

# **Public Fund Survey Summary of Findings FY 2003**

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## Public Fund Survey

### **Background and Methodology**

The Public Fund Survey is an online compendium of key characteristics of 101 public retirement systems, sponsored by the National Association of State Retirement Administrators and the National Council on Teacher Retirement.

Initiated in 2002, the survey contains data on public retirement systems that provide pension and other benefits for a combined 12.7 million active members, 5.6 million annuitants, and that hold \$1.86 trillion in assets in trust for these participants. Based on data from the U.S. Census Bureau, the membership and assets of systems included in the survey represent more than 85% of the nation's entire public retirement system community.

Survey data is maintained on a fiscal year basis. This report of findings focuses on fiscal year 2003 (FY 03) and includes some comparisons with fiscal years 01 and 02. The source of survey data is primarily public retirement system annual financial reports, and also includes actuarial valuations, benefits guides, system websites, and input from system representatives. Producing a retirement system annual report typically requires a minimum of five months; since some retirement systems have a fiscal year-end date of December 31, data for these systems generally is available no earlier than the following June. FY 03 annual financial data for several systems remains unavailable as of this writing. Not all plans have an actuarial valuation conducted every fiscal year. The information presented in this report reflects the latest available information. We appreciate the efforts by system staff members to make their information available to us.

All data collected in the survey is classified as either "system" data or "plan" data. Every system in the survey has at least one plan; some systems have more than one. In cases of systems with multiple plans, separate plans typically are established for different employee groups, such as local government employees, public safety personnel, judges, and elected officials. In some cases, retirement systems combine all employee groups into a single plan, but may provide different benefit levels for different groups. The survey covers 101 systems and 125 plans. Smaller plans for narrow employee groups, such as legislators or judges, typically are not included in the Public Fund Survey. Plan data is included for approximately 98% of participants in the systems that are included in the survey.

The Public Fund Survey is accessible online at [www.publicfundsurvey.org](http://www.publicfundsurvey.org).

## Public Fund Survey Summary of Findings

### **The Meaning and Implications of Actuarial Funding Ratios**

Perhaps the most recognized measure of a public retirement plan's health is its actuarial funding level, the ratio of assets to liabilities for benefits accrued to-date. A pension plan whose assets equal its liabilities is funded at 100% and is considered *fully funded*; any shortfall of assets is an *unfunded liability*, and a plan with an unfunded liability is considered *underfunded*.

*Underfunded* normally does not mean that a plan is unable to pay the benefits for which it is presently obligated—in fact, substantially all underfunded public pension plans are able to meet their current obligations.

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 contributions both to finance benefits currently being accrued as well as to eliminate the shortfall between their assets and their accrued liabilities. Because fully funded plans have no such shortfall, they require contributions only to finance benefits currently being accrued.

“Fully funded” can be mistakenly interpreted to mean that no future contributions to the plan will be required. In fact, “fully funded” means that the actuarial value of assets on hand equal the plan's actuarial accrued liabilities – contributions and investment earnings still will be required to cover the benefit obligations as they accrue going forward.

Although the actuarial funding level is a useful indicator of a plan's health, its utility and meaning should not be overstated: calculating an actuarial funding ratio involves many financial and demographic assumptions, of which most, if not all, will be incorrect to one degree or another in the short-term. Moreover, the actuarial calculation itself is only a snapshot of an arrangement of complex, long-term financial and demographic projections, based on the theoretical supposition that the plan's liabilities are subject to settlement as of the actuarial valuation date. Yet, except in the rare case of a plan termination, all of a plan's obligations do not come due at once. Rather, these obligations extend continuously many years into the future. This future period provides the plan, fully funded or not, with time to continue accruing assets (usually through a combination of contributions and investment earnings) needed to meet future obligations.

Attaining full funding of a pension plan has been likened to a mortgage, in which the homeowner has thirty years to resolve the obligation. At the end of the thirty-year period, when it is paid off, the mortgage would be considered fully funded. Although at any point during the thirty-year period, the outstanding mortgage may be considered an unfunded liability, more relevant considerations are a) whether the homeowner has the resources to continue meeting his or her mortgage payments until the obligation is resolved; and b) whether the obligation is being amortized.

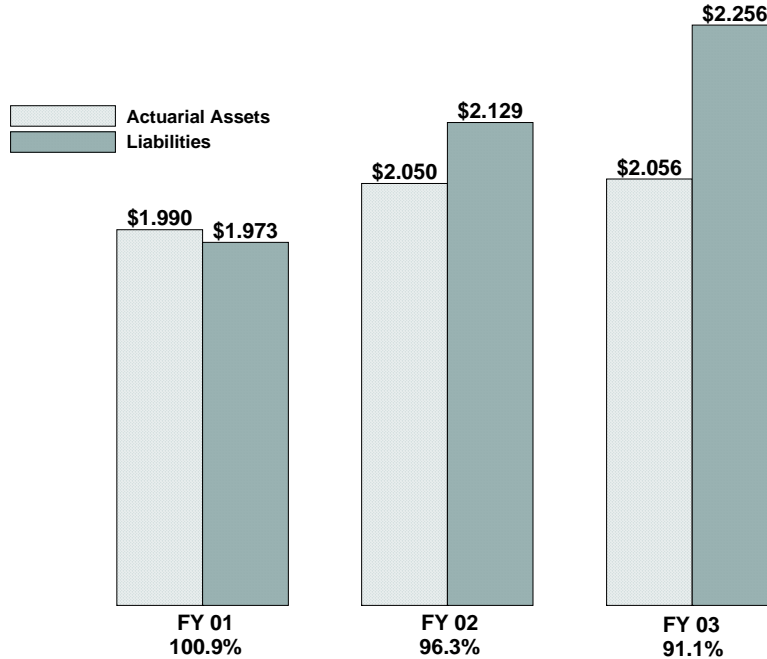
Likewise, more pertinent considerations with regard to funding a public pension plan are the ability of the plan sponsor to continue to pay promised benefits; and whether the plan's unfunded liability is shrinking over time. Public pension accounting standards require disclosure of trend data that reveal the current funding condition and the direction in which the plan appears to be headed.

## Public Fund Survey Summary of Findings

### Current Funding Levels

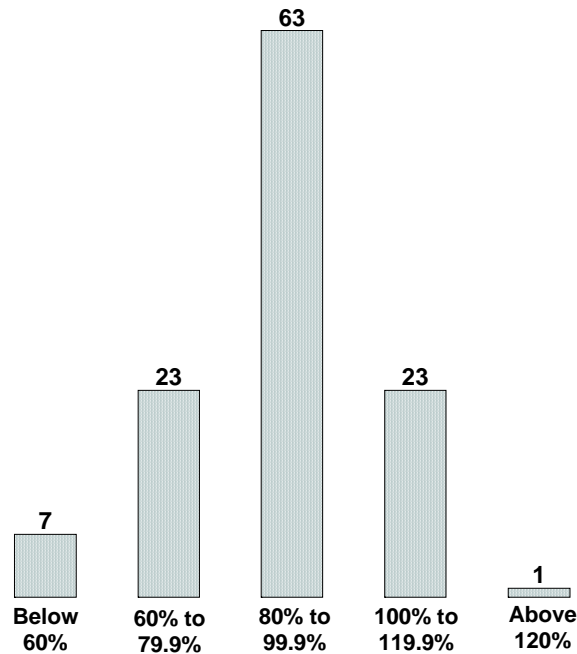
Figure A summarizes aggregate assets and liabilities for the 125 plans included in the Public Fund Survey. The aggregate funding level for these plans is 91.1%, down from last year's level of 96.3%, and from the FY 01 level of 100.9%

**Figure A: Change in aggregate actuarial assets, liabilities, and funding levels, FY 01 to FY 03 (trillions)**



As Figure B shows, many public pension plans have a funding ratio between 80% and 100%. The farther a plan's funding level is below 100%, the greater are its contributions required to finance its unfunded liability. 87 of the 117 plans (74%) included in the Public Fund Survey have an actuarial funding ratio of 80% or greater. (Plans shown in Figures B do not include those using the aggregate cost actuarial method, in which liabilities always equal assets.) The average funding level for the 117 plans is 88.2%; the median is 91.5%.

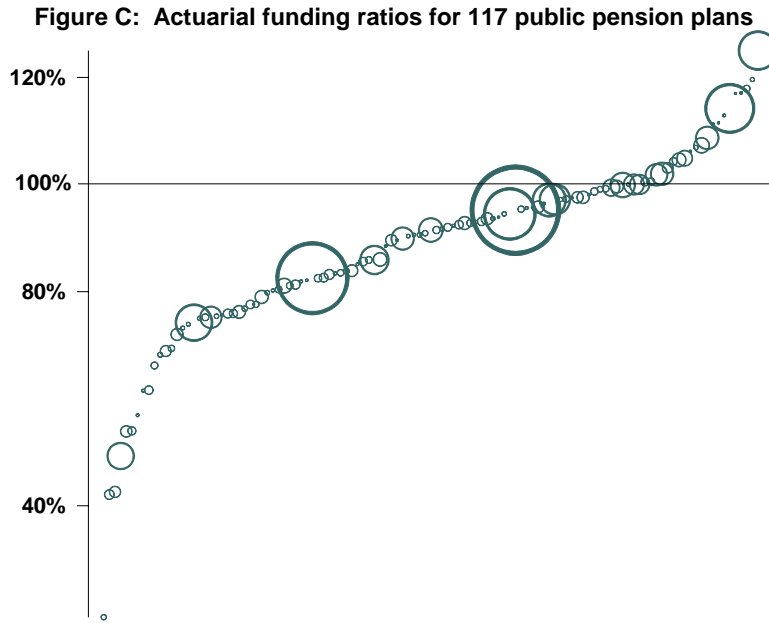
**Figure B: Distribution of Actuarial Funding Levels for 117 Plans**



FY 2003

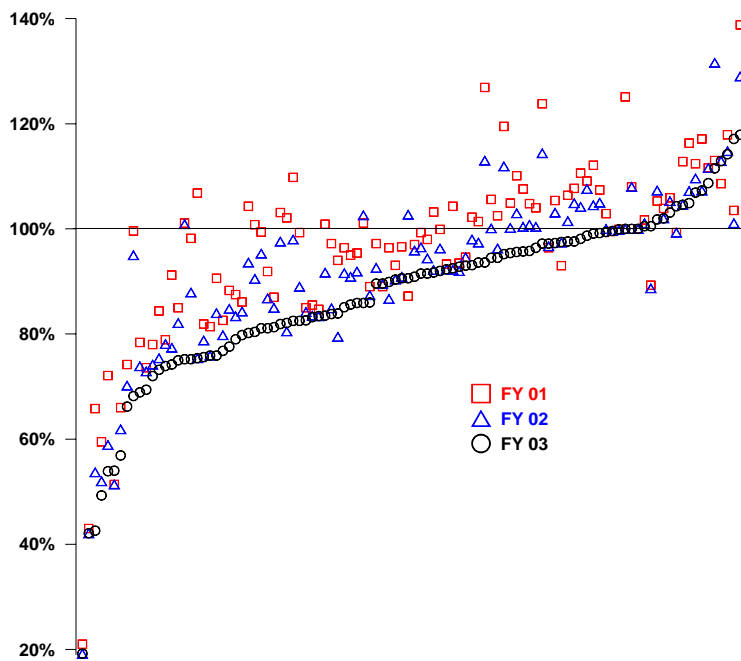
## Public Fund Survey Summary of Findings

Although a majority of plans have a funding ratio below 100%, many of the largest plans in the survey are fully-funded or nearly so. Figure C depicts the size of each plan's liabilities roughly proportionate to the size of its circle. The larger the plan, the larger its circle.



Due chiefly to the continued actuarial recognition (through phasing-in of market gains and losses) of the decline in equity values from April 2000 through March 2003, aggregate FY 03 actuarial funding levels declined for the second consecutive fiscal year. Figure D summarizes the change in funding levels since FY 01 for the 106 plans for which three years of actuarial valuation data are available (plans using the aggregate cost valuation method not included). The median decline from FY 01 to FY 03 is 8.2%. The farther the FY 03 circle lies below the FY 02 triangle and FY 01 square, the larger the drop has been in that plan's funding level.

**Figure D: Change in actuarial funding ratios for 106 plans  
FY 01 to FY 03**



## Public Fund Survey Summary of Findings

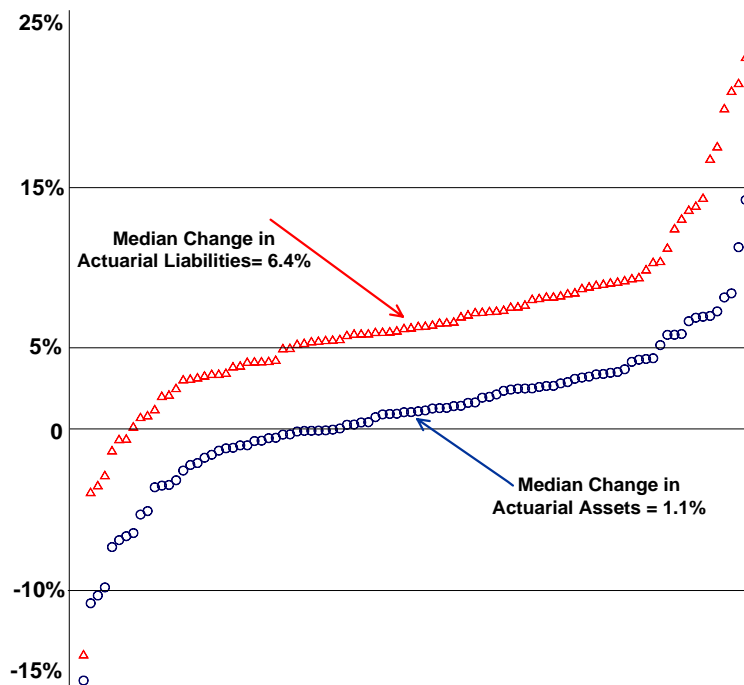
Not all plans conduct an actuarial valuation every year. For the 95 plans that did conduct a valuation during FY 03, aggregate liabilities grew over FY 02 by 7.0%, below the 8.0% median assumption for annual liability growth. This relatively slow rate of growth is consistent with a reduction in benefit enhancements observed among public plans during the last two years in the wake of the decline in equity markets and state and local government fiscal constraints. In the absence of investment returns greater than 8.0%, restraining liability growth is essential to improving actuarial funding levels.

Based on investment returns through June 30, 2004, and assuming market returns in calendar 2004 of 8.0%, the aggregate public plan funding ratio is projected to decline approximately 3% to 88%, for FY 04.

Figure E compares the distribution of percentage changes in actuarial assets and liabilities among the 95 plans that conducted an actuarial valuation based on FY 03 data. Median liability growth for these plans, while relatively modest at 6.4%, far exceeded the 1.1% median increase in actuarial asset values.

Predictably, most of the plans with higher increases in actuarial asset values fell into one or both of two categories: 1) a fiscal year-end date of 12/31, which allowed the plan to capture in its FY 03 valuation more of the equity market increase that began in March 2003 (most plans have a FY-end date of 6/30); and 2) a smaller allocation to equities than other plans, shielding a higher percentage of the plan's assets from the decline in equity values.

**Figure E: Distribution of percentage changes in plan actuarial assets and liabilities, FY 02 to FY 03**



### The Distributional Effect of Cost-Sharing Plans

Notable differences were identified in two variables—actuarial funding levels and retirement multipliers—of plans with different plan types: single employer and agent multiple employer plans, and cost-sharing multiple employer plans. These differences may be attributable to the *distributional effect of cost-sharing plans*.

The Governmental Accounting Standards Board (GASB) defines these plan types as follows:

## Public Fund Survey Summary of Findings

**Single Employer** – A pension plan that covers current and former employees, including beneficiaries, of only one employer. A single actuarial valuation is performed for a single employer plan. (For example, the State of Missouri is the sole employer plan sponsor of the Missouri State Employees Retirement System.)

**Agent Multiple Employer** – An aggregation of single-employer plans with pooled administrative and investment functions (i.e., the retirement system acts as a common investment and administrative agent for each employer). Each entity participating in an agent plan receives a separate actuarial valuation to determine its periodic contribution rate. (For example, the Illinois Municipal Retirement Fund administers individual pension plans for more than 2,000 employer plan sponsors in the state.)

**Cost-Sharing Multiple Employer** - Essentially one large pension plan with cost-sharing arrangements (i.e., all risks and costs, including benefits costs, are shared proportionately by the participating employers). One actuarial valuation is performed for the system as a whole, and the same contribution rate generally applies to each participating entity. (For example, the Arizona State Retirement System administers a single plan in which hundreds of employers, including school districts, cities, towns, and counties, and the state all participate, all share in the actuarial valuation, and all pay the same contribution rate.)

Lower Funding Level - The median actuarial funding ratio among Single Employer and Agent Multiple Employer plans is 94.6%, compared to a median funding ratio among Cost-Sharing Multiple Employer plans of 87.8%.<sup>1</sup> This lower funding ratio of 6.8% may reflect the *distributional effect of cost-sharing plans*.

Higher Retirement Multiplier - Among non-Social Security-participating plans, the median normal retirement multiplier in single and agent plans is 1.70%; the median multiplier among cost-sharing plans is 1.82%. This benefit level, higher by 7.1%, also may reflect the *distributional effect of cost-sharing plans*.

Both single employer and agent multiple employer plans attribute pension costs to an individual employer who is accountable for these costs based solely on that employer's actuarial experience and plan design. There is a direct relationship between decisions employers make and the pension-related costs of those decisions. For example, if an employer participating in a single employer or agent plan approves a salary increase or makes other decisions that have an actuarial effect on the pension plan, that same employer alone bears the costs of that decision.

By contrast, employers participating in a cost-sharing plan share proportionately in the actuarial costs of the plan, regardless if some or all of the plan costs are not attributable to the actuarial experience of a particular employer. For example, if an employer participating in a cost-sharing plan approves a salary structure in which the rate of salary growth is less than the plan's assumption, the actuarial savings to the pension plan of the employer's decision will be distributed proportionately to all participating employers. The employer whose decisions are responsible for the savings will enjoy those savings no more than all other employers. Likewise, if an employer in a cost-sharing plan provides an incentive for its workers to retire early, the actuarial cost of such a plan will be borne proportionately by other employers, even if the benefits of lower salaries in the short-term accrue only to the sponsoring employer.

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<sup>1</sup> 36 plans in the survey are single employer or agent multiple employer plans; 80 plans are cost-sharing multiple employer plans. The plan type analysis does not include plans that use the aggregate cost valuation method. It also excludes the Virginia Retirement System, which identifies itself as a mixed agent and cost-sharing plan.

## Public Fund Survey Summary of Findings

In sum, cost-sharing plans contain a built-in financial incentive for employers to use the pension plan as a human resources management tool through which employers may subsidize their salary and personnel policies. An example of this phenomenon occurred at a statewide teacher retirement plan in recent years, where some school districts sharply increased salaries of plan participants nearing retirement, resulting in a retirement benefit higher than the participant otherwise would have received, and increasing the plan's actuarial liabilities and costs. Because it is a cost-sharing plan, other participating employers effectively subsidized the higher retirement benefits for teachers in other school districts.

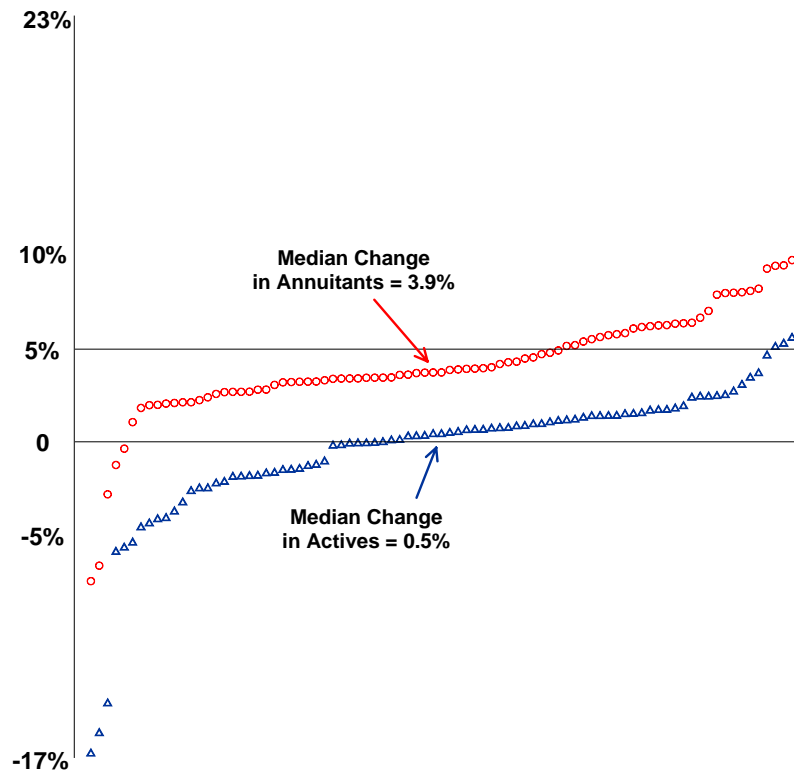
Although a complete review and analysis of the causes and effects of plan type is beyond the scope of this paper, this issue warrants additional research into public pension plan design.

### Changes in Membership

The survey measures two major classes of members: Actives, who are working and contributing (or their employer is contributing on their behalf); and Annuitants, which includes any member receiving a regular benefit from the system: retired members, beneficiaries and disabilitants.

The distribution of changes in membership and median change for each group, is shown in Figure F. For the 89 retirement systems for which FY 03 membership data is available, the 4.8% increase in the aggregate number of annuitants was considerably higher than the 0.8% rate of growth among active members. This disparity resembles last year's change, when aggregate growth in annuitants was 4.0%, versus an increase in actives of 0.4%.

**Figure F: Distribution of percentage change in active members and annuitants, FY 02 to FY 03**



As a result of this disparity, the ratio of active members to annuitants in Public Fund Survey systems has declined by 6.1%, from 2.44 in FY 01 to 2.29 in FY 03. This declining ratio has two primary causes: the aging of the workforce, and fiscal constraints among state and local governments. Much has been (and continues to be) written about the nation's changing demographic structure, in which a

## Public Fund Survey Summary of Findings

larger percentage of workers are poised to leave the workforce relative to the number of new workers joining the workforce. We are now witnessing the early stages of a trend that is likely to continue unfolding as Baby Boomers reach retirement age over the next several years.

Predictably, changes in state and local government employment, as reported by the U. S. Bureau of Labor Statistics (BLS) can be an accurate gauge of changes in public retirement system membership. The BLS reports that employment growth among state and local government during the periods covered by FY 03 rose from FY 02 by approximately 1.1%.<sup>2</sup> Much of this growth occurred in the second half of 2003, after the close of the fiscal year for the majority of systems in the survey that have a fiscal year-end date of June 30. For the year ended June 30, 2003, the BLS reports that employment growth among state and local government was 0.6%.

It is imperative that policymakers, the media, and others recognize the fundamental difference between the pay-as-you-go U.S. Social Security system, and public pension plans, which are predominately prefunded. The fact that most public pension plans are pre-funded (meaning that assets for retirement benefits accumulate during active participants' pre-retirement years) makes the active/annuitant ratio less important than it is to a pay-as-you-go plan (such as Social Security). This ratio is critically important in a pay-as-you-go plan because the plan relies on current receipts to pay current liabilities. If too few active (working) members are supporting too many retired participants, the plan will have difficulty meeting its obligations. The projected decline of this ratio as it pertains to Social Security is well-documented.

Nonetheless, a declining active to annuitant ratio in a pre-funded plan can have actuarial and operational effects on a pension plan and retirement system. For example, if fewer members in a pre-funded plan are contributing relative to the number of annuitants receiving benefits, a typical result is a larger negative external cash flow (contributions minus benefit payments and administrative expenses). This, in turn, can require a plan to maintain a larger percentage of its assets in liquid securities or to make other adjustments to its asset allocation, which are likely to reduce long-term investment returns, all else held equal.

In terms of a retirement system's operations, as a group, annuitants require a higher level of service than active (working members), placing a greater administrative burden on the system. Also, a retirement system's aging membership structure also can require that the system direct more of its resources on active members who are nearing retirement, particularly their need for retirement counseling and related services.

### **Other findings:**

- Benefit payments as a percentage of systems' asset market value at year's end, increased to 6.1%, from 5.5% in FY 02, and 4.6% in FY 01.
- Aggregate investment gains among surveyed systems were \$83 billion. These gains were offset by benefit payments of \$105 billion plus administrative expenses of \$1.5 billion. Combined with employee and employer contributions of \$62 billion, aggregate growth in the market value of assets was approximately \$40 billion, or 2.6%.
- The median system administrative cost (not including investment management expenses) was 8.3 basis points.

### **Retirement Multipliers**

90% of public employees have a defined benefit plan as their primary retirement benefit. A defined benefit is one that provides a payment assured for life, guaranteed by the plan sponsor, based on a formula that includes the participant's length of service, salary, and a retirement multiplier. The multiplier varies by plan, is often graduated to reward higher years of service, and usually is higher in systems whose members are not eligible for Social Security. Approximately 25% of public employees,

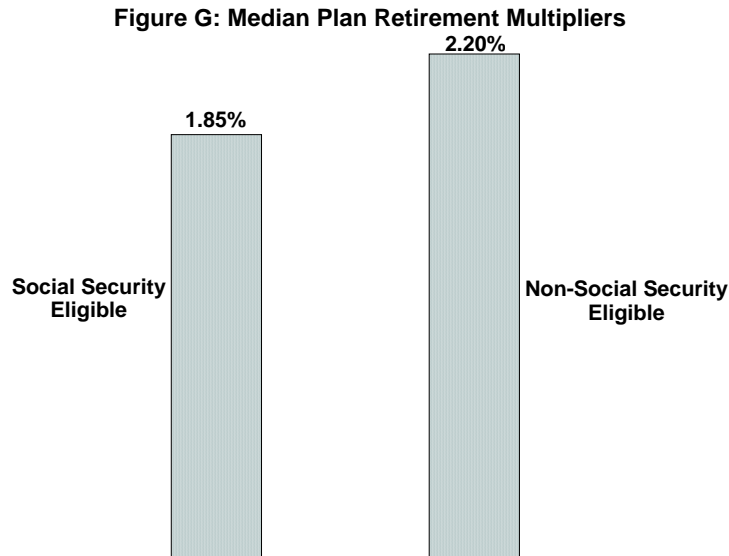
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<sup>2</sup> US Bureau of Labor Statistics Monthly Labor Review, June 2002, April 2003, June 2003, April 2004

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including nearly half of all school teachers and three-fourths of firefighters and police officers, do not participate in Social Security.

Figure G summarizes median retirement multipliers on the basis of Social Security eligibility, indicating a median multiplier for Social Security-eligible participants of 1.85% and 2.20% for non-Social Security eligibles. These multipliers pertain to general employees and teachers; law enforcement personnel and firefighters generally have higher retirement multipliers because their jobs are higher-risk and their careers are usually shorter.



Two plans in the survey, the Texas County & District Retirement System and the Texas Municipal Retirement System, administer hybrid plans, which provide features of both defined benefit and defined contribution plans into a single pension benefit. These plans base pension benefits on a combination of contributions, investment earnings, and service credits, and they do not use a retirement multiplier.

Most public employees in Indiana participate in hybrid plans that combine participation in a traditional defined benefit plan with a smaller retirement multiplier, with mandatory participation in a defined contribution plan. Some plans in Washington, Florida, Ohio, and Oregon also administer hybrids similar to those in Indiana. One plan in the survey, the Fairfax County Educational Employees' Supplemental Retirement System, provides a smaller retirement multiplier to supplement pension benefits provided by the Virginia Retirement System. Multipliers for these hybrid plans are not factored into the median depicted in the above graph.

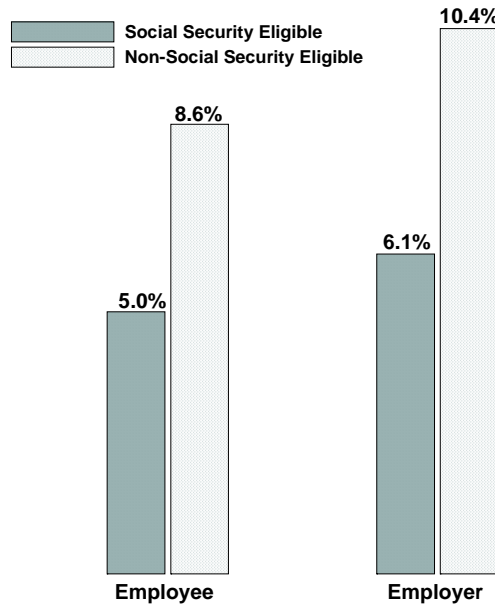
### Contribution Rates

Neatly characterizing contribution rates for the public pension plan community is virtually impossible: there is no typical arrangement for contribution rates, with the possible exception that in most cases, employers and employees alike contribute to the pension plan. Many plans establish a fixed contribution rate for employees, and five percent of pay is a popular rate. Ten plans in the survey are non-contributory for employees. Contribution rates are variously determined by statute, actuarial requirements, or trustee or legislative fiat. Some rates change from one year to the next; others are fixed by statute. Some plans base contribution rates on the employee's age at their point of entry into the plan. Some plans hold employee contribution rates steady and allow employer rates to vary based on actuarial requirements. Some plans allow both employer and employee rates to vary based on actuarial requirements. Agent plans usually have different rates for each of hundreds or even thousands of employers. Some employers "pick-up" all or part of their employees' contributions. Some rates are graduated based on the employee's salary.

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Figure H identifies median FY 03 contribution rates for employees and employers, distinguished by participants' eligibility for Social Security. These rates pertain only to general employees and teachers, and do not include public safety personnel. Because most law enforcement officers and firefighters receive higher pension benefits than other employee groups, their contribution rates usually are substantially higher than those for other groups of public employees. Also, because pension benefits usually are higher for participants who are not eligible for Social Security, contribution rates for these participants are higher than for those who do participate in Social Security.

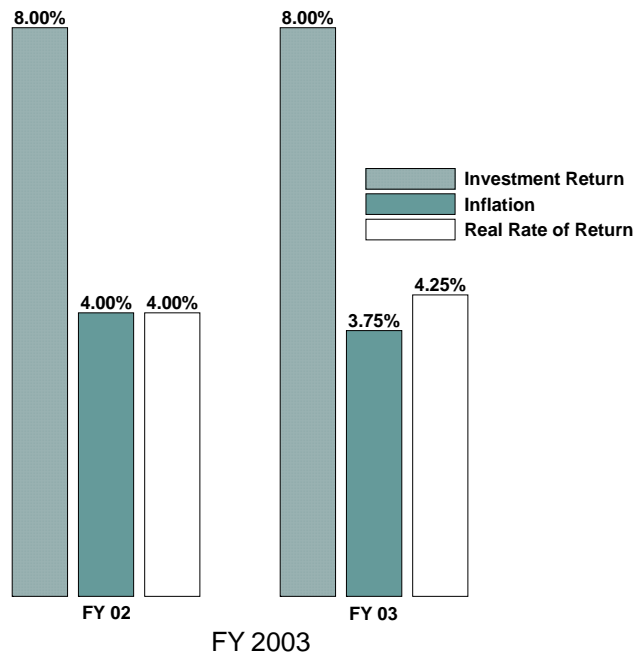
**Figure H: Median FY 2003 contribution rates**



### Actuarial Assumptions

Pension plans' assumed rate of investment return and underlying inflation have an important effect in determining a plan's actuarial funding level and required contribution rates. Figure I summarizes these assumptions for the 125 plans in the survey. (Eight plans in the survey do not specify an inflation assumption.) The real rate of return is the difference between the assumption for investment return and the inflation assumption. The median inflation assumption declined from FY 02 by 0.25%, to 3.75%, raising the median real rate of return to 4.25%, from 4.0%.

**Figure I: Median Assumed Rates of Investment Return, Inflation, and Real Rate of Return**

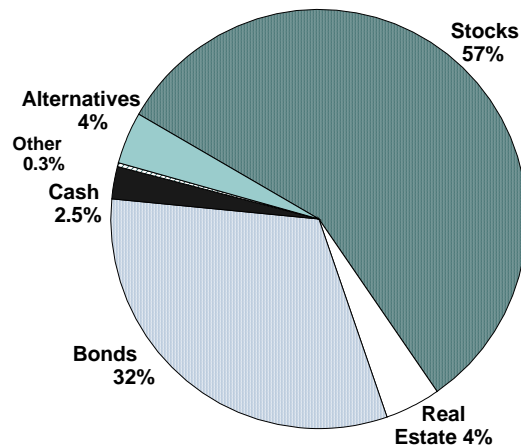


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### Asset Allocation

Figure J shows the FY 2003 asset allocation for the 96 systems for which this data is available. Since these asset allocation figures for most systems are as of June 30, 2003, the allocation to equities is lower than it otherwise would be, since equity values grew by roughly 15% for the year ended June 30, 2004.

**Figure J: Average Asset Allocations for 96 systems based on most recent annual financial report**



### Investment Returns

FY 03 investment returns vary substantially depending on the system's fiscal year-end date (FYE). The Public Fund Survey gleans data, including investment returns, from systems' financial report. Approximately three-fourths of the systems in the Public Fund Survey have a FYE of June 30; most others have a FYE of December 31, and a few are in-between. Equity markets began rising in April 2003 and continued rising steadily through the end of calendar year 2003. For systems with a FYE of June 30, the rise in equity markets lasted only three months of the fiscal year, and the median investment return for these systems was 3.7%. For systems with a FYE of 12/31, the median investment return was 23.6%. (The Federal Reserve Board reported that public pension assets grew by approximately \$370 billion, or nearly 20%, during 2003.)

This unusual volatility in investment markets created a sharp contrast in investment returns between those with FYEs of 6/30 and 12/31. For systems with a 6/30 FYE, the market value of assets shown in Appendix A of this report reflects asset levels near their low point during the past several years. Systems with a FYE of 12/31 were able to take advantage of market gains to significantly increase their fund values. Of course, systems with a 6/30 FYE will report these investment gains in their FY 04 financial statements.

**Appendix A  
System Summary**

<b>State</b>	<b>System</b>	<b>Asset Market Value (\$000's)</b>	<b>Actives</b>	<b>Annuitants</b>	<b>As of</b>
AK	Alaska Public Employees Retirement System	7,391,455	33,242	17,215	6/30/2003
AK	Alaska Teachers Retirement System	3,602,619	9,690	7,804	6/30/2003
AL	Retirement Systems of Alabama	23,115,103	211,493	84,947	9/30/2003
AR	Arkansas Public Employees Retirement System	4,014,116	42,879	18,838	6/30/2003
AR	Arkansas Teachers Retirement System	7,050,356	62,432	20,127	6/30/2003
AZ	Arizona Public Safety Personnel Retirement System	3,832,538	15,530	6,184	6/30/2003
AZ	Arizona State Retirement System	18,729,888	202,499	71,001	6/30/2003
AZ	Phoenix Employees' Retirement System	1,262,543	8,943	3,592	6/30/2003
CA	California Public Employees Retirement System	144,988,916	812,312	398,011	6/30/2003
CA	California State Teachers Retirement System	100,448,544	448,478	181,868	6/30/2003
CA	Los Angeles County Employees Retirement Association	26,247,806	87,760	47,223	6/30/2003
CA	San Diego County Employees Retirement Association	4,103,348	18,434	10,280	6/30/2003
CA	San Francisco City and County Retirement System	11,246,080	32,573	18,135	6/30/2003
CO	Colorado Public Employees Retirement Association	29,274,620	170,991	63,988	12/31/2003
CO	Denver Public Schools Retirement System	2,403,545	7,339	5,699	12/31/2003
CT	Connecticut State Employees Retirement System	7,093,403	54,287	32,354	6/30/2002
CT	Connecticut Teachers Retirement Board	9,846,014	48,888	22,770	6/30/2003
DC	District of Columbia Retirement Board	1,824,136	11,233	1,130	9/30/2002
DE	Delaware Public Employees Retirement System	4,880,716	38,498	18,862	6/30/2003
FL	Florida Retirement System	90,298,409	620,163	206,680	6/30/2003
GA	Georgia Employees Retirement System	14,061,600	126,813	40,923	6/30/2003
GA	Georgia Teachers Retirement System	39,218,540	207,522	57,692	6/30/2003
HI	Hawaii Employees Retirement System	7,687,200	62,292	31,389	6/30/2003
IA	Iowa Public Employees Retirement System	15,403,201	159,353	74,336	6/30/2003
ID	Idaho Public Employee Retirement System	6,498,685	62,385	24,991	6/30/2003
IL	Chicago Public School Teachers Pension and Retirement Fund	9,203,331	36,548	18,565	6/30/2003
IL	Illinois Municipal Retirement Fund	16,356,828	167,952	77,115	12/31/2003
IL	Illinois State Employees Retirement System	7,502,111	70,192	54,375	6/30/2003
IL	Illinois State Universities Retirement System	9,714,547	71,456	36,390	6/30/2003
IL	Illinois Teachers Retirement System	23,124,823	152,117	73,431	6/30/2003
IN	Indiana Public Employees Retirement Fund	10,598,791	154,212	57,187	6/30/2003
IN	Indiana State Teachers Retirement Fund	6,153,657	75,648	33,783	6/30/2003
KS	Kansas Public Employees Retirement System	8,930,442	147,294	57,597	6/30/2003
KS	Wichita Retirement Systems	653,288	2,059	2,137	12/31/2002
KY	Kentucky Retirement Systems	12,257,347	147,540	60,357	6/30/2003
KY	Kentucky Teachers Retirement System	12,208,045	71,097	34,708	6/30/2003
LA	Louisiana State Employees Retirement System	5,718,744	65,441	32,757	6/30/2003
LA	Louisiana Teachers Retirement System	10,520,678	87,646	50,903	6/30/2003
MA	Massachusetts State Employees' Retirement System	14,834,328	80,122	51,418	12/31/2003
MA	Massachusetts Teachers Retirement Board	12,877,149	88,178	37,443	12/31/2002
MD	Maryland State Retirement and Pension System	26,727,822	190,021	90,803	6/30/2003
ME	Maine State Retirement System	6,975,244	51,848	30,774	6/30/2003
MI	Michigan Public School Employees Retirement System	33,843,391	313,022	139,994	9/30/2003
MI	Michigan State Employees Retirement System	8,966,525	45,491	36,702	9/30/2003
MI	Municipal Employees' Retirement System of Michigan	4,071,997	37,171	18,442	12/31/2003
MN	Duluth Teachers Retirement Fund Association	231,248	1,373	1,107	6/30/2003
MN	Minneapolis Employees Retirement Fund	1,194,941	705	4,960	6/30/2003
MN	Minneapolis Teachers Retirement Fund Association	719,599	5,437	3,642	6/30/2003
MN	Minnesota Public Employees Retirement Association	12,595,009	153,169	58,871	6/30/2003
MN	Minnesota State Retirement System	7,147,885	52,582	23,862	6/30/2003
MN	Minnesota Teachers Retirement Association	13,601,606	71,916	36,199	6/30/2003
MN	St. Paul Teachers' Retirement Fund Association	824,225	4,515	2,248	6/30/2003

**Appendix A  
System Summary**

<b>State</b>	<b>System</b>	<b>Asset Market Value (\$000's)</b>	<b>Actives</b>	<b>Annuitants</b>	<b>As of</b>
MO	Missouri Local Government Employees Retirement System	2,436,000	31,280	10,260	6/30/2003
MO	Missouri Public Schools Retirement System	20,047,982	121,210	47,086	6/30/2003
MO	Missouri State Employees Retirement System	5,234,846	58,007	23,292	6/30/2003
MO	MoDOT & Patrol Employees' Retirement System	1,268,238	8,695	6,410	6/30/2002
MO	St. Louis Public School Retirement System	989,101	6,928	3,578	12/31/2003
MS	Mississippi Public Employees Retirement System	14,443,774	155,735	62,377	6/30/2003
MT	Montana Public Employees Retirement Board	3,240,531	33,801	17,072	6/30/2003
MT	Montana Teachers Retirement System	2,123,634	19,537	9,682	6/30/2003
NC	Charlotte Firefighters' Retirement System	227,137	876	427	6/30/2003
NC	North Carolina Retirement Systems	51,964,647	395,137	152,270	6/30/2002
ND	North Dakota Public Employees Retirement System	1,107,021	17,291	5,592	6/30/2003
ND	North Dakota Teachers Fund for Retirement	1,175,248	9,916	5,177	6/30/2003
NE	Nebraska Retirement Systems	5,422,985	45,149	12,348	6/30/2003
NH	New Hampshire Retirement System	3,901,681	56,840	17,005	6/30/2003
NJ	New Jersey Division of Pension and Benefits	65,541,059	521,406	205,458	6/30/2003
NM	New Mexico Educational Retirement Board	6,083,359	62,614	24,085	6/30/2003
NM	New Mexico Public Employees Retirement Association	8,198,255	49,853	20,015	6/30/2003
NV	Nevada Public Employees Retirement System	14,073,995	87,327	27,040	6/30/2003
NY	New York City Employees Retirement System	31,524,654	167,922	135,609	6/30/2003
NY	New York City Teachers Retirement System	26,077,990	97,986	58,133	6/30/2003
NY	New York State and Local Retirement Systems	97,372,669	586,630	313,597	3/31/2003
NY	New York State Teachers Retirement System	72,391,520	247,247	118,308	6/30/2003
OH	Ohio Police & Fire Pension Fund	7,441,072	28,328	23,413	12/31/2002
OH	Ohio Public Employees Retirement System	59,076,029	368,996	143,643	12/31/2003
OH	Ohio School Employees Retirement System	7,522,414	122,315	59,999	6/30/2003
OH	Ohio State Teachers Retirement System	47,600,246	196,877	108,294	6/30/2003
OK	Oklahoma Public Employees Retirement System	4,619,063	43,350	22,147	6/30/2003
OK	Oklahoma Teachers Retirement System	5,863,313	83,127	38,059	6/30/2003
OR	Oregon Employees Retirement System	37,157,761	159,769	91,526	6/30/2003
PA	Pennsylvania Public School Employees Retirement System	42,487,918	246,700	145,693	6/30/2003
PA	Pennsylvania State Employees Retirement System	24,535,949	109,018	94,412	12/31/2003
RI	Rhode Island Employees Retirement System	5,474,258	35,568	19,618	6/30/2002
SC	South Carolina Retirement Systems	22,379,370	213,457	87,162	6/30/2003
SD	South Dakota Retirement System	4,784,187	35,114	16,441	6/30/2003
TN	Tennessee Consolidated Retirement System	23,778,484	194,725	83,121	6/30/2003
TX	Houston Firefighters Relief and Retirement Fund	1,726,488	3,318	1,921	6/30/2003
TX	Teacher Retirement System of Texas	77,633,002	742,961	217,477	8/31/2003
TX	Texas County & District Retirement System	10,875,740	103,012	26,420	12/31/2003
TX	Texas Employees Retirement System	18,176,531	142,315	57,024	8/31/2003
TX	Texas Municipal Retirement System	10,557,514	90,930	25,287	12/31/2003
UT	Utah Retirement Systems	14,249,132	95,461	33,262	12/31/2003
VA	Educational Employees' Supplementary Retirement System of Fairfax	1,349,792	16,074	6,375	6/30/2003
VA	Virginia Retirement System	34,703,099	311,811	108,758	6/30/2003
VT	Vermont State Employees Retirement System	917,767	7,876	3,728	6/30/2003
VT	Vermont Teachers Retirement System	1,099,110	10,355	4,169	6/30/2003
WA	Washington Department of Retirement Systems	40,099,465	286,257	107,730	6/30/2003
WI	Wisconsin Retirement System	54,738,000	263,500	116,289	12/31/2002
WV	West Virginia Consolidated Public Retirement Board	4,107,473	57,885	44,826	6/30/2003
WY	Wyoming Retirement System	4,849,193	36,556	16,779	12/31/2003
	<b>Total</b>	<b>\$1,864,725,678</b>	<b>12,687,823</b>	<b>5,570,203</b>	

**Appendix B**  
**Actuarial Funding Summary**  
**FY 2003**

State	Plan Name	Actuarial Funding Ratio (%)	(\$000's)			Actuarial Valuation Date	For FYE
			Actuarial Value of Assets	Actuarial Liabilities	Unfunded Liability (Surplus)		
AK	Alaska PERS	75.2	7,412,833	9,859,591	2,446,758	6/30/02	6/30/03
AK	Alaska Teachers	68.2	3,689,036	5,411,642	1,722,606	6/30/02	6/30/03
AL	Alabama ERS	95.4	8,100,846	8,493,369	392,523	9/30/02	9/30/03
AL	Alabama Teachers	93.6	18,110,470	19,357,735	1,247,265	6/30/03	9/30/03
AR	Arkansas PERS	94.5	4,416,000	4,674,000	258,000	6/30/03	6/30/03
AR	Arkansas Teachers	85.9	8,113,000	9,445,000	1,332,000	6/30/03	6/30/03
AZ	Arizona Public Safety Personnel	93.6	4,435,373	4,739,613	304,240	6/30/03	6/30/03
AZ	Arizona SRS	104.6	23,623,016	22,586,921	(1,036,095)	6/30/02	6/30/03
AZ	Phoenix ERS	88.5	1,330,584	1,504,125	173,541	6/30/03	6/30/03
CA	California PERF	95.2	156,067,000	163,961,000	7,894,000	6/30/02	6/30/03
CA	California Teachers	82.5	108,667,000	131,777,000	23,110,000	6/30/03	6/30/03
CA	LA County ERS	99.4	28,262,129	28,437,493	175,364	6/30/02	6/30/03
CA	San Diego County	75.4	3,831,334	5,078,067	1,246,733	6/30/02	6/30/03
CA	San Francisco City & County	117.9	11,102,516	9,415,905	(1,686,611)	6/30/02	6/30/03
CO	Colorado Municipal	80.2	1,907,786	2,379,229	471,443	12/31/03	12/31/03
CO	Colorado State & School	75.2	28,522,222	37,914,502	9,392,280	12/31/03	12/31/03
CO	Denver Schools	90.6	2,531,746	2,793,788	262,042	1/1/04	12/31/03
CT	Connecticut SERS	61.6	7,893,700	12,806,100	4,912,400	6/30/02	6/30/02
CT	Connecticut Teachers	75.9	10,387,300	13,679,900	3,292,600	6/30/02	6/30/03
DC	DC Police & Fire*	100.0	1,097,300	1,097,300	0	10/1/00	9/30/02
DC	DC Teachers*	100.0	798,900	798,900	0	10/1/00	9/30/02
DE	Delaware State Employees	106.9	5,125,442	4,794,944	(330,498)	6/30/03	6/30/03
FL	Florida RS	114.2	101,906,723	89,251,331	(12,655,392)	7/1/03	6/30/03
GA	Georgia ERS	100.5	12,428,736	12,370,563	(58,173)	6/30/03	6/30/03
GA	Georgia Teachers	102.0	40,502,333	39,706,523	(795,810)	6/30/02	6/30/03
HI	Hawaii ERS	75.9	9,073,960	11,952,057	2,878,097	6/30/03	6/30/03
IA	Iowa PERS	89.6	16,120,476	17,987,375	1,866,899	6/30/03	6/30/03
ID	Idaho PERS	83.8	6,297,800	7,512,400	1,214,600	7/1/03	6/30/03
IL	Chicago Teachers	92.0	10,494,755	11,411,528	916,773	6/30/03	6/30/03
IL	Illinois Municipal	97.6	17,529,891	17,966,103	436,212	12/31/03	12/31/03
IL	Illinois SERS	42.6	7,502,111	17,593,980	10,091,869	6/30/03	6/30/03
IL	Illinois Teachers	49.3	23,124,823	46,933,432	23,808,609	7/1/03	6/30/03
IL	Illinois Universities	53.9	9,714,500	18,025,000	8,310,500	6/30/03	6/30/03
IN	Indiana PERF	99.2	8,994,854	9,066,132	71,278	7/1/02	6/30/03
IN	Indiana Teachers	42.1	6,176,574	14,664,661	8,488,087	6/30/02	6/30/03
KS	Kansas PERS	77.6	9,784,918	12,613,599	2,828,681	12/31/02	6/30/03
KS	Wichita Employees	117.0	433,366	370,399	(62,967)	12/31/02	12/31/02
KS	Wichita Fire & Police	106.2	361,687	340,524	(21,163)	12/31/02	12/31/02
KY	Kentucky County	83.5	7,542,835	9,029,841	1,487,006	6/30/03	6/30/03
KY	Kentucky ERS	80.4	7,442,589	9,253,731	1,811,142	6/30/03	6/30/03
KY	Kentucky Teachers	72.0	14,029,300	19,480,800	5,451,500	6/30/03	6/30/03
LA	Louisiana SERS	66.2	6,487,538	9,796,306	3,308,768	6/30/03	6/30/03
LA	Louisiana Teachers	68.9	11,826,926	17,173,256	5,346,330	6/30/03	6/30/03
MA	Massachusetts SERS	83.9	15,930,753	18,996,053	3,065,300	12/31/03	12/31/03
MA	Massachusetts Teachers	76.2	15,712,000	20,620,000	4,908,000	1/1/02	12/31/02
MD	Maryland PERS	93.1	11,244,008	12,083,197	839,189	6/30/03	6/30/03
MD	Maryland Teachers	92.8	19,626,676	21,152,063	1,525,387	6/30/03	6/30/03
ME	Maine Local	117.1	1,537,235	1,313,083	(224,152)	6/30/02	6/30/03
ME	Maine State and Teacher	69.4	5,877,158	8,469,835	2,592,677	6/30/02	6/30/03
MI	Michigan Municipal	79.8	4,133,000	5,181,200	1,048,200	12/31/02	12/31/03
MI	Michigan Public Schools	91.5	38,382,000	41,957,000	3,575,000	9/30/02	9/30/03
MI	Michigan SERS	98.7	10,616,000	10,753,000	137,000	9/30/02	9/30/03
MN	Duluth Teachers	95.7	278,467	291,109	12,642	7/1/03	6/30/03
MN	Minneapolis ERF	92.3	1,519,421	1,645,921	126,500	7/1/03	6/30/03
MN	Minneapolis Teachers	56.9	956,913	1,671,982	715,069	7/1/03	6/30/03
MN	Minnesota PERF	81.3	11,195,902	13,776,198	2,580,296	6/30/03	6/30/03
MN	Minnesota State Employees	99.1	7,757,292	7,830,671	73,379	6/30/03	6/30/03
MN	Minnesota Teachers	103.1	17,384,179	16,856,379	(527,800)	6/30/03	6/30/03
MN	St. Paul Teachers	75.6	898,760	1,189,361	290,601	6/30/03	6/30/03
MO	Missouri DOT and Highway Patrol	61.5	1,450,507	2,358,452	907,945	6/30/02	6/30/02
MO	Missouri Local	96.4	2,603,873	2,700,199	96,326	2/28/03	6/30/03
MO	Missouri Non-Teachers	81.9	1,677,770	2,049,716	371,946	6/30/03	6/30/03
MO	Missouri State Employees	90.9	6,057,329	6,662,291	604,962	6/30/03	6/30/03
MO	Missouri Teachers	81.1	20,047,982	24,719,450	4,671,468	6/30/03	6/30/03

**Appendix B  
Actuarial Funding Summary  
FY 2003**

State	Plan Name	Actuarial Funding Ratio (%)	(\$000's)			Actuarial Valuation Date	For FYE
			Actuarial Value of Assets	Actuarial Liabilities	Unfunded Liability (Surplus)		
MO	St. Louis School Employees	82.1	873,300	1,063,200	189,900	1/1/03	12/31/03
MS	Mississippi PERS	79.0	16,979,457	21,485,838	4,506,381	6/30/03	6/30/03
MT	Montana PERS	100.0	3,076,781	3,077,764	983	6/30/02	6/30/03
MT	Montana Teachers	83.4	2,484,800	2,980,100	495,300	7/1/02	6/30/03
NC	Charlotte Firefighters	93.9	261,022	277,843	16,821	7/1/03	6/30/03
NC	North Carolina Local Government	99.3	11,393,460	10,929,356	(464,104)	12/31/02	6/30/02
NC	North Carolina Teachers and State Emp	111.6	\$43,226,837	39,770,839	(3,455,998)	12/31/02	6/30/02
ND	North Dakota PERS	98.1	1,166,500	1,188,800	22,300	6/30/03	6/30/03
ND	North Dakota Teachers	85.1	1,438,400	1,690,300	251,900	7/1/03	6/30/03
NE	Nebraska Schools	90.6	4,952,903	5,464,573	511,670	7/1/03	6/30/03
NH	New Hampshire Retirement System	75.0	3,500,037	4,669,192	1,169,155	6/30/03	6/30/03
NJ	New Jersey PERS	107.3	27,576,238	25,689,891	(1,886,347)	6/30/02	6/30/03
NJ	New Jersey Police & Fire	95.8	18,425,172	19,227,962	802,790	6/30/02	6/30/03
NJ	New Jersey Teachers	100.0	35,148,246	35,146,592	(1,654)	6/30/02	6/30/03
NM	New Mexico PERF	97.3	8,976,908	9,223,602	246,694	6/30/03	6/30/03
NM	New Mexico Teachers	81.1	7,518,200	9,266,600	1,748,400	6/30/03	6/30/03
NV	Nevada Police Officer and Firefighter	73.9	2,954,162	3,999,381	1,045,219	6/30/03	6/30/03
NV	Nevada Regular Employees	83.2	12,928,806	15,541,298	2,612,492	6/30/03	6/30/03
NY	New York City ERS	99.9	43,561,103	43,619,936	58,833	6/30/02	6/30/03
NY	New York City Teachers	100.0	34,177,750	34,181,065	3,315	6/30/02	6/30/03
NY	New York State Teachers	125.0	87,295,300	69,817,000	(17,478,300)	6/30/01	6/30/03
NY	NY State & Local ERS*	100.0	107,610,000	107,610,000	0	4/1/02	3/31/03
NY	NY State & Local Police & Fire*	100.0	19,412,000	19,412,000	0	4/1/02	3/31/03
OH	Ohio PERS	85.9	43,706,000	50,872,000	7,166,000	12/31/02	12/31/03
OH	Ohio Police & Fire	92.8	9,076,469	9,785,766	709,297	1/1/02	12/31/02
OH	Ohio School Employees	82.5	8,772,000	10,634,000	1,862,000	6/30/03	6/30/03
OH	Ohio Teachers	74.2	48,899,215	65,936,357	17,037,142	6/30/03	6/30/03
OK	Oklahoma PERS	76.8	5,354,796	6,974,583	1,619,787	7/1/03	6/30/03
OK	Oklahoma Teachers	54.0	6,436,900	11,925,200	5,488,300	6/30/03	6/30/03
OR	Oregon PERS	89.9	35,537,100	39,520,500	3,983,400	12/31/02	6/30/03
PA	Pennsylvania School Employees	97.2	52,900,465	54,443,775	1,543,310	6/30/03	6/30/03
PA	Pennsylvania State ERS	104.9	27,466,000	26,180,000	(1,286,000)	12/31/03	12/31/03
RI	Rhode Island ERS	77.6	5,907,680	8,141,130	2,233,450	6/30/02	6/30/02
RI	Rhode Island Municipal	111.3	907,193	814,857	(92,336)	6/30/02	6/30/02
SC	South Carolina Police	93.0	2,351,100	2,527,876	176,776	7/1/03	6/30/03
SC	South Carolina RS	86.0	19,298,174	22,446,574	3,148,400	7/1/02	6/30/03
SD	South Dakota PERS	97.2	4,683,900	4,806,900	123,000	6/30/03	6/30/03
TN	TN Political Subdivisions	90.4	3,187,990	3,528,137	340,147	7/1/01	6/30/03
TN	TN State and Teachers	99.6	20,760,989	20,842,216	81,227	7/1/01	6/30/03
TX	Houston Firefighters	112.9	1,863,100	1,650,800	(212,300)	7/1/01	6/30/03
TX	Texas County & District	100.5	10,871,670	10,813,500	(58,170)	12/31/03	12/31/03
TX	Texas ERS	97.6	19,478,555	19,959,112	480,557	8/31/03	8/31/03
TX	Texas LECOS	111.5	666,588	597,915	(68,673)	8/31/03	8/31/03
TX	Texas Municipal	82.6	10,815,100	13,100,100	2,285,000	12/31/03	12/31/03
TX	Texas Teachers	94.5	89,033,000	94,263,000	5,230,000	8/31/03	8/31/03
UT	Utah Noncontributory	92.5	11,640,475	12,587,893	947,418	12/31/03	12/31/03
VA	Fairfax County Schools	95.6	1,619,889	1,693,956	74,067	6/30/02	6/30/03
VA	Virginia Retirement System	101.8	38,957,000	38,265,000	(692,000)	6/20/02	6/30/03
VT	Vermont State Employees	97.5	1,025,469	1,052,004	26,535	6/30/03	6/30/03
VT	Vermont Teachers	89.6	1,218,001	1,358,822	140,821	6/30/03	6/30/03
WA	Washington LEOFF Plan 1	119.6	5,095,000	4,259,000	(836,000)	9/30/02	6/30/03
WA	Washington LEOFF Plan 2*	100.0	2,646,000	2,646,000	0	9/30/02	6/30/03
WA	Washington PERS 1	85.6	10,757,000	12,560,000	1,803,000	9/30/02	6/30/03
WA	Washington PERS 2/3*	100.0	10,700,800	10,700,800	0	9/30/02	6/30/03
WA	Washington School Employees 2/3*	100.0	1,519,000	1,519,000	0	9/30/02	6/30/03
WA	Washington Teachers Plan 1	91.5	9,366,000	10,235,000	869,000	9/30/02	6/30/03
WA	Washington Teachers Plan 2/3*	100.0	3,800,200	3,800,200	0	9/30/02	6/30/03
WI	Wisconsin Retirement System	97.1	57,861,900	59,618,800	1,756,900	12/31/02	12/31/02
WV	West Virginia PERS	73.2	2,699,941	3,691,001	991,060	6/30/03	6/30/03
WV	West Virginia Teachers	19.2	1,190,882	6,243,834	5,052,952	6/30/03	6/30/03
WY	Wyoming Public Employees	91.7	4,657,898	5,077,443	419,545	1/1/04	12/31/03
		91.1%	\$2,055,756,274	\$2,256,189,008	\$200,432,734		

\* Plans with an unfunded liability of zero use the aggregate cost actuarial valuation method, which does not identify an unfunded liability.