REPORT BY THE STATE AUDITOR

OF CALIFORNIA

THE STATE'S CONTRIBUTIONS TO THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM AND THE STATE TEACHERS' RETIREMENT SYSTEM

93028 **APRIL 1994**

The State's Contributions to the Public Employees' Retirement System and the State Teachers' Retirement System

93028Error! Reference source not found., April 1994 Error! Reference source not found.

California State Auditor
Bureau of State Audits

Table of Contents

Summary

Results in Brief

The Budget Act of 1993 (budget act) requires the Bureau of State Audits to conduct an evaluation of the procedures used by the Public Employees' Retirement System (PERS) and the State Teachers' Retirement System (STRS) to determine the State's contributions to those systems. The evaluation was to consist of an analysis of economic and noneconomic assumptions, actuarial methodology, and any other procedures the systems used to develop state retirement contribution rates, including an assessment of the impact of operating standards and administrative costs on the unfunded liabilities of the systems. The budget act also requires us to compare the systems' rate-determining procedures with those of other retirement systems. Additionally, the budget act requires us to include a determination of the nature and size of any state unfunded liability in the systems and the annual state contribution necessary to fully fund the State's normal costs and unfunded liabilities within the systems over their respective amortization periods.

We contracted with a consulting firm that provides actuarial services, Buck Consultants, to assist us in reviewing each system's most recent actuarial valuation: the June 30, 1992, valuation for the PERS and the June 30, 1991, valuation for the STRS.

During our review, we noted the following conditions:

- The most recent actuarial valuations conducted by the STRS and the PERS provided reasonable estimates of the costs and funding needed for the systems. Generally, the methods used to determine the costs and funding for both the STRS and the PERS are common among public retirement systems throughout the United States. However, amortization periods as long as those used by the STRS and the PERS are not common. According to our consultants, the assumptions and methods that the systems used were reasonable and in accordance with generally accepted actuarial practice. However, our consultants concluded that the PERS' implementation of a 40-year funding period and the use of a special 5-year period to recognize actuarial gains for one year were not in accordance with generally accepted actuarial practice. Nevertheless, these actions reflect policy decisions made by the State that were put into statute. Overall, our consultants concluded that the systems' estimates regarding unfunded liabilities were reasonable and in accordance with generally accepted actuarial practice. Additionally, they

concluded that the systems' computations of the annual contribution needed to fund the normal costs and the unfunded liabilities were accurate following statutory policies.

- The State's contributions to the STRS have increased in recent years and will continue to increase as the salaries and number of teachers increase. Generally, the State's contributions to the PERS as a percentage of payroll have significantly decreased over the last five years; however, because of payroll growth, the decrease in the State's total contributions has not been as significant. In addition to changes caused by increases in payroll, the State's contributions have changed because of legislative action taken by the State. The State's contributions to the STRS have increased because of the State's decision to implement a new funding mechanism and a program to help retirement benefits keep pace with inflation. Because the State's contribution for both of these is now based on a percentage of payroll, the State's contribution will increase as the salaries and number of teachers increase in the future.

  Although payroll increased in four of the five years we reviewed, the amount that the State has contributed to the PERS as a percentage of payroll has generally decreased. Legislation enacted to address the State's fiscal problems caused some of these reductions and made certain changes in how the State paid the contributions it owed the PERS. However, certain actions taken as a result of the legislation have long-term costs and others provide only short-term relief. For example, one action reduced the State's annual contribution by lengthening the amortization period for the unfunded liability. Although this action reduced the State's annual contribution, the PERS estimates that the State's total contributions over the amortization period will increase by $10.7 billion. Another action decreased the State's annual contribution for a five-year period. However, after this five-year period ends in fiscal year 1994-95, the State's contribution for certain employee groups will increase by 2.285 percentage points. Further, in exchange for these reductions, the State provided certain benefits for state employees. One of these benefits, the change to one-year final compensation, is expected to cost the State at least $108.2 million each year until the year 2029.

Finally, we determined that the PERS made an error in implementing one of the contribution reduction measures. Correction of this error will provide an additional $1.4 million to be used to offset the State's General Fund contribution.

- The administrative costs of both the PERS and the STRS have increased in recent years. An increase in the systems' administrative costs has a dollar-for-dollar effect on the systems' unfunded liabilities or, in the case of certain PERS state groups, on the surpluses. Increases to unfunded liabilities and reductions to surpluses at the PERS both directly affect the State's contribution. The State's contribution to the STRS would not be directly affected by an increase in administrative costs because the contribution rate is mandated by statute. However, if administrative costs were to increase significantly, it could affect whether the statutory rate was considered sufficient to provide an adequate level of funding for the system.

  Additionally, because the PERS serves employers other than the State, the PERS, in effect, allocates to each employer a portion of the total administrative costs. However, the PERS does not have a specific cost allocation system that distributes administrative costs to the various employers based on the cost incurred on behalf of that employer. Instead, it allocates administrative costs based on each employer's relative share of assets. We could not determine whether the current methodology resulted in an equitable distribution of costs to the State because of the manner in which the PERS conducts its operations.

Agency Comments

The PERS generally concurs with the report; however, the PERS disagrees with our conclusion that it made an error in implementing one of the contribution reduction measures. Our comments follow the response from the PERS. The STRS generally concurs with the report. The State and Consumer Services Agency acknowledged receipt of the report.

Blank page inserted for reproduction purposes only

Introduction

The State contributes to five public retirement systems: the Public Employees' Retirement System (PERS), the State Teachers' Retirement System (STRS), the Judges' Retirement System, the Legislators' Retirement System, and the University of California Retirement System. This report focuses on the retirement systems for which the State makes the largest contributions: the PERS and the STRS.

The PERS was created by the Public Employees' Retirement Law as contained in the California Government Code. It is administered by a 13-member Board of Administration that also administers the Judges' Retirement System and the Legislators' Retirement System as well as other programs. Its membership includes employees of the State of California, school employees who do not hold a teaching certificate, and employees of California public agencies. As of June 30, 1993, these public agency employees were covered under approximately 1,280 contracts with the PERS. The PERS had approximately 689,000 active and inactive members at June 30, 1993, excluding approximately 289,000 retirees and others currently receiving benefits. State active and inactive members totaled approximately 239,000 at that date. The market value of the investments the PERS manages was $76.1 billion at June 30, 1993.

The STRS was created by the State Teachers' Retirement Law as contained in the California Education Code. A 12-member Teachers' Retirement Board administers the system. The STRS provides pension benefits to California public teachers from preschool through the community college level and to certain other employees of the public school system. Membership is mandatory for all employees who hold a teaching certificate and who meet eligibility requirements. The STRS had approximately 364,700 active and inactive members at June 30, 1993, excluding approximately 137,000 retirees and others currently receiving benefits. At June 30, 1993, the market value of the investments the STRS manages totaled $46.7 billion.

Pension Benefits Provided by the Systems

Both the PERS and the STRS provide defined retirement benefits based on members' years of service, age, and final compensation. Additionally, both systems provide benefits upon disability and to survivors upon the death of members. However, the systems differ in that the benefits the PERS offers vary with the members' employment group while the STRS offers essentially the same benefits to all its

members. The normal retirement benefit that the STRS offers is equal to 2 percent of final compensation for each year of credited service; members are eligible for normal retirement at age 60 if they have five years of service. Final compensation is the highest annual average compensation for a three-consecutive-year period.

Employees of the State of California who are covered by the PERS are classified into the following groups: California Highway Patrol (CHP) members, consisting of CHP officers; peace officer/firefighter members, consisting of employees who are involved in law enforcement and fire prevention and suppression; safety members, consisting of employees in law enforcement and fire prevention and suppression who are not peace officer/firefighter members; industrial members, consisting of employees of the youth and adult correctional facilities who are not safety members; and miscellaneous members, consisting of all other members and representing the majority of state employees. In previous years, the State offered certain groups of employees in the industrial and miscellaneous categories two retirement options: a first tier and a second tier option. In the first tier, employees contribute a percentage of their payroll to the PERS. In the second tier, employees do not contribute to the PERS and receive reduced benefits. After June 30, 1991, employees who first become eligible to participate in the PERS are subject to the second tier. The largest group comprises miscellaneous members in the first tier plan. For members in the miscellaneous first tier, the PERS offers a normal retirement benefit that is equal to 2 percent of final compensation for each year of credited service; members are eligible for normal retirement at age 60 if they have five years of service. Final compensation is the average of highest monthly pay for 12 consecutive months. Other state groups have different benefit formulas.

Funding of the Systems

Benefits provided by the systems are funded by contributions and earnings from investments. Both systems express member and employer contributions as a percentage of member compensation. However, the method for determining contributions to the PERS differs from that used to determine contributions to the STRS.

For the PERS, the law defines member contribution rates for each of the state groups. However, the PERS determines employer contribution rates through annual actuarial valuations. In an actuarial valuation, the actuary estimates, using various assumptions and a cost method, the amount to be contributed in order to accumulate the assets required to pay the promised benefits. The PERS contracts with an outside actuary to certify the contribution rates computed by the PERS actuarial staff during the valuation. After the contribution rates are

certified, the PERS board formally adopts the rates for the upcoming fiscal year. Both the member rates and the employer rates are then applied to member compensation to compute contributions. For fiscal year 1992-93, required state employer contributions totaled $811 million, and state member contributions totaled $334 million.

For the STRS, there are three sources of contributions: members, school districts that are the STRS employers, and the State. Member, employer, and state contribution requirements are all set in statute. The STRS contracts with an outside actuary to conduct actuarial valuations every two years. However, unlike the PERS, the purpose of the STRS actuarial valuations is to assess the sufficiency of the statutory rates. Historically, member and employer contributions have not been enough to fund the costs of providing the benefits. Thus, the State, although not an employer of the vast majority of the STRS members, has made substantial contributions. For fiscal year 1992-93, members contributed $971 million, employers contributed $1.028 billion, and the State contributed $747 million.

Scope and Methodology

The Budget Act of 1993 (budget act) requires the Bureau of State Audits to conduct an evaluation of the procedures used by the PERS and the STRS to determine the State's contributions to those systems. The evaluation was to consist of an analysis of economic and noneconomic assumptions, actuarial methodology, and any other procedures the systems used to develop state retirement contribution rates, including an assessment of the impact of operating standards and administrative costs on the unfunded liabilities of the systems. The budget act also requires us to compare the systems' rate determining procedures with those of other retirement systems. Additionally, the budget act requires us to include a determination of the nature and size of any state unfunded liability in the systems and the annual state contribution necessary to fully fund the State's normal costs and unfunded liabilities within the systems over their respective amortization periods.

At the PERS, we limited our review to state contribution rates. We did not review the procedures used to compute public agency or school rates. Additionally, we did not assess investment performance at either the PERS or the STRS.

We contracted with a consulting firm that provides actuarial services, Buck Consultants, to assist us in reviewing each system's most recent actuarial valuation: the June 30, 1992, valuation for the PERS and the June 30, 1991, valuation for the STRS. Our consultants determined whether the systems' cost methods and assumptions were in accordance with generally accepted actuarial practice. Additionally, they determined if the systems properly applied the cost methods and assumptions to determine state contribution rates. Finally, our consultants determined the nature and size of unfunded liabilities and the annual state contribution necessary to fund the normal costs and the unfunded liability by preparing its own valuation using the systems' data.

To determine whether the participant data used in the most recent actuarial valuations was reliable, we reviewed the methods the systems used to collect and verify data. We also reviewed the work performed by the systems' auditors to ensure that the data was reliable. Additionally, we tested selected data as we deemed appropriate.

To determine whether the value of assets used in the most recent actuarial valuation was appropriate, we determined, in conjunction with our consultants, whether the systems' asset valuation methods were generally accepted and whether the systems consistently used the described method. At the PERS, we also reviewed the method by which the PERS accounts for assets by employers to determine that the appropriate amount of assets was used in the valuation of each state group.

To identify significant factors affecting state contribution rates, we analyzed changes in state contribution rates and amounts over a five-year period and reviewed the systems' annual reports, legislation, board minutes and agendas, and other documentation.

To compare the systems' rate determination procedures to other retirement systems, we used information contained in the Public Pension Coordinating Council's Pension Data Base issued in 1993. We also used other comparison studies of retirement systems. Additionally, we compared other features of the systems as we deemed appropriate.

To assess the impact of the systems' operating standards and administrative costs on unfunded liabilities and contribution rates, we reviewed, with the assistance of our consultants, the various factors affecting the unfunded liabilities and contribution rates. We identified

the types of administrative costs the systems incurred. At the PERS, we reviewed the method by which it allocated administrative costs to the State to determine if the method was reasonable.

lBlank page inserted for reproduction purposes only

Chapter 1 A Review of the Systems' Most Recent Actuarial Valuations

Chapter Summary

The most recent actuarial valuations conducted by the State Teachers' Retirement System (STRS) and the Public Employees' Retirement System (PERS) provided reasonable estimates of the costs and funding needed for the systems. Generally, the methods used to determine the costs and funding for both the STRS and the PERS are common among public retirement systems throughout the United States. However, amortization periods as long as those used by the STRS and the PERS are not common. According to our consultants, the assumptions the systems used to determine the cost of projected benefits were reasonable and in accordance with generally accepted actuarial practice. Additionally, our consultants were able to duplicate, within a reasonable margin, the systems' computations of the cost of projected benefits using their own valuation system. Further, they determined that the asset valuation methods and the cost methods used by the systems were acceptable.

However, our consultants concluded that the PERS' implementation of a 40-year funding period and the use of a special 5-year period to recognize actuarial gains for one year were not in accordance with generally accepted actuarial practice. Nevertheless, these actions reflect policy decisions made by the State that were put into statute. Finally, they were able to duplicate, within a reasonable margin, the systems' computations regarding the funding of the plans using the statutory funding period. Thus, our consultants concluded that the systems' estimates regarding unfunded liabilities were reasonable and in accordance with generally accepted actuarial practice. Additionally, they concluded that the systems' computations of the annual contribution needed to fund the normal costs and the unfunded liabilities were accurate following statutory policies.

Background

The general methods used to determine contribution rates for both the STRS and the PERS are common among public retirement systems throughout the United States. According to the Public Pension Coordinating Council's Pension Data Base (PENDAT), approximately 33 percent of the public retirement systems surveyed have contribution rates established by statute, similar to the STRS. The PENDAT shows that approximately 59 percent of the systems surveyed have rates set through an actuarial process, the method used by the PERS. The

PERS conducts its actuarial valuations each year as do 72 percent of the systems surveyed in the PENDAT. STRS actuarial valuations are conducted every two years as are only 19 percent of the surveyed systems. The remaining 9 percent of the surveyed systems conduct valuations less frequently than every two years or did not respond to the question.

It is necessary to review the actuarial valuation process to determine the specific methods and procedures used by the systems. The actuarial valuation process has two phases. The first phase involves determining the amount of money it would take today, together with anticipated earnings, to provide the expected pension benefits in the future to all active and retired employees now covered by the pension plan. This amount is called the present value of projected benefits and can be thought of as the cash purchase price of the pension plan today. The second phase of the valuation process involves determining the funding of the plan.

There is no one correct set of assumptions or cost method to be used in performing a valuation. Instead, there are a wide variety of acceptable assumptions and cost methods within generally accepted actuarial practice. Thus, two systems could conduct their valuations using acceptable assumptions and cost methods and have very different results. The American Academy of Actuaries has issued professional standards that set forth generally accepted actuarial principles and practices.

Determining the Cost of Projected Benefits

The first phase of the actuarial valuation is the computation of the present value of the projected benefits. To compute this amount, it is necessary to make various assumptions regarding the future experience of the system. There are two types of actuarial assumptions: economic and noneconomic, or demographic.

Economic Assumptions

There are two primary economic assumptions made in the actuarial process: the salary assumption and the interest assumption.

To estimate the amount of anticipated benefits to be paid in the future, it is necessary to estimate how current salaries will change over time. This is called the salary assumption. Salaries change over time, not just from longevity and promotion increases but also from inflation; thus, the assumption considers both factors. If no other changes are made, an increase in the system's salary assumption will cause actuarially-based contribution rates to increase. Likewise, a decrease

in the system's salary assumption will cause actuarially-based contribution rates to decrease.

The actuarial valuations at the PERS and the STRS also require an assumed interest rate for investment earnings (interest assumption) on the pension fund portfolio. The interest assumption considers both the real rate of return on the investments and inflation. The assumed interest rate is not merely a measure of what the existing portfolio will earn or even of what new investments for the next few years will earn. It is instead a measure of what the average yield will be while benefits are being paid to all existing members and their beneficiaries. Actuaries typically review a long time period to analyze the assumption as short-term swings in economic conditions need to be smoothed out. If no other changes are made, an increase in the system's interest rate assumption will cause actuarially-based contribution rates to decrease. Likewise, a decrease in the system's interest assumption will cause the actuarially-based contribution rates to increase.

Both the PERS and the STRS used the building block approach in computing the economic assumptions used in the most recent valuation. The building block approach is a generally accepted method in which each assumption is built from a common estimate of future inflation. Additionally, both the PERS and the STRS based their assumptions on long-term averages for inflation, investment return, and salary increase tables from an industry-accepted study.

Our consultants compared the economic assumptions used by the PERS and the STRS to the average of assumptions used by other pension systems as shown by various surveys. They compared the economic assumptions to the following:

- The average of assumptions used by private systems as surveyed by Buck Consultants;

- The average of assumptions used by public systems as surveyed by Greenwich Associates;

- The average of assumptions used by both state public employees' retirement systems and state teachers' retirement systems as surveyed by Wilshire Associates; and

- The average of assumptions used by both public systems with general employees and public systems with teachers and school employees as surveyed by the Public Pension Coordinating Council. The general employee category is not restricted to any single group of employees and so may contain employees

from all groups, including teachers and school employees as well as others.

Table 1 presents a comparison of the economic assumptions used by the PERS and the STRS to the survey information.

Table 1 Comparison of Economic Assumptions

	Interest Assumption	Salary Assumption
PERS	8.75%	6.75%[a]
STRS	8.50	7.50[b]
System Averages per Major Industry Surveys:		
Buck Private Sector	8.33	5.61
Greenwich Public Sector	8.00	5.80
Wilshire		
Public Employees	8.05	6.55
Teachers	7.88	6.60
Public Pension Coordinating Council		
General	7.78	5.92
Teachers	7.84	6.05

[a] This assumption pertains to all state groups except the California Highway Patrol, for which the assumption is 6.00 percent.

[b] In the actuarial valuation report, the STRS actuaries reported using a salary assumption of 6.50 percent in addition to merit and longevity increases. Our consultants estimated that the STRS merit and longevity increases are equivalent to an assumption of 1 percent.

Source: Buck Consultants

The assumptions shown in Table 1 for the industry surveys represent the overall averages of the assumptions used by the various systems that responded to the surveys. The actual assumptions used by the systems varied. For example, the interest assumptions of the systems included in the Wilshire Associates survey ranged from a high of 9.0 percent to a low of 5.5 percent. The salary assumptions included in this survey ranged from a high of 8.3 percent to a low of 3.5 percent.

According to our consultants, based on their review of the methodology used to develop the assumptions as well as their comparison with the various survey results, the economic assumptions used by the PERS and the STRS in their most recent valuations are reasonable and in accordance with generally accepted actuarial practice.

Noneconomic Assumptions

The other type of assumptions used by the actuary during the valuation process is noneconomic, or demographic, assumptions, which address the flow of the membership through the system. Noneconomic assumptions focus on the events that initiate benefit payments such as the member's withdrawal; disability; retirement; and various categories of mortality, such as death while eligible for disability, death while eligible for retirement, or death while not eligible for disability or retirement.

Both the PERS and the STRS periodically revise their noneconomic assumptions based on studies of actual experience. According to our consultants, the noneconomic assumptions used by both the PERS and the STRS were based on experience, individually reasonable and consistent with each other, and were closely related to the benefits. Thus, they concluded that the assumptions used were reasonable and in accordance with generally accepted actuarial practice.

Determining the Plan Funding

Using the assumptions and member data provided by the PERS and the STRS, our consultants were able to duplicate, within a reasonable margin, the present value of projected benefits computed by the PERS and the STRS. Once the present value of the projected benefits is known, the second phase of the actuarial valuation is determining the funding. This phase involves determining the value of existing assets and determining how to fund the remaining balance.

Valuation of Existing Assets

The valuation of assets for the actuarial valuation differs from that of the valuation for a financial statement. The purpose of a financial statement disclosure is to represent the current value of the assets on a cost or market value basis. Because the underlying calculations in the actuarial valuation are long term in nature and one of the goals of the valuation process is to determine level contribution requirements, it is preferable to smooth out short term fluctuations in the value of assets.

Several acceptable methods for valuing pension fund assets exist. According to actuarial standards, the asset value used should generally reflect some function of market value. However, different methods may be appropriate for different types of assets. One accepted method smoothes out the effects of short-term volatility in market value.

In its most recent actuarial valuation, the STRS used different valuation methods for each type of asset. The valuation methods used by the STRS were as follows:

Fixed Income:	Imputed value at the price the market would pay if it expected a yield equal to the valuation interest rate to the date of maturity.
Equities:	Market value smoothed by a 60-month trend line of the Standard & Poor's 500 index.
Real Estate:	Latest appraised market value.
Other Assets:	As valued in the STRS financial statements.

Unlike the STRS, the PERS does not distinguish between different kinds of investments when valuing its assets for actuarial purposes. The PERS computes a market value adjustment that is based on the market value of the total investment portfolio. As part of its computation, the PERS uses a process that smoothes out the effects of short-term volatility in market value.

According to our consultants, the asset valuation methods used by both the STRS and the PERS are reasonable and in accordance with generally accepted actuarial practice because the method used results in a value that is reasonably related to market, does not bias the results above or below market, and is effective at smoothing out changes in employer contribution rates.

Once the asset valuation is complete, the next step in the process is to determine how to fund the remaining cost of the pension plan. Actuarial cost methods are used to establish a budget to pay for the amount of the pension plan costs that are not yet funded.

Actuarial Cost Method

The actuarial cost method is the technique that allocates the cost of benefits to individual years. Although all generally accepted cost methods will result in sufficient assets becoming available to meet benefit payments in the long term, the different methods will result in different patterns of contributions. The type of actuarial cost method dictates how amounts are assigned between normal cost, which is the cost of benefits assigned to the current fiscal year, and the unfunded liability. Normal cost and the amortization of the unfunded liability are discussed later in this chapter.

The PERS and the STRS both use the entry age normal (EAN) cost method. The PERS uses it to compute contributions through its valuation process. As discussed earlier, the STRS contributions are set by statute, not by the actuarial process. However, the STRS actuaries have used the EAN cost method in the actuarial valuation that reviews the sufficiency of the statutory contributions.

The EAN cost method takes into account those benefits that are expected to be earned in the future as well as those already accrued. This method allocates the present value of projected benefits to be paid on a level basis between entry age (entry into the pension plan) and assumed exit age for each individual in the estimate. Given reasonable assumptions, this method is designed to produce a stable contribution as a percentage of salaries.

The EAN cost method is the most common among state retirement systems. According to the PENDAT, 72 percent of the systems administered by state governments that responded use the EAN cost method. One of the reasons for the popularity of the EAN cost method is that the contribution design as a level percentage of salaries facilitates budgeting pension contributions. According to our consultants, the PERS and the STRS cost methods are in accordance with generally accepted actuarial practice.

Amortization of the Unfunded Liability

As discussed above, the cost method dictates how amounts are assigned between normal cost and unfunded liability. The normal cost is the annual cost of the retirement benefits for an average member under the existing retirement plan provisions. If paid every year from the beginning of the member's employment, this amount would be sufficient to fund the cost of the existing retirement plan provisions provided that the provisions had been in place since the beginning of the member's employment and the actual experience through the years had been identical to the assumed experience. However, because it is impossible to accurately predict the future and because benefits may be improved, an unfunded liability usually develops.

The unfunded liability is usually paid off, or amortized, over a period of years just like a home mortgage. According to actuarial standards, the amortization should be completed over the period the employer expects to receive benefit from providing pension benefits. Our consultants have concluded that this is the working lifetime of the employees benefiting from the plan. Also, according to actuarial standards, the amortization method should be rational and systematic, such as amortizing the unfunded liability using a level annual dollar amount or a level percentage of members' payroll.

Both the STRS and the PERS reported an unfunded liability as of their most recent actuarial valuations. The STRS reported an unfunded liability of $11.1 billion as of its June 30, 1991, valuation. The PERS reported an unfunded liability of $4.8 billion as of its June 30, 1992, valuation for the state groups in total. Three of the six state groups for the PERS were in an overfunded or surplus position, which means that the actuarial assets exceed the actuarial liabilities. Table 2 presents the unfunded liability or surplus of each of the state groups as of the June 30, 1992, valuation.

Table 2 **PERS Unfunded Liability or Surplus**
As of the June 30, 1992, Valuation
(In Millions)

	Unfunded Liability or (Surplus)
Miscellaneous, 1st and 2nd Tiers[1]	$4,420.2
Industrial	(3.7)
Safety	(3.0)
California Highway Patrol	(9.8)
Peace Officer/Firefighter	424.0
Total	**$4,827.7**

[1] The PERS computes a single unfunded liability for the Miscellaneous 1st Tier and Miscellaneous 2nd Tier groups.

Source: 1992 PERS Actuarial Valuation Report

As discussed previously, the STRS rates are set by statute and not through the valuation process. However, the concept of an amortization period is still useful in reviewing the STRS. The STRS actuaries have determined that the statutory contributions are equivalent to those that would result if the EAN cost method was employed with a funding period of 38 years, using a level percentage of pay. The 1992 valuation for the PERS used a 37-year amortization period to compute the state contribution rates for fiscal year 1993-94.

According to our consultants, amortization periods as high as 40 years could be considered in accordance with generally accepted actuarial practice, as this approximates the longest expected working lifetime of a member. However, amortization periods approaching 40 years are not common among other public retirement systems. For the systems reporting amortization periods in the PENDAT survey, the average period reported was 26.7 years. The periods ranged in length from one to 50 years. Only 18 percent of the systems reported using amortization periods greater than 35 years.

As discussed further in Chapter 2, the PERS changed to a 40-year amortization period when computing the fiscal year 1990-91 rates. Previously, the PERS used shorter amortization periods for the state groups. The 37-year period used in the 1992 valuation to compute the fiscal year 1993-94 rates is the remainder of the original 40-year period. Although amortization periods as high as 40 years can be

considered acceptable, it is our consultants' opinion that the change to the 40-year period for the portion of the unfunded liability that existed before the date of the change was not in accordance with generally accepted actuarial practice. Further, they concluded that the PERS' use of a special five-year period for amortizing actuarial gains was not in accordance with generally accepted actuarial practice. However, the actions taken by the PERS reflect policy decisions made by the State that were put into statute. Additionally, these actions do not affect the amount of the unfunded liability. Instead, they affect when the unfunded liability will be paid. Our consultants found that the PERS had appropriately determined the size of the unfunded liability and appropriately amortized the unfunded liability over the statutory amortization period.

Computation of Contribution Rates

The final step in the valuation process is the computation of contribution rates. Employer rates generally have two components: the normal cost and the contribution required to amortize the unfunded liability over the funding period. Each rate is expressed as a percentage of payroll.

We, in conjunction with our consultants, reviewed the systems' most recent actuarial valuations: the June 30, 1992, valuation for the PERS and the June 30, 1991, valuation for the STRS. At the PERS, valuations are conducted using information as of the end of the previous fiscal year to determine the appropriate rates to establish for the next fiscal year. Thus, the PERS used the 1992 actuarial valuation to determine the contribution rates for fiscal year 1993-94. Table 3 presents the components of the state contribution rates for the PERS as of its most recent valuation.

Table 3 **Components of PERS State Contribution Rates**
As of the June 30, 1992, Valuation

	Normal Cost	Unfunded Liability	Total Rate Before Adjustments	Contribution Adjustment[1]	Correction of Error[2]	Total Rate
Miscellaneous, 1st Tier	9.008%	3.458%	12.466%	(2.285)%	(0.242)%	9.939%
Miscellaneous, 2nd Tier	6.466	3.459	9.925	(2.285)	(2.635)	5.005
Industrial	11.831	(0.066)	11.765			11.765
Safety	15.539	(0.054)	15.485			15.485
California Highway Patrol	17.103	(0.163)	16.940			16.940
Peace Officer/ Firefighter	15.212	1.622	16.834	(1.632)		15.202

1 As discussed further in Chapter 2, the PERS Board of Administration decided to reduce contribution rates for certain state groups by recognizing the system's favorable experience for one year over a special five-year period. This reduction will end after the 1993 valuation.

2 This valuation was the first year of a special five-year correction of a computer programming error made in previous years.

Source: 1992 PERS Actuarial Valuation Report

As shown in Table 3, each of the state rates have a normal cost and unfunded liability component. Three of the six state groups for the PERS are in an overfunded or surplus position. Thus, these groups show a negative figure in the unfunded liability column.

At the STRS, the actuarial valuation is used to assess the sufficiency of all statutory contributions received by the STRS. For the most recent valuation, the STRS reported a normal cost rate for the entire system as 17.46 percent of payroll and an unfunded liability rate of 3.035 percent. The members' contribution rate of 8 percent and the school districts' contribution rate of 8.25 percent is insufficient to fund the entire normal cost of the STRS. The State makes up the remaining 1.21 percent and provides the entire funding necessary to finance the unfunded liability. As of the June 30, 1991, valuation, the STRS actuaries estimate that the unfunded liability will be eliminated in 38 years. After the unfunded liability has been eliminated, the current plan is that the State will contribute only the amount necessary to cover the normal cost deficit. Additionally, the State may choose to continue funding other special

benefits, such as a purchasing power protection program discussed further in Chapter 2. This program is not considered permanent and, therefore, is not part of the actuarial valuation.

Our consultants performed actuarial valuations of the PERS and the STRS using information the systems used in preparing their own valuations. Our consultants were able to duplicate, within a reasonable margin, the results of the valuations using their own valuation system. Therefore, our consultants concluded that the results of the STRS valuation, which determined that statutory contributions would be sufficient to fund the normal cost and the unfunded liability over 38 years, was accurate. Further, they concluded that the results of the PERS valuation, which determined the amount of the State's contribution for fiscal year 1993-94 needed to fund the normal cost and the amortization of the unfunded liability based on the statutory amortization period, were accurate.

Conclusion

The most recent actuarial valuations conducted by the STRS and the PERS provided reasonable estimates of the costs and funding needed for the systems. Generally, the methods used to determine the costs and funding for both the STRS and the PERS are common among public retirement systems throughout the United States. However, amortization periods as long as those used by the STRS and the PERS are not common. According to our consultants, the assumptions the systems used to determine the cost of projected benefits were reasonable and in accordance with generally accepted actuarial practice. Additionally, our consultants were able to duplicate, within a reasonable margin, the systems' computations of the cost of projected benefits using their own valuation system. Further, they determined that the asset valuation methods and the cost methods used by the systems were acceptable.

However, our consultants concluded that the PERS' implementation of a 40-year funding period and the use of a special 5-year period to recognize actuarial gains for one year were not in accordance with generally accepted actuarial practice. Nevertheless, these actions reflect policy decisions made by the State that were put into statute. Finally, they were able to duplicate, within a reasonable margin, the systems' computations regarding the funding of the plans using the statutory funding period. Thus, our consultants concluded that the systems' estimates regarding unfunded liabilities were reasonable and in accordance with generally accepted actuarial practice. Additionally,

they concluded that the systems' computations of the annual contribution needed to fund the normal costs and the unfunded liabilities were accurate following statutory policies.

Blank page inserted for reproduction purposes only

Chapter 2 An Analysis of Factors Affecting the State's Contributions in Recent Years

Chapter Summary

The State's contributions to the State Teachers' Retirement System (STRS) have increased in recent years and will continue to increase as the salaries and number of teachers increase. Generally, the State's contributions to the Public Employees' Retirement System (PERS) as a percentage of payroll have significantly decreased over the last five years; however, because of payroll growth, the decrease in the State's total contributions has not been as significant. In addition to changes caused by increases in payroll, the State's contributions have changed because of legislative action taken by the State. The State's contributions to the STRS have increased because of the State's decision to implement a new funding mechanism and a program to help retirement benefits keep pace with inflation. Because the State's contribution for both of these is now based on a percentage of payroll, the State's contribution will increase as the salaries and number of teachers increase in the future.

Although payroll increased in four of the five years we reviewed, the amount that the State has contributed to the PERS as a percentage of payroll has generally decreased. Legislation enacted to address the State's fiscal problems caused some of these reductions and made certain changes in how the State paid the contributions it owed the PERS. However, certain actions taken as a result of the legislation have long-term costs and others provide only short-term relief. For example, one action reduced the State's annual contribution by lengthening the amortization period for the unfunded liability. Although this action reduced the State's annual contribution, the PERS estimates that the State's total contributions over the amortization period will increase by $10.7 billion. Another action decreased the State's annual contribution for a five-year period. However, after this five-year period ends in fiscal year 1994-95, the State's contribution for certain employee groups will increase by 2.285 percentage points. Further, in exchange for these reductions, the State provided certain benefits for state employees. One of these benefits, the change to one-year final compensation, is expected to cost the State at least $108.2 million each year until the year 2029.

Finally, we determined that the PERS made an error in implementing one of the contribution reduction measures. Correction of this error will provide an additional $1.4 million to be used to offset the State's General Fund contribution.

Background

The reasons for changes in the State's contributions differ between the STRS and the PERS because they have different funding mechanisms. Unlike the PERS, the State does not employ the vast majority of the STRS members. Additionally, member, employer, and state contribution requirements are all established by state statute. Thus, policy decisions regarding the State's participation in funding the system, as implemented by statutory changes, are the reasons for changes in the State's contributions to the STRS.

At the PERS, members' contribution rates (contributions as a percentage of payroll) are set in statute; however, the State's contribution rates are determined through an actuarial valuation process. Thus, changes to the State's contribution rates occur because of normal changes related to the valuation process. Examples of such changes are changes in assumptions or actual experience that differs from actuarial assumptions. At the PERS, the State's contributions also change because of policy decisions, as implemented by statutory changes, which affect the actuarial process used to determine the contributions.

STRS Contributions

Table 4 and Figure 1 present the contributions made to the STRS for the most recent five fiscal years from its three funding sources.

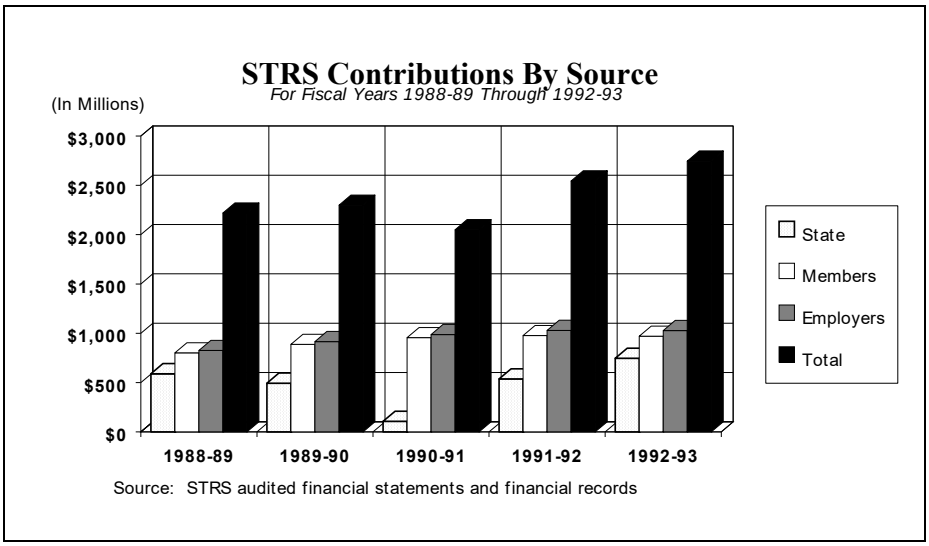
Table 4

STRS Contributions by Source
For Fiscal Years 1988-89 Through 1992-93
(In Millions)

	1988-89	1989-90	1990-91	1991-92	1992-93
Members	$ 802	$ 888	$ 956	$ 977	$ 971
Employers	827	916	987	1,030	1,028
State	590	495	107	538	747
Total	**$2,219**	**$2,299**	**$2,050**	**$2,545**	**$2,746**

Source: STRS audited financial statements and financial records

Figure 1



Member and employer contribution requirements are defined in statute. However, the manner in which the State's contribution is defined has changed over this five-year period. For fiscal years 1988-89 and 1989-90, the primary portion of the State's contribution was established in law as a specific amount. Beginning in fiscal year 1991-92, the statutes established the State's contribution in terms of a percentage of payroll, or contribution rate. For comparison purposes, we have computed the State's effective contribution rate based on required contributions as a percentage of payroll for each of the five years. Table 5 presents the contributions as a percentage of payroll for the most recent five fiscal years.

Table 5 **STRS Contribution Rates**
For Fiscal Years 1988-89 Through 1992-93

	1988-89	1989-90	1990-91	1991-92	1992-93
Members	8.000%	8.000%	8.000%	8.000%	8.000%
Employers	8.250	8.250	8.250	8.250	8.250
State[1]	5.940	4.509	0.904[2]	4.477	6.230

[1] Based on required contributions as a percentage of fiscal year payroll.

[2] The significant decline in the State's rate for fiscal year 1990-91 resulted because of delayed implementation of the Elder Full Funding Act. (See below.)

Source: STRS audited financial statements and financial records

Factors Affecting the State's Contributions to the STRS

The State's contributions to the STRS consist of three components: an annual contribution amount that provides the majority of the state funding, two other special state contribution amounts consisting of retirement benefit increases, and a contribution for a purchasing power protection program. A purchasing power protection program provides additional moneys to retirees and beneficiaries intended to help benefits keep pace with inflation. In the last few years, the State's contributions increased because of two primary reasons: the Elder State Teachers' Retirement System Full Funding Act (Elder Full Funding Act) and a new purchasing power protection program.

Before fiscal year 1990-91, the State's annual contribution amount was set by statute. The enactment of the Elder Full Funding Act in 1990 created a new funding mechanism for the annual contribution amount, effective July 1, 1991. The intent of this legislation was to provide the retirement system with stable and full funding over the long term. Under the new funding mechanism, the State is required to make quarterly contributions to the retirement system at an annual statutory rate of 4.3 percent of the previous year's payroll. Initially, in fiscal years 1990-91 and 1991-92, the new funding mechanism provided fewer funds to the retirement system than in previous years. For fiscal year 1990-91, only the two special state contribution amounts were in effect because the implementation of the Elder Full Funding Act caused a one-year lag between the existing annual contribution funding method and the new funding mechanism. For fiscal year 1991-92, because the quarterly contributions began on October 1, 1991, the State had to contribute for only three quarters. The State began making a full year's contribution in fiscal year 1992-93. The STRS reported state contributions related to the Elder Full Funding Act as approximately $510.8 million in fiscal year 1992-93.

The second reason for increased state contributions at the STRS in recent years was a new purchasing power protection program. In 1989, legislation enacted a statutory funding mechanism that provides purchasing power protection to retirees and beneficiaries. Before this, the Legislature provided purchasing power benefits primarily through annual budget act appropriations. This legislation, which provides for a minimum purchasing power protection of 68.2 percent of the value of the initial benefit, required annual transfers from the State, beginning in fiscal year 1990-91, at .5 percent of payroll and increasing .5 percent each year until the payments reach 2.5 percent of payroll in fiscal year 1994-95. After 1994-95, the transfers will continue at the 2.5 percent level. The STRS reported state contributions related to purchasing power protection for fiscal year 1992-93, based on a 1.5 percent level,

as approximately $180.2 million. Additionally, the State contributed approximately $6.5 million from special revenues earned on school lands to this program.

The State's contribution will continue to increase in the future. As discussed above, the State's contribution for fiscal year 1992-93 for the purchasing power protection program was based on 1.5 percent of payroll. By fiscal year 1994-95, the State's contribution will be based on 2.5 percent of payroll and will continue at that level. Additionally, because the State's contribution for both the Elder Full Funding Act and the purchasing power protection program are now based on a percentage of payroll, the State's contribution will increase as salaries and number of teachers increase in the future.

PERS Contributions

The pension benefits that the PERS offers to state members vary depending on the members' employment group. Thus, the level of contributions provided by members and the State, as the employer, varies. Table 6 and Figure 2 present the state and member contributions for the most recent five years.

Table 6 PERS Employer and Member Contributions By State Group For Fiscal Years 1988-89 Through 1992-93 (In Millions)

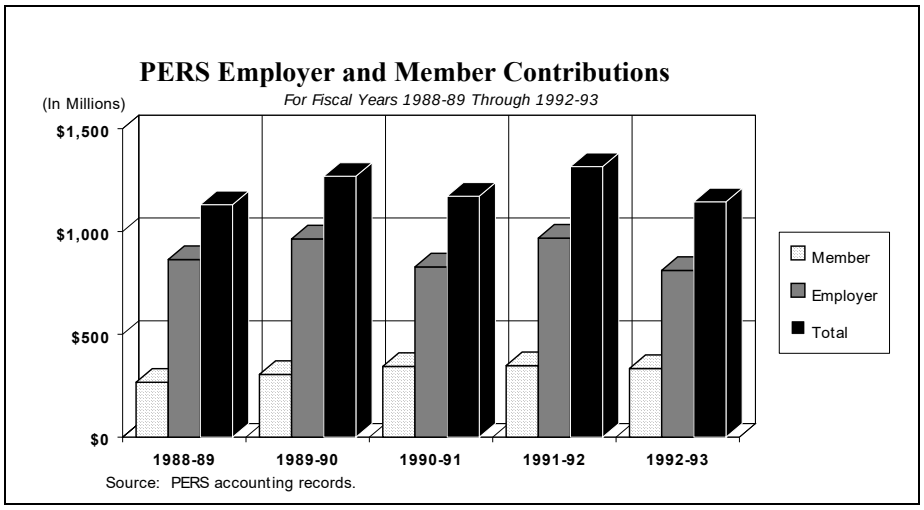
State Group	1988-89	1989-90	1990-91	1991-92	1992-93
Miscellaneous, 1st Tier					
Employer	$552	$598	$630	$582	$478
Member	$176	$197	$219	$216	$207
Miscellaneous, 2nd Tier					
Employer	71	84	50	32	31
Member	0	0	0	0	0
Industrial					
Employer	27	33	38	33	29
Member	6	7	8	9	8
Safety					
Employer	25	35	42	43	37
Member	8	12	14	14	14
California Highway Patrol					
Employer	41	46	49	59	45
Member	13	14	16	16	15
Peace Officer/Firefighter					
Employer	148	168	187	219	191
Member	64	75	87	93	90
Subtotal					
Employer	864	964	996	968	811
Member	267	305	344	348	334
SB 2465 Offset[1]					
Employer			(168)		
Member			0		
Total					
Employer	**$864**	**$964**	**$828**	**$968**	**$811**[2]
Member	**$267**	**$305**	**$344**	**$348**	**$334**

[1] In fiscal year 1990-91, the State's contributions were reduced because of two actions resulting from SB 2465: the change to a 40-year funding period and the use of a 5-year amortization period for one year of actuarial gains.

[2] As discussed on page 35, the General Fund portion of the State's contribution is not due to be paid until July 1, 1994.

Source: PERS accounting records

Figure 2



Because contributions are based on payroll, contributions will fluctuate as payroll changes. The State's payroll increased annually during fiscal years 1988-89 through 1991-92 and then decreased in fiscal year 1992-93. Overall state payroll increased 24.2 percent during this period. Member contributions for the miscellaneous 1st tier group illustrates the effect payroll growth has had on contributions. Although the member contribution rate for the group did not change during the five-year period, member contributions increased overall by 17.6 percent.

To explain why the State's contributions, as presented in Table 6, changed, other than because of payroll changes, one must analyze the reasons the contribution rates changed. Member contribution rates are specified in statute. These rates did not change for the period we reviewed. Table 7 presents the state member contribution rates in effect for fiscal years 1988-89 through 1992-93.

Table 7 **PERS State Member Contribution Rates For Fiscal Years 1988-89 Through 1992-93**

State Group	Member Rates As a Percentage of Wages
Miscellaneous, 1st Tier:	
Covered by social security	5% over the first $513 per month
Not covered by social security	6% over the first $317 per month
2nd Tier, Miscellaneous and Industrial	0%
Industrial, 1st Tier:	
Covered by social security	5% over the first $513 per month
Not covered by social security	6% over the first $317 per month
Safety	6% over the first $317 per month
California Highway Patrol	8% over the first $863 per month
Peace Officer/Firefighter	8% over the first $238 per month

Source: PERS records

In contrast, the State's contribution rates change every year because they are determined through the system's annual actuarial valuation process. We analyzed the State's contribution rates used to determine the contributions for the five years presented in Table 6. Additionally, we included in our analysis the contribution rates that will be used in fiscal year 1993-94 because they are the rates that were computed based on the 1992 valuation that was the subject of our review in Chapter 1. Table 8 presents the State's contribution rates by group for fiscal years 1988-89 through 1993-94.

Table 8 PERS State Employer Contribution Rates For Fiscal Years 1988-89 Through 1993-94

State Group	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94
Miscellaneous, 1st Tier	13.464%	13.224%	12.878%	11.804%	10.266%[a] 9.497[b]	9.939%
Miscellaneous, 2nd Tier	13.413	13.218	6.975	3.986	3.391[a] 3.094[b]	5.005
Industrial	16.626	16.783	16.720	13.399	11.995[a] 11.293[b]	11.765
Safety	17.296	17.424	17.916	17.376	15.698[a] 14.859[b]	15.485
California Highway Patrol	18.453	18.318	18.090	21.721	17.074[a] 14.751[b]	16.940
Peace Officer/ Firefighter	16.431	16.200	15.702	17.386	15.560[a] 14.647[b]	15.202

[a] Effective October 1, 1992

[b] Effective January 1, 1993

Source: Minutes of the PERS Board of Administration and other PERS documents.

As shown in Table 8, the PERS Board of Administration (PERS board) adopted two sets of state contribution rates during fiscal year 1992-93. Chapter 83, Statutes of 1991, (AB 702) transferred the responsibility for the PERS actuarial services from the PERS to a state actuary that would be appointed by the governor. This legislation was signed into law on June 30, 1991. However, the Legislature rejected the governor's selection of a state actuary. The PERS continued to assume responsibility for actuarial functions, including the calculation of employer contribution rates for fiscal year 1992-93. However, the PERS board did not adopt the proposed 1992-93 rates on July 1, 1992, because it was determined that the board did not have the authority to

implement new rates without legislative action. Thus, the contribution rates for 1991-92 continued to be used. At the end of August, when the state budget was passed, specific authority was granted the PERS board to adopt the rates that staff had calculated. The proposed state employer contribution rates for fiscal year 1992-93 went into effect in October 1992. However, because the proposed rate was not in effect for the entire year, the PERS adopted an adjustment rate to take effect in January 1993. Permanent responsibility for actuarial services was restored to the PERS with the passage of Proposition 162 by the voters in November 1992.

Factors Affecting the State's Contribution to the PERS

We focused our analysis on the miscellaneous 1st tier group as it includes the majority of state members. We noted that the State's contribution rates generally decreased during the period we reviewed. This reduction in rates was due partially to changes in actuarial assumptions. However, the reductions occurred primarily because of policy decisions.

As part of the actuarial process, actuarial assumptions are reviewed and periodically revised. Based on such a review, the PERS adopted new economic assumptions for the 1991 valuation. At that time, the interest rate assumption was increased from 8.5 percent to 8.75 percent. The new economic assumptions caused the miscellaneous 1st tier contribution rate to decrease by 1.629 percentage points between fiscal years 1991-92 and 1992-93. Based on fiscal year 1992-93 payroll, this equaled a $75.7 million reduction in the State's contributions for this group.

The PERS also adopted new noneconomic assumptions when determining the fiscal year 1991-92 rates. Although the changes in assumptions caused more significant changes in other groups, the changes caused the miscellaneous 1st tier rate to increase by .539 percentage points. Based on fiscal year 1991-92 payroll, this equaled a $26.6 million increase in the State's contribution for this group. However, this increase was more than offset by decreases in the rate caused by policy decisions that were implemented through statutory changes.

Implementation of SB 2465

To address the State's fiscal problems, the State had enacted Chapter 463, Statutes of 1990, which authorized the PERS board to implement three state employer contribution funding reductions. Additionally, at the same time, the State enacted the Budget Act of 1990 which expressed legislative intent that the board reduce the State's

contribution to the extent appropriate to reflect actuarial experience which is better than the actuarial assumptions adopted by the PERS board. However, the PERS board did not adopt these reductions at that time.

Then, Chapter 1251, Statutes of 1990, (SB 2465) was enacted which provided certain benefits to state employees, but these benefits would take effect only if the PERS board implemented the funding reduction provisions contained in Chapter 463, Statutes of 1990, and in the Budget Act of 1990. Under these provisions, the PERS board adopted the following actions:

- Adopt a new 40-year amortization period for the unfunded liability of all state membership groups;

- Reduce the State's contribution based on the recent favorable actuarial experience;

- Adopt quarterly payments of the State's employer contribution schedule instead of the current monthly schedule; and

- Reduce the State's contribution for fiscal year 1990-91 by using a proportionate share of the "reserve against deficiencies."

In exchange for these funding reductions, SB 2465 provided two benefits for state employees:

- One-year final compensation for state members who retired on and after July 1, 1991, instead of the previous final compensation period of three years. The new method would generally result in pension benefits being based on a higher salary than under the previous method; and

- Continuation for the next three fiscal years of the increased state contributions toward health benefits for enrollees of the Public Employees' Medical and Hospital Care Act who live in areas not served by a health maintenance organization. This contribution was limited to a maximum of $13 million for each fiscal year.

After the legislation was enacted, the PERS staff estimated that the net effect of the various actions would reduce the State's contributions for all groups by $351.8 million in fiscal year 1990-91 and increase the State's contributions by $108.2 million in fiscal year 1991-92. The increase for fiscal year 1991-92 resulted because the one-year final compensation provision did not go into effect until July 1, 1991. The change to one-year final compensation increased the State's

contribution rate for all the employment groups. For the miscellaneous 1st tier rate alone, the PERS staff estimated that the change to one-year final compensation increased the contribution rate by 1.555 percentage points in fiscal year 1991-92. The PERS staff estimates that the approximate cost of the change to one-year final compensation for all state groups is $108.2 million each year, plus an additional 5.5 percent annual increase because of payroll growth, until the end of the funding period in 2029.

The PERS implemented the contribution reduction provisions of SB 2465 in fiscal year 1990-91, the year that the State enacted the legislation. Two of the provisions affected the contribution rates: the change to the 40-year funding period and the reduction in the State's contribution based on the recent favorable actuarial experience. The PERS staff calculated that the fiscal year 1990-91 contribution rate for the miscellaneous 1st tier group alone would decrease by 3.088 percentage points because of these two provisions. However, the State never officially changed the contribution rates to be applied against payroll for that year. Instead, the PERS accounting records indicate that the reduction was accomplished for that one year by reducing the funds transferred to the PERS to effectively reduce its net contribution rate. As shown on Table 6, the reduction for fiscal year 1990-91 was $168 million.

The first provision that affected the contribution rate was the change to the 40-year funding period. This provision reduced the State's annual contribution by lengthening the amortization period for the unfunded liability for the three state groups that had unfunded liabilities. Before SB 2465 was enacted, the PERS amortized the State's unfunded liabilities over a much shorter period. For the last actuarial valuation performed before the implementation of SB 2465, the PERS used various funding periods; however, none were longer than 27 years. At the time that this legislation was discussed with the PERS board, the PERS staff expressed concerns with such a change.

It is our consultants' opinion that the decision to amortize all the existing unfunded liabilities over a 40-year period was not in accordance with generally accepted actuarial principles. According to our consultants, actuarial standards require that the amortization period for unfunded liabilities relate to the plan provisions that caused the unfunded liabilities. Thus, it is their opinion that the standards allow changing to a new amortization period for an increase in unfunded liabilities resulting from changes in the plan provisions (plan amendments). The State's change to a one-year final compensation period would be such a plan amendment and, accordingly, it would have been appropriate to amortize the increase in the unfunded

liabilities caused by the change to the one-year final compensation over a 40-year period. However, the PERS amortized all unfunded liabilities, including those unrelated to the plan amendment for the one-year final compensation, over a 40-year period. Thus, our consultants have concluded that the State's change to the 40-year period did not comply with generally accepted actuarial principles. They acknowledge that actuarial standards do not expressly prohibit the lengthening to 40 years for the entire unfunded liability; rather, it is their interpretation of the standards. Further, they note that such practice is occasionally seen in the public sector. We recognize that actuaries can have different interpretations of the standards. For example, at the time this decision was made, the PERS was being advised by another actuarial consultant who did not oppose the decision.

There are long-term implications to lengthening the period over which unfunded liabilities are amortized. The effect of lengthening the amortization period from 27 to 40 years is similar to the effect of lengthening the period over which an individual pays off the mortgage on a house. Although the individual's monthly payment is less, the owner will have to pay more over the 40-year period because of increased interest costs. At the time the change was discussed, the PERS staff reported to one of the board's committees that the change to a 40-year funding period would increase the State's total payments toward the unfunded liability by approximately $10.7 billion.

The second provision in SB 2465 that affected the contribution rate was the direction to reduce the State's contribution based on the recent favorable actuarial experience. During a valuation, the PERS actuarial staff computes a net actuarial gain or loss. This net gain or loss measures the extent to which the system's actual experience differs from the actuarial assumptions. The usual practice of the PERS is to amortize these gains or losses over the entire funding period. Instead, to reduce the State's contribution as directed by SB 2465, the PERS decided to amortize the net actuarial gain for the 1989 valuation over a five-year period. This action resulted in a significant reduction in state contribution rates for a five-year period. For example, as shown in Table 3 of Chapter 1, the annual contribution rates for three state groups reflect a significant reduction because of this action. Two of the three groups, including the miscellaneous 1st tier, reflected a reduction of 2.285 percentage points. The remaining group reflected a reduction of 1.632 percentage points. These reductions will end after the 1993 valuation which is used to compute the State's contribution rate for fiscal year 1994-95. Thus, the State's contributions for these groups will significantly increase in fiscal year 1995-96 even if all other conditions stay the same.

According to our consultants, the decision to use a special amortization period for one year of gains was also not in accordance with generally accepted actuarial principles. Actuarial standards require that the pattern of amortization during each period be rational and systematic. Our consultants do not find the PERS pattern to be rational because not all gains and losses resulting from the actuarial valuation were treated identically. Again, our consultants state that actuarial standards do not clearly prohibit such a practice. Rather, it is our consultants' opinion that actuarial standards would not accept such a differentiation of treatment between gains and losses. At the time the decision was being discussed with one of the PERS board's committees, the actuarial consultant who advised the PERS stated that, although actuarial gains and losses should be amortized on a consistent basis, he would not oppose the decision because of the "strong funded status" of the state plans, as long as the PERS did not differentiate between gains and losses on an ongoing basis.

The remaining two provisions that reduced the State's contributions did not affect contribution rates. One provision addressed the timing of the State's contribution, and the other provision provided an additional funding source the State could use to pay its required contribution for fiscal year 1990-91.

Until SB 2465, the State transferred its contributions to the PERS on a monthly basis. SB 2465 changed the timing of the State's contribution from monthly to quarterly. This change resulted in a reduction in contributions for fiscal year 1990-91 as it allowed the State to defer certain payments into the next fiscal year. The PERS staff estimated the reduction in the State's contribution for fiscal year 1990-91 to be $147.3 million as a result of this deferral. At that time, the PERS staff did not consider that this change would materially affect the cash flow of the fund; however, the staff noted that the PERS would experience reduced investment earnings because of the change. As discussed later in this chapter, the State enacted subsequent legislation that further delayed the State's General Fund contributions.

The remaining provision of SB 2465 provided an additional funding source that the State could use to pay its required contribution for fiscal year 1990-91. By law, the PERS maintains a reserve against deficiencies account to protect the system against certain deficiencies, including deficiencies in interest earned and potential losses under investments. Until SB 2465, this reserve was limited by law to .3 percent of the Public Employees' Retirement Fund's total assets. SB 2465 reduced this limitation from .3 percent to .2 percent and directed the PERS to reduce the State's contribution for fiscal year

1990-91 by the State's proportionate share of the reserve. According to records of the PERS, this provision reduced the amount that the State had to pay for fiscal year 1990-91 contributions by $49 million.

Implementation of Other Policy Decisions

Although SB 2465 provided the most comprehensive policy changes to the contribution determination process, other policy decisions have also been significant.

Chapter 83, Statutes of 1991 (AB 702), significantly affected how the State paid its required contributions for fiscal years 1991-92 and 1992-93. Effective June 30, 1991, AB 702 repealed the existing Investment Dividend Disbursement Account and the Extraordinary Performance Dividend Account (IDDA/EPDA) programs that provided for purchasing power protection benefits to retirees. The legislation created a new Purchasing Power Protection Account program that is funded differently than the IDDA/EPDA program. AB 702 further required that the PERS use the balance in the IDDA/EPDA accounts as of June 30, 1991, to offset employer contributions. The PERS determined that approximately $730 million, or 38 percent, of the approximately $1.9 billion in the IDDA/EPDA accounts was the State's share. Additionally, the amount of the State's share later increased because of interest earned on the balances until they were used. The State subsequently enacted legislation to require that the PERS use the State's share of the accounts only to offset the State's General Fund contribution. Thus, this legislation resulted in the State's General Fund not having to contribute to the PERS for fiscal year 1991-92 because its required contribution was entirely offset by the usage of IDDA/EPDA moneys totaling $531 million. Further, an estimated $304 million of the State's General Fund contributions for fiscal year 1992-93 will be offset. Under existing law, the State's General Fund contribution for 1992-93 is not due until July 1994.

During our fieldwork, we found that the PERS had used more than $1.4 million of the State's share of the IDDA/EPDA accounts to offset contributions due from agricultural districts, which are funded by special funds. We discussed the propriety of this with Department of Finance staff who informed the PERS staff that they must recover this money from the agricultural districts so that it could be used to offset the State's General Fund contributions as required by law. The PERS has agreed to do whatever the Department of Finance has decided but is awaiting specific direction before taking action to recover the money.

The effects of one of the State's policy decisions has not yet been fully realized. As discussed previously, SB 2465 changed the State's contribution payment schedule from monthly to quarterly. Under subsequent legislation, the State has further delayed the payment of its General Fund contribution. These legislative changes have resulted in the State's General Fund contribution being changed from monthly payments to quarterly payments, to semi-annual payments, to semi-annual payments 6 months in arrears, to its current schedule of annual payments 12 months in arrears. The PERS actuarial staff have concluded that the delayed contribution payment schedule affects its determination of the State's contribution rate. The PERS staff recently estimated that rate increases because of the contribution payment schedule will result in a $33 million annual increase in the State's contributions. The PERS staff plan to reflect the rate increases in the fiscal year 1994-95 rates.

Conclusion

The State's contributions to the STRS have increased in recent years and will continue to increase as the salaries and number of teachers increase. Generally, the State's contributions to the PERS as a percentage of payroll have significantly decreased over the last five years; however, because of payroll growth, the decrease in the State's total contributions has not been as significant. In addition to changes caused by increases in payroll, the State's contributions have changed because of legislative action taken by the State. The State's contributions to the STRS have increased because of the State's decision to implement a new funding mechanism and a program to help retirement benefits keep pace with inflation. Because the State's contribution for both of these is now based on a percentage of payroll, the State's contribution will increase as the salaries and number of teachers increase in the future.

Although payroll increased in four of the five years we reviewed, the amount that the State has contributed to the PERS as a percentage of payroll has generally decreased. Legislation enacted to address the State's fiscal problems caused some of these reductions and made certain changes in how the State paid the contributions it owed the PERS. However, certain actions taken as a result of the legislation have long-term costs and others provide only short-term relief. For example, one action reduced the State's annual contribution by lengthening the amortization period for the unfunded liability. Although this action reduced the State's annual contribution, the PERS estimates that the State's total contributions over the amortization period will increase by $10.7 billion. Another action decreased the State's annual contribution for a five-year period. However, after this five-year period ends in fiscal year 1994-95, the State's contribution for

certain employee groups will increase by 2.285 percentage points. Further, in exchange for these reductions, the State provided certain benefits for state employees. One of these benefits, the change to one-year final compensation, is expected to cost the State at least $108.2 million each year until the year 2029.

Finally, we determined that the PERS made an error in implementing one of the contribution reduction measures. Correction of this error will provide an additional $1.4 million to be used to offset the State's General Fund contribution.

Blank page inserted for reproduction purposes only

Chapter 3 The Systems' Administrative Costs and Their Effect on Unfunded Liabilities

Chapter Summary

The administrative costs of both the Public Employees' Retirement System (PERS) and the State Teachers' Retirement System (STRS) have increased in recent years. An increase in the systems' administrative costs has a dollar-for-dollar effect on the systems' unfunded liabilities or, in the case of certain PERS state groups, on the surpluses. Increases to unfunded liabilities and reductions to surpluses at the PERS both directly affect the State's contribution. The State's contribution to the STRS would not be directly affected by an increase in administrative costs because the contribution rate is mandated by statute. However, if administrative costs were to increase significantly, it could affect whether the statutory rate was considered sufficient to provide an adequate level of funding for the system.

Additionally, because the PERS serves employers other than the State, the PERS, in effect, allocates to each employer a portion of the total administrative costs. However, the PERS does not have a specific cost allocation system that distributes administrative costs to the various employers based on the cost incurred on behalf of that employer. Instead, it allocates administrative costs based on each employer's relative share of assets. We could not determine whether the current methodology resulted in an equitable distribution of costs to the State because of the manner in which the PERS conducts its operations.

The Systems' Administrative Costs

The costs incurred by the STRS and the PERS to operate their systems are referred to as administrative costs. There are two primary types of administrative costs incurred by the systems. The first type of costs comprises internal administrative costs such as salaries and benefit costs of the systems' staff (personal services) as well as other operating expenses incurred by the staff. These are also referred to as state operations costs. The second type is costs of external investment advisors and other investment-related costs. Historically, these costs were paid out of a continuous appropriation except for real estate advisor costs at the PERS, which are offset against revenue. For purposes of this report, we refer to these costs as investment advisor costs.

Traditionally, the Legislature has reviewed the internal administrative costs of the systems through the State's annual budget process.

However, in November 1992, voters approved Proposition 162 - the California Pension Protection Act of 1992. Proposition 162 amended Article XVI, Section 17, of the State Constitution to grant public retirement boards in the State "plenary" authority for administration of retirement systems. The PERS Board of Administration interprets this to mean, among other things, that it is free to spend funds for the administration of the system without appropriations by the Legislature. Thus, beginning with the fiscal year 1993-94 budget, the PERS no longer submits administrative costs related to its retirement operations for budget approval. The STRS continues to submits its internal administrative costs for annual budget approval.

In contrast, the investment advisor costs have never gone through the State's annual budget process. The stated legislative intent of legislation enacted in 1982 was that the STRS and the PERS secure investment advisors with the expertise necessary to invest the retirement fund portfolio. The legislation authorized the STRS and the PERS to retain by contract "not less than two separate individual investment advisors" and provided a continuous appropriation, without regard to fiscal year, for that purpose.

Investment advisor costs are now a major component of the overall administrative costs. For example, investment advisor costs at the PERS accounted for approximately 58 percent of total public employee retirement system administrative costs for fiscal year 1992-93. At the STRS, investment advisor costs accounted for approximately 47 percent of total administrative costs for fiscal year 1992-93.

Changes in Administrative Costs in Recent Years

Table 9 and Figure 3 present the administrative costs incurred by the PERS over the most recent five years. Table 10 and Figure 4 present the administrative costs incurred by the STRS. For both the PERS and the STRS, we have classified the systems' administrative costs using the two general categories: state operations, which includes personal services and other operating expenses, and investment advisors.

Table 9 Schedule of PERS Administrative Costs For Fiscal Years 1988-89 Through 1992-93 (In Thousands)

	1988-89	1989-90	1990-91	1991-92	1992-93
Total State Operations[1]	$37,665	$41,605	$ 45,667	$ 48,716	$ 50,169
Investment Advisors	28,061	49,397	62,764	91,611[3]	68,035[3]
Total	**$65,726**	**$91,002**	**$108,431**	**$140,327**	**$118,204**

1 Includes personal services and operating expenses

2 This amount includes management fees for real estate advisors which are not reported as administrative expenses in the financial statements or accounting records. Instead, these fees are offset against revenue.

3 The PERS made an accounting change for these costs in fiscal year 1991-92 as discussed below. If this change had not been made, the recorded costs for investment advisors would have been $75.4 million in 1991-92 and $72.5 million in 1992-93.

Source: PERS audited financial statements and PERS records.

Figure 3

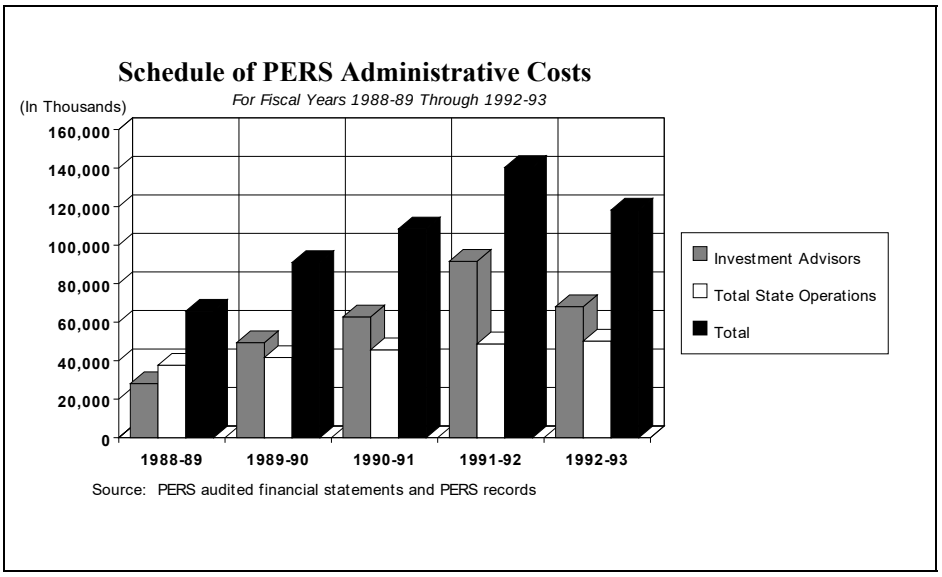


Table 10

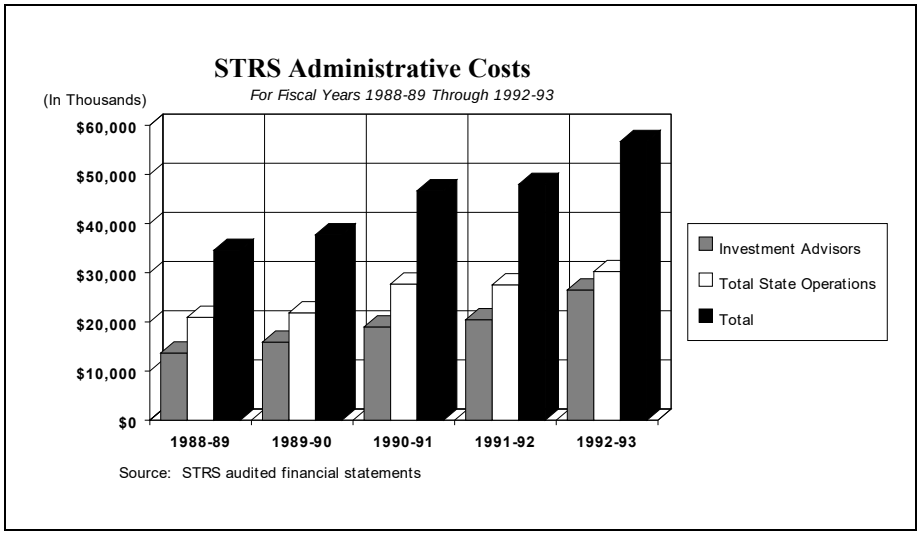
STRS Administrative Costs
For Fiscal Years 1988-89 Through 1992-93
(In Thousands)

	1988-89	1989-90	1990-91	1991-92	1992-93
Total State Operations[1]	$20,920	$21,841	$27,702	$27,534	$30,229
Investment Advisors	13,664	15,891	18,985	20,458	26,494
Total	**$34,584**	**$37,732**	**$46,687**	**$47,992**	**$56,723**

[1] Includes personal services and operating expenses

Source: STRS audited financial statements

Figure 4



As shown by Tables 9 and 10, the growth in overall administrative costs for both systems in recent years is primarily due to the growth in the investment advisor costs. Table 9 indicates that the costs for this component at the PERS increased significantly in fiscal year 1991-92 and then decreased in fiscal year 1992-93. However, these amounts reflect that the PERS changed its accounting for these costs from a cash basis to an accrual basis in fiscal year 1991-92. If the PERS had not made this accounting change, the recorded costs would have been approximately $16.2 million lower in fiscal year 1991-92 and $4.5 million higher in fiscal year 1992-93. Thus, the decrease in the recorded cost in fiscal year 1992-93 was primarily the result of the accounting change.

We did not review the propriety of the growth of the investment advisor costs. A review of this nature would require us to analyze investment performance and other factors that were outside the scope of this review. However, the growth in investment advisor costs at both the PERS and the STRS has recently been questioned by the legislative analyst. In the Analysis of the 1994-95 Budget Bill published in February 1994, the legislative analyst recommended that both the PERS and the STRS report to legislative fiscal committees before budget hearings on how these costs are justified on a cost-benefit basis. The legislative analyst requested, among other things, that the PERS and the STRS explain the factors they consider in determining the types of investment advisors to use and the level of contracted expenditures for each. Additionally, the legislative analyst requested information on the expected investment returns on expenditures for investment advisors compared with cost and expected returns if in-house advisors are used.

Effect of Administrative Costs on the Systems' Unfunded Liabilities

The Budget Act of 1993 required us to assess the effect of administrative costs on the unfunded liabilities of the system. Thus, we reviewed how the STRS and the PERS account for their administrative costs as part of their actuarial valuation processes.

The STRS makes a separate assumption that state operations costs will be a specified percentage of payroll. For the June 30, 1991, actuarial valuation we reviewed, the assumption that the STRS used was .25 percent of payroll. However, investment advisor costs are handled differently. The STRS offsets its investment advisor cost against investment revenue to determine the investment rate of return. Thus, the interest rate assumption is considered to be net of investment expenses.

The PERS accounts for its administrative costs differently. By law, the PERS offsets all its administrative costs, not just those related to investment advisors, against investment revenue to determine its investment rate of return. Thus, the interest rate assumption is considered to be net of all administrative costs.

According to our consultants, both the STRS' and the PERS' methods are reasonable. Additionally many public retirement systems offset their administrative costs against investment income. We reviewed the method by which other public retirement systems fund their administrative costs as reported in the Public Pension Coordinating

Council's Pension Data Base (PENDAT). Of the more than 300 systems that responded to this question, 53 percent reported that they offset their administrative costs against investment income. Further, we reviewed the responses for those systems that have plans for both state and local employees, similar to the PERS. Of the 44 systems that reported plans for both state and local employees, 61 percent reported that they offset their administrative costs against investment income. In both instances, for the majority of the systems that did not offset their administrative costs against investment income, the PENDAT reported that administrative costs were borne by the employer.

According to our consultants, each additional dollar of administrative costs incurred by the STRS effectively increases the system's unfunded liabilities by a dollar. As discussed in Chapter 1, three of the six state groups in the PERS had unfunded liabilities, and the remaining three were in a surplus position as of the June 1992 actuarial valuation. Thus, depending on the state group, each additional dollar of administrative costs at the PERS either increased an unfunded liability or reduced a surplus by a dollar. Increases to unfunded liabilities and reductions to surplus at the PERS both directly affect the State's contribution. The State's contribution to the STRS would not be directly affected by an increase in administrative costs because the State's contribution rate is mandated by statute. However, if administrative costs were to increase significantly, it could affect whether the statutory rate was considered sufficient to provide an adequate level of funding for the system.

Allocation of PERS Administrative Costs

The PERS has three types of employers: public agencies, schools, and the State. However, the PERS does not have a specific cost allocation system that distributes administrative costs to the various employers based on the costs incurred on behalf of that employer. Instead, for purposes of its actuarial valuation, the PERS, in effect, allocates its administrative costs based on each employer's relative share of assets.

The process by which the PERS allocates its administrative costs is as follows. The assets that the PERS uses as the starting point for its actuarial valuation are employer and member accounts maintained by the accounting unit. These accounts reflect the net result of contributions, interest on the contributions, and benefit disbursements. In accordance with the California Government Code, Section 20131.1, the PERS annually credits employer contributions with interest at the net earnings rate. The PERS computes the net earnings rate by offsetting the annual administrative costs against the annual investment income to achieve the net earnings and then divides the net earnings by

an average of the system's total assets for the year. By crediting each employer account with the net earnings rate, the various employers are sharing in the investment income based on their relative share of assets.

Because the earnings rate is net of administrative costs, employers share in the administrative costs in the same way they share in investment income. According to the PERS records as of June 30, 1992, the State had approximately 46 percent of the employer assets, public agencies had 35 percent, and schools had 19 percent. Thus, the State's share of the administrative costs totaling $140.3 million for fiscal year 1991-92 as shown in Table 9 was approximately $64.5 million. The amount of the State's assets that the PERS uses for its actuarial valuation reflects this allocation of administrative costs because the assets reflect investment earnings net of these costs.

We attempted to determine whether the method used by the PERS resulted in an equitable distribution of costs to the State. As discussed previously, one of the largest types of costs is external investment advisor costs. Because these costs relate to the management of the investment portfolio, which benefits all employers, the PERS' approach of allocating administrative costs based on each employer's share of those assets is equitable. However, this methodology is not necessarily the most appropriate means of allocating personal service costs, the other primary cost of the PERS. The methodology could be considered equitable if it approximated the amount of costs incurred on behalf of the employer, but generally, the PERS does not conduct its operations in such a way that it can determine the personal services costs incurred on state activities. Thus, we could not determine whether the current methodology resulted in an equitable distribution of costs to the State.

Conclusion

The administrative costs of both the PERS and the STRS have increased in recent years. An increase in the systems' administrative costs has a dollar-for-dollar effect on the systems' unfunded liabilities or, in the case of certain PERS state groups, on the surpluses. Increases to unfunded liabilities and reductions to surplus at the PERS both directly affect the State's contribution. The State's contribution to the STRS would not be directly affected by an increase in administrative costs because the contribution rate is mandated by statute. However, if administrative costs were to increase significantly, it could affect whether the statutory rate was considered sufficient to provide an adequate level of funding for the system.

Additionally, because the PERS serves employers other than the State, the PERS, in effect, allocates to each employer a portion of the total administrative costs. However, the PERS does not have a specific cost allocation system that distributes administrative costs to the various employers based on the cost incurred on behalf of that employer. Instead, it allocates administrative costs based on each employer's relative share of assets. We could not determine whether the current methodology resulted in an equitable distribution of costs to the State because of the manner in which the PERS conducts its operations.

We conducted this review under the authority vested in the state auditor by Section 8543 et seq. of the California Government Code and according to generally accepted auditing standards. We limited our review to those areas specified in the audit scope of this report.

Respectfully submitted,

KURT R. SJOBERG
State Auditor

Date: April 12, 1994

Staff: Sylvia L. Hensley, CPA, Audit Principal
Karen L. McKenna, CPA
Kimberley A. Reed, CPA
Alison A. Turner, CPA
Lawrence V. Waltz