State Employees' Retirement System of Illinois

Experience Review for the Period July 1, 2009, to June 30, 2013

April 8, 2014

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Agenda

- Overview
- Economic Assumptions
- Demographic Assumptions
- Cost Impact
- Projections

Overview

- Purposes of experience study
  - Compare actual experience with actuarial assumptions
  - Validate current actuarial assumptions and recommend changes as needed
  - Measure impact of assumption changes
    - Funded status
    - Contribution requirements

Overview

- Study reviews two types of assumptions:
  - Economic assumptions
    - Investment return, inflation, payroll growth, individual salary increase rates
  - Demographic assumptions
    - Retirement, termination, death, disability
- Assumptions should reflect long-term expectation of plan’s demographic mix
- Each assumption should be:
  - Individually reasonable
  - Consistent with other demographic assumptions

Economic Assumptions

- Economic assumption recommendations -
  - **Price inflation:** Recommend maintaining the rate of price inflation of 3.00%
  - **Wage growth:** Recommend lowering the assumption from 4.00% to 3.50%
  - **Individual salary increases:** Recommend changes that recognize a portion of recent experience

Economic Assumptions

- Economic assumption recommendations -
  - **Investment return:** The current assumptions of 7.75% was first effective with the valuation as of June 30, 2010

One Year Expected Return

Based on Current Capital Market Assumptions

Investment Consultant	Date of Capital Market Assumptions	Investment Consultant Expected Nominal Return	Investment Consultant Inflation Assumption	Expected Real Return* (3)–(4)	Actuary Inflation Assumption	Actuary Investment Expense Assumption	Expected Nominal Return** (5)+(6)-(7)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	1/1/2013	6.72%	2.50%	4.22%	3.00%	0.50%	6.72%
2	1/1/2013	7.35%	3.00%	4.35%	3.00%	0.50%	6.85%
3	1/1/2013	6.97%	2.50%	4.47%	3.00%	0.50%	6.97%
4	12/31/2012	7.21%	2.40%	4.81%	3.00%	0.50%	7.31%
5	1/1/2013	8.28%	3.25%	5.03%	3.00%	0.50%	7.53%
6	9/30/2012	7.71%	2.51%	5.20%	3.00%	0.50%	7.70%
7	9/30/2012	8.13%	2.30%	5.83%	3.00%	0.50%	8.33%
8	1/1/2013	8.74%	2.50%	6.24%	3.00%	0.50%	8.74%
Average		**7.64%**	**2.62%**	**5.02%**	**3.00%**	**0.50%**	**7.52%**

**Average real rate of return is 4.52% net of investment expenses.*

***Based on arithmetic average.*

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Economic Assumptions

- Economic assumption recommendations -
  - **Investment return (Cont'd)**

Likelihood of Achieving Investment Return Assumption

Investment Consultant	Distribution of 30-Year Average Geometric Net Nominal Return 25th	50th	75th	Probability of exceeding 7.75%	Probability of exceeding 7.50%	Probability of exceeding 7.25%
(1)	(2)	(3)	(4)	(5)	(5)	(5)
1	4.53%	6.01%	7.51%	21.7%	25.2%	28.8%
2	4.60%	6.11%	7.64%	23.5%	27.0%	30.8%
3	4.80%	6.27%	7.77%	25.2%	28.9%	32.9%
4	5.63%	6.84%	8.07%	30.9%	35.9%	41.1%
5	5.46%	6.88%	8.33%	34.2%	38.6%	43.2%
6	5.38%	6.93%	8.50%	36.2%	40.3%	44.5%
7	6.14%	7.63%	9.14%	47.9%	52.3%	56.8%
8	6.27%	7.90%	9.55%	52.4%	56.5%	60.5%
Average	**5.35%**	**6.82%**	**8.31%**	**34.0%**	**38.1%**	**42.3%**

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Economic Assumptions

- Economic assumption recommendations -
  - **Investment return (Cont'd)**
    - The State Actuary has recommended lowering the rate to 7.25%
    - We recommend lowering the return assumption
      - Either 7.50% or 7.25% can be supported
    - Assumption would need re-visiting if significant changes in the target asset allocation are made

Demographic Assumptions

- Mortality
  - Update mortality assumption to reflect longer life expectancies
  - Includes approximately 20% margin for future improvement
  - For post-retirement mortality use 105% of RP-2014 Healthy Annuitant Mortality Table, sex distinct, (static table)
  - For pre-retirement mortality based on a percent of the RP2014 Total Employee mortality table. The percent of the table is 90 percent for males and 110 percent for females

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Demographic Assumptions

- Retirement
  - Regular Formula Members
    - Normal Retirement
      - Extending the age based rates to age 75
      - Increase in rates in the early ages and a decrease in the rates in later ages to reflect the actual experience of the System
    - Early Retirement
      - For both males and females, we recommend an overall decrease in the rates

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Demographic Assumptions

- Retirement (cont'd)
  - Alternate Formula Members
    - Members eligible for retirement under the alternate formula provisions
      - Extending the age based rates to age 72.
      - Male members: Increase in rates before age 68 and a decrease in rates thereafter
      - Female members: Generally decrease rates in lower ages, increase in rates between age 62 and 67, and a decrease in rates thereafter
    - Members eligible for retirement under the regular formula provisions
      - Introduce low rates to recognize that some members in Alternate Formula positions opt to retire under the regular formula

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Demographic Assumptions

- Retirement (cont’d)
  - Tier Two Regular Formula Members
    - Recommend rates in which members will remain in service and eventually receive unreduced normal retirement benefits
  - Tier Two Alternate Formula Members
    - Recommend rates that are consistent with the age-based retirement rates developed for Tier One members retiring with alternate formula benefits for ages 61 and older
    - For members retiring at age 60, we recommend a higher rate

Demographic Assumptions

- Turnover
  - Regular Formula Members
    - Increase in rates for members under five years of service (mainly applicable to Tier Two members)
  - Alternate Formula Members
    - Modify rates to recognize slightly higher overall rates of termination
- Disability
  - Majority of disabilities are short-term in nature
  - Increase the annual term cost from 1.00% to 1.34% of pay
  - Based on 110% of the most recent disability payments converted to a percent of pay.

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Demographic Assumptions

- Load for Inactive Members Eligible for Deferred Vested Pension Benefits
  - Recommend adding an assumption to the valuation to account for the increase in liability that has been observed when a member transitions from inactive to retiree
  - Recommend adding load of 15 percent to the liability attributable to inactive members eligible for deferred vested pension benefits

Cost Impact

	Baseline Valuation	Experience Study		
		7.75% Discount Rate	7.50% Discount Rate	7.25% Discount Rate
Valuation Date:	June 30, 2013	June 30, 2013	June 30, 2013	June 30, 2013
Fiscal Year Ending:	June 30, 2015	June 30, 2015	June 30, 2015	June 30, 2015
Estimated Statutory Contributions:				
• Annual Amount	$1,748,430,000	$1,841,143,000	$1,889,490,000	$1,939,380,000
• Percentage of Covered Payroll	40.472%	42.618%	43.737%	44.892%
Annual Required Contribution (ARC):				
• Annual Amount	$1,983,988,983	$2,089,935,271	$2,154,834,660	$2,222,454,540
• Percentage of Covered Payroll	45.925%	48.377%	49.879%	51.445%
Actuarial Information				
• Normal Cost Amount	$551,051,796	$558,454,593	$593,579,020	$631,130,447
• Actuarial Accrued Liability (AAL)	$34,720,764,557	$35,209,061,536	$36,314,732,708	$37,479,392,897
• Unfunded Actuarial Accrued Liability (UAAL)	$22,843,345,661	$23,331,642,640	$24,437,313,812	$25,601,974,001
• Funded Ratio based on AVA	34.21%	33.73%	32.71%	31.69%
• UAAL as % of Covered Payroll	539.24%	550.77%	576.87%	604.36%
• Funded Ratio based on MVA	35.71%	35.22%	34.15%	33.09%

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Projections

Required State Contribution

Determined at June 30, 2013[a]

	Contribution Dollar (in millions)				Contribution Percent			
	Valuation	Experience Study			Valuation	Experience Study		
Year	Baseline	7.75% DR	7.50% DR	7.25% DR	Baseline	7.75% DR	7.50% DR	7.25% DR
2014	$ 1,663	$ 1,663	$ 1,663	$ 1,663	38.4%	38.4%	38.4%	38.4%
2015	1,748	1,841	1,889	1,939	40.5%	42.9%	44.0%	45.2%
2016	1,801	1,879	1,929	1,981	40.2%	42.6%	43.8%	44.9%
2017	1,849	1,913	1,965	2,019	39.9%	42.3%	43.4%	44.6%
2018	1,913	1,964	2,017	2,072	40.0%	42.3%	43.5%	44.6%
2019	1,968	2,006	2,061	2,118	39.8%	42.1%	43.3%	44.5%
2020	2,028	2,054	2,110	2,168	39.7%	42.0%	43.2%	44.4%
2025	2,350	2,319	2,383	2,449	39.4%	41.6%	42.8%	43.9%
2030	2,711	2,660	2,734	2,811	39.3%	41.5%	42.6%	43.8%
2035	3,346	3,344	3,443	3,544	42.5%	44.9%	46.2%	47.6%
2040	3,784	3,840	3,955	4,071	42.5%	44.9%	46.2%	47.6%
2045	4,247	4,368	4,498	4,630	42.5%	44.9%	46.2%	47.6%
Total Cont. Through 2045	$ 90,452	$ 91,005	$ 93,569	$ 96,191				
Present Value of Total Cont.	$ 28,522	$ 28,736	$ 30,360	$ 32,097				

[a] *Based on the plan provisions in effect as of June 30, 2013.*

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Projections

Unfunded Accrued Liability and Funded Ratio

Determined at June 30, 2013[a]

	Unfunded Accrued Liability (in millions)				Funded Ratio			
	Valuation	Experience Study			Valuation	Experience Study		
Year	Baseline	7.75% DR	7.50% DR	7.25% DR	Baseline	7.75% DR	7.50% DR	7.25% DR
2015	$ 23,508	$ 23,990	$ 25,177	$ 26,424	37.9%	37.4%	36.3%	35.2%
2016	24,093	24,522	25,724	26,986	38.9%	38.6%	37.4%	36.3%
2017	24,510	24,887	26,103	27,376	40.3%	40.0%	38.9%	37.8%
2018	25,040	25,368	26,595	27,879	41.3%	41.0%	39.9%	38.9%
2019	25,558	25,840	27,077	28,370	42.3%	42.0%	40.9%	39.9%
2020	26,057	26,298	27,541	28,840	43.2%	42.9%	41.8%	40.8%
2025	28,043	28,163	29,404	30,691	47.4%	46.5%	45.6%	44.7%
2030	28,603	28,733	29,892	31,083	51.5%	49.9%	49.1%	48.4%
2035	26,333	26,505	27,458	28,428	57.8%	55.9%	55.3%	54.9%
2040	19,310	19,409	20,002	20,603	69.7%	68.4%	68.1%	67.9%
2045	6,441	6,240	6,376	6,522	90.0%	90.0%	90.0%	90.0%

[a] *Based on the plan provisions in effect as of June 30, 2013.*

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Questions?

Disclosures

- Circular 230 Notice: Pursuant to regulations issued by the IRS, to the extent this presentation concerns tax matters, it is not intended or written to be used, and cannot be used, for the purpose of (i) avoiding tax-related penalties under the Internal Revenue Code or (ii) marketing or recommending to another party any tax-related matter addressed within. Each taxpayer should seek advice based on the individual's circumstances from an independent tax advisor.
- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- The actuaries submitting this presentation (Alex Rivera, David Kausch and Paul Wood) are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.
- The primary purpose of the actuarial valuation is to measure the financial position of SERS.

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Disclosures

- The valuation results summarized in this report involve actuarial calculations that require assumptions about future events. The major actuarial assumptions used in this analysis were provided by and are the responsibility of SERS. We are unable to judge the reasonableness of some of these assumptions without performing a substantial amount of additional work beyond the scope of the assignment.

- Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and changes in plan provisions or applicable law.

- This is one of multiple documents comprising the actuarial report for the SERS actuarial valuation. Additional information regarding actuarial assumptions and methods, and important additional disclosures are provided in the full actuarial valuation report as of June 30, 2013.

- If you need additional information to make an informed decision about the contents of this presentation, or if anything appears to be missing or incomplete, please contact us before relying on this presentation.

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