State Universities Retirement System of Illinois

Actuarial Valuation as of June 30, 1993

November, 1993

Wyatt

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November 4, 1993

Board of Trustees
State Universities Retirement System of Illinois
P.O. Box 2710-Station A
1901 Fox Drive
Champaign, IL 61825-2710

Dear Members of the Board:

We are pleased to present the report of the actuarial valuation of the State Universities Retirement System of Illinois ("SURS") as of June 30, 1993.

This valuation provides information on the funding of SURS and includes a determination of State contribution levels for 1995 under State law. It is based on the provisions of SURS in effect as of June 30, 1993.

This actuarial valuation process uses data on the SURS membership and the asset value of the Trust Fund. Both of these were provided by SURS staff. While certain checks for reasonableness were performed, these data were used unaudited.

The actuarial assumptions, actuarial cost method and asset valuation method used in this valuation are identical to those used in the prior actuarial valuation of SURS. The valuation also summarizes the impact of a proposed change to the salary increase assumption.

To the best of our knowledge, this actuarial statement is complete and accurate, and has been prepared in accordance with generally accepted actuarial principles and practice.

Respectfully submitted,
THE WYATT COMPANY

By Denise I. Patterson
Denise I. Patterson
Fellow of the Society of Actuaries

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State Universities Retirement System of Illinois

Actuarial Valuation As Of June 30, 1993

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Section I

Executive Summary

At your request, we have completed an actuarial valuation of the State Universities Retirement System ("SURS") as of June 30, 1993.

The purposes of the actuarial valuation are:

(1) To develop State contribution levels to SURS for the fiscal year ending June 30, 1995 under Section 15-155, Chapter 108½, IRS, and

(2) To examine the funding status of SURS as of the valuation date.

This actuarial valuation is based on:

(1) Data on active, inactive, and retired SURS members provided by SURS staff;

(2) Information on the assets of SURS provided by SURS staff;

(3) Actuarial assumptions adopted by the Board at its December, 1991 meeting, effective July 1, 1991; and

(4) Actuarial methods required under Section 15-155, IRS.

The actuarial assumptions and methods utilized in this valuation are identical to those used in the prior valuation for determination of the 1993-94 State contribution. In assessing the current assumptions, we feel that all are in the middle of the range of reasonableness, with the exception of the 7% salary increase assumption. In our opinion, this assumption is too conservative – that is, it produces costs that are unnecessarily high – and an assumption of 6% would be more appropriate to the middle of the range. The impact of this proposed change is summarized in Section II. E and Table 1A of Appendix A.

The eligibility and benefit provisions of SURS recognized in this valuation are identical to those recognized in the prior valuation. To our knowledge, no changes were enacted during the year ended June 30, 1993.

Key results in this valuation, compared to comparable results from the prior valuation are as follows:

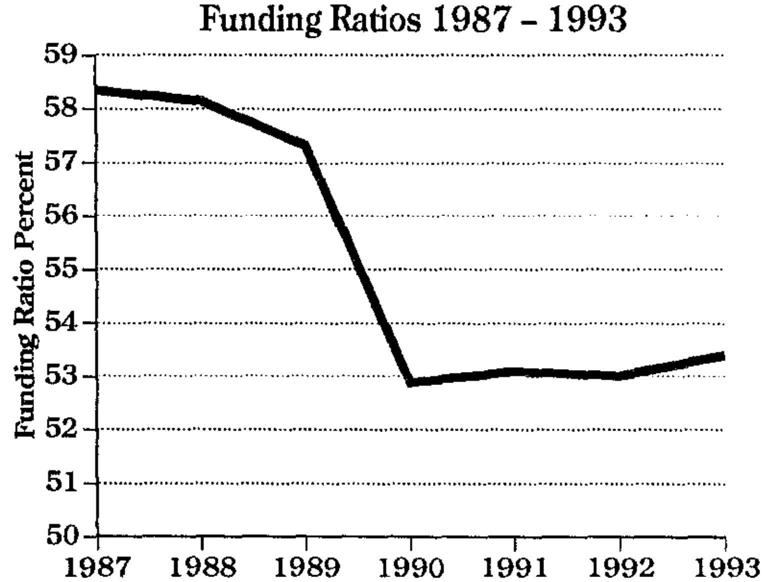
	Actuarial Valuation as of June 30, [$ in millions]	
	1992	1993
Members		
Active Members	75,281	78,605
Total Payroll	$1,947.9	$2,106.2
Inactive Members	10,508	13,890
Retirees & Survivors	20,173	21,253

	Actuarial Valuation as of June 30, [$ in millions] 1992	1993
State Contribution Levels		
[1994 & 1995, respectively]		
Normal Cost:		
• % of Pay	9.872%	9.640%
• Dollars	$213.0	$224.9
Contribution under Section 15-155:		
• % of Pay	9.598%	11.021%
• Dollars	$207.1	$257.1
Funding Status		
GASB #5 Liability	$7,359.6	$7,838.2
Assets (Book Value)	$3,901.5	$4,188.5
Unfunded Actuarial Accrued Liability	$3,458.1	$3,649.7
Funding Ratio	53.0%	53.4%

Favorable actuarial experience from salary increases, retirements, and terminations during the 1992-93 fiscal year produced a slight increase in the Funding Ratio (from 53.0% to 53.4%) in spite of continuing deficiencies in State contributions to SURS and actuarial losses from investment performance (based on book value of assets). This funding level is low given the age and maturity of SURS.

The chart below illustrates the lack of funding progress in recent years.

State Universities Retirement System
Funding Ratios 1987 - 1993



The remainder of this report details the development of these results.

Section II

Development of the Valuation

A. Introduction

The law governing the State Universities Retirement System requires the actuary, as the technical advisor to the Board of Trustees, to make:

> "An annual determination of the liabilities and reserves of this System and an annual determination of the amount and distribution of required employer contributions."
> [Chapter 108½, Par. 15-173]

The Wyatt Company, as Actuary, has completed a valuation as of June 30, 1993, based upon membership and financial data compiled by the administrative staff of SURS. The results of the valuation are presented in this report.

The results of this valuation are based on the same actuarial methods and assumptions as used in the prior valuation. The assumptions, which are based on an experience review for the four-year period ending June 30, 1991, are described in detail in Appendix B. To our knowledge, no changes were made to the benefit provisions of the system during the 1992-93 fiscal year. Appendix C summarizes the plan provisions. Adjustments were made to the valuation model used to determine liabilities under the plan. These changes resulted in a 1.7% decrease in the actuarial liabilities for the plan.

Important information on the data used in this valuation and the results of this valuation are summarized below:

		June 30, 1992	June 30, 1993
1.	Number of Active Members	75,281	78,605
2.	Annualized Reported Earnings		
	Full-time Payroll	$1,786,294,000	$1,965,594,000
	(Average)	(33,429)	(32,360)
	Total Payroll	$1,947,913,000	$2,106,167,000
	(Average)	(25,875)	(26,794)
3.	Number of Members Receiving Payments	20,173	21,253
4.	Annual Benefit Payments	$236,085,075	$269,573,590
5.	Assets:		
	(a) Book Value	3,901,516,705	4,188,535,089
	(b) Market Value	4,639,699,918	5,156,170,161
6.	State Normal Cost	192,296,205	203,036,439
	(% Total Payroll)	(9.872%)	(9.640%)
	(% Full-time Payroll)	(10.765%)	(10.330%)
7.	Accrued Actuarial Liability ("AAL")	7,359,592,554	7,838,186,000
	(Funding Ratio)	(53.0%)	(53.4%)
8.	Unfunded Accrued Actuarial Liability ("UAAL")	3,458,075,849	3,649,650,911

B. *Analysis of Increase in Unfunded Accrued Actuarial Liability*

Changes in membership data and fund assets during the year affect the results of the valuation. The unfunded accrued actuarial liability (UAAL) increased by $191,575,062 in the year ending June 30, 1993. A detailed description of this increase follows:

1. UAAL at 6/30/92 for purposes of disclosure	$3,458,075,849
2. Effect of contribution being less than the amount necessary to fund normal cost and interest on the UAAL:	
(a) Contributions Due:	
(i) Interest on (1) and (2) to 6/30/93	$ 276,646,068
(ii) Employee Contributions (including Early Retirement Option ("ERO") payments)	175,700,619
(iii) Employer Normal Cost	203,606,686
(iv) Employer ERO Payments	2,644,225
(v) Service Credit Purchases	10,854,318
(vi) Interest on (ii) through (v)	15,409,964
(vii) Total	$684,861,880
(b) Contribution Paid:	
(i) Participants (including ERO Payments)	$ 175,700,619
(ii) State Appropriations	104,728,100
(iii) Employer ERO Payments	2,644,225
(iv) Reciprocity	255,071
(v) Federal, Trust Funds and Other	20,179,427
(vi) Interest on Contributions to 6/30/92	11,906,744
(vii) Total	$315,414,186
(c) Increase in the UAAL due to Contribution Shortfall [(a) minus (b)]	$369,447,694
3. Actuarial (Gains) Losses	
(a) (Loss) from investment return less than 8%	$44,123,182
(b) (Gain) from salary increases less than 7%	(44,068,000)
(c) (Gain) due to age and service retirement	(45,676,000)
(d) (Gain) due to terminations	(3,079,000)
(e) Loss from other sources	6,424,186
(f) Net Actuarial (Gain)/Loss	$(42,275,632)
4. Non-recurring Items - Adjustment to valuation model	$(135,597,000)
5. Total Increase in UAAL [2 + 3 + 4]	$191,575,062
6. UAAL at 6/30/93	$3,649,650,911

C. *Appropriation Requirements For Fiscal Year 1995*

(1) General

The law governing the System requires that the State make contributions to the System. These contributions, combined with employee contributions, investment income and other income of the System will be:

> "sufficient to meet the requirements of this Article in accordance with actuarial determinations. In no event shall employer contributions from State appropriations for any fiscal year be less than an amount which, when added to contributions from other sources, is sufficient to meet (1) the total accruing normal costs plus interest at the prescribed rate on the unfunded accrued liabilities, or (2) the accruing requirements necessary to retain qualified status under Section 401(a) of the United States Internal Revenue Code, or any similar provision as successor thereof."

The law defines normal cost as:

> "the liability for pensions and other benefits which accrues to the system because of the credits earned for service rendered by the participants during the fiscal year and expenses of administering the system."

Section 401(a) of the Internal Revenue Code ("IRC") would require essentially the same contribution as required on the prior page. This amount is shown below as the Required Contribution. While the cited IRC Section does require a different minimum contribution for private plans, the "40-year amortization" amount shown for comparison purposes corresponds to the minimum requirements for private plans upon passage of ERISA.

It may also be deemed the minimum amount required as expense pursuant to Accounting Principles Board Opinion No. 8, although any "balance sheet accruals" prior to June 30, 1993 are ignored. Until the Governmental Accounting Standards Board ("GASB") issues accounting standards for public retirement systems, this is one of the standards available for development of pension expense. Thus, the following can be considered measures of pension expense for Plan Year ending 6/30/93.

	% of Payroll [1]	Required Contribution [1]
Normal Cost and Interest	23.0273%	$537,225,000
Normal Cost and 40-Year Amortization[2]	23.728%	$553,564,000

[1] Based upon an assumed payroll of $2.333 billion for fiscal year July 1, 1994 - June 30, 1995.

[2] Assuming a starting date of July 1, 1993.

(2) Under Section 15-155

The law governing the System provides that:

> "Starting with...fiscal year...1990, the State's contribution shall be increased incrementally over a 7-year period so that by...fiscal year...1996, the minimum contribution...shall be ...sufficient to meet the normal cost and amortize the unfunded liability over 40 years as a level percentage of payroll, determined under the projected unit credit actuarial cost method." [Chapter 108½, Par. 15-155(a), IRS]

However, the State's projected contribution of $114,015,800 to SURS for fiscal year 1994 is insufficient to meet the System's total required contribution for that year of $207,111,000. As a result, the State contribution pattern below has been developed on the basis of a 3-year period, starting with fiscal year 1994, rather than the 7-year period set out in statute. The target date for completely amortizing the unfunded accrued actuarial liability remains unchanged at June 30, 2035.

The required State contribution rates and amounts are as follows:

Fiscal Year	Normal Cost	Amortization of Unfunded Liability	Total Required Rate	Assumed Payroll (Billions)	Total Required Contribution
1995	9.640%	1.381%	11.021%	$2.333	$257,136,000
1996	9.640%	7.259%	16.899%	2.456	414,969,000
1997	9.640%	7.259%	16.899%	2.585	436,755,000
1998	9.640%	7.259%	16.899%	2.720	459,685,000
1999	9.640%	7.259%	16.899%	2.863	483,818,000
2000	9.640%	7.259%	16.899%	3.013	509,219,000

Contribution levels are shown on a gross State contribution basis. The net State General Fund appropriation requirement can be determined by adjusting for such items as State Pension Fund appropriations and contributions from federal and trust funds.

These contribution levels are based on the Projected Unit Credit Actuarial Cost Method, the data provided, and assumptions used for the June 30, 1992 actuarial valuation. To determine projected contribution rates and amounts, the following additional assumptions and estimates were used:

(1) Covered payroll of $2,217,000,000 for fiscal year 1994.

(2) 5.25% per annum rate of increase in covered payroll.

(3) Total State contributions of $114,015,800 for fiscal year 1994.

The contribution rates were determined in the following manner:

- The Projected Unit Credit Actuarial Cost Method was used. The normal cost rate calculated for fiscal year 1994 was based on the results of the June 30, 1993 valuation.
- The difference between the total 1994 appropriation and the required normal cost was considered the 1994 amortization payment, and this payment was converted to a percentage of the expected 1994 payroll.
- An amortization schedule was then determined on the assumption that:
  (1) The UAAL existing at June 30, 1994 would be completely amortized by June 30, 2035.
  (2) The amortization rates for fiscal years 1995 - 1996 would not be uniform, but the rate for both years would exceed the rate for the previous year by a uniform percentage of payroll.
  (3) The amortization rates for fiscal years 1996 - 2035 would be a uniform percentage of payroll.

The normal cost rate calculated for fiscal year 1994 (based on the results of the June 30, 1993 valuation) was assumed to remain unchanged.

D. GASB Statement 5 Disclosure: Pension Benefit Obligation

GASB Statement No. 5 sets forth certain standards of disclosure in the annual financial statements of a defined benefit pension plan.

This statement requires the disclosure of the actuarial present value of credited projected benefits and the effect of any changes in actuarial assumptions or benefit provisions. The actuarial present value of credited projected benefits is a standardized measure of the accrued pension benefit obligation (PBO). It is the discounted amount of benefits estimated to be payable in the future as a result of employee service through the balance sheet date, computed by attributing an equal benefit amount (including the effects of projected salary increases and step-rate benefits) to each year of credited and expected future employee service.

The PBO was computed for both this year's and last year's valuation, using the same assumptions as were used to process the respective valuations. Summarized on the following page are key results for both years.

GASB Statement 5 Disclosure

Actuarial Present Value (APV) of Credited Projected Benefits

	June 30, 1992	June 30, 1993
Accumulated Contributions		
Current employees	$1,800,008,000	$1,923,519,000
Inactive members	134,727,704	175,111,000
APV of Credited Projected Benefits Payable to:		
Retirees and beneficiaries	2,296,873,491	2,653,146,000
Terminated employees not yet receiving benefits – employer-financed portion	219,599,359	78,023,000
Vested current employees – employer-financed portion	2,790,481,000	2,809,800,000
Non-vested current employees – employer-financed portion	117,903,000	198,587,000
Total APV of Credited Projected Benefits	$7,359,592,554	$7,838,186,000
Net Assets Available for Benefits (Market value at June 30, 1993 is $5,156,170,161)	$3,901,516,705	$4,188,535,089
Unfunded APV of Credited Projected Benefits	$3,458,075,849	$3,649,650,911

Compared to the assets valued on the same basis as for funding purposes, the credited projected benefits are 53.4% funded compared with 53.0% last year.

E. *Proposed Change in Salary Increase Assumption*

As part of the valuation process (for this year), we determined the impact of various combinations of changes to the interest rate assumption and the salary increase assumption. The financial impact of a change in the interest rate assumption is not substantial since the higher benefit value is offset by a lower rate of accumulation under the money purchase benefit. We do not suggest a change in the interest rate at this time.

We do propose the Board consider a change to the salary increase assumption, currently 7%. With the exception of this assumption, we feel that all assumptions are in the middle of the range of reasonableness. That is, the assumptions are not biased for either high-cost (conservative) results or low-cost (aggressive) results. In our opinion, the 7% salary increase assumption has shifted to the conservative side of the range and we recommend reducing it to 6% per annum to return to the middle of the reasonableness range.

A comparison of some of the key valuation results on both bases illustrates the impact of the salary increase assumption (in thousands of dollars).

	7% Salary Increase Assumption	6% Salary Increase Assumption
1. State Normal Cost	$224,901	$212,653
(% of Total Payroll)	9.640%	9.115%
2. Accrued Actuarial Liability (AAL)	$7,838,186	$7,798,919
(Funding Ratio)	53.4%	53.7%
3. Unfunded Accrued Actuarial Liability (UAAL)	$3,649,651	$3,610,384
4. Normal Cost and Interest Contribution	$537,225	$520,769
(% of Payroll)	23.027%	22.322%
5. Normal Cost and 40-Year Amortization Contribution	$553,564	$536,888
(% of Payroll)	23.728%	23.013%

6. Contributions under Section 15-155

Fiscal Year	Total Rate	Required Contribution	Total Rate	Required Contribution
1995	11.021%	$257,136	10.705%	$249,763
1996	16.899%	414,969	16.267%	399,449
1997	16.899%	436,755	16.267%	420,420
1998	16.899%	459,685	16.267%	442,492
1999	16.899%	483,818	16.267%	465,723
2000	16.899%	509,219	16.267%	490,173

APPENDIX A

Results of Actuarial Valuation

Table 1

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Summary of Results of Actuarial Valuation as of June 30, 1993

Member Data

1. Number of Members:

(a) Members Receiving Annuities:

• Retirement	16,201	
• Survivor (includes prospective Widows and Widowers)	3,981	
• Disability	1,071	
• Subtotal		21,253
(b) Other Inactive Members		13,890
(c) Active: • Full-time	60,741	
• Part-time	17,864	
• Subtotal		78,605
(d) Total		113,748

2. Annual Reported Earnings:

(a) Full-time	$1,965,594,000
(b) Part-time	140,573,000
(c) Total	$2,106,167,000

3. Annual Annuity Payments currently being made:

(a) Retirement	$235,938,610
(b) Survivor	21,370,580
(c) Disability	12,264,400
(d) Total	$269,573,590

Table 1

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Summary of Results of Actuarial Valuation as of June 30, 1993

Valuation Results

	Normal Cost	Actuarial Liability
4. Actuarial Liability for Members Receiving Annuities:		
(a) Retirement		$2,351,326,000
(b) Survivor		210,909,000
(c) Disability		90,911,000
(d) Subtotal		$2,653,146,000
5. Actuarial Liability for Inactive Members		$253,134,000
6. Active Members:		
(a) Pension Benefits	$263,865,000	$3,982,689,000
(b) Death Benefits (Excludes refunds)	19,225,000	294,066,000
(c) Disability	21,405,000	249,504,000
(d) Withdrawals and Refunds	46,046,000	405,647,000
(e) Expenses	19,084,130	—
(f) Subtotal	$369,625,130	$4,931,906,000
7. Total	$369,625,130	$7,838,186,000
8. Assets		$4,188,535,089
9. Unfunded Actuarial Liability		$3,649,650,911
10. Expected Employee Contributions	$166,588,691	
11. Annual Normal Cost to be Provided by the State	$203,036,439	
% of Full-time Payroll	10.330%	
% of Total Payroll	9.640%	

Summary of Results of Actuarial Valuation as of June 30, 1993

Annual Funding Requirement for Fiscal Year 1995

	Percent of Payroll	Amount
12. "Interest Only Funding":		
(a) Normal Cost	9.640%	$224,901,000
(b) Interest on Unfunded	13.387%	312,324,000
(c) Total	23.027%	$537,225,000
13. "40-Year Amortization" from 7/1/93:		
(a) Normal Cost	9.640%	$224,901,000
(b) Contribution toward Unfunded	14.088%	328,663,000
(c) Total	23.728%	$553,564,000

Notes: (1) All figures have been adjusted by the appropriate interest factor for monthly contributions.

(2) Funding requirements are based on an assumed payroll of $2.333 billion.

Summary of Results of Actuarial Valuation as of June 30, 1993

(Proposed Assumptions)

Member Data

1. Number of Members:		
(a) Members Receiving Annuities:		
• Retirement	16,201	
• Survivor (includes prospective Widows and Widowers)	3,981	
• Disability	1,071	
• Subtotal		21,253
(b) Other Inactive Members		13,890
(c) Active: • Full-time	60,741	
• Part-time	17,864	
• Subtotal		78,605
(d) Total		113,748
2. Annual Reported Earnings:		
(a) Full-time		$1,965,594,000
(b) Part-time		140,573,000
(c) Total		$2,106,167,000
3. Annual Annuity Payments currently being made:		
(a) Retirement		$235,938,610
(b) Survivor		21,370,580
(c) Disability		12,264,400
(d) Total		$269,573,590

Summary of Results of Actuarial Valuation as of June 30, 1993

(Proposed Assumptions)

Valuation Results

	Normal Cost	Actuarial Liability
4. Actuarial Liability for Members Receiving Annuities:		
(a) Retirement		$2,351,326,000
(b) Survivor		210,909,000
(c) Disability		90,911,000
(d) Subtotal		$2,653,146,000
5. Actuarial Liability for Inactive Members		$253,134,000
6. Active Members:		
(a) Pension Benefits	$256,358,000	$3,964,401,000
(b) Death Benefits (Excludes refunds)	18,856,000	293,456,000
(c) Disability	19,561,000	230,963,000
(d) Withdrawals and Refunds	44,697,000	403,819,000
(e) Expenses	19,084,130	—
(f) Subtotal	$358,556,130	$4,892,639,000
7. Total	$358,556,130	$7,798,919,000
8. Assets		$4,188,535,089
9. Unfunded Actuarial Liability		$3,610,383,911
10. Expected Employee Contributions	$166,588,691	
11. Annual Normal Cost to be Provided by the State	$191,967,439	
% of Full-time Payroll	9.766%	
% of Total Payroll	9.115%	

Table 1A

[Page 3 of 3]

Summary of Results of Actuarial Valuation as of June 30, 1993

(Proposed Assumptions)

Annual Funding Requirement for Fiscal Year 1995

	Percent of Payroll	Amount
12. "Interest Only Funding":		
(a) Normal Cost	9.115%	$212,653,000
(b) Interest on Unfunded	13.207%	308,116,000
(c) Total	22.322%	$520,769,000
13. "40-Year Amortization" from 7/1/93:		
(a) Normal Cost	9.115%	$212,653,000
(b) Contribution toward Unfunded	13.898%	324,235,000
(c) Total	23.013%	$536,888,000

Notes: (1) All figures have been adjusted by the appropriate interest factor for monthly contributions.

(2) Funding requirements are based on an assumed payroll of $2.333 billion.

Table 2

Actuarial Present Value of Accumulated Plan Benefits at June 30, 1993

	Vested	Non-Vested	Total
Members Currently Receiving Payments	$2,653,146,000	—	$2,653,146,000
Inactive Members	253,134,000	—	253,134,000
Active Members:			
(a) Pension Benefits	3,054,539,000	$174,117,000	3,228,656,000
(b) Death Benefits (without refunds)	239,825,000	33,598,000	273,423,000
(c) Disability	192,276,000	27,978,000	220,254,000
(d) Withdrawal and Refunds	281,107,000	79,288,000	360,395,000
(e) Sub-total	$3,767,747,000	$314,981,000	$4,082,728,000
Total:	$6,674,027,000	$314,981,000	$6,989,008,000

Non-Retired Member Contributions with Interest:	
Active	$1,923,519,000
Inactive	175,111,000
Total:	$2,098,630,000

Notes: (1) Accumulated benefits were calculated in accordance with plan provisions in effect on June 30, 1993, based on the member's history of pay and service as of such date.

(2) Projected years of service were considered only in determining members' expected eligibility for particular benefits.

(3) Future automatic cost-of-living increases were recognized.

Table 3

Actuarial Present Value of Credited Projected Benefits at June 30, 1993

	Vested	Non-Vested	Total
Members Currently Receiving Payments	$2,653,146,000	—	$2,653,146,000
Inactive Members	253,134,000	—	253,134,000
Active Members:			
(a) Pension Benefits	3,792,416,000	$190,273,000	3,982,689,000
(b) Death Benefits (without refunds)	260,013,000	34,053,000	294,066,000
(c) Disability	216,480,000	33,024,000	249,504,000
(d) Withdrawal and Refunds	325,341,000	80,306,000	405,647,000
(e) Sub-total	$4,594,250,000	$337,656,000	$4,931,906,000
(f) Employee Contributions	$1,784,450,000	$139,069,000	$1,923,519,000
(g) Employer Financed	$2,809,800,000	$198,587,000	$3,008,387,000
Total	$7,500,530,000	$337,656,000	$7,838,186,000

Notes: (1) Credited projected benefits were calculated in accordance with plan provisions in effect on June 30, 1993, based on the member's service as of that date and on the members' historical and projected pay.

(2) Projected years of service were considered only in determining members' expected eligibility for particular benefits.

(3) Future automatic cost-of-living increases were recognized.

Table 4

Analysis of Financial Experience

	Activity		Gain (Loss)
1.	Actuarial Gains (Losses):		
	(a) Age & Service Retirements	$45,676,000	
	(b) Incidence of Disability	(257,000)	
	(c) In-service Mortality	(758,000)	
	(d) Retiree Mortality	(6,348,000)	
	(e) Disabled Mortality	(124,000)	
	(f) Termination of Employment	3,079,000	
	(g) Salary Increases	44,068,000	
	(h) Investment Income	(44,123,182)	
	(i) Other	1,062,814	
	(j) Total Actuarial Gain (Loss)		$42,275,632
2.	Contribution Income (Shortfall)		(369,447,694)
3.	Non-recurring Items: Gain due to adjustments in valuation model		$135,597,000
4.	Total Gain (Loss)		$(191,575,062)

APPENDIX B

Description of Actuarial Basis

Actuarial Cost Method Adopted June 30, 1989

A Projected Unit Credit Normal Cost Method is used in this valuation. Under this method, the projected pension at retirement age is first calculated for each member. The actuarial present value of that benefit is determined at the member's current age. The normal cost for the member for the current year is equal to that actuarial present value, divided by the member's projected service at retirement. The normal cost for the plan for the year is the sum of the normal costs for all members.

The accrued actuarial liability (AAL) at any point in time is the value of the projected pensions based on service to the valuation date.

For ancillary benefits for active members, in particular disability benefits, death and survivor benefits, termination benefits, and the post-retirement increases, the same procedure as outlined above is followed.

Actuarial gains and losses are amortized as a level percentage of payroll over a 40-year period ending June 30, 2035, after an initial phase in period ending June 30, 1996.

Estimated annual administrative expenses are added to the normal cost. For valuation purposes, assets are valued at book.

Actuarial Assumptions (Adopted June 30, 1991)

Mortality: 1986 Projected Experience Table, a table based on experience underlying the 1971 Group Annuity Mortality Table, without margins, with a projections for mortality improvements to 1986, with a 3-year setback for males and a 2-year setback for females.

Interest: 8% per annum, compounded annually.

Termination: Illustrative rates of withdrawal from the plan are as follows:

Age	Males	Females
20	0.050	0.050
25	0.047	0.047
30	0.042	0.042
35	0.034	0.037
40	0.024	0.031
45	0.017	0.025
50	0.013	0.024
55	0.018	0.024
60	0.026	0.033
65	0.041	0.051
70	0.054	0.065

For the first 10 years of service, the termination rate is increased by multiplying the initial rate by the following:

Service Year	Males	Females
0	5.75	5.90
1	5.75	5.60
2	4.70	4.75
3	3.90	3.95
4	3.20	3.30
5	2.50	2.60
6	2.15	2.30
7	1.80	2.00
8	1.50	1.65
9	1.25	1.30

Part-time employees with less than 3 years of service are assumed to terminate within the plan year.

Salary Increases: 7% per annum compounded annually with the 7% increased by the following multiples for the first six years of service:

Service Year	Multiplier
0	1.0400
1	1.0300
2	1.0175
3	1.0175
4	1.0175
5	1.0100

Disability: Incidence of disability amongst employees:

Age	Males	Females
20	0.0000	0.0000
25	0.0003	0.0003
30	0.0006	0.0008
35	0.0007	0.0011
40	0.0009	0.0014
45	0.0013	0.0021
50	0.0021	0.0031
55	0.0043	0.0050
60	0.0088	0.0081
65	0.0104	0.0113
70	0.0050	0.0100

Retirement: Employees are assumed to retire after becoming eligible according to the following schedule:

Age	Males	Females
50-55	.075	.065
56	.040	.045
57-58	.040	.040
59	.050	.065
60	.100	.105
61	.095	.065
62	.115	.145
63	.110	.115
64	.130	.175
65	.240	.225
66	.200	.155
67	.200	.165
68	.165	.200
69	.200	.200
70	1.000	1.000

Assets: Assets available for benefits are used at book value.

Expenses: As estimated and advised by SURS staff, based on current expenses with an allowance for expected increases.

Marital Status: Employees are assumed to be married in accordance with the following table:

Age	Males	Females
20	25%	40%
30	70%	75%
40	80%	80%
50	85%	80%
60	85%	70%

Spouse's Age: The female spouse is assumed to be 3 years younger than the male spouse.

Remarriage: The surviving spouses of deceased employees are assumed to remarry in accordance with the following table:

Age	Rate of Remarriage
20	0.145
25	0.095
30	0.060
35	0.041
40	0.029
45	0.019
50	0.012
55	0.007

Children: It is assumed that married members have 2.0 children with a one age difference.

The age of the youngest child of a deceased employee at his date of death is assumed to be as follows:

Age at Death of Employee	Age of Youngest Child
20	0
25	1
30	3
35	5
40	7
45	9
50	12
55	15
60	18

Effective Rate of Interest: The rate of interest credited on member contributions is assumed to be 8% per annum.

Missing Data: If earnings were not available, the annual salary was assumed to be $30,000. If a birth date was not available, the employee was assumed to be age 40.

Procedure for Determining Prior Year Earnings: In November of each year, the System provides the Actuary with a tape containing actual salaries for the 12-month period ended August 31. That tape is matched against the valuation tape that contains actual salaries for the 10-month period ended June 30 resulting in a special file with salaries for July and August. When the following year's valuation tape is received, it is matched against this special file resulting in a file with salaries for the period July 1 - June 30.

APPENDIX C

Summary of Plan Provisions

Summary of Plan Provisions

The following is a summary of the major provisions of the State Universities Retirement System as in effect on the date of the valuation (6/30/93).

Membership: The System covers faculty and non-academic permanent employees of State Universities and Colleges, Community Colleges, State Scientific Surveys and other related agencies. In addition, employees in a position where services are expected to be rendered on a continuous basis for the lesser of 4 months or one academic term will also be covered by the System.

Employees employed on a temporary basis at less than full-time and attending classes with an employer are ineligible to participate.

Member Contributions: 8% of gross earnings. 6½% of the 8% contributions are designated for retirement annuities, ½% for automatic annual increases and 1% for survivor benefits. Police officers and firefighters contribute 9½% of earnings. The additional 1½% is a normal retirement contribution.

Interest Credited on Member Contributions: The interest rate credited is fixed by the Board and has been 8% in recent years. (For FY89 it was 7½%.) For purposes of lump sum payments to former members, the interest rate is 4½%.

Normal Retirement: Members are eligible for normal retirement after 35 years of covered service, after 8 years of covered service and age 60, or after 5 years of covered service and age 62. Policemen and firemen are eligible for normal retirement at age 55 with 20 years of service, or at age 50 with 25 years of service.

The annuity payable is based on the largest of three formulas:

(1) The following percentages of "average earnings":

	General	Police & Firefighters
(a) For each of the first 10 years of service	1.67%	2.25%
(b) For each of the next 10 years of service	1.90%	2.50%
(c) For each of the next 10 years of service	2.10%	2.75%
(d) For each year of service over 30	2.30%	2.75%

Average earnings are the average of the highest earnings for any 4 consecutive years. Optionally, for all employees, except academic employees paid on other than a 12-month basis, average earnings may be based on the 48 consecutive calendar months ending with the last day of employment. A lump sum payment for up to 56 days of accrued vacation may be included in his computation.

(2) The actuarial equivalent of 2.4 times the accumulated member contributions for retirement annuities (6½% of earnings for ordinary members, 8% of earnings for police officers and firefighters). The actuarial equivalent assumes a constant annuity payable for life.

(3) For each year of service up to a maximum of 30 years, if employed one-half time or more, the following monthly amount based on average earnings:

Average Annual Earnings	
Under $3,500	$8
$3,500 - $4,500	9
$4,500 - $5,500	10
$5,500 - $6,500	11
$6,500 - $7,500	12
$7,500 - $8,500	13
$8,500 - $9,500	14
$9,500 and above	15

For members first participating hired after September 14, 1977, the maximum annuity under (1) or (2) is 75% of average earnings. The maximum is 80% of average earnings for members who participated on or before September 14, 1977.

Early Retirement: Members are eligible for early retirement after 8 years of service and age 55, but the annuity calculated under formula (1) or (3) above is reduced by ½% for each month since retirement precedes age 60.

Early Retirement Without Discount: A member may retire between the ages of 55 and 60 with at least 8, but not more than 35 years service credit, without the ½ of 1% reduction provided:

(1) The member does so between June 1, 1981 and September 1, 1992.

(2) The member retires within 6 months of the last day of employment.

(3) The member and the employer make one-time lump sum payments to the Retirement System based upon the member's highest full-time annual salary rate during the 4-year average salary period. The member pays 7% of such salary rate for each year or fraction of a year prior to age 60 or for each year or fraction of a year that his service credit is less than 35 years, whichever is less. The employer payment is 20% of the salary rate for each year or fraction of a year prior to age 60.

The numbers of members using this provision may be limited, at the option of the employer, to no less than 15% of those eligible during any year. The right to participate is allocated among those applying on the basis of seniority in the service of the employer.

Disability:

Members with 2 years of covered service who are unable to perform their duties because of illness or any amount of covered service if because of an accident, are eligible for disability after 60 days of disability. Pregnancy and childbirth are considered a disability.

The amount of the disability benefit is as follows:

(1) 50% of basic compensation at disability or 50% of average earnings for the 24 months preceding disability, whichever is greater. Payments are made until (a) the total benefits paid equal 50% of the total earnings in covered service, or (b) September 1 following the employee's 70th birthday or the end of the month following the fifth year anniversary, if later. In case of disability caused by an on-the-job accident, where workers' compensation or occupational disease payments are granted, 50% of total earnings limitation does not apply and the benefit ceases only due to (b) above.

(2) After cessation of the benefit in (1), members who had 8 years of covered service will receive the normal retirement benefit commencing at or after age 55 (with no reduction for early retirement) if the member continues to be disabled.

The disability benefit will end upon death or recovery.

Disability Retirement Allowance:

If a member's disability benefits are discontinued due to 50% of total earnings limitation, the member is entitled to a disability retirement allowance of 35% of the basic compensation which was payable at the time the disability began. This benefit is payable only if at least 2 licensed and practicing physicians appointed by the Board certify that the member has a medically determined physical or mental impairment that would prevent him/her from engaging in any substantial gainful activity, and that either can be expected to result in death, or has lasted or can be expected to last for a continuous period of not less than 12 months.

The disability retirement allowance is payable for life unless the member is able to accept substantial gainful employment, or elects to receive a retirement annuity.

Death Benefits Before Retirement:

Upon the death of a participating employee with 1½ years of covered service or of a former member with 10 years of covered service, the following amounts are paid to the member's survivors:

(1) A death benefit equal to the retirement contributions (7% for general employees, 8½% for police and firefighters) and interest, plus

(2) A lump sum payment of $1,000, plus

(3) A monthly survivor's annuity equal to the greater of 50% of the member's accrued normal retirement benefit or the following amounts, if greater:

  (i) 30% of average earnings to a spouse, child or parent, up to $400 monthly.

  (ii) 60% of average earnings to a spouse and one child, up to $600 monthly.

  (iii) 80% of average earnings to a spouse and 2 or more children, up to $600 monthly.

Survivor's benefits are payable until children attain age 18, to a spouse after age 50, and a dependent parent after age 55. The spouse's benefit is payable at any age while children are under 18 and living with the spouse. If death occurs after termination of employment, the monthly survivors annuity may not exceed 80% of the earned retirement annuity. The children's benefit is payable at any age provided that (i) the member's death occurs before the child attains age 18, and (ii) upon attaining age 18, the child suffers a disability which would prevent him/her from engaging in any substantial gainful activities. If there are no dependent survivors, the member did not have the necessary service, or if the dependent survivors so elect in lieu of any other benefits, the following amounts will be paid:

(1) A refund of all contributions and interest, and

(2) If death occurred while a participating employee *

- (i) to a dependent beneficiary, an amount equal to the employee's final annual rate of earnings, but not less than $2,000 nor more than $5,000.
- (ii) to a non-dependent beneficiary, a lump sum payment of $2,500.

* The recipient of a disability benefit is a participating employee. The recipient of a disability retirement allowance is not.

Death of an Annuitant:

Upon the death of an annuitant receiving a retirement annuity or disability retirement annuity, a lump sum benefit of $1,000 is payable to the member's spouse, children or dependent parent. In addition, a survivor's annuity as outlined above is payable. If no survivor annuity is payable, a minimum death benefit of $1,000 or an amount equal to the excess of the member's contributions and interest at retirement over the benefits paid is payable.

Automatic Increases:

Retirement benefits are increased annually after retirement by 3% of the current retirement annuity. The increase is compounded and does apply to survivor's benefits. The first automatic annual increase in retirement annuity is paid on the January 1 following the annuitant's retirement date, and is based on the number of completed months that have elapsed since retirement began.

For the disability benefit, the first adjustment is effective on January 1 following the fourth anniversary of the granting of the disability. The first adjustment is 7%. At each subsequent January 1, an adjustment of 3% is made.

Termination of Service:

A lump sum refund of all member contributions and interest (at 4½%) will be made. If a member has 5 years of covered service and does not apply for a refund, a normal retirement benefit will be payable at age 62.