

# *Working Paper Series*

## **STATE PENSION FUNDS Assets and Obligations**

By

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**STATE PENSION FUNDS**  
**Assets and Obligations**

by

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**South Carolina Revenue and Expenditure System**  
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## **STATE PENSION FUNDS**

### **Assets and Obligations**

The state of South Carolina provides a defined benefit pension plan for its employees. The amount of the pension benefit received by a particular individual is determined by the length of service and pay level at retirement rather than the individual's contribution to the system. Thus, the trust funds of the South Carolina Retirement Systems must accumulate funds to pay for projected future obligations.

This paper examines the fiscal sustainability of the South Carolina Retirement Systems through fiscal year 2009-10. The trust funds of the South Carolina Retirement Systems are separate from the state general fund, the focus of the fiscal sustainability project. However, if the system is unable to meet its obligations and the state is called upon to make up the deficiency and fulfill its commitments to retirees, that demand will fall on the general fund.

### **State Retirement Programs**

The state retirement system operates as a division of the South Carolina State Budget and Control Board. The system contains the four following pension trust funds: the South Carolina Retirement System (SCRS), the South Carolina Police Officers Retirement System (PORS), the Retirement System for Members of the General Assembly of the State of South Carolina (GARS), and the Retirement System for Judges and Solicitors of the State of South Carolina (JSRS). The assets of the SCRS and PORS make up over 99 percent of the retirement systems assets. These four funds are analyzed as a single unit in this examination of the fiscal sustainability of the state's retirement system. It should be recognized, however, that the GARS and JSRS have very little impact on the system taken as a whole. The four pension trust funds are known jointly as the *South Carolina Retirement Systems*.

SCRS was established July 1, 1945 to provide retirement and other benefits for public school teachers and employees of the state and its political subdivisions. SCRS currently has 718 participating employers, over 199,000 active contributing members, and 53,000 retired members. PORS was established July 1, 1962 to provide retirement and other benefits to police officers and firemen. PORS currently has 291 participating employers, approximately 21,000 active contributing members, and 4,800 retired members. GARS and JSRS were established January 1, 1966, and July 1, 1979, respectively. These retirement systems are single-employer systems created to provide retirement and other benefits to members of the South Carolina General Assembly and state judges and solicitors.

## **Projected Benefit Obligation**

Adequacy of funding for defined benefit pension funds is measured using established criteria.<sup>1</sup> Future salaries are used to compute the deferred compensation amount on both vested and nonvested service. Professional accountants refer to this amount as the projected benefit obligation. Because future salaries are expected to be higher than current salaries, this approach results in the largest measurement of the pension obligation.

The projected benefit obligation is the present value of future benefits. The present value of future benefits is the projected future amount of benefits payable adjusted to reflect the time value of money and actuarial assumptions about the probability of payment. The adjustment for the time value of money requires assumptions about interest rates and inflation between the present date and the expected date of payment. The adjustment for the probability of payment decrements the projected future amount of benefits payable for events such as death, disability, withdrawals from the system, and retirement. These probability-of-payment adjustments are usually done by independent actuaries.

Annual pension expense is a function of the following five components: service cost, interest on the liability, actual return on plan assets, amortization of unrecognized prior service cost, and gain or loss. First, service cost is the expense caused by the increase in pension benefits payable to employees during the current year. Second, interest expense is accrued because the pension liability is recorded on a discounted basis. Third, the pension fund earns a return on assets; therefore, these earnings should decrease pension expense. Fourth, amortization of unrecognized prior service cost involves increasing benefits for employee service provided in prior years. Such provisions are usually provided in pension plan amendments. The cost of providing these retroactive benefits is allocated to pension expense in the remaining service years of the affected employees. Fifth, gain or loss is caused by changes in the market value of plan assets and by changes in the projected benefit obligation.

## **Measuring Fiscal Sustainability**

In order for a retirement system to properly fund the payments of retirement benefits in future years, it is necessary to accumulate funds on a regular and systematic basis.<sup>2</sup> This accumulation of funds allows the cost of an employee's retirement to be reflected as a cost to the state during the working life of the employee rather than during the retired years of the employee. Matching the cost of retirement with the work life more accurately reflects the cost of the employee's service and provides for greater intergenerational equity. The South Carolina Retirement Systems derive revenue from three principal sources: employee contributions, employer contributions, and earnings on investments. Table 1 shows the combined income of the four systems for 1995-96.

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<sup>1</sup> Financial Accounting Standards Board (FASB) Statement No. 87 sets criteria for private sector pension funds and Governmental Accounting Standards Board (GASB) Statement No. 25 sets criteria for governmental organizations.

<sup>2</sup> State retirees also get health insurance benefits, but these benefits are funded through the state's general fund, not the South Carolina Retirement Systems.

**Table 1**  
**South Carolina Retirement Systems**  
**Combined Pension Fund Income, 1995-96**

<b>Type of Income</b>	<b>In Millions</b>	<b>% of Total</b>
<b>Employee Contributions</b>	<b>\$337.0</b>	<b>22.98</b>
State Department Employees	\$135.4	9.23
Public School Employees	125.0	8.52
Other Political Subdivision Employees	76.6	5.22
<b>Employer Contributions</b>	<b>\$421.1</b>	<b>28.71</b>
State Department Employers	\$178.7	12.18
Public School Employers	150.2	10.24
Other Political Subdivision Employers	92.2	6.29
<b>Investment &amp; Other Income</b>	<b>\$708.7</b>	<b>48.31</b>
<b>Total System Income</b>	<b>\$1,466.8</b>	<b>100.00%</b>

Source: 1995-96 Comprehensive Annual Financial Report of the South Carolina Retirement Systems.

One measure of the fiscal sustainability of the South Carolina Retirement Systems is how close the value of fund assets available to pay benefits is to the projected benefit obligation. The specific measure is the difference between the present value of the projected benefit obligation and the present value of the fund assets available to pay benefits. Present values are used because the projected benefit obligation will be paid during several periods in the future. If all other factors remain the same, this projected benefit obligation will grow each year by a compound interest factor. Similarly, the fund assets available to pay benefits will grow due to interest earnings.

Ideally, the assets of the pension funds that are available for benefits should equal the present value of the projected benefit obligation at any given time. Thus, each year the cash contribution to these funds by employers and employees should equal the annual pension expense. This cash contribution should also equal the annual growth in the present value of the projected benefit obligation due to each employee having one more year of service.

Two different methods can be used to calculate the difference between the present value of the projected benefit obligation and the present value of fund assets available to pay benefits. Prior to 1996, Generally Accepted Accounting Principles (GAAP)<sup>3</sup> for governmental entities required the use of certain conventions. These conventions have since been revised for use with 1996 and later years. These two methods are used below to evaluate the fiscal sustainability of the South Carolina Retirement Systems.

<sup>3</sup> The Generally Accepted Accounting Principles (GAAP) are developed by the Governmental Accounting Standards Board.

## **Calculating Pension Fund Assets and Liabilities: Pre-1996 Conventions**

A review of the 1994-95 financial statements of the South Carolina Retirement Systems indicates that at the end of that year assets of the primary pension fund (SCRS) were \$3.627 billion less than the projected benefit obligation when calculated using the pre-1996 GAAP. This deficit has increased steadily from a level of \$2.732 billion at the end of 1989-90. Using supplemental data from financial statements for the years 1989-90 through 1994-95, this deficit is projected to increase to \$5.392 billion at the end of 2004-5 and to \$6.280 billion at the end of 2009-10. These projections were made with the assumptions that current growth trends will continue and that the state's retirement systems will see no change in the number or characteristics of employees. These projections also assume that no changes will be made in the terms of retirement for state employees.

The projected annual deficits between pension fund assets and the projected benefit obligation are based on valuation of the assets of the four pension funds at amortized cost rather than at market value. If market values are used, the current deficit or unfunded pension benefit obligation is \$3.019 billion rather than \$3.627 billion. Because of recent changes to the GAAP mandated by the Governmental Accounting Standards Board, the 1995-96 pension fund financial statement cannot be compared with those from earlier years. Therefore, the projected deficit for 1995-96 and later years is estimated using the pre-1996 GAAP. Table 2 shows projected deficits in the South Carolina Retirement Systems over the twenty year period from 1989-90 to 2009-10.

This method has its drawbacks. The liability amount is calculated as if the four retirement systems were to cancel all operations—in effect, go out of business. Under this assumption former employees would receive a future pension based on the years of service to date with no annual cost of living increases granted. This assumption is unrealistic because the probability of the state nullifying its retirement program is remote. Another weakness of this calculation is that the interest rate used to calculate present values was eight percent. While any interest rate projection for the future is prone to error, eight percent interest rates appear to be too high in view of possible earnings.

## **Calculating Pension Fund Assets and Liabilities: 1996 and Later Conventions**

A different method can be used to project retirement system unfunded liability for 1995-96 and later years. The 1996 and Later Generally Accepted Accounting Principles provide for valuations of the assets and liabilities based on actuarial assumptions. The actuarial assumptions in the 1995-96 financial statements of the South Carolina Retirement Systems are that (1) contribution rates will remain relatively level over time as a percentage of payroll, (2) these contribution rates are developed using the entry age normal cost method, (3) the interest rate (discount rate) is seven and one-quarter percent, (4) plan assets are valued on a market-related basis, and (5) annual payroll for employees will grow and four and one-half percent per year.

Calculated using the 1996 and Later GAAP, the unfunded liability for the South Carolina Retirement Systems in 1995-96 is only \$1.654 billion. Because only this year of data was available for projecting the future deficit using the 1996 and Later GAAP, no projections to the year 2009-10 were made.

**Table 2**  
**South Carolina Retirement Systems**  
**Deficit of Assets Available to Pay Benefits**  
**(Calculated Using Pre-1996 GAAP)**  
**1989-90 to 2009-10**

<b>Fiscal Year</b>	<b>Deficit (Billions)</b>
1989-90*	\$2.732
1990-91*	2.853
1991-92*	3.163
1992-93*	3.252
1993-94*	3.403
1994-95*	3.627
1995-96	3.793
1996-97	3.971
1997-98	4.148
1998-99	4.326
1999-00	4.504
2000-01	4.681
2001-02	4.859
2002-03	5.037
2003-04	5.214
2004-05	5.392
2005-06	5.569
2006-07	5.747
2007-08	5.925
2008-09	6.102
2009-10	6.280

\* Deficits for fiscal years 1989-90 to 1994-95 are actual amounts taken from information contained in the Comprehensive Annual Financial Reports

This method appears more accurate than the pre-1996 GAAP because it uses a more realistic interest rate of seven and one-quarter percent and because it assumes that the retirement systems are going concerns that will not cease to exist. Calculated using the 1996 and Later GAAP, the 1995-96 assets of the systems total about \$12.778 billion while the total assets needed to fully pay benefits are \$14.433 billion. These figures indicate that about 88.5 percent of the assets needed to pay future benefits are on hand at this time.

While this deficit is of some concern, using this method there is no doubt about the sustainability of the system. Using present contribution rates, the state's four retirement systems could operate practically indefinitely before the systems exhausted cash and were unable to pay benefits. However, there may be drawbacks to the use of these new accounting conventions which may become apparent over time. The most apparent drawback at this time is the failure of the 1996 and Later GAAP to consider cost-of-living adjustments for retirees.

## **Fully Funding the Retirement System**

The projected shortfall in the retirement system (\$3.8 billion or \$1.6 billion in 1995-96 depending on the measurement method) raises some additional issues. By underfunding the pension funds in the past (that is, by contributing less than pension expense), the state has, in effect, borrowed from the South Carolina Retirement Systems. This borrowed amount may appear at first glance to be a interest-free loan from the South Carolina Retirement Systems to the state's general fund; however, in reality it is an expensive way for the state to borrow money. If the South Carolina Retirement Systems does not have this money, this amount cannot be invested and therefore will earn no interest. Meanwhile, the present value of the projected benefit obligation will continue to grow. If the South Carolina Retirement Systems had this shortfall to invest and derive earnings on and if state employees and employers continued to contribute an amount equal to the annual pension expense, then all pensions could be paid in full from these funds when due.

The state of South Carolina has entered into a social contract with employees to fund their retirement and must continue to do so. If the state pays this *loan* back later, it must pay more money due to compound interest (as with any loan). The amount that the state must make up is the income that the retirement systems would have earned had the money been in the system. In economic terms, there is an opportunity cost to the state of not fully funding the retirement system. This opportunity cost is the forgone income from interest earnings.

The state has a more convenient and cheaper source of these *borrowed* funds. If the state used its general obligation bonding capacity to raise the current shortfall, the interest cost would be about five percent. It could then use these funds to fully fund the retirement system. In turn, the retirement system could invest in securities and earn about seven percent. Since there is a two percent difference between the two interest costs, the retirement system could be fully funded by the state using normal capital markets as a source of funds.

There is a second benefit to using bonds to help fund the retirement system. The South Carolina Retirement Systems presently have a surcharge contribution for employers in order to reduce the unfunded accrued liability. Under certain assumptions, this surcharge will increase the South Carolina Retirement Systems' assets to a 100 percent funding ratio by 2018-19. These assumptions are the actuarial assumptions discussed above and maintenance of the employer contribution at 7.55 percent of payroll for state department and school district employers and at 6.7 percent for local government employers. The present employer contribution rate will also increase PORS to a 100 percent funding ratio by 2000-01. If the state increased the assets of the retirement systems immediately by borrowing, it could immediately decrease the employer contribution to about 5 percent of total payrolls.

## **Cost of Living Adjustments**

There is some concern about future cost-of-living adjustments (COLAs) for retirees. Attaining a 100 percent funding ratio by the indicated date is dependent on foregoing any cost-of-living adjustments (COLAs) to retirees. Alternatively, if COLAs are granted, they will be a result of the retirement systems earning in excess of seven and one-quarter percent on investments.

Present state law and policy is that COLAs are only paid from greater-than-anticipated earnings of this system; there are no laws requiring that COLAs be given to retirees. Historically, annual COLAs for retirees have been justified using this criteria. While cost-of-living benefit increases are not mandated by law, in each of the past years such increases have been granted to all retirees. Further, it would be politically difficult to deny future annual COLAs. If future COLAs are considered mandatory, then the retirement systems will have a lower percentage of system assets on hand at this time than are needed to pay future benefits.

If the present value of the pension benefit obligation in 1995-96 is estimated assuming annual cost-of-living increases of three and one-half percent, the underfunding is about \$6.6 million when calculated using the 1996 and Later GAAP. This estimate, which was made by the South Carolina Retirement Systems' actuarial consultant, was calculated by increasing the present value of the pension benefit obligation by 33 percent. While it is not a precise estimate of the projected benefit obligation with COLAs, it does indicate the magnitude of the problem caused by ignoring them. A deficit of this magnitude raises serious concerns because it suggests that the retirement systems only have about 66 percent of the assets required to pay cost-of-living-adjusted benefits in the future.

Other states handle COLAs in different ways. For example, North Carolina assumes that no cost-of-living increases are given once the employee retires. Given this assumption, North Carolina indicates that its retirement system is about 98 percent funded in 1996-97. Since 1985, Georgia has included COLAs in its pension benefit obligation calculation. With COLAs, Georgia's state employee retirement system has only a \$314 million shortfall (94 percent funded) in 1996-97.

Retired state employees who receive benefits from any of South Carolina's four retirement systems have come to expect COLAs in their pensions. Federal Social Security benefits that are increased by COLAs have partially created this expectation, as has past operation of the retirement systems. It will be difficult for the state to forego COLAs in future years. The unfunded liability should also be calculated with reasonable cost-of-living increases which follow the established pattern.

### **Conclusion**

The South Carolina Retirement Systems should equalize the employer contribution from state department, school district, and local government employers at 7.55 percent or more to achieve equity in reducing the unfunded accrued liability. A reduced contribution for local government employers imposes inequity on the other employers.

The South Carolina Retirement Systems should increase the employer contribution enough to fully fund each system by 2001-02, then reduce this contribution to a level that will maintain the system at 100 percent funding.

The South Carolina Retirement Systems should include realistic planning for future cost-of-living increases for retirees. To assume that retirees will not be given cost-of-living increases

unless investment earnings are in excess of budgeted earnings is unrealistic. While there can be some expectation that interest income on investments will increase if inflation increases, there are certain lags that will prevent raises from matching inflation.