BLUEGRASS
INSTITUTE

Sound Solutions for Kentucky's Public Pension Crisis

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Defined Benefits: Actuarial Pre-Funding

- *Benefits are assigned in advance*
- *Benefits are funded in advance*
- *Benefits have a defined actuarial basis**

** Normal cost plus actuarial assumptions = full funding*

Benefits and Payroll Contributions (example)

YEAR	BENEFIT FACTOR	ASSUMED RATE OF RETURN	EMPLOYEE	EMPLOYER	UNFUNDED LIABILITY
1	1.25%	4.00%	4.00%	4.00%	0%
2	1.25%	4.00%	4.00%	4.00%	0%
3	1.60%	6.00%	4.00%	4.00%	0%
4	1.60%	6.00%	4.00%	4.00%	0%
5	2.00%	8.00%	4.00%	4.00%	0%
6	1.60%	6.00%	4.00%	4.00%	0%
7	1.60%	6.00%	4.00%	4.00%	0%
8	1.25%	4.00%	4.00%	4.00%	0%
9	1.25%	4.00%	4.00%	4.00%	0%

**Normal cost = cost of benefits earned each year*
***ARC = normal cost plus unfunded liabilities*

CERS Non-Hazardous

YEAR	BENEFIT FACTOR	ASSUMED RATE OF RETURN	ACTUAL RETURN	EMPLOYEE	EMPLOYER
1958	1.25%	3.00%	4.30%	4.00%	4.00%
1959	1.25%	3.00%	4.32%	4.00%	4.00%
1960	1.25%	3.00%	4.40%	4.00%	4.00%
1961	1.25%	3.00%	4.50%	4.00%	5.00%
1962	1.25%	3.00%	4.50%	4.00%	6.00%
1963	1.25%	3.00%	4.60%	4.00%	6.00%
1964	1.25%	3.00%	4.60%	3.50%	6.00%
1965	1.25%	3.00%	4.60%	3.50%	6.00%
1966	1.43%	4.00%	4.70%	4.00%	7.00%
1967	1.43%	4.00%	4.70%	4.00%	7.00%
1968	1.50%	4.00%	4.76%	4.00%	7.00%
1969	1.50%	4.00%	4.78%	4.00%	7.00%
1970	1.50%	4.00%	4.67%	4.00%	7.00%
1971	1.50%	4.00%	5.04%	4.00%	7.00%
1972	1.60%	5.00%	5.18%	4.00%	7.25%
1973	1.60%	5.00%	5.06%	4.00%	7.25%
1974	1.60%	6.00%	6.58%	4.00%	7.25%
1975	1.60%	6.00%	6.66%	4.00%	7.25%
1976	1.60%	6.00%	5.72%	4.00%	7.25%
1977	1.60%	6.00%	5.85%	4.00%	7.25%
1978	1.60%	6.00%	6.24%	4.00%	7.25%
1979	1.60%	6.00%	7.12%	4.00%	7.25%
1980	1.60%	6.00%	8.33%	4.00%	7.25%
1981	1.60%	7.50%	10.95%	4.00%	7.25%
1982	1.60%	7.50%	10.68%	4.00%	6.25%
1983	1.60%	7.50%	8.41%	4.00%	6.25%
1984	1.65%	7.50%	9.56%	4.00%	6.25%
1985	1.65%	7.50%	28.65%	4.00%	5.25%
1986	1.85%	8.00%	23.14%	4.25%	5.75%
1987	1.85%	8.00%	12.26%	4.25%	5.75%
1988	2.00%	8.00%	1.14%	4.25%	6.35%
1989	2.00%	8.00%	13.15%	4.25%	6.35%
1990	2.20%	8.00%	11.67%	5.00%	7.68%

KRS Benefit Formula

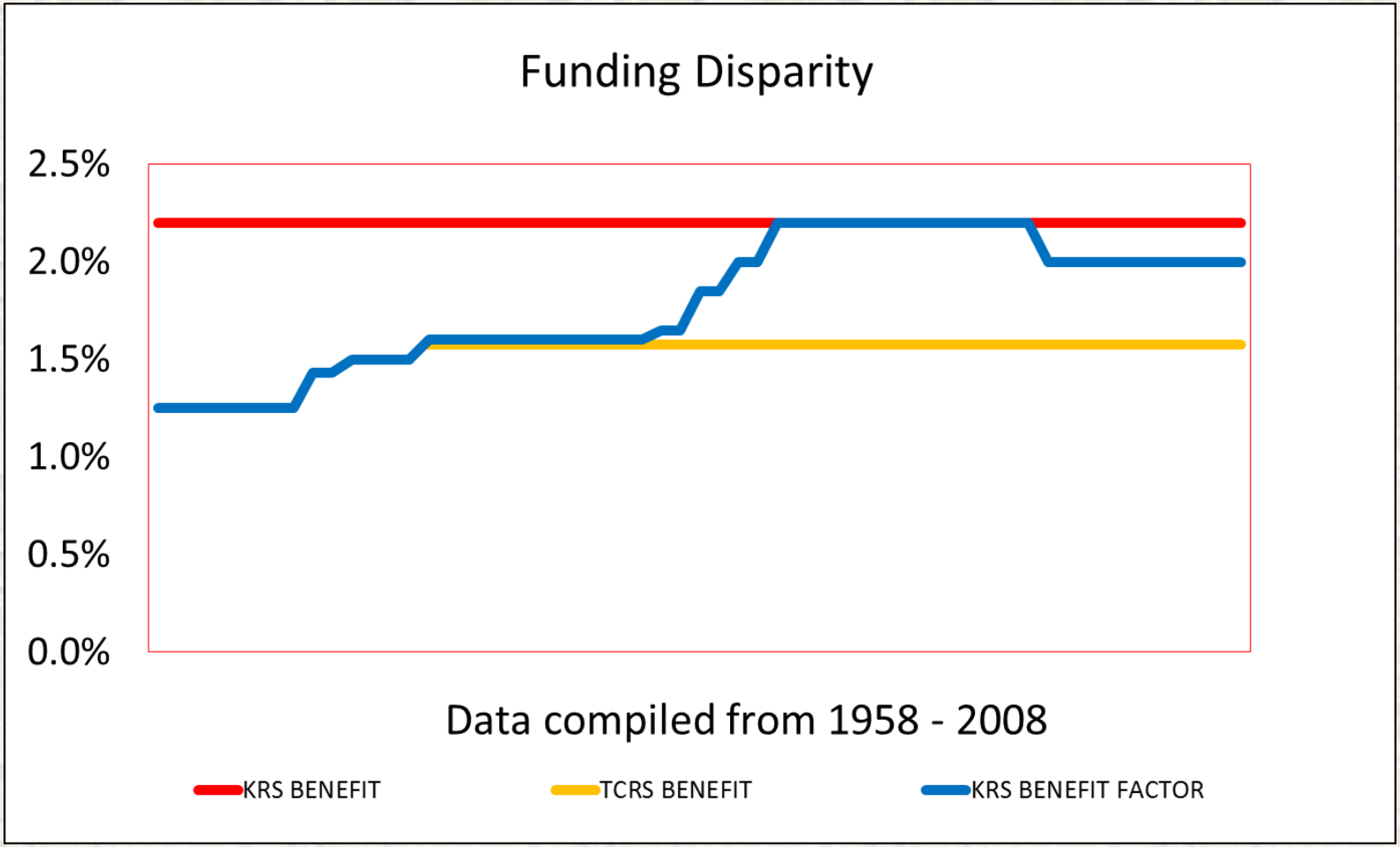
- **Earned and Funded:**

(BF-1+BF-2+ …BF-Number of years) x FINAL COMPENSATION

- **Awarded:**

BF-MAX x YEARS OF SERVICE x FINAL COMPENSATION

CERS Non-Hazardous Benefits



KERS Non-Hazardous

YEAR	BENEFIT FACTOR	ASSUMED RATE OF RETURN	ACTUAL RETURN	EMPLOYEE	EMPLOYER
1958	1.25%	3.00%	4.30%	4.00%	4.00%
1959	1.25%	3.00%	4.32%	4.00%	4.00%
1960	1.25%	3.00%	4.40%	4.00%	4.50%
1961	1.25%	3.00%	4.50%	4.00%	5.00%
1962	1.25%	3.00%	4.50%	3.50%	5.50%
1963	1.25%	3.00%	4.60%	3.50%	5.50%
1964	1.25%	3.00%	4.60%	3.50%	6.00%
1965	1.25%	3.00%	4.60%	3.50%	6.00%
1966	1.47%	4.00%	4.70%	4.00%	7.00%
1967	1.47%	4.00%	4.70%	4.00%	7.00%
1968	1.50%	4.00%	4.76%	4.00%	7.00%
1969	1.50%	4.00%	4.78%	4.00%	7.00%
1970	1.50%	4.00%	4.67%	4.00%	7.00%
1971	1.50%	4.00%	5.04%	4.00%	7.00%
1972	1.60%	5.00%	5.18%	4.00%	7.25%
1973	1.60%	5.00%	5.06%	4.00%	7.25%
1974	1.60%	6.00%	6.58%	4.00%	7.25%
1975	1.60%	6.00%	6.66%	4.00%	7.25%
1976	1.60%	6.00%	5.72%	4.00%	7.25%
1977	1.60%	6.00%	5.85%	4.00%	7.25%
1978	1.60%	6.00%	6.24%	4.00%	7.25%
1979	1.60%	6.00%	7.12%	4.00%	7.25%
1980	1.60%	6.00%	8.33%	4.00%	7.25%
1981	1.60%	7.50%	10.95%	4.00%	7.25%
1982	1.60%	7.50%	10.68%	4.00%	7.25%
1983	1.60%	7.50%	8.41%	4.00%	7.25%
1984	1.65%	7.50%	9.56%	4.00%	7.25%
1985	1.65%	7.50%	28.65%	4.00%	7.25%
1986	1.85%	8.00%	23.14%	5.00%	7.45%
1987	1.85%	8.00%	12.26%	5.00%	7.45%
1988	1.91%	8.00%	1.14%	5.00%	7.45%
1989	1.91%	8.00%	13.15%	5.00%	7.45%
1990	1.97%	8.00%	11.67%	5.00%	7.45%

KRS Benefit Enhancements

- *Retroactive benefit factor enhancements*
- *Prospective benefit factor enhancements*
- *Enhanced final compensation formula (high 3/high 5)*
- *Final compensation spiking*
- *Spiking with sick days*
- *Ad hoc COLAs*
- *Quasi pay-as-you-go health insurance*

** Benefit enhancements disrupt the relationship between actuarial assumptions and benefit accrual rates.*

Actuarial Assumptions

- *Investment return*
- *Salary growth rate*
- *Payroll growth rate*
- *Longevity*
- *Age of retirement*
- *Attrition rate*
- *Inflation*
- *Future cost-of-living adjustments*
- *Healthcare cost trends*

KERS Non-Hazardous Funding-SB142

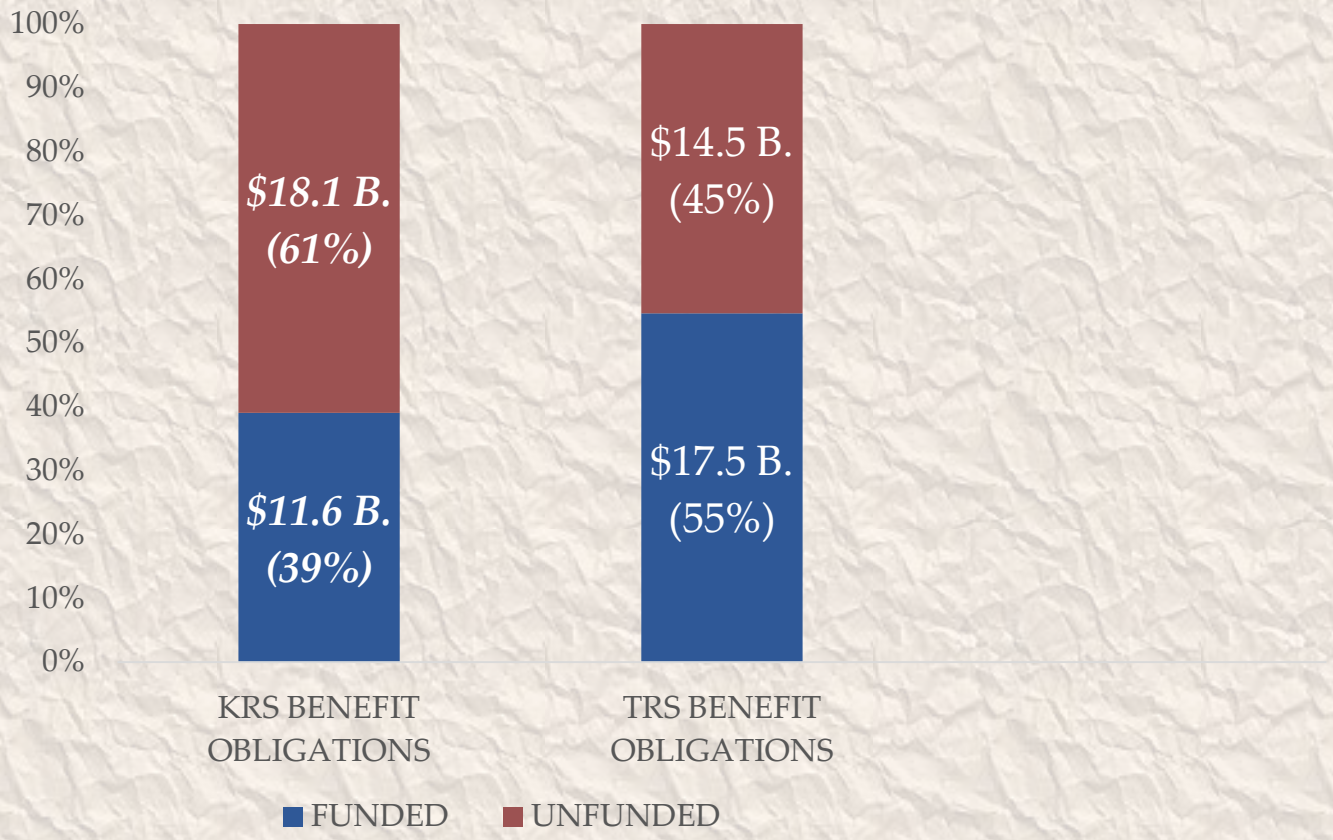
YEAR	BENEFIT FACTOR	ASSUMED RATE OF RETURN	ACTUAL RETURN	FUNDING
1981	1.60%	7.50%	10.95%	76.20%
1982	1.60%	7.50%	10.68%	75.80%
1983	1.60%	7.50%	8.41%	82.30%
1984	1.65%	7.50%	9.56%	80.20%
1985	1.65%	7.50%	28.65%	84.60%
1986	1.85%	8.00%	23.14%	86.60%
1987	1.85%	8.00%	12.26%	91.30%
1988	1.91%	8.00%	1.14%	91.30%
1989	1.91%	8.00%	13.15%	91.60%
1990	1.97%	8.00%	11.67%	87.50%
1991	1.97%	8.00%	8.24%	83.60%
1992	1.97%	8.00%	11.67%	93.20%
1993	1.97%	8.00%	12.16%	95.60%
1994	1.97%	8.00%	1.02%	93.70%
1995	1.97%	8.00%	18.99%	92.10%
1996	1.97%	8.00%	17.63%	98.80%
1997	1.97%	8.25%	24.16%	106.80%
1998	1.97%	8.25%	20.76%	115.00%
1999	2.20%-high 3/2.00%	8.25%	14.27%	121.90%
2000	2.20%-high 3/2.00%	8.25%	6.42%	139.50%
2001	2.20%-high 3/2.00%	8.25%	-5.42%	125.80%
2002	2.20%-high 3/2.00%	8.25%	-4.31%	110.42%
2003	2.20%-high 3/2.00%	8.25%	4.28%	97.41%
2004	2.20%-high 3/2.00%	8.25%	13.59%	85.12%
2005	2.20%-high 3/2.00%	8.25%	9.25%	73.61%
2006	2.20%-high 3/2.00%	7.75%	9.68%	59.97%
2007	2.20%-high 3/2.00%	7.75%	15.27%	56.89%
2008	2.20%-high 3/2.00%	7.75%	-4.22%	52.50%
2009	2.20%-high 3/2.00%	7.75%	-17.23%	45.00%
2010	2.20%-high 3/2.00%	7.75%	15.76%	38.30%

- ***Annualized KRS investment return 1981-2000=13%; 1981-2010=9.60%***

KRS Benefits: Earned vs. Awarded

KRS Benefits Earned:	KRS Benefits Awarded:
actuarial	arbitrary
apply to specific years of service	apply to beneficiaries
fluctuate with investment return assumptions	increase but never decrease
do not apply retroactively or prospectively	enhancements apply retroactively and prospectively
funded with normal cost payroll contributions	enhancements funded entirely by future employers
consistent with statutes	violate KRS statutes 6.350, 13A.250
consistent with the state constitution	violate sections 19, 26, 49, 57 of the state constitution
consistent with the KRS funding policy	inconsistent with the KRS funding policy
protect against unfunded liabilities	create unfunded liabilities
protect against intergenerational inequality	create intergenerational inequality
benefits funded when actuarial assumptions are met	benefits not funded when actuarial assumptions are met

Unfunded Liabilities: Deficient Actuarial Reserve, KRS/TRS*



*2016 KRS and TRS Actuarial valuations

Unfunded Liabilities

- *Investment performance**
- *Insufficient funding**
- *Benefit enhancements*

**Investment returns and funding for all plans have exceeded expectations.*

Investment Performance

- ***KRS annualized return 1981-2010 = 9.60%***
- ***KRS annualized return 1985-2014 = 9.77%***
- ***TRS annualized return 1986-2016 = 8.15%***

FUNDING YEAR	KERS N-H RETURN	BENEFIT FACTOR	FUNDING	ACTUARIAL ASSETS	UAAL	TOTAL LIABILITIES	ARC	PAID	DIFFERENCE
1985	28.65%	1.65%	84.60%						
1986	23.14%	1.85%	86.60%						
1987	12.26%	1.85%	91.30%						
1988	1.14%	1.91%	91.30%						
1989	13.15%	1.91%	91.60%						
1990	11.67%	1.97%	87.50%						
1991	8.24%	1.97%	83.60%						
1992	11.67%	1.97%	93.20%						
1993	12.16%	1.97%	95.60%						
1994	1.02%	1.97%	93.70%						
1995	18.99%	1.97%	92.10%	$2,872,020,193.00	$240,969,191.00	$3,112,989,384.00	$105,406,424.00	$93,882,993.00	-$11,523,431.00
1996	17.63%	1.97%	98.80%	$3,237,983,129.00	$57,379,232.00	$3,295,362,361.00	$107,885,265.00	$99,296,569.00	-$8,588,696.00
1997	24.16%	1.97%	106.80%	$3,683,995,005.00	-$220,947,355.00	$3,463,047,650.00	$109,773,608.00	$102,967,907.00	-$6,805,701.00
1998	20.76%	1.97%	115.00%	$4,356,072,625.00	-$556,057,879.00	$3,800,014,746.00	$117,437,279.00	$112,082,480.00	-$5,354,799.00
1999	14.27%	2.20%-HIGH 3/2.00%	121.90%	$5,264,340,397.00	-$936,717,576.00	$4,327,622,821.00	$106,860,518.00	$107,514,778.00	$654,260.00
2000	6.42%	2.20%-HIGH 3/2.00%	139.50%	$6,806,675,460.00	-$1,929,849,688.00	$4,876,825,772.00	$113,183,225.00	$115,055,476.00	$1,872,251.00
2001	-5.42%	2.20%-HIGH 3/2.00%	125.80%	$6,844,742,687.00	-$1,400,707,393.00	$5,444,035,294.00	$21,787,253.00	$23,482,080.00	$1,694,827.00
2002	-4.31%	2.20%-HIGH 3/2.00%	110.42%	$6,654,084,196.00	-$627,989,432.00	$6,026,094,764.00	$0.00	$1,760,328.00	$1,760,328.00
2003	4.28%	2.20%-HIGH 3/2.00%	97.41%	$6,351,318,832.00	$169,144,356.00	$6,520,463,188.00	$4,905,399.00	$7,597,450.00	$2,692,051.00
2004	13.59%	2.20%-HIGH 3/2.00%	85.12%	$6,000,513,743.00	$1,049,099,428.00	$7,049,613,171.00	$47,739,067.00	$21,696,543.00	-$26,042,524.00
2005	9.25%	2.20%-HIGH 3/2.00%	73.61%	$5,578,685,746.00	$2,000,389,093.00	$7,579,074,839.00	$85,798,943.00	$50,332,750.00	-$35,466,193.00
2006	9.68%	2.20%-HIGH 3/2.00%	59.97%	$5,394,086,323.00	$3,600,739,924.00	$8,994,826,247.00	$137,330,718.00	$60,680,607.00	-$76,650,111.00
2007	15.27%	2.20%-HIGH 3/2.00%	56.89%	$5,396,782,459.00	$4,089,156,818.00	$9,485,939,277.00	$176,774,106.00	$88,248,677.00	-$88,525,429.00
2008	-4.22%	2.20%-HIGH 3/2.00%	52.50%	$5,318,792,893.00	$4,810,897,092.00	$10,129,689,985.00	$264,742,985.00	$104,655,217.00	-$160,087,768.00
2009	-17.23%	2.20%-HIGH 3/2.00%	45.00%	$4,794,611,365.00	$5,863,938,167.00	$10,658,549,532.00	$294,495,010.00	$112,384,083.00	-$182,110,927.00
2010	15.76%	2.20%-HIGH 3/2.00%	38.30%	$4,210,215,585.00	$6,794,579,504.00	$11,004,795,089.00	$348,494,678.00	$144,050,560.00	-$204,444,118.00
2011	18.75%	2.20%-HIGH 3/2.00%	33.33%	$3,276,986,087.00	$7,455,155,945.00	$10,732,142,032.00	$381,915,000.00	$193,754,000.00	-$188,161,000.00
2012	0.01%	2.20%-HIGH 3/2.00%	27.30%	$3,101,316,738.00	$8,259,731,398.00	$11,361,048,136.00	$441,094,000.00	$214,786,000.00	-$226,308,000.00
2013	10.82%	2.20%-HIGH 3/2.00%	23.20%	$2,636,122,852.00	$8,750,479,307.00	$11,386,602,159.00	$485,396,000.00	$280,874,000.00	-$204,522,000.00
2014	15.55%	2.00%	20.99%	$2,423,956,716.00	$9,126,153,508.00	$11,550,110,224.00	$520,765,000.00	$296,836,000.00	-$223,929,000.00
				CHANGE 1995-2014:	$8,885,184,317.00	$8,437,120,840.00	$3,871,784,478.00	$2,231,938,498.00	-$1,639,845,980.00
		ANNUALIZED RETURN	9.77%						

MARKET VALUE	1998	$5,028,210,335.00		ACTIVE	RETIRED	A/R
	1999	$5,714,183,402.00	1998	46,342	20,955	2.21
	2000	$5,972,236,400.00	2014	40,500	38,022	1.07
*2002 5-YR SMOOTH						
				FUNDING	LIABILITIES	DEFICIENT ARC
COVERED PAYROLL	2010	$1,815,146,000.00	2003-2006	97%-60%	+$2.47 BILLION	-$135 MILLION

KRS Funding Policy (example)

YEAR	BENEFIT FACTOR	ASSUMED RATE OF RETURN	EMPLOYEE	EMPLOYER	UNFUNDED LIABILITY
1	1.25%	4.00%	4.00%	4.00%	0%
2	1.25%	4.00%	4.00%	4.00%	0%
3	1.60%	6.00%	4.00%	4.00%	0%
4	1.60%	6.00%	4.00%	4.00%	0%
5	2.00%	8.00%	4.00%	4.00%	0%
6	1.60%	6.00%	4.00%	4.00%	0%
7	1.60%	6.00%	4.00%	4.00%	0%
8	1.25%	4.00%	4.00%	4.00%	0%
9	1.25%	4.00%	4.00%	4.00%	0%

1. *Payroll contribution rates sufficient to fund promised benefits.*
2. *Stable or declining payroll contribution rates.*
3. *Intergenerational equity for taxpayers.*

Funding Benefits with Amortization

- *Benefits are awarded without pre-funding*
- *Future generations fund benefits retroactively*
- *Retroactive funding includes normal cost plus interest*
- *Assumes future employers will have unlimited funds*
- *Exacerbated by actuarial backloading schemes*
- *Incompatible with KRS funding policy*

Amortization Paradox-Seven Counties

YEAR	BENEFIT FACTOR	ASSUMED RATE OF RETURN	ACTUAL RETURN	EMPLOYEE	EMPLOYER
1978	1.60%	6.00%	6.24%	4.00%	7.25%
1979	1.60%	6.00%	7.12%	4.00%	7.25%
1980	1.60%	6.00%	8.33%	4.00%	7.25%
1981	1.60%	7.50%	10.95%	4.00%	7.25%
1982	1.60%	7.50%	10.68%	4.00%	7.25%
1983	1.60%	7.50%	8.41%	4.00%	7.25%
1984	1.65%	7.50%	9.56%	4.00%	7.25%
1985	1.65%	7.50%	28.65%	4.00%	7.25%
1986	1.85%	8.00%	23.14%	5.00%	7.45%
1987	1.85%	8.00%	12.26%	5.00%	7.45%
1988	1.91%	8.00%	1.14%	5.00%	7.45%
1989	1.91%	8.00%	13.15%	5.00%	7.45%
1990	1.97%	8.00%	11.67%	5.00%	7.45%
1991	1.97%	8.00%	8.24%	5.00%	7.65%
1992	1.97%	8.00%	11.67%	5.00%	7.65%
1993	1.97%	8.00%	12.16%	5.00%	7.65%
1994	1.97%	8.00%	1.02%	5.00%	8.56%
1995	1.97%	8.00%	18.99%	5.00%	8.56%
1996	1.97%	8.00%	17.63%	5.00%	8.89%
1997	1.97%	8.25%	24.16%	5.00%	8.89%
1998	1.97%	8.25%	20.76%	5.00%	8.03%
1999	2.20%-high 3/2.00%	8.25%	14.27%	5.00%	8.03%
2000	2.20%-high 3/2.00%	8.25%	6.42%	5.00%	5.89%
2001	2.20%-high 3/2.00%	8.25%	-5.42%	5.00%	5.89%
2002	2.20%-high 3/2.00%	8.25%	-4.31%	5.00%	3.76%
2003	2.20%-high 3/2.00%	8.25%	4.28%	5.00%	5.89%
2004	2.20%-high 3/2.00%	8.25%	13.59%	5.00%	5.89%
2005	2.20%-high 3/2.00%	8.25%	9.25%	5.00%	5.89%
2006	2.20%-high 3/2.00%	7.75%	9.68%	5.00%	7.75%
2007	2.20%-high 3/2.00%	7.75%	15.27%	6.00%	8.50%
2008	2.20%-high 3/2.00%	7.75%	-4.22%	6.00%	10.01%
2009	2.20%-high 3/2.00%	7.75%	-17.23%	6.00%	11.61%
2010	2.20%-high 3/2.00%	7.75%	15.76%	6.00%	16.98%
2011	2.20%-high 3/2.00%	7.75%	18.75%	6.00%	19.82%
2012	2.20%-high 3/2.00%	7.75%	0.01%	6.00%	23.61%
2013	2.20%-high 3/2.00%	7.75%	10.82%	6.00%	26.79%
2014	2.00%	7.50%	15.55%	6.00%	41.31%

Correct Amortization Procedure

YEAR	BENEFIT FACTOR	ASSUMED RATE OF RETURN	EMPLOYEE	EMPLOYER	UNFUNDED LIABILITY
1	1.25%	4.00%	4.00%	4.00%	+/- %
2	1.25%	4.00%	4.00%	4.00%	+/- %
3	1.60%	6.00%	4.00%	4.00%	+/- %
4	1.60%	6.00%	4.00%	4.00%	+/- %
5	2.00%	8.00%	4.00%	4.00%	+/- %
6	1.60%	6.00%	4.00%	4.00%	+/- %
7	1.60%	6.00%	4.00%	4.00%	+/- %
8	1.25%	4.00%	4.00%	4.00%	+/- %
9	1.25%	4.00%	4.00%	4.00%	+/- %

1. Amortization of unfunded liabilities only due to failure to meet assumptions
2. Employer contribution rates reflect debt and surplus

TRS Benefit Enhancements

- *3% benefit factor for years of service over 30***
- *High 3 final compensation formula at 27 years/age 55***
- *Virtually unlimited benefit spiking with sick leave***
- *Final compensation spiking*
- *Quasi pay-as-you-go health insurance***
- *COLA increased from 1% to 1.5% (1991)*
- *Enhanced benefits resulting from pay raises (KERA)*
- *Members often receive benefits upon retirement that exceed pre-retirement income (Goldberg)*

**KTRS benefit factor 2.0(1966)/2.5%(1984), "high 5"*

***Not covered by inviolable contract*

TRS 3% at 30/High 3 at 27/55

YEAR	MEMBER AGE	YEARS OF SERVICE	BENEFIT FACTOR	FINAL COMP. FORMULA	FINAL COMP. FORMULA
1984	23	1	2.5%	HIGH 5	HIGH 3
1985	24	2	2.5%	HIGH 5	HIGH 3
1986	25	3	2.5%	HIGH 5	HIGH 3
1987	26	4	2.5%	HIGH 5	HIGH 3
1988	27	5	2.5%	HIGH 5	HIGH 3
1989	28	6	2.5%	HIGH 5	HIGH 3
1990	29	7	2.5%	HIGH 5	HIGH 3
1991	30	8	2.5%	HIGH 5	HIGH 3
1992	31	9	2.5%	HIGH 5	HIGH 3
1993	32	10	2.5%	HIGH 5	HIGH 3
1994	33	11	2.5%	HIGH 5	HIGH 3
1995	34	12	2.5%	HIGH 5	HIGH 3
1996	35	13	2.5%	HIGH 5	HIGH 3
1997	36	14	2.5%	HIGH 5	HIGH 3
1998	37	15	2.5%	HIGH 5	HIGH 3
1999	38	16	2.5%	HIGH 5	HIGH 3
2000	39	17	2.5%	HIGH 5	HIGH 3
2001	40	18	2.5%	HIGH 5	HIGH 3
2002	41	19	2.5%	HIGH 5	HIGH 3
2003	42	20	2.5%	HIGH 5	HIGH 3
2004	43	21	2.5%	HIGH 5	HIGH 3
2005	44	22	2.5%	HIGH 5	HIGH 3
2006	45	23	2.5%	HIGH 5	HIGH 3
2007	46	24	2.5%	HIGH 5	HIGH 3
2008	47	25	2.5%	HIGH 5	HIGH 3
2009	48	26	2.5%	HIGH 5	HIGH 3
2010	49	27	2.5%	HIGH 5	HIGH 3
2011	50	28	2.5%	HIGH 5	HIGH 3
2012	51	29	2.5%	HIGH 5	HIGH 3
2013	52	30	2.5%	HIGH 5	HIGH 3
2014	53	31	3.0%	HIGH 5	HIGH 3
2015	54	32	3.0%	HIGH 5	HIGH 3
2016	55	33	3.0%	HIGH 3	HIGH 3

2005 HB299

- *"Pension greed bill"*
- *Reciprocity with other state plans*
- *High 3 final compensation formula*
- *Normal retirement after 27 years*
- *Purchase of airtime after 15 years*
- *No actuarial analysis*

KRS 6.350 (1980)

- *"A bill which would increase or decrease the benefits…of any state-administered retirement system shall not be reported…for consideration…unless the bill is accompanied by an actuarial analysis."*

1998 SB142 Actuarial Analysis-Gagel

- *"Any increase in benefits should reflect a true need, or meet a real shortfall in retirement benefits."*
- *"It is unclear whether such a shortfall exists."*
- *"There is a "real danger" that spendable income after retirement could exceed pre-retirement spendable income…not a desired result in sound pension design."*
- *"Not an effective use of taxpayer dollars."*
- *Passed the house 93-0*

Actuarial Standard of Practice No. 4; 3.13.b

- ***"The attribution of normal costs should bear a reasonable relationship to some element of the plan's benefit formula or the participant's compensation or service."***

Actuarial Soundness

- *Plan will accumulate adequate assets to make all benefit payments when due assuming all assumptions realized*
- *None of our state plans are actuarially sound*
- *Actuaries are required to disclose this fact*
- *Only LRP and JRP valuations disclose*

Constitution

- *Section 19 - "No ex post facto law, nor any law impairing the obligation of contracts, shall be enacted."*
- *Section 26 – "everything in this Bill of Rights is excepted out of the general powers of government…all laws contrary thereto…shall be void."*
- *Section 49 – "debt…shall not exceed five hundred thousand dollars…"*
- *Section 57 – "members with personal or private interest…shall not vote…upon pain of expulsion."*

Inviolable Contract

- *"…in consideration of the contributions by members…"*
- *"…in further consideration of benefits received by the state from the member's employment…"*

- *Inviolable contracts do not protect retroactive benefit enhancements, which are funded entirely by future employers.*
- *Inviolable contracts do not protect future benefit accrual rates, which cannot be predetermined using actuarial assumptions from the past.*

Inviolable Contract

YEAR	BENEFIT FACTOR	ASSUMED RATE OF RETURN	ACTUAL RETURN	EMPLOYEE	EMPLOYER
1971	1.50%	4.00%	5.04%	4.00%	7.00%
1972	1.60%	5.00%	5.18%	4.00%	7.25%
1973	1.60%	5.00%	5.06%	4.00%	7.25%
1974	1.60%	6.00%	6.58%	4.00%	7.25%
1975	1.60%	6.00%	6.66%	4.00%	7.25%
1976	1.60%	6.00%	5.72%	4.00%	7.25%
1977	1.60%	6.00%	5.85%	4.00%	7.25%
1978	1.60%	6.00%	6.24%	4.00%	7.25%
1979	1.60%	6.00%	7.12%	4.00%	7.25%
1980	1.60%	6.00%	8.33%	4.00%	7.25%
1981	1.60%	7.50%	10.95%	4.00%	7.25%
1982	1.60%	7.50%	10.68%	4.00%	6.25%
1983	1.60%	7.50%	8.41%	4.00%	6.25%
1984	1.65%	7.50%	9.56%	4.00%	6.25%
1985	1.65%	7.50%	28.65%	4.00%	5.25%
1986	1.85%	8.00%	23.14%	4.25%	5.75%
1987	1.85%	8.00%	12.26%	4.25%	5.75%
1988	2.00%	8.00%	1.14%	4.25%	6.35%
1989	2.00%	8.00%	13.15%	4.25%	6.35%
1990	2.20%	8.00%	11.67%	5.00%	7.68%
1991	?	?	?	?	?
1992	?	?	?	?	?
1993	?	?	?	?	?
1994	?	?	?	?	?
1995	?	?	?	?	?
1996	?	?	?	?	?
1997	?	?	?	?	?
1998	?	?	?	?	?
1999	?	?	?	?	?
2000	?	?	?	?	?

Implied-In-Fact Contracts

- *Carry the same legal weight as expressed (written) contracts*
- *Consummated by actuarially pre-funding benefits with normal cost payroll contributions*
- *Retroactive benefit enhancements represent a material breach of this contract*

*** Only the original pre-funded benefits comply with both the inviolable contract and the implied-in-fact contract*

Unenforceable Contracts

- *Lack of capacity-lack of understanding by either party*
- *Undue influence*
- *Misrepresentation or concealing evidence*
- *Nondisclosure*
- *Unconscionability-terms are grossly unfair to one party*
- *Public policy-terms are harmful to society as a whole*
- *Impossibility-too expensive or difficult to carry out*

Fiduciary Relationships

- *Actuaries, trustees, and officers are all fiduciaries for plan members*
- *Legislators are fiduciaries for plan members and taxpayers*
- *Taxpayers assume all of the risk, but are denied legal standing and full transparency of benefits*

PFM: Points of Agreement

- *Kentucky has the weakest pension funding of any state*
- *KRS and TRS benefits are extraordinarily generous*
- *Health insurance benefits are rare in the private sector*
- *Increases in longevity create unfunded liabilities*
- *Unfunded COLAs create unfunded liabilities*

PFM: Actuarial Backloading

- *Actuarial backloading is never appropriate*
- *Reduces perceived fiscal impact of benefit enhancements*
- *Legislators respond by awarding benefits that are unjustifiable and unsustainable*
- *Initial actuarially required contributions less than the anticipated earnings on the unfunded actuarial reserve*

PFM: Actuarial Assumptions

- *Affect the perceived value of unfunded liabilities*
- *Benefit accrual rates must fluctuate with actuarial assumptions to maintain stable payroll contribution rates*
- *Benefit enhancements disrupt the relationship between benefits, actuarial assumptions, and normal cost*

PFM Audit: Investment Performance

- *The limited scope of the audit did not allow an adequate assessment of investment performance.*
- *Long-term investment performance for all plans has exceeded investment return assumptions.*

PFM Audit: Failure to Pay the ARC

- *The ARC reflects amortization of debt created by retroactive benefit enhancements that were not actuarially pre-funded.*
- *Assumes the legislature can ignore statutes, funding policies, the state constitution, and actuarial standards.*
- *Assumes future employers will have unlimited funds*

PFM: Summary

- *Compromised by limited scope (2004-present)*
- *Disregards all critical benefit enhancements and long-term investment performance*
- *Assumes the legislature can ignore statutes, funding policies, the state constitution, and actuarial standards*
- *Assumes future employers will have unlimited funds*
- *PFM: "…any improvements to benefits that are provided without commensurate funding will increase a plan's unfunded liability."*

Summary

- *Unfunded liabilities are primarily the result of retroactive benefit enhancements, not investment/funding issues.*
- *The relationship between benefits and actuarial assumptions is disrupted by retroactive benefit enhancements.*
- *Each plan's "normal cost" is invalidated by retroactive benefit enhancements.*
- *The statutes and constitutional provisions designed to protect taxpayers have been repeatedly disregarded.*
- *Funding levels reflecting favorable market conditions have been improperly used to justify benefit enhancements.*
- *Plan actuaries serve as fiduciaries for beneficiaries and therefore lack objectivity.*
- *Inviolable contracts were designed to protect earned, actuarially pre-funded benefits, i.e. normal cost benefits.*
- *The implied-in-fact contract with taxpayers created by pre-funding benefits with normal cost payroll contributions has been breached by awarding retroactive benefit enhancements.*

Potential Actions Commensurate with Damages:

- *Rollback all benefit enhancements, COLA's*
- *Eliminate health insurance benefits*
- *Freeze benefit accrual rates*
- *Move to a 401K*
- *Lawsuits*
- *Prosecutions*
- *Full transparency of all benefits*

Recommendations: Actuarial

- *Use empirical data to establish all actuarial assumptions*
- *Reduce investment return assumptions to reflect realistic expectations for each investment portfolio*
- *Evaluate actuarial assumptions on an annual basis*
- *Eliminate "level percentage of payroll" schemes*

Recommendations: Benefits

- *Freeze current benefit accrual rates*
- *Reduce benefit accrual rates to reflect actuarial assumptions*
- *Benefits must fluctuate with actuarial assumptions to maintain stable payroll contribution rates*
- *Determine combined benefits by adding accrued benefits*
- *Prohibit future retroactive benefit enhancements*

Recommendations: Governance

- *All systems should report to the state treasurer*
- *Align fiduciary duties with stakeholder risk*
- *Replace directors, executives, and other officers who are ideologically opposed to pension reform*
- *Create an independent actuarial oversight board*
- *Full transparency of all benefits and benefit calculations*

Recommendations: Cost Controls

- *Eliminate spiking with sick days earned outside the final compensation period (FCP)*
- *Exclude salary growth during the FCP exceeding the assumed salary growth rate from the benefit calculation*
- *Increase member cost-sharing for health insurance benefits*
- *Prohibit future ad hoc COLA's*

Recommendations: Cost Controls

- *Increase the age of eligibility for full retirement*
- *Suspend benefits with full-time employment in any system*
- *Eliminate participation by non-government agencies*
- *Eliminate state tax exemption on retirement benefits*
- *Reduce payroll, use savings to offset UAAL*
- *Eliminate the purchase of airtime*

Recommendations: 401K Option

- *Lowest cost and risk for employers*
- *Statistically lower benefits*
- *Least well-received option by beneficiaries*
- *Amortized debt can be accommodated with additional actuarially computed employer payroll contributions*

Recommendations: Cash Balance Option

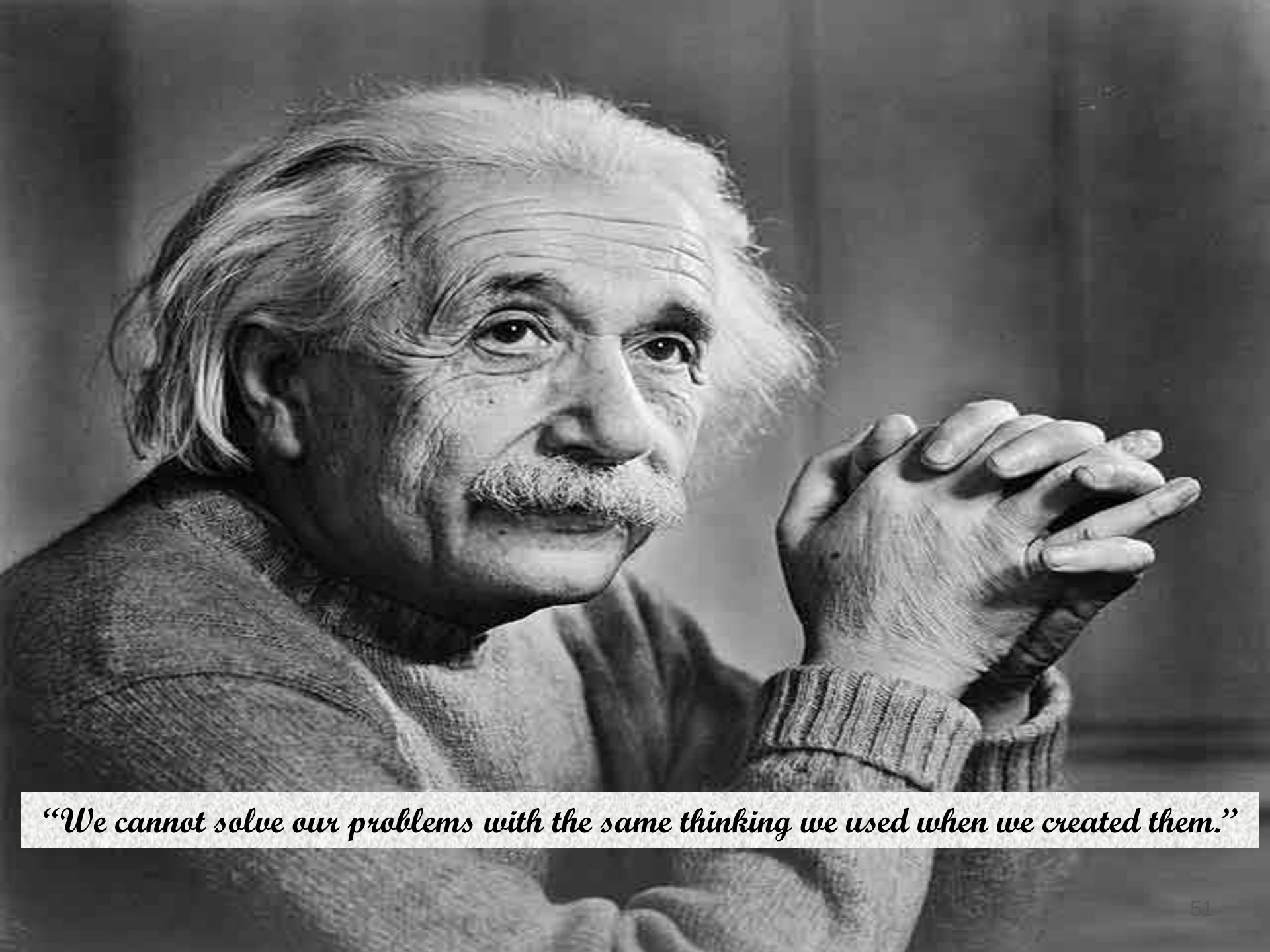
- *Replace investment credit formula (ICF) with actual returns net fees, expenses, and overhead*
- *Amortized debt can be accommodated with additional actuarially computed employer payroll contributions*
- *Buyout existing cash-balance credits if future plan is not cash-balance*
- *Consider lump-sum pay out rather than annuities*

Recommendations: TRS Specific

- *Eliminate the 3% benefit factor for years of service over 30*
- *Eliminate the "high 3" final compensation formula*
- *Eliminate benefit spiking with sick leave*
- *Calculate sick leave payments on the salary when earned*
- *Increase member cost-sharing for health insurance benefits*
- *Cap final compensation payroll growth rate*
- *Reduce COLA to 1%*

Recommendations: LRP/JRP

- *Increase all employee payroll contribution rates to 6%*
- *Change high 3 compensation formula to high 5*
- *Lower all benefit accrual rates to 2.75%*
- *Eliminate future COLA's*
- *Increase member cost-sharing for health insurance benefits*
- *Correct flawed amortization schedule (plus 1%)*



"We cannot solve our problems with the same thinking we used when we created them."