# Arkansas Teacher Retirement System

## Valuation Results as of June 30, 2013

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December 2, 2013

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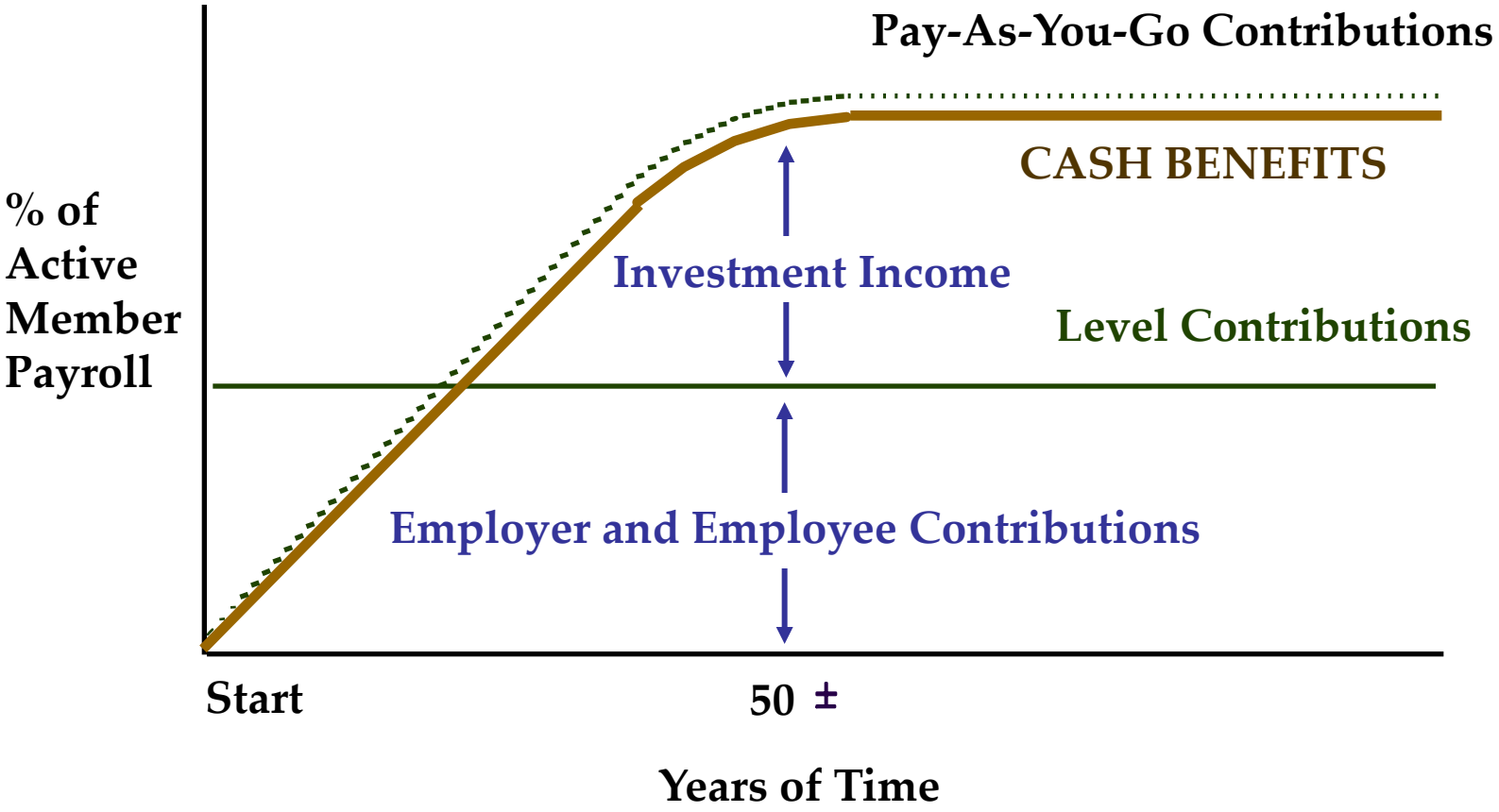
# Agenda

- June 30, 2013 Valuation Results
- Projections of June 30, 2014 Valuation
- Comments and Conclusion

# Funding Objectives

- Intergenerational equity with respect to plan costs
- Stable pattern of contribution rates
- Ratio of Assets to Liabilities targeted at 100%

# Financing Increasing Benefit Obligations



# What Is Needed To Meet Objectives?

- Reasonable forecasts of resources and obligations (i.e., good assumptions)
- Smoothing devices
  - Level % of payroll funding method (EANC)
  - Market-related asset valuation method
- Funding discipline
- A sound investment program

# Covered Population Overview

| | Number at June 30 | | |
|---|---|---|---|
| | **2013** | **2012** | **% Change** |
| Active | 70,660 | 71,195 | -0.8% |
| TDROP | 4,265 | 4,432 | -3.8% |
| Inactive | 13,099 | 12,654 | 3.5% |
| Retired | 36,254 | 34,160 | 6.1% |
| Return to Work | 4,025 | 4,001 | 0.6% |
| Total | 128,303 | 126,442 | 1.5% |

**ATRS gets 14% of pay contributions for retirees who return to work.**

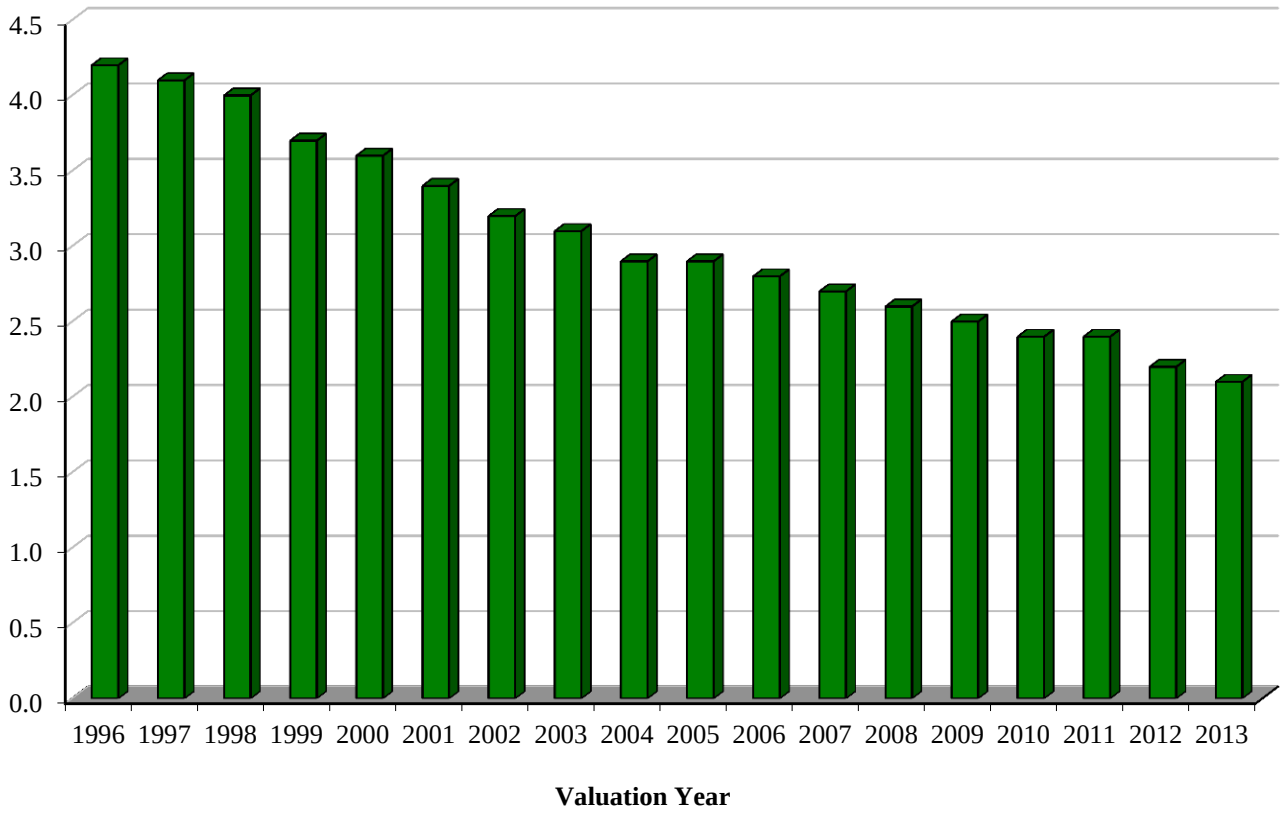
# Active Members

| June 30 | Number | Group Averages | | | % Increase |
|---|---|---|---|---|---|
| | | Age | Service | Annual Earnings | |
| 2006 | 67,710 | 44.3 | 9.3 | $30,714 | 2.98% |
| 2007 | 69,226 | 44.4 | 9.3 | 31,645 | 3.03% |
| 2008 | 70,172 | 44.5 | 9.4 | 32,319 | 2.13% |
| 2009 | 70,655 | 44.7 | 9.5 | 32,804 | 1.50% |
| 2010 | 72,208 | 44.7 | 9.7 | 32,980 | 0.54% |
| 2011 | 72,293 | 44.8 | 9.9 | 33,995 | 3.08% |
| 2012 | 71,195 | 45.0 | 10.1 | 34,362 | 1.08% |
| 2013 | 70,660 | 45.0 | 10.2 | 34,920 | 1.62% |

# T-DROP, Inactive and Retired Members

| | T-DROP Members | | Deferred Members | | Retired Members | |
|---|---|---|---|---|---|---|
| June 30 | Number | Payroll ($Mil) | Number | Vested Benefit ($Mil) | Number | Benefit ($Mil) |
| 2006 | 4,570 | 255 | 9,973 | 41 | 24,153 | 450 |
| 2007 | 4,709 | 270 | 10,689 | 45 | 25,611 | 485 |
| 2008 | 4,630 | 267 | 11,688 | 56 | 26,801 | 516 |
| 2009 | 4,631 | 274 | 11,766 | 53 | 28,818 | 565 |
| 2010 | 4,608 | 275 | 11,924 | 54 | 30,587 | 613 |
| 2011 | 4,487 | 271 | 12,404 | 57 | 32,099 | 657 |
| 2012 | 4,432 | 268 | 12,654 | 59 | 34,160 | 709 |
| 2013 | 4,265 | 260 | 13,099 | 63 | 36,254 | 764 |

# Ratio of Actives to Retirees



# Retirement Benefits as a Percent of Member Payroll

# Computed Actuarial Liabilities

| Actuarial Accrued Liabilities for: | $Millions 2013 | 2012 |
|---|---|---|
| Age and service retirement allowances based on total service likely to be rendered by *present active members* | $ 5,322 | $ 5,256 |
| Age and service retirement allowances based on total service likely to be rendered by present *T-DROP members* | 2,389 | 2,447 |
| Benefits payable to present retirees and beneficiaries | 8,093 | 7,566 |
| Benefits payable for all other reasons | 914 | 870 |
| Total | $16,718 | $16,139 |
| Applicable Assets | 12,247 | 11,484 |
| Liabilities to be Covered by Future Contributions | $ 4,471 | $ 4,655 |

# Assets and Volatility

- Under the asset valuation method, investment gains and losses are spread over a 4-year period.
- To reduce the impact of past volatility in the investment market, the Funding Value of assets was set equal to the Market Value as of June 30, 2012.
- This means that there are no phase-ins of prior gains and losses for the June 30, 2013 valuation.

# Development of Funding Value of Assets

| Year Ended June 30: | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|
| A. Funding Value Beginning of Year | $ 10,845,091,623 | $ 11,146,221,518 | $ 11,483,885,509 | | | |
| B. Market Value End of Year | 11,894,877,338 | 11,483,885,509 | 12,829,565,578 | | | |
| C. Market Value Beginning of Year | 9,883,573,998 | 11,894,877,338 | 11,483,885,509 | | | |
| D. Non-Investment Net Cash Flow | (200,981,038) | (284,584,663) | (336,581,359) | | | |
| E. Investment Return | | | | | | |
| E1. Market Total: B - C - D | 2,212,284,378 | (126,407,166) | 1,682,261,428 | | | |
| E2. Amount for Immediate Recognition (8%) | 859,568,088 | 880,314,335 | 905,247,586 | | | |
| E3. Amount for Phased-In Recognition: E1-E2 | 1,352,716,290 | (1,006,721,501) | 777,013,842 | | | |
| F. Phased-In Recognition of Investment Return | | | | | | |
| F1. Current Year: 0.25 x E3 | 338,179,073 | (251,680,375) | 194,253,461 | Unknown | Unknown | Unknown |
| F2. First Prior Year | 99,652,124 | 338,179,073 | $ - | $ 194,253,461 | Unknown | Unknown |
| F3. Second Prior Year | (465,185,644) | 99,652,124 | $ - | $ - | 194,253,461 | Unknown |
| F4. Third Prior Year | (330,102,708) | (465,185,645) | - | $ - | $ - | $ 194,253,459 |
| F5. Accelerated Market Value Recognition | | 20,969,142 | | | | |
| **F6. Total Recognized Investment Gain** | **(357,457,155)** | **(258,065,681)** | 194,253,461 | 194,253,461 | 194,253,461 | 194,253,459 |
| **G. Funding Value End of Year:** | | | | | | |
| G1. Preliminary Funding Value End of Year: A+D+E2+F6 | **11,146,221,518** | **11,483,885,509** | **12,246,805,197** | | | |
| G2. Upper Corridor Limit: 120% x B | **14,273,852,806** | **13,780,662,611** | **15,395,478,694** | | | |
| G3. Lower Corridor Limit: 80% x B | **9,515,901,870** | **9,187,108,407** | **10,263,652,462** | | | |
| **G4. Funding Value End of Year** | **11,146,221,518** | **11,483,885,509** | **12,246,805,197** | | | |
| H. Actual/Projected Difference between Market and Funding Value | 748,655,820 | - | 582,760,381 | 388,506,920 | 194,253,459 | - |
| I. Market Rate of Return | 22.61 % | (1.08)% | 14.87 % | | | |
| J. Funding Rate of Return | 4.67 % | 5.65 % | 9.72 % | | | |
| K. Ratio of Funding Value to Market Value | 93.71 % | 100.00 % | 95.46 % | | | |

The Funding Value of Assets recognizes assumed investment Return (line E2) fully each year. Differences between actual and assumed investment return (line E3) are phased-in over a closed 4-year period. During periods when investment performance exceeds the assumed rate, Funding Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Funding Value of Assets will tend to be greater than market value. *The Funding Value of Assets is unbiased with respect to Market Value* . At any time it may be either greater of less than Market Value. If assumed rates are exactly realized for 3 consecutive years, it will become equal to Market Value.

# Results of 6/30/2013 Valuation

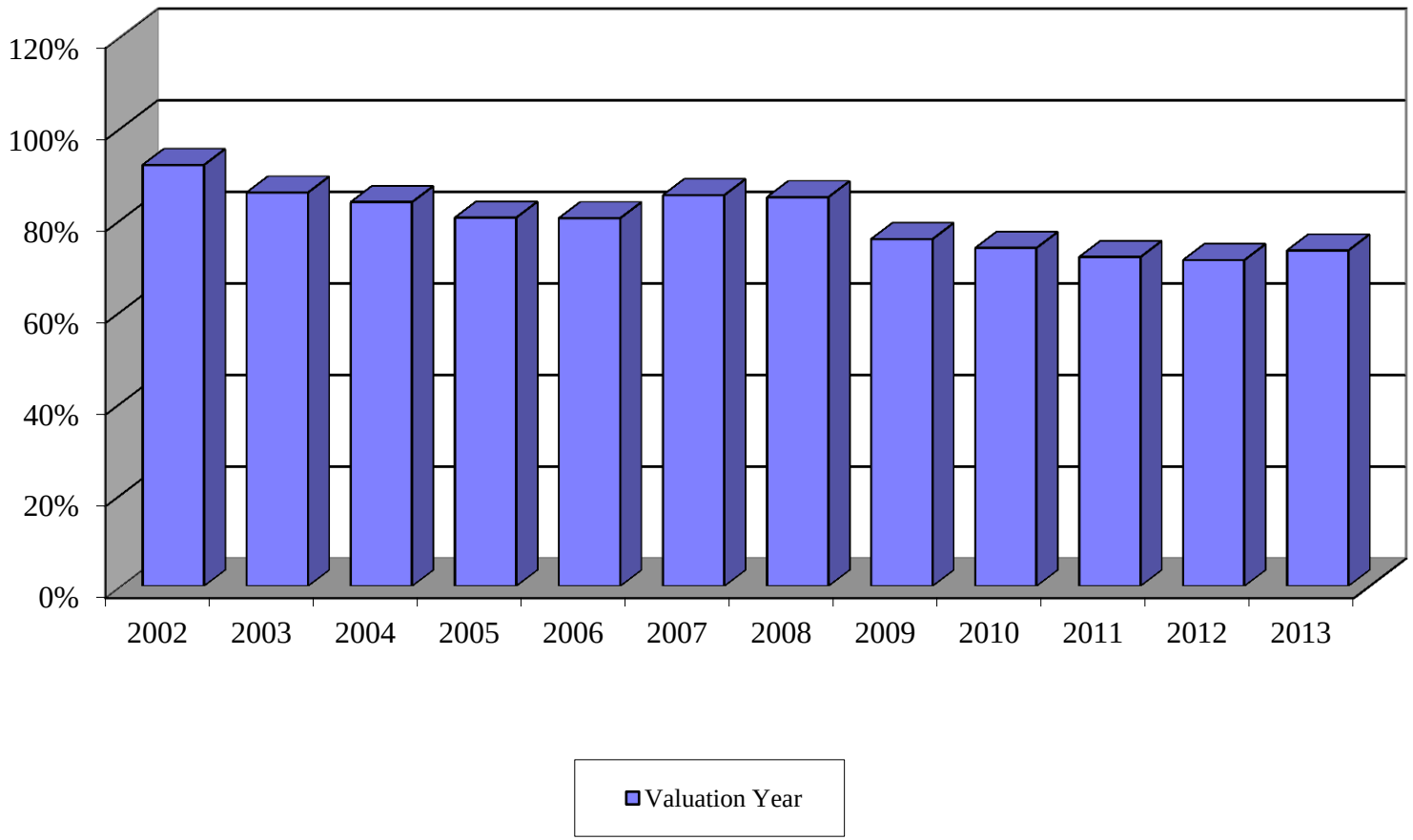
| | | $Millions |
|---|---|---|
| 1) | Accrued Liabilities | **$16,718** |
| 2) | Assets at Funding Value | **12,247** |
| 3) | UAAL | **4,471** |
| | **- % Funded (2)/(1):** | **73%** |
| | Prior Year | 71% |

# Results of 6/30/2013 Valuation

| | | % Payroll |
|---|---|---|
| 1) | ER Normal Cost | **6.89%** |
| 2) | UAAL | **7.11%** |
| 3) | Employer Contribution Rate | **14.00%** |
| | **Amortization years** | **70** |

**If the Market Value of Assets were used in the calculations, the amortization period would be 40 years instead of 70 years.**

# Funded Ratio: Actuarial Value of Assets as Percents of Accrued Liabilities



# Experience in FY 2013

- The amortization period this year is 70 years, a decrease from last year's period which was over 100 years.
- Sources of Decrease:
  - Market Value of Assets rate of return of 14.87%, compared to an assumed 8.0% return
  - Other experience during the year
  - Details of gains and losses are determined in the annual Gain/Loss analysis

# The Rest of the Story

- Unless there is a substantial investment gain in FY 2014, the amortization period is likely to remain above 50 years in the next valuation.
- Based on the June 30, 2013 valuation, an employer contribution rate of 16.3% of payroll would be needed to return the amortization period to 30 years.
- If the Market Value of Assets were the basis for the calculation, it would take an employer contribution rate of 15% of payroll to return to 30 years.

# The Future

- Let's have a look at projected valuation results and the amortization period for the next five years based on alternate future rates of investment return for 2014.
- All scenarios assume an 8% return for years after 2014.
- All scenarios assume a 14% of pay contribution rate.
- Of course, actual experience will determine what actually happens.

# About Projections

- The projections that follow are based upon many assumptions about the future.
- Actual future valuation results will take all known future information into account and will differ from the projections -- perhaps materially.
- Projected results are very sensitive to the rates of payroll growth and liability growth that are assumed. In the long run, according to theory, both of those figures should approach 3.25%.

# Projected Amortization Years

| Valuation Year | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| **Projection A** | | | | | |
| Investment Return | 8% | 8% | 8% | 8% | 8% |
| Amortization Years | 55 | 45 | 38 | 37 | 35 |
| **Projection B** | | | | | |
| Investment Return | 12% | 8% | 8% | 8% | 8% |
| Amortization Years | 49 | 38 | 30 | 26 | 25 |
| **Projection C** | | | | | |
| Investment Return | 15% | 8% | 8% | 8% | 8% |
| Amortization Years | 45 | 33 | 25 | 21 | 19 |

# Conclusion

- It is unlikely that the present 14% employer rate can return us to a 30-year amortization period in the near term without further actuarial gains.
- We need either more than an 8% return or more than 14% contributions to get back to 30 years in the near term. For example, 15% followed by two years of 8% return (Projection C) would bring us to 30 years by 2016.
- A combination of higher rates of return, contributions above 14% of pay and other changes might also return us to 30 years.
- Several plan changes were adopted in the past few years that should help move us in the right direction.

# Final Comments

- Continuing the funding program that ATRS has maintained in the past will help ATRS through these challenging economic times.
- Retirees can be reassured by the fact that ATRS' net cash flow needs are small relative to its assets. After netting off contribution income, ATRS' (net) payout is around 3% of assets.

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