted.

Most plans use a five-year smoothing period (see Figure H on page 9); for these plans, incorporating the full effect of the 2008 market decline will last at least through 2013. The effects of the 2008 decline will take longer to incorporate for plans using a

longer smoothing period, as well as for those whose actuarial valuation dates lag their fiscal year-end date.

Modifying plan designs, financing arrangements, and actuarial methods is not new among public pension plans. Defined benefit plans are flexible and are structured to accommodate such changes while retaining their core elements: a) a benefit that cannot be outlived; b) a benefit based on the participant's salary and length of service; and c) assets that are pooled and professionally managed. The higher costs associated with increased unfunded liabilities caused by the sharp declines in 2008 are, however, likely to spur an increase in the number of plan sponsors considering adjustments. In fact, in 2009, a handful of states have approved modifications to the pension plan design for existing participants or future hires, or both; to financing arrangements, including higher contribution rates for employers, employees, or both; and to actuarial methods and processes.

Pensions and retirement security

The retirement security of working Americans presently appears shaky outside the public sector, due not only to the nation's heavy use of a retirement plan model that has been found to be undependable in its ability to provide reliable retirement income, but also due to low relative rates of participation in employer-sponsored retirement plans. According to the U.S. Bureau of Labor Statistics, fewer than one in five workers outside the public sector has access to a defined benefit plan, and many private sector employers offer no retirement benefit to their employees. Even when employees have access to an employer-sponsored retirement benefit, nearly one-fourth elect to not participate.

Of those private sector employees who do have access to an employer-sponsored retirement benefit, the vast majority of retirement plans offered are

defined contribution (DC) plans, such as a 401(k). The composite picture is one in which many workers outside the public sector are not participating in their employer-sponsored plan, and of those who are, the dependability of the available plan to produce an adequate stream of income for life, is questionable.

For most states and local governments, retirement security of retired workers is a policy that is being achieved. This is due chiefly to the provision by most public employers of a defined benefit plan featuring elements known to advance retirement security. Namely:

- mandatory participation
- mandatory annuitization, meaning that retiring participants must take their benefit as a lifetime annuity
- pooled assets that are professionally invested
- cost-sharing of contributions by employees and employers.

These plan design features promote retirement security by: a) helping ensure that workers not only have access to, but also participate in the employer-sponsored retirement plan; b) increasing the number of retiring workers who take their retirement assets as a lifetime annuity; c) keeping administrative and investment costs low; and d) maintaining the fund's stream of revenue and reducing taxpayers' costs.

Also, according to one study, by pooling assets and risk and generating higher investment returns for all plan participants, defined benefit plans deliver the same retirement benefit at nearly one-half of the cost of a defined contribution plan.ⁱⁱⁱ DB plans also are designed to assist public employers to attract and retain workers needed to perform essential public services; to promote an orderly turnover of workers, particularly among those who have reached an age at which they may be unable to

perform the duties required of their position; and to enhance the retirement security of a large segment of the nation's workforce.

The Meaning and Implications of Actuarial Funding Ratios

The most recognized measure of a public retirement plan's ability to meet current and future obligations is its actuarial funding ratio, derived by dividing the actuarial value of a plan's assets by the value of its liabilities. Pension benefits for public employees usually are funded in advance, meaning that a significant portion of the assets needed to fund pension liabilities is accumulated during an employee's working life, which is paid during the participant's years in retirement.

Such "pre-funding" is one way of financing a pension benefit. The opposite of pre-funding is pay-as-you-go, an arrangement under which current benefit obligations are paid with the pension plan sponsor's current revenues. In most cases, a pay-as-you-go pension plan eventually becomes too expensive to support with only current receipts and contributions. By contrast, investment earnings account for most revenue generated by a pre-funded pension plan, reducing required contributions from employees and employers (taxpayers).

Funded status is a spot measure of the degree to which a plan is on course to meet a distant goal. A pension plan whose assets equal its liabilities at one point in time, is funded at 100% and considered to be *fully funded*. A plan with assets less than its accrued liabilities at one point in time is considered *underfunded*.

Underfunding is a matter of degree, not of kind: the status of a plan whose funding level declines from 101 percent in year one to 99 percent the following year, changes from overfunded to underfunded. Yet despite this diametric shift in terminology, the reality of the plan's funding condition has changed little. The fact that a plan is underfunded is not

necessarily a sign of fiscal or actuarial distress; many pension plans remain underfunded for decades without causing fiscal stress for the plan sponsor or reducing benefits to current beneficiaries. The critical factor in assessing the current and future health of a pension plan is whether or not funding its liabilities creates fiscal stress for the pension plan sponsor.

Although a pension plan that is fully funded is preferable to one that is underfunded, other factors held equal, a plan's funded status is simply a snapshot in a long-term, continuous financial and actuarial process. A plan's funding level is akin to a single frame of a movie that spans decades. Because public pensions are "going concerns," operating essentially as perpetual entities, there is nothing particularly important about being fully funded at any particular point. Likewise, the fact that a plan is underfunded does not necessarily

Attaining full funding of a pension plan has been likened to a mortgage. At the end of the process, when fully paid, the mortgage would be considered fully funded. Although at any point during the 30-year mortgage, the outstanding liability may be considered an unfunded liability, more relevant considerations are a) whether the mortgage holder has the resources to continue making payments until the obligation is resolved; and b) whether the obligation is indeed being amortized. The size of a mortgage-holder's outstanding obligation reveals little about the holder's financial condition. The length of the mortgage and the ability of its owner to amortize the obligation without financial hardship are more relevant indicators.

Likewise, more pertinent considerations with regard to funding a public pension plan are the ability of the plan sponsor to continue to pay promised benefits and to make required contributions without

The critical factor in assessing the current and future health of a pension plan is whether or not funding its liabilities creates fiscal stress for the pension plan sponsor.

present a fiscal or actuarial challenge to the plan sponsor.

The effect of the 2008 market decline was sufficient to prompt most plans to evaluate whether adjustments are required with respect to their level of benefits and financing structure in order to regain long-term actuarial solvency. Yet even with no changes to funding policies or plan design, based on current contribution levels and projected benefit obligations, most public pension plans are positioned to continue paying promised benefits for decades. Public pension liabilities typically extend years into the future, during which the pension fund can accumulate the assets needed to fund its liabilities.

causing fiscal stress, and whether the plan's unfunded liability is being amortized.

All plans, underfunded and fully funded alike, that are open to newly hired workers, rely on future contributions and investment returns. A key difference between underfunded and fully funded plans is that underfunded plans require additional revenue to amortize the shortfall between assets and accrued liabilities. The degree of underfunding and its associated cost to the plan sponsor are key considerations in assessing a plan's overall condition.

Other factors indicative of a pension plan's health include the:

- length of the funding amortization period
- required current and future contribution rates

- plan's demographics
- plan's actuarial assumptions
- sustainability of the plan design
- plan's governance structure
- fiscal health of the plan sponsor
- commitment of the plan sponsor to continue funding the plan

Information about these factors is provided in annual reports and other material published by most public retirement systems.

Past and Current Funding Levels

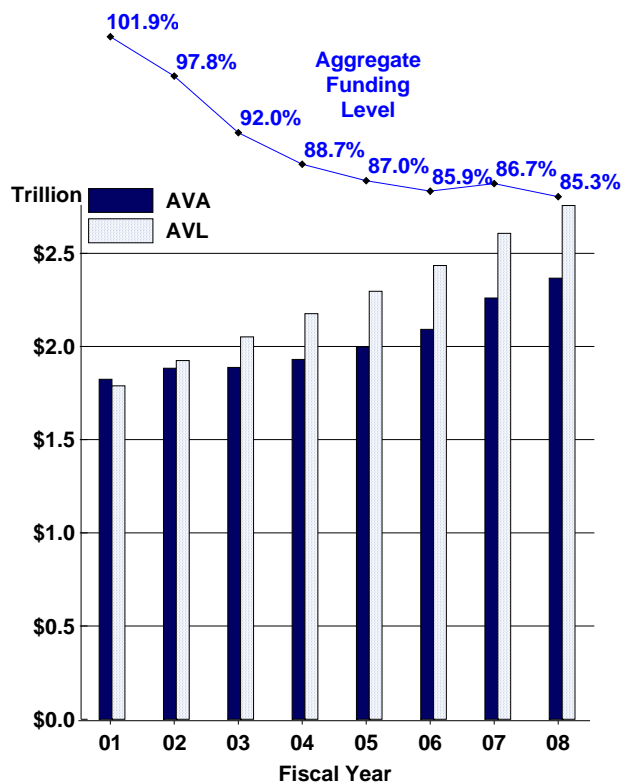
The aggregate public pension funding level declined in FY 08, from 86.7 percent to 85.3 percent. Figure A summarizes aggregate assets and liabilities and the resulting actuarial funding ratio for plans in the Public Fund Survey. The bar graph reflects assets and liabilities for 110 plans for which data is available for all the years in the period.

Following the market decline of 2000-2002, the aggregate funding level fell from FY 01 to FY 06, rising again in FY 07 due chiefly to investment gains that began in 2003, and to lower rates of liability growth. In response to declining investment markets beginning in October 2007, funding levels dropped in FY 08.

As described previously, public pensions are designed to absorb the shock of volatility in actuarial experience, including variations from expected levels of investment performance. This is achieved through the use of actuarial smoothing methods, which phase in investment gains and losses; funding amortization periods (that average approximately 25 years for plans in the Survey); and through use of a discount rate that is based on historic and projected long-term investment returns for individual asset classes and for the fund as a whole.

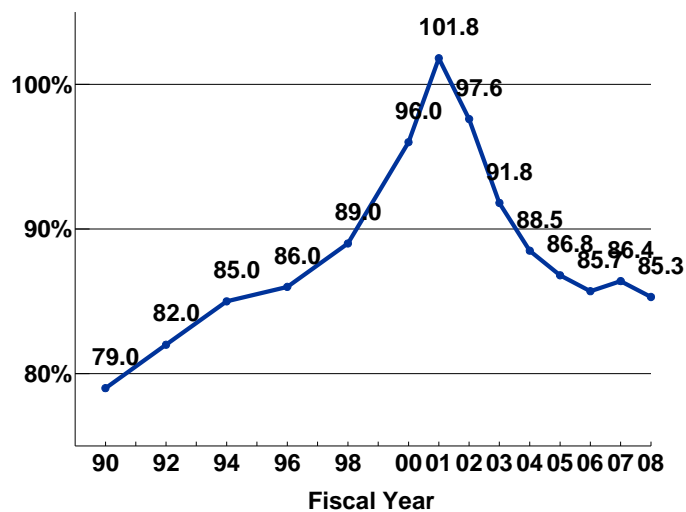
Figure B shows the change in the aggregate public pension funding level since 1990. Responding

Figure A: Change in aggregate actuarial value of assets, liabilities, and funding levels, FY 01 to FY 08



chiefly to changes in equity values, funding levels improved sharply during the 1990s, then declined beginning in 2002.

Figure B: Change in aggregate public pension funding level, FY 90 to FY 08



Standard & Poor's and Public Fund Survey

Operating under federal regulations known as ERISA, corporate pension plans are limited in their ability to moderate the effects of market volatility and required changes in plan costs. This difference in regulatory oversight is due chiefly to the fact that, unlike public sector entities, corporations can be acquired or declare bankruptcy and their pension plans can be terminated. As a result of ERISA, the aggregate funding level and required employer costs of corporate plans is significantly more volatile than that of public plans.

Figures C and D illustrate the contrast in funding levels and contributions between corporate and public pension plans. The volatility and uncertainty surrounding required costs for corporate pensions has been identified as a major factor in the decision by many corporations to freeze or terminate their pension plan. By contrast, public pension plan funding levels and contributions are designed to absorb change more slowly, due to their status as “going concerns.” As a result, public plans experience less dramatic year-to-year changes in funding levels and costs.

Figure C: Comparison of corporate and public pension funding levels, FY 00 to FY 08

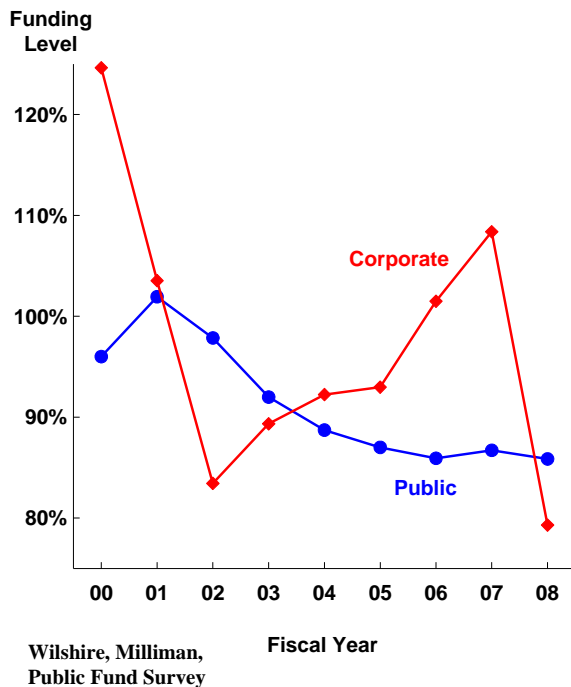
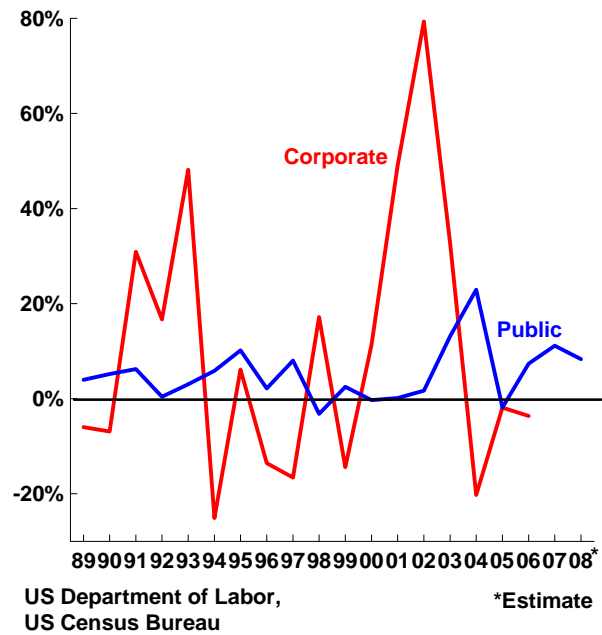


Figure D: Comparison of change from prior year in corporate and public pension contributions, 1989-2006



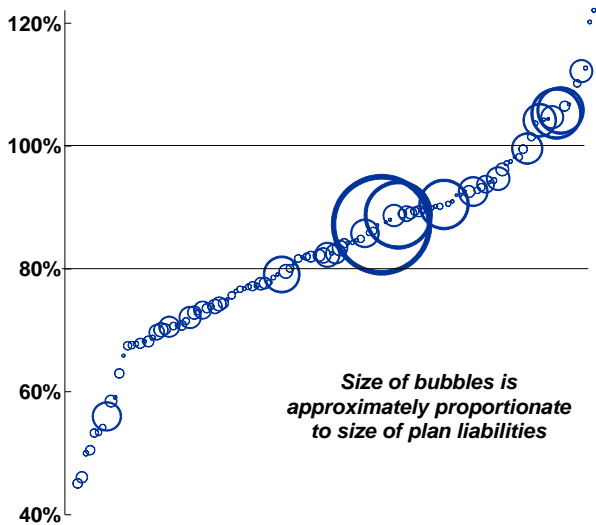
(Corporate pension contribution data, supplied by the U.S. Department of Labor, is available only through 2006.)

Figure E plots funding levels of the 125 plans in the Survey. The size of each circle on the chart is roughly proportionate to the size of the plan’s liabilities: larger bubbles signify larger plans, and smaller bubbles notate smaller plans.

The funding level for most plans is based on FY 08 data. Roughly three-fourths of systems in the Survey use a fiscal year-end date of June 30, most other plans have a FY-end date of 12/31, and the others have FY-end dates in-between.

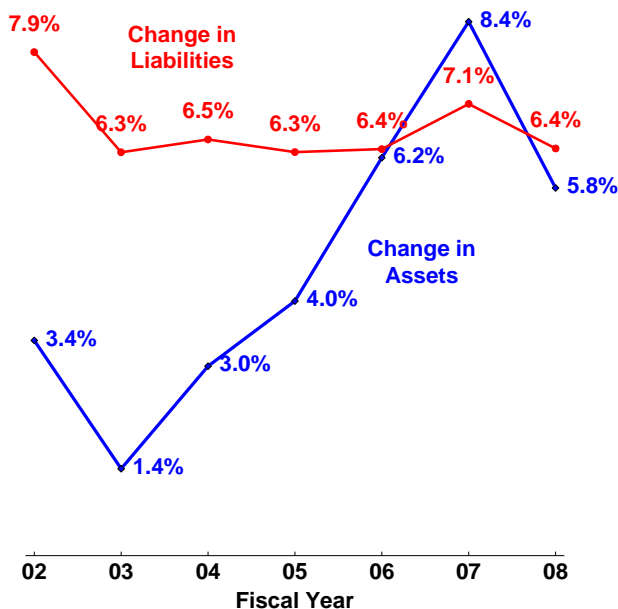
Actuarial valuation dates for nearly one-half of the plans lag behind the system’s fiscal year-end date, usually by one year. Only 10 plans in the Survey had an actuarial valuation conducted at the end of 2008, which incorporated the steepest portion of the 2008 market decline.

Figure E: Distribution of actuarial funding levels for plans in the Public Fund Survey, based on latest available data



Generally, larger plans in the Survey have higher funding levels than smaller ones: plans funded above 80 percent comprise nearly three-fourths of the actuarial assets of all plans in the survey. The median funding level is 82.5 percent, down from 84.3 percent in FY 07.

Figure F: Median change from prior year in actuarial value of assets and liabilities



For a plan’s funding level to improve, the rate of growth in assets must exceed the rate of liability growth. Growth in liabilities is affected by a variety of factors, including salary growth, changes in benefits, and economic and demographic changes. As Figure F shows, FY 08 median liability growth exceeded growth in assets, a change that is consistent with the decline in the aggregate funding level.

Although comparing public pension funding levels against other plans may be tempting, such a comparison must also recognize the limitations of doing so, as important differences among plans can render comparisons misleading. Some of these differences are the:

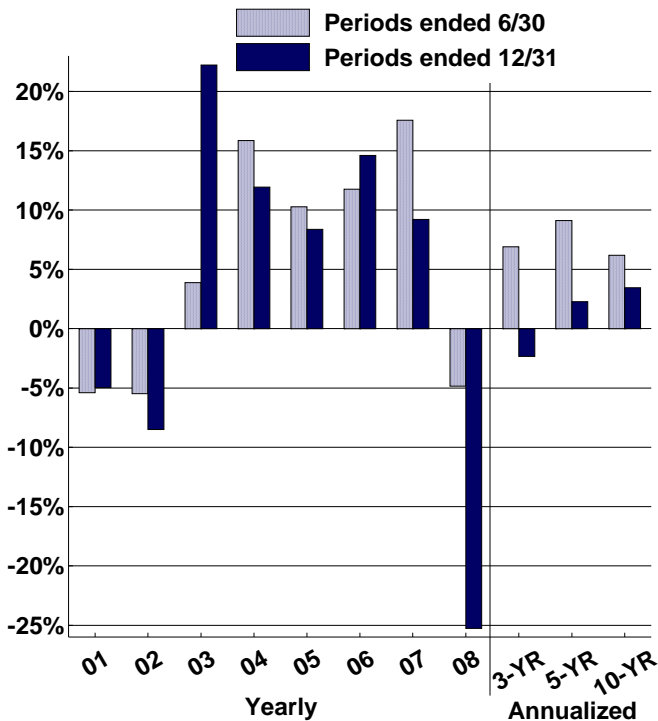
- level of required employee and employer contributions;
- plan sponsor(s)’ commitment and ability to make required contributions;
- fiscal condition of the plan sponsor;
- plan’s demographic makeup;
- level of benefits provided by the plan;
- plan’s governance structure, including the ability (or inability) to modify the plan design and financing structure;
- plan sponsor’s level of support for the pension plan;
- plan’s amortization period(s);
- required benefit payments in the current and future years relative to the plan’s asset base; and
- the pension fund’s investment performance, risk tolerance, and expected investment return.

Any analysis of a public pension plan’s financial or actuarial condition must take these and other factors into account, and failure to do so creates a risk of misunderstanding or misrepresenting the plan’s true condition.

Investment returns and future funding levels

Over time, investment earnings account for the majority of public pension fund revenues. From 1982 through 2008, investment earnings accounted for 58 percent of all public pension revenue.^{iv} The prominence of investment earnings in the financing arrangement magnifies the role of a pension fund's investment return on its funding condition.

Figure G: Median annual public pension fund investment returns (in percent) for years ended 6/30 and 12/31, 2001 to 2008



Source: Callan Associates

Figure G plots median public pension fund investment returns for the most-used fiscal year-end dates (6/30 and 12/31) for FY 01 to FY 08. This chart also illustrates the volatility in public pension investment returns in recent years. The chart also depicts the sharp contrast between returns for periods ended June 30 and December 31, 2008 resulting from the sharp market decline during the second half of 2008. As actuarial valuations incorporate more of the market decline, regardless

of the date of the valuation, funding levels for nearly all plans will decline.

As with most investors, public pension funds experienced major losses during the decline in global investment markets that occurred from October 2007 until March 2009. As these losses are incorporated into public pension plan actuarial valuations, funding levels will decline and unfunded liabilities will grow. The extent of the decline in funding levels will vary widely among plans, based especially on the plan's funding condition prior to the market decline and its investment returns in 2008 and in subsequent years.

Although funding levels in FY 09 and the next few years are projected to be lower, the market declines experienced in 2008 have been partially offset by improving investment markets through the third quarter of 2009. Market volatility is a primary reason that most public pension plans employ techniques to phase in their investment gains and losses, rather than basing funding levels (and required costs) on a single, point-in-time market value figure.

Figure H: Distribution of smoothing periods used to calculate actuarial value of plan assets

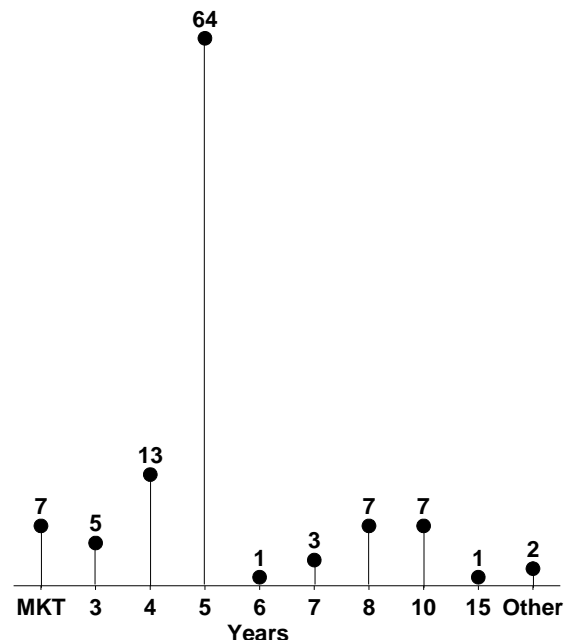
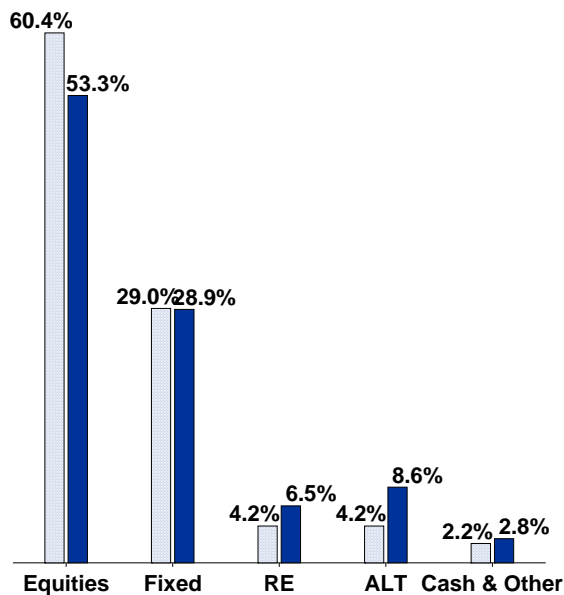


Figure H presents the distribution of periods used to determine plans' actuarial value of assets. Five years remains the predominant length of smoothing periods, although more plans are now using periods longer than five years than were several years ago. All plans that use eight years are part of the Washington State Department of Retirement Systems.

Asset Allocation and Investment Expenses

Figure I compares average asset allocations between FY 04 and FY 08 for systems in the Survey. While the fixed income allocation has barely changed, increased allocations to real estate and alternatives (chiefly private equity and hedge funds) have occurred via a reduction in equity allocations. This increased diversification reflects an effort by most public funds to retain expected returns at lower levels of risk, or to increase projected returns at the same level of expected portfolio risk.

Figure I: Comparison of average asset allocation, FY 04 and FY 08

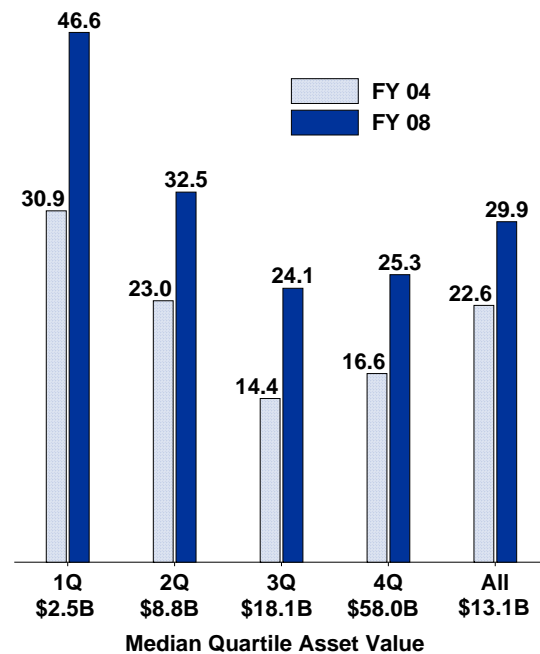


Investment management expenses paid by public funds have been rising in recent years, as evidenced in Figure J, which compares FY 04 and FY 08 median investment expenses, by quartile, for the 90

funds in the Survey for which this data is available. Median costs in each quartile are higher in FY 08 than they were in FY 04, likely due to increased use of real estate and other alternatives. Anecdotal evidence indicates that many large funds are working to negotiate lower fees for these types of investments.

Larger funds usually are able to use their size to negotiate lower asset management fees than smaller funds and individual investors. Perhaps because larger funds are more likely to be invested in alternative classes (which typically cost more to manage than other asset classes), expenses for the largest quartile are higher than those for the third quartile of funds.

Figure J: FY 04 and FY 08 median investment management expenses, by quartile



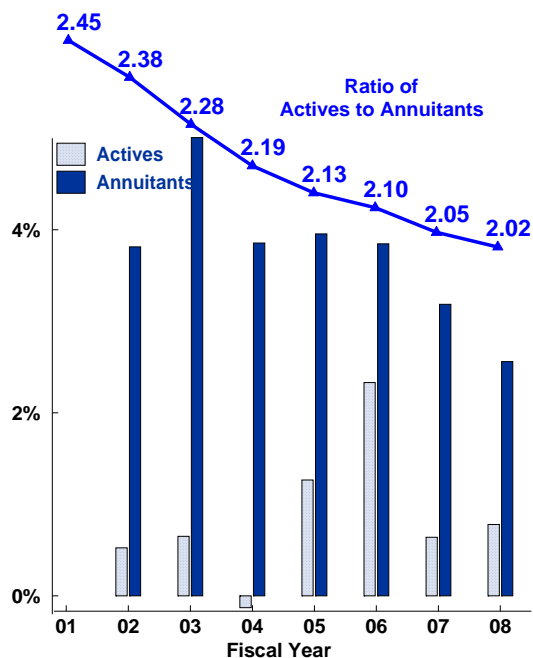
The median cost to administer plans in the Survey is under 10 basis points, or 0.10 percent of assets. Combined with investment management costs, the total cost of administering a typical public pension plan is considerably lower than that of a typical defined contribution plan, whose costs generally are 1.25 percent to 2.0 percent of assets.

Membership Changes

The Survey tracks two groups of members: actives, who are working and currently receiving service credit in their retirement plan; and annuitants, which includes any member receiving a regular benefit from the system: retirees, beneficiaries and disabilitants.

Figure K summarizes the percentage changes from the prior year in these membership groups from FY 01 to FY 08. Due largely to the aging of the nation's workforce, the rate of growth in annuitants has been outpacing the rate of growth in active (working) members. As the chart shows, the ratio of actives to annuitants has declined from 2.45 in FY 01 to 2.02 in FY 08. The number of annuitants among plans in the Public Fund Survey has increased since FY 01 by some 30 percent.

Figure K: Percentage change over prior year in active members and annuitants, FY 01 to FY 08, and change in ratio of actives to annuitants



By itself, a declining ratio of actives to annuitants does not pose a problem to a public pension plan's actuarial condition, because most public pensions fund the cost of their benefits in advance. However, to the extent that a plan is underfunded, a low or

declining ratio of actives to annuitants can complicate the plan's ability to move toward full funding, as fewer active, contributing workers, relatively, are available to amortize the plan's unfunded liability. An extreme example of this is evident in the case of pension plans that are closed. If a closed plan has an unfunded actuarial liability, its cost, as a percentage of payroll, will rise, often precipitously, as the liability is distributed among a diminishing pool of active participants.

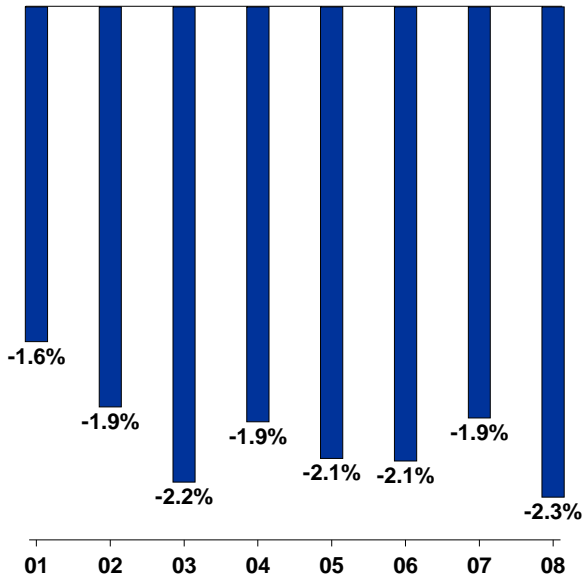
A declining ratio of actives to annuitants also can have financial and operational effects on a retirement system. For example, fewer active members create a larger negative cash flow (contributions minus benefit payments and administrative expenses). At a certain point, a negative external cash flow can require a pension fund to allocate a larger percentage of its assets to more liquid securities, or to make other adjustments to its asset allocation which may reduce long-term investment returns. In addition, as a group, annuitants tend to require more time and attention than actives from the retirement system staff. This is likely because annuitants are reliant, to some degree, on current income from the system, and are more attuned to the system's activities and operations.

Figure L displays the median external cash flow among systems in the Public Fund Survey. External cash flow is the difference between a fund's revenue from non-investment earnings sources (chiefly contributions), and the fund's required expenditures (chiefly benefits and administrative expenses). Eighty-four of the 91 systems (92 percent) whose external cash flow was measured in FY 08, had a negative external cash flow.

External cash flows for most systems are expected to become increasingly negative over time. This is a normal development for a pension plan in an aging society, and the degree of the negative cash flow

will also be affected by the 2008 decline in market values.

Figure L: Median external cash flow for systems in the Public fund Survey, FY 01 to FY 08



Contribution rates

Nearly all employees of state and local government are required to make contributions to defray the cost of their retirement benefit. According to the U.S. Census, from 1982 to 2006, contributions from employees and employers accounted for approximately 14 and 28 percent, respectively, of public pension fund revenues (investment earnings make up the difference).^v Contribution rates for employees usually are set as a fixed percentage of pay. The treatment of employer contributions varies by system: some also are fixed, others vacillate on the basis of actuarial results or the plan sponsor’s fiscal condition. Although employee contributions are the smallest of the three main public pension sources of revenue, they also are the most steady and reliable, providing a predictable stream of revenue that typically is used to help fund plan benefits.

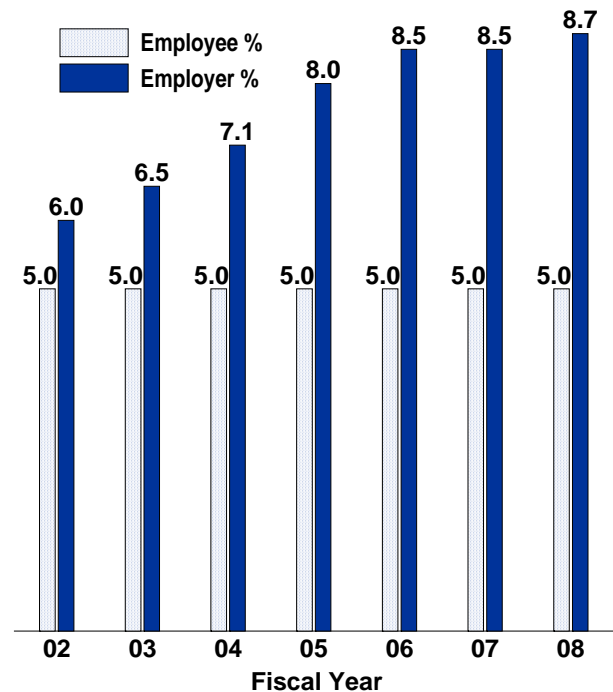
Figure M plots median contribution rates for employers and employees since FY 02 for general employees and school teachers who also participate

in Social Security. This data does not include public safety personnel, such as firefighters and police officers, or narrow employee groups, such as legislators or judges.

Median employer contribution rates for workers who participate in Social Security rose to 8.7 percent of pay. The median and modal employee contribution rate for this group remained five percent of pay.

Approximately one-fourth of all employees of state and local government do not participate in Social Security, including nearly one-half of public school teachers, a majority of firefighters and police officers, and most or substantially all public employees in Alaska, Colorado, Louisiana, Maine, Massachusetts, Ohio, and Nevada. Contribution rates usually are higher for non-Social Security eligible employers and workers, because benefits usually also are higher to offset the lack of Social Security.

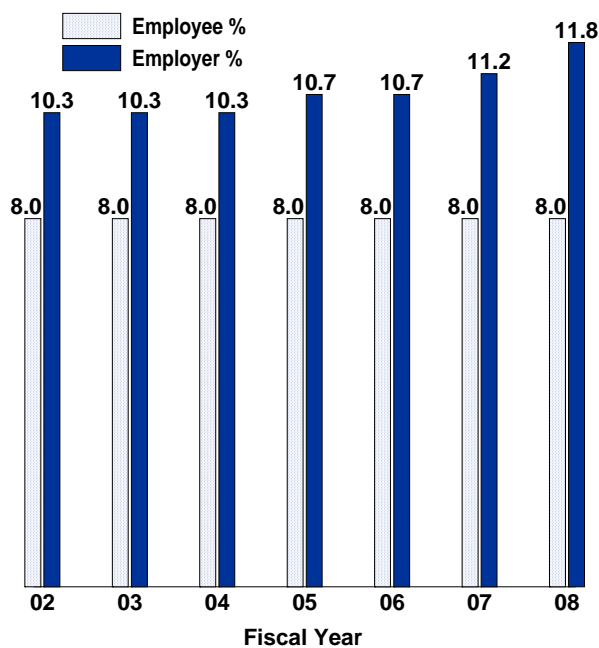
Figure M: Median employee and employer contribution rates as a percentage of pay, Social Security-eligible workers, FY 02 to FY 08



As shown in Figure N, median employer contribution rates for non-Social Security-eligible workers rose in FY 08 to 11.8 percent of pay, up from 11.2 percent in FY 07. Depending on the plan, higher employer rates may be a result either of higher required costs or additional resources available to plan sponsors to make required contributions, or both.

Employers and employees participating in non-Social Security plans each avoid the 6.2 percent contribution used to fund Social Security, but they are required to pay the 1.45 percent Medicare contribution.

Figure N: Median employee and employer contribution rates as a percentage of pay, non-Social Security-eligible workers, FY 02 to FY 08



Annual Required Contributions

A plan’s annual required contribution, or ARC, is calculated by an actuary and reflects the amount needed to fund benefits accrued in the current period (the normal cost) plus the amount needed to retire the plan’s unfunded liability over the plan’s funding period. Failure to make required contributions is a major contributor to public pension plans’ unfunded liabilities. Although many

plan sponsors consistently make their full ARC, some consistently fail to make their ARC. In a recent study of public pensions, the Government Accountability Office stated that many of the plan sponsors failing to pay their ARC also had plans in relatively poorer funding condition. “[T]he failure of some [plan sponsors] to consistently make the annual required contributions undermines [funding] progress and is cause for concern, particularly as state and local governments will likely face increasing fiscal pressure in the coming decades. While unfunded liabilities do not generally put benefits at risk in the near-term, they do shift costs and risks to the future.”^{vi}

Figure O: Average annual required contribution paid and percentage of plans paying at least 90 percent of their ARC, FY 01 to 08

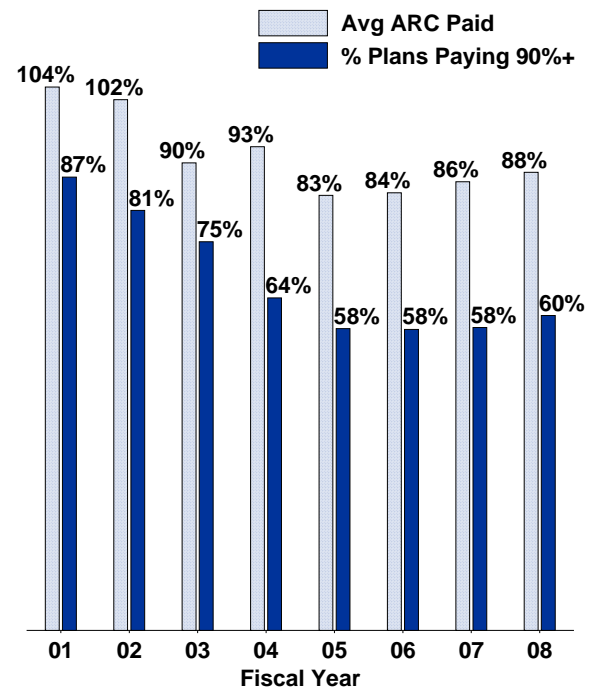


Figure O plots ARC history for plans in the Survey on the basis of two measures: the overall average ARC paid, and the percentage of plans receiving at least 90 percent of the ARC. Each plan in the Survey is equally weighted and these results are not weighted by plan size. At 88 percent, the overall average ARC paid by public plan sponsors in FY 08

was marginally higher than in previous years, but still below the 100+ percent level of FY 01. At 60 percent, the percentage of plan sponsors paying at least 90 percent of their ARC was slightly higher in FY 08 than in the last few years.

The method for setting employer contribution rates varies; some plan sponsors set the rate on the basis of the ARC; others pay a fixed percentage of employee pay; and still others base their contribution on how much funding is available.

Although employer pension contributions are estimated to have roughly doubled from 2002 to 2008, the average ARC paid in FY 08 remains below that of FY 02. This is because the ARC for most plans has increased faster than the increase in employer contributions, primarily due to increased costs required to amortize unfunded liabilities that resulted from the 2000-2002 market decline.

Assumptions for Inflation and Investment Return

Among the many actuarial assumptions used to calculate a plan's liabilities, rates of inflation and investment return exert a major effect on plan costs. The assumed inflation rate affects actual and projected wage growth, which is a major driver of benefit levels. Inflation also is one component of the investment return assumption; the other is the assumed real return, which is the investment return net of inflation.

Figure P plots the distribution of inflation assumptions among plans in the Public Fund Survey based on the latest available data. Many plans have reduced their inflation assumptions in recent years, resulting in a median and modal assumption of 3.5%. Most plans in the Survey use an inflation assumption between 3.0 percent and 3.5 percent. For the 25-year period ended in 2008, the average rate of inflation, based on the most-recognized inflation indicator published by the U.S. Bureau of Labor Statistics, was 3.0 percent.^{vii}

Figure N: Distribution of inflation assumptions, (most are as of FY 08)

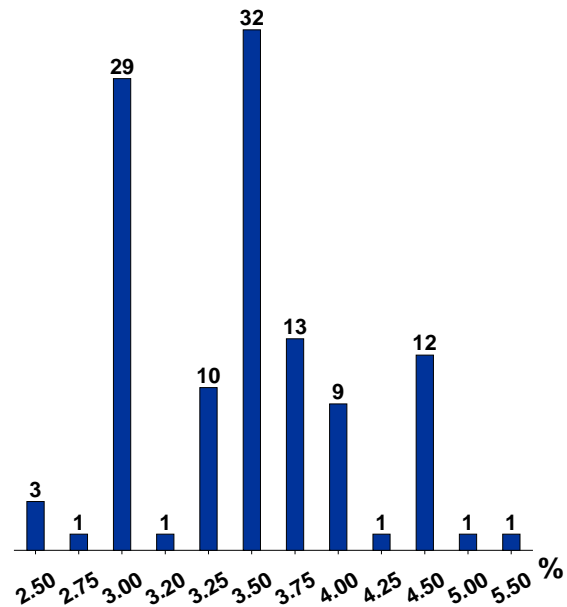
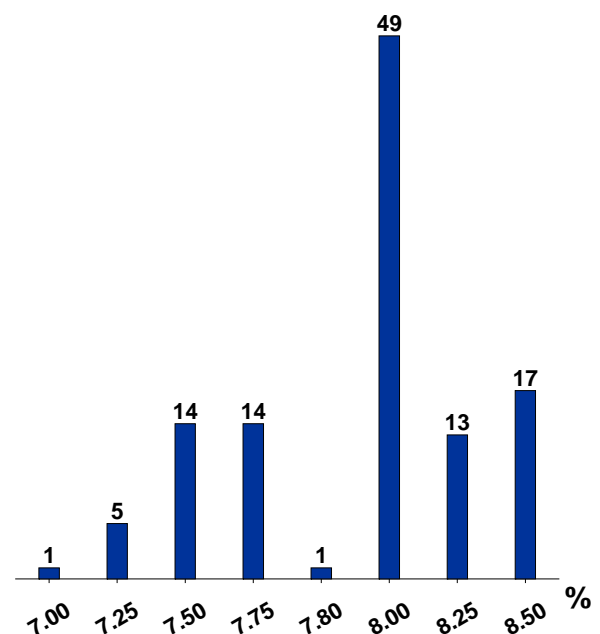


Figure Q plots the distribution of investment return assumptions. As with inflation assumptions, investment return assumptions for many plans have been reduced in recent years. In particular, all investment return assumptions in the Public Fund Survey above 8.5 percent have been reduced. The median and modal assumption remains 8.0 percent.

Figure Q: Distribution of investment return assumptions, FY 08



Conclusion

Although the overall funding level of plans in the Public Fund Survey declined only slightly in FY 08, the sharp drop in asset values in 2008 will drive funding levels for most plans lower in the next few years. The impact of the decline will depend on multiple factors, particularly the plan's funding condition entering 2008, its investment experience in 2008 and in subsequent years, and the fiscal condition of the plan sponsor(s).

The timing of lower funding levels will be affected largely by the date of plans' actuarial valuations,

and also by the length of plans' smoothing period. Absent dramatic improvements in investment markets, public pension funding levels will be lower in FY 09 and the ensuing three to five years, and costs for most plans will be higher. Employee contributions will play a role, to some degree, in blunting higher required costs, and the delay between the market declines and the implementation of higher costs gives plan sponsors an opportunity to prepare. Strong growth in global equity markets to-date in 2009 will help to offset a portion of the 2008 declines.

End Notes

ⁱ Callan Associates, "Plan Sponsor Universe, Median Returns for Periods Ended 12/31/08"

ⁱⁱ Employee Benefits Research Institute, "The Impact of the Recent Financial Crisis on 401(k) Account Balances," February 2009

ⁱⁱⁱ National Institute on Retirement Security (Almeida, Fornia), "A Better Bang for the Buck," August 2008

^{iv} U.S. Census Bureau, "State and Local Government Employee Retirement Systems,"

^v Ibid.

^{vi} Government Accountability Office, "State and Local Government Retiree Benefits: Current Funded Status of Pension and Health Benefits," January 2008

^{vii} Bureau of Labor Statistics, CPI-All Urban Consumers

Related Resources

Center for Retirement Research, Boston College (Munnell, Aubrey, Muldoon), "The Financial Crisis and State/Local Defined Benefit Plans," November 2008

Center for State & Local Government Excellence, (Munnell, Haverstick, Soto), "Why Have Defined Benefit Plans Survived in the Public Sector?," December 2007

Government Accountability Office: "State and Local Government Retiree Benefits: Current Funded Status of Pension and Health Benefits," January 2008

_____ "Current Status of Benefit Structures, Protections, and Fiscal Outlook for Funding Future Costs" September 2007

Moody's Investors Service, "Pension funding may suffer from 2008 stock market declines" November 2008

National Association of State Retirement Administrators/National Council on Teacher Retirement, "Market Declines and Public Pensions," December 2008

National Conference of State Legislatures, "Pension Enactments in State Legislatures"

National Institute on Retirement Security (Almeida, Fornia), "A Better Bang for the Buck," August 2008

Standard & Poor's (Hitchcock, Prunty), "No Immediate Pension Hardship for State and Local Governments, But Plenty of Long-Term Worries," February 2009

U.S. Department of Labor, Bureau of Labor Statistics (Wiatrowski), "The Structure of State and Local Government Retirement Benefits, 2008," February 2009

Appendix A

State	System Name	Market Value of Assets (\$000s)	Actives	Annuitants	As of FYE
AK	Alaska Public Employees Retirement System	6,935,808	29,431	24,063	6/30/2008
AK	Alaska Teachers Retirement System	3,550,798	8,682	9,992	6/30/2008
AL	Retirement Systems of Alabama	26,969,908	228,233	105,656	9/30/2008
AR	Arkansas Teachers Retirement System	11,018,088	70,172	26,801	6/30/2008
AR	Arkansas Public Employees Retirement System	5,638,452	44,427	23,679	6/30/2008
AZ	Arizona State Retirement System	24,962,358	227,730	92,673	6/30/2008
AZ	Arizona Public Safety Personnel Retirement System	5,019,281	21,093	8,241	6/30/2008
AZ	Phoenix Employees Retirement System	1,810,669	9,624	4,497	6/30/2008
CA	California Public Employees Retirement System	238,748,973	838,518	409,318	6/30/2008
CA	California State Teachers Retirement System	161,498,193	455,693	215,641	6/30/2008
CA	Los Angeles County Employees Retirement Association	38,724,671	94,492	52,350	6/30/2008
CA	San Francisco City and County Retirement System	15,832,521	35,396	21,048	6/30/2008
CA	San Diego County Employees Retirement Association	8,389,810	18,041	12,991	6/30/2008
CA	Contra Costa County Employees Retirement Association	3,749,699	9,385	7,012	12/31/2008
CO	Colorado Public Employees Retirement Association	29,320,585	190,684	81,248	12/31/2008
CO	Denver Public Schools Retirement System	2,453,577	7,560	6,186	12/31/2008
CO	Denver Employees Retirement Plan	1,455,545	9,324	6,869	12/31/2008
CT	Connecticut Teachers Retirement Board	12,227,995	53,546	28,042	6/30/2007
CT	Connecticut State Employees Retirement System	8,146,302	48,919	36,705	6/30/2005
DC	District of Columbia Retirement Board	3,734,480	10,482	4,082	9/30/2008
DE	Delaware Public Employees Retirement System	7,059,372	42,119	22,472	6/30/2008
FL	Florida Retirement System	124,466,800	683,811	274,842	6/30/2008
GA	Georgia Teachers Retirement System	50,063,600	225,024	78,633	6/30/2008
GA	Georgia Employees Retirement System	15,144,483	115,761	49,148	6/30/2008
HI	Hawaii Employees Retirement System	11,462,417	65,251	35,324	6/30/2007
IA	Iowa Public Employees Retirement System	22,370,594	167,850	87,490	6/30/2008
ID	Idaho Public Employee Retirement System	10,695,358	66,765	30,912	6/30/2008
IL	Illinois Teachers Retirement System	38,430,723	165,572	91,462	6/30/2008
IL	Illinois Municipal Retirement Fund	18,022,055	181,678	90,170	12/31/2008
IL	Illinois State Universities Retirement System	14,586,325	73,086	45,346	6/30/2008
IL	Chicago Public School Teachers Pension and Retirement Fund	12,772,609	32,968	23,623	6/30/2007
IL	Illinois State Employees Retirement System	10,995,366	66,237	56,111	6/30/2008
IN	Indiana Public Employees Retirement Fund	15,737,079	151,770	63,081	6/30/2008
IN	Indiana State Teachers Retirement Fund	8,563,959	114,237	41,253	6/30/2008
KS	Kansas Public Employees Retirement System	13,193,064	153,804	68,151	6/30/2008
KY	Kentucky Teachers Retirement System	14,076,692	75,539	40,739	6/30/2008
KY	Kentucky Retirement Systems	12,955,383	148,865	81,847	6/30/2008
LA	Louisiana Teachers Retirement System	14,996,250	82,840	61,070	6/30/2008
LA	Louisiana State Employees Retirement System	8,957,888	61,780	37,575	6/30/2008
MA	Massachusetts State Employees Retirement System	22,538,610	85,403	51,058	12/31/2007
MA	Massachusetts Teachers Retirement Board	17,311,137	89,636	50,024	12/31/2008
MD	Maryland State Retirement and Pension System	36,613,710	199,255	112,422	6/30/2008
ME	Maine Public Employees Retirement System	10,849,423	51,402	34,182	6/30/2008
MI	Michigan Public School Employees Retirement System	39,065,741	278,642	167,265	9/30/2008
MI	Michigan State Employees Retirement System	9,781,239	28,568	48,078	9/30/2008
MI	Municipal Employees Retirement System of Michigan	4,512,261	37,135	23,995	12/31/2008
MN	Minnesota Teachers Retirement Association	18,106,966	76,515	46,981	6/30/2008
MN	Minnesota Public Employees Retirement Association	18,064,823	158,233	71,392	6/30/2008
MN	Minnesota State Retirement System	10,143,209	54,522	29,582	6/30/2008
MN	Minneapolis Employees Retirement Fund	1,282,717	552	4,981	6/30/2004
MN	St. Paul Teachers Retirement Fund Association	1,023,640	4,121	2,851	6/30/2008
MN	Duluth Teachers Retirement Fund Association	271,617	1,140	1,243	6/30/2008

Appendix A

State	System Name	Market Value of Assets (\$000s)	Actives	Annuitants	As of FYE
MO	Missouri Public Schools Retirement System	30,010,701	129,301	60,026	6/30/2008
MO	Missouri State Employees Retirement System	8,011,371	54,542	30,132	6/30/2008
MO	Missouri Local Government Employees Retirement System	3,962,817	31,424	13,356	6/30/2008
MO	MoDOT & Patrol Employees Retirement System	1,718,675	8,581	7,345	6/30/2008
MO	St. Louis Public School Retirement System	810,631	5,021	4,456	12/31/2008
MS	Mississippi Public Employees Retirement System	19,739,790	166,576	76,496	6/30/2008
MT	Montana Public Employees Retirement Board	4,692,647	34,049	19,734	6/30/2008
MT	Montana Teachers Retirement System	2,993,393	18,292	11,788	6/30/2008
NC	North Carolina Retirement Systems	77,544,817	607,389	202,649	6/30/2008
ND	North Dakota Teachers Fund for Retirement	1,846,113	9,651	6,317	6/30/2008
ND	North Dakota Public Employees Retirement System	1,816,811	19,464	7,186	6/30/2008
NE	Nebraska Retirement Systems	8,726,932	54,245	13,226	6/30/2008
NH	New Hampshire Retirement System	5,425,204	50,988	22,870	6/30/2008
NJ	New Jersey Division of Pension and Benefits	85,836,770	523,749	236,541	6/30/2008
NM	New Mexico Public Employees Retirement Association	12,094,973	60,077	25,506	6/30/2008
NM	New Mexico Educational Retirement Board	8,770,044	63,698	31,192	6/30/2008
NV	Nevada Public Employees Retirement System	22,198,009	106,123	38,130	6/30/2008
NY	New York State and Local Retirement Systems	155,845,869	621,917	358,109	3/31/2008
NY	New York State Teachers Retirement System	95,769,336	269,938	136,706	6/30/2008
NY	New York City Employees Retirement System	39,716,826	178,741	128,863	6/30/2008
NY	New York City Teachers Retirement System	32,297,864	109,992	67,576	6/30/2008
OH	Ohio State Teachers Retirement System	66,837,412	173,327	126,506	6/30/2008
OH	Ohio Public Employees Retirement System	49,451,761	374,002	166,516	12/31/2008
OH	Ohio School Employees Retirement System	10,646,564	124,370	64,818	6/30/2008
OH	Ohio Police & Fire Pension Fund	7,757,630	28,864	24,878	12/31/2008
OK	Oklahoma Teachers Retirement System	8,945,859	88,678	45,238	6/30/2008
OK	Oklahoma Public Employees Retirement System	6,255,208	45,120	26,033	6/30/2008
OR	Oregon Employees Retirement System	58,010,291	167,452	105,721	6/30/2008
PA	Pennsylvania Public School Employees Retirement System	62,473,426	264,000	168,000	6/30/2008
PA	Pennsylvania State Employees Retirement System	22,795,813	110,866	108,146	12/31/2008
RI	Rhode Island Employees Retirement System	8,508,799	35,646	22,927	6/30/2007
SC	South Carolina Retirement Systems	26,633,045	225,014	115,310	6/30/2008
SD	South Dakota Retirement System	7,312,107	37,707	19,321	6/30/2008
TN	Tennessee Consolidated Retirement System	31,634,129	212,725	98,230	6/30/2008
TX	Teacher Retirement System of Texas	104,910,498	823,154	275,228	8/31/2008
TX	Texas Employees Retirement System	22,384,273	135,171	79,470	8/31/2008
TX	Texas Municipal Retirement System	14,636,084	100,459	36,863	12/31/2008
TX	Texas County & District Retirement System	12,054,818	120,347	36,509	12/31/2008
TX	Houston Firefighters Relief and Retirement Fund	3,029,159	3,876	2,421	6/30/2008
TX	Austin Employees Retirement System	1,234,496	8,643	3,835	12/31/2008
UT	Utah Retirement Systems	15,886,067	106,261	42,040	12/31/2008
VA	Virginia Retirement System	53,599,632	345,737	136,394	6/30/2008
VA	Educational Employees Supplementary Retirement System	1,858,572	19,599	8,354	6/30/2008
VT	Vermont Teachers Retirement System	1,501,320	10,685	5,555	6/30/2008
VT	Vermont State Employees Retirement System	1,282,494	8,442	4,555	6/30/2008
WA	Washington Department of Retirement Systems	58,061,969	294,201	122,527	6/30/2008
WI	Wisconsin Retirement System	80,390,755	262,856	137,117	12/31/2006
WV	West Virginia Consolidated Public Retirement Board	8,024,034	72,797	50,387	6/30/2008
WY	Wyoming Retirement System	4,621,174	40,687	20,393	12/31/2008
		2,594,869,805	13,515,957	6,651,893	

Appendix B

State	Plan Name	Actuarial Funding Ratio (%)	Actuarial Value of Assets (\$000s)	Actuarial Value of Liabilities (\$000s)	UAAL (\$000s)	Actuarial Valuation Date	As of FYE
AK	Alaska PERS	77.8	6,739,004	8,662,324	1,923,320	6/30/2007	6/30/2008
AK	Alaska Teachers	68.2	3,441,867	5,043,448	1,601,581	6/30/2007	6/30/2008
AL	Alabama Teachers	77.6	20,812,477	26,804,117	5,991,640	9/30/2007	9/30/2008
AL	Alabama ERS	75.7	9,905,766	13,078,687	3,172,921	9/30/2008	9/30/2008
AR	Arkansas Teachers	84.9	11,319,000	13,334,000	2,015,000	6/30/2008	6/30/2008
AR	Arkansas PERS	89.7	5,866,000	6,543,000	677,000	6/30/2008	6/30/2008
AZ	Arizona SRS	82.2	27,851,855	33,870,865	6,019,010	6/30/2008	6/30/2008
AZ	Arizona Public Safety Personnel	68.8	5,095,645	7,405,397	2,309,752	6/30/2008	6/30/2008
AZ	Phoenix ERS	79.1	1,908,414	2,413,365	504,951	6/30/2008	6/30/2008
CA	California PERF	87.2	216,484,000	248,224,000	31,740,000	6/30/2007	6/30/2008
CA	California Teachers	88.8	148,427,000	167,129,000	18,702,000	6/30/2007	6/30/2008
CA	LA County ERS	93.8	37,041,832	39,502,456	2,460,624	6/30/2007	6/30/2008
CA	San Francisco City & County	110.2	14,929,287	13,541,388	(1,387,899)	7/1/2007	6/30/2008
CA	San Diego County	94.4	8,236,926	8,722,294	485,368	6/30/2008	6/30/2008
CA	Contra Costa County	89.9	5,016,137	5,581,048	564,911	12/31/2007	12/31/2008
CO	Colorado School	70.1	21,733,329	31,000,202	9,266,873	12/31/2008	12/31/2008
CO	Colorado State	67.9	13,914,371	20,498,668	6,584,297	12/31/2008	12/31/2008
CO	Denver Schools	84.3	2,944,292	3,493,011	548,719	1/1/2009	12/31/2008
CO	Colorado Municipal	76.4	2,933,296	3,838,083	904,787	12/31/2008	12/31/2008
CO	Denver Employees	98.2	1,950,011	1,985,651	35,640	1/1/2008	12/31/2008
CT	Connecticut Teachers	63.0	11,781,338	18,703,793	6,922,455	6/30/2006	6/30/2007
CT	Connecticut SERS	53.3	8,517,677	15,987,547	7,469,870	6/30/2005	6/30/2005
DC	DC Police & Fire	102.4	2,877,463	2,809,858	(67,605)	10/1/2008	9/30/2008
DC	DC Teachers	102.4	1,502,237	1,466,942	(35,295)	10/1/2008	9/30/2008
DE	Delaware State Employees	103.7	6,751,949	6,549,856	(202,093)	6/30/2008	6/30/2008
FL	Florida RS	105.3	130,720,547	124,087,214	(6,633,333)	7/1/2008	6/30/2008
GA	Georgia Teachers	94.7	52,099,171	54,996,570	2,897,399	6/30/2007	6/30/2008
GA	Georgia ERS	89.4	14,017,346	15,680,857	1,041,490	6/30/2008	6/30/2008
HI	Hawaii ERS	67.5	10,589,773	15,696,546	5,106,773	6/30/2007	6/30/2007
IA	Iowa PERS	89.1	21,857,423	24,522,517	2,665,094	6/30/2008	6/30/2008
ID	Idaho PERS	92.8	10,402,000	11,211,800	(573,400)	7/1/2008	6/30/2008
IL	Illinois Teachers	56.0	38,430,723	68,632,367	30,201,644	7/1/2008	6/30/2008
IL	Illinois Municipal	82.2	21,061,054	25,611,199	4,550,145	12/31/2008	12/31/2008
IL	Illinois Universities	58.5	14,586,300	24,917,700	10,331,400	6/30/2008	6/30/2008
IL	Chicago Teachers	80.1	11,759,699	14,677,184	2,917,485	6/30/2007	6/30/2007
IL	Illinois SERS	46.1	10,995,366	23,841,280	12,845,914	6/30/2008	6/30/2008
IN	Indiana PERF	98.2	12,220,934	12,439,798	218,864	7/1/2007	6/30/2008
IN	Indiana Teachers	45.1	8,476,559	18,815,812	10,339,253	6/30/2007	6/30/2008
KS	Kansas PERS	70.8	13,433,115	18,984,915	5,551,800	12/31/2007	6/30/2008
KY	Kentucky Teachers	68.2	15,321,325	22,460,304	7,138,979	6/30/2008	6/30/2008
KY	Kentucky County	77.1	7,482,370	9,707,340	2,224,970	6/30/2008	6/30/2008
KY	Kentucky ERS	54.2	5,820,925	10,747,701	4,926,776	6/30/2008	6/30/2008
LA	Louisiana Teachers	70.2	15,507,834	22,090,516	6,582,682	6/30/2008	6/30/2008
LA	Louisiana SERS	67.6	9,167,170	13,562,214	4,395,044	6/30/2008	6/30/2008
MA	Massachusetts Teachers	73.9	22,883,553	30,955,504	8,071,951	1/1/2008	12/31/2008
MA	Massachusetts SERS	89.4	20,400,656	22,820,502	2,419,846	1/1/2008	12/31/2007
MD	Maryland Teachers	79.6	23,784,404	29,868,705	6,084,301	6/30/2008	6/30/2008
MD	Maryland PERS	77.2	13,599,717	17,609,769	4,010,052	6/30/2008	6/30/2008
ME	Maine State and Teacher	73.9	8,245,520	11,157,770	2,912,250	6/30/2007	6/30/2008
ME	Maine Local	108.8	2,001,714	1,838,975	(162,739)	6/30/2007	6/30/2008
MI	Michigan Public Schools	88.7	45,335,000	51,107,000	5,772,000	9/30/2007	9/30/2008
MI	Michigan SERS	86.2	11,344,000	13,162,000	1,818,000	9/30/2007	9/30/2008
MI	Michigan Municipal	77.3	5,973,000	7,723,900	1,750,900	12/31/2007	12/31/2008
MN	Minnesota Teachers	82.0	18,226,985	22,230,841	4,003,856	7/1/2008	6/30/2008
MN	Minnesota PERF	73.6	13,048,970	17,729,847	4,680,877	6/30/2008	6/30/2008
MN	Minnesota State Employees	90.2	9,013,456	9,994,602	722,788	6/30/2008	6/30/2008
MN	Minneapolis ERF	92.1	1,513,389	1,643,140	129,751	7/1/2004	6/30/2004
MN	St. Paul Teachers	75.1	1,075,951	1,432,040	356,089	6/30/2008	6/30/2008
MN	Duluth Teachers	82.1	298,067	363,044	64,977	7/1/2008	6/30/2008
MO	Missouri Teachers	83.4	28,751,241	34,490,452	5,739,211	6/30/2008	6/30/2008
MO	Missouri State Employees	85.9	7,838,496	9,128,347	1,289,851	6/30/2008	6/30/2008
MO	Missouri Local	97.5	3,957,069	4,058,829	143,425	2/28/2008	6/30/2008
MO	Missouri PEERS	82.5	2,703,762	3,278,602	574,840	6/30/2008	6/30/2008

Appendix B

State	Plan Name	Actuarial Funding Ratio (%)	Actuarial Value of Assets (\$000s)	Actuarial Value of Liabilities (\$000s)	UAAL (\$000s)	Actuarial Valuation Date	As of FYE
MO	Missouri DOT and Highway Patrol	59.1	1,783,902	3,019,634	1,235,732	6/30/2008	6/30/2008
MO	St. Louis School Employees	87.6	1,014,900	1,158,900	144,000	1/1/2008	12/31/2008
MS	Mississippi PERS	72.9	20,814,720	28,534,694	7,719,974	6/30/2008	6/30/2008
MT	Montana PERS	90.2	4,065,307	4,504,743	439,436	6/30/2008	6/30/2008
MT	Montana Teachers	76.8	3,159,100	4,110,800	951,700	7/1/2008	6/30/2008
NC	North Carolina Teachers and State Empl	104.7	55,283,121	52,815,089	(2,468,032)	12/31/2007	6/30/2008
NC	North Carolina Local Government	99.5	16,791,984	16,868,147	78,588	12/31/2007	6/30/2008
ND	North Dakota Teachers	81.9	1,909,500	2,330,600	421,100	7/1/2008	6/30/2008
ND	North Dakota PERS	92.6	1,609,800	1,737,600	127,800	6/30/2008	6/30/2008
NE	Nebraska Schools	90.6	6,932,919	7,654,536	673,972	7/1/2008	6/30/2008
NH	New Hampshire Retirement System	67.8	5,302,034	7,821,316	2,519,282	6/30/2008	6/30/2008
NJ	New Jersey Teachers	72.1	36,541,084	50,658,278	14,117,194	6/30/2008	6/30/2008
NJ	New Jersey PERS	73.3	29,503,522	40,245,886	10,742,364	6/30/2008	6/30/2008
NJ	New Jersey Police & Fire	74.3	22,747,975	30,620,225	7,872,250	6/30/2008	6/30/2008
NM	New Mexico PERF	93.3	12,836,217	13,761,750	925,533	6/30/2008	6/30/2008
NM	New Mexico Teachers	71.5	9,272,800	12,967,000	3,694,200	6/30/2008	6/30/2008
NV	Nevada Regular Employees	77.7	18,638,028	24,001,041	5,363,013	6/30/2008	6/30/2008
NV	Nevada Police Officer and Firefighter	70.8	4,599,624	6,494,850	1,895,226	6/30/2008	6/30/2008
NY	NY State & Local ERS	105.8	121,116,000	114,525,000	(6,591,000)	4/1/2008	3/31/2008
NY	New York State Teachers	104.2	82,858,900	79,537,200	(3,321,700)	6/30/2007	6/30/2008
NY	New York City ERS	82.5	38,367,100	46,478,800	8,111,700	6/30/2006	6/30/2008
NY	New York City Teachers	70.6	33,854,200	47,958,300	14,104,100	6/30/2007	6/30/2008
NY	NY State & Local Police & Fire	106.5	21,379,000	20,074,000	(1,305,000)	4/1/2006	3/31/2008
OH	Ohio Teachers	79.1	69,198,008	87,432,348	18,234,340	6/30/2008	6/30/2008
OH	Ohio PERS	92.6	67,151,000	69,734,000	2,583,000	12/31/2007	12/31/2008
OH	Ohio School Employees	82.0	11,241,000	13,704,000	2,463,000	6/30/2008	6/30/2008
OH	Ohio Police & Fire	81.7	11,213,000	13,728,000	2,830,000	1/1/2008	12/31/2008
OK	Oklahoma Teachers	50.5	9,256,800	18,346,900	9,090,100	6/30/2008	6/30/2008
OK	Oklahoma PERS	73.0	6,491,928	8,894,287	2,402,359	7/1/2008	6/30/2008
OR	Oregon PERS	112.2	59,327,800	52,871,200	(6,456,600)	12/31/2007	6/30/2008
PA	Pennsylvania School Employees	85.8	57,057,800	66,495,800	9,438,000	6/30/2007	6/30/2008
PA	Pennsylvania State ERS	89.0	30,636,000	34,437,000	3,801,000	12/31/2008	12/31/2008
RI	Rhode Island ERS	53.4	5,651,068	10,575,852	4,924,784	6/30/2006	6/30/2007
RI	Rhode Island Municipal	87.1	945,876	1,085,648	139,772	6/30/2006	6/30/2007
SC	South Carolina RS	69.7	23,541,438	33,766,678	10,225,240	7/1/2007	6/30/2008
SC	South Carolina Police	84.7	3,160,240	3,730,544	570,304	7/1/2007	6/30/2008
SD	South Dakota PERS	97.2	6,784,300	6,976,800	192,500	6/30/2008	6/30/2008
TN	TN State and Teachers	96.2	26,214,995	27,240,151	1,025,156	7/1/2007	6/30/2008
TN	TN Political Subdivisions	89.5	4,897,974	5,475,620	577,646	7/1/2007	6/30/2008
TX	Texas Teachers	90.5	110,233,000	121,756,000	11,523,000	8/31/2008	8/31/2008
TX	Texas ERS	92.6	23,511,918	25,403,280	1,891,362	8/31/2008	8/31/2008
TX	Texas Municipal	74.4	15,149,700	20,360,800	5,211,100	12/31/2008	12/31/2008
TX	Texas County & District	89.0	14,931,600	16,767,900	(1,506,037)	12/31/2008	12/31/2008
TX	Houston Firefighters	91.0	2,633,006	2,892,300	342,000	7/1/2007	6/30/2008
TX	City of Austin ERS	65.9	1,481,400	2,246,900	765,500	12/31/2008	12/31/2008
TX	Texas LECOS	92.0	774,509	842,135	67,626	8/31/2008	8/31/2008
UT	Utah Noncontributory	84.2	15,257,243	18,127,048	2,869,805	12/31/2008	12/31/2008
VA	Virginia Retirement System	82.3	47,815,000	58,116,000	10,301,000	6/30/2007	6/30/2008
VA	Fairfax County Schools	88.0	1,924,886	2,186,801	261,915	12/31/2007	6/30/2008
VT	Vermont Teachers	80.9	1,605,462	1,984,967	379,505	6/30/2008	6/30/2008
VT	Vermont State Employees	94.1	1,377,101	1,464,202	87,101	6/30/2008	6/30/2008
WA	Washington PERS 2/3	101.5	14,888,000	14,661,000	(227,000)	6/30/2007	6/30/2008
WA	Washington PERS 1	70.7	9,715,000	13,740,000	4,025,000	6/30/2007	6/30/2008
WA	Washington Teachers Plan 1	76.7	8,302,000	10,826,000	2,524,000	6/30/2007	6/30/2008
WA	Washington LEOFF Plan 1	122.1	5,298,000	4,340,000	(958,000)	6/30/2007	6/30/2008
WA	Washington Teachers Plan 2/3	112.7	5,277,000	4,682,000	(595,000)	6/30/2007	6/30/2008
WA	Washington LEOFF Plan 2	120.2	4,360,000	3,626,000	(734,000)	6/30/2007	6/30/2008
WA	Washington School Employees Plan 2/3	106.8	2,133,000	1,998,000	(135,000)	6/30/2007	6/30/2008
WI	Wisconsin Retirement System	99.6	73,415,300	73,735,800	320,500	12/31/2006	12/31/2006
WV	West Virginia Teachers	50.0	4,133,800	8,269,400	4,135,600	6/30/2008	6/30/2008
WV	West Virginia PERS	84.3	3,939,060	4,670,696	731,636	7/1/2008	6/30/2008
WY	Wyoming Public Employees	78.6	4,835,875	6,152,122	1,316,247	1/1/2009	12/31/2008
		85.3	2,578,068,581	3,020,689,271	437,408,925		