

Actuarial Implications of FY 2009 Investment Results

SDCERS
San Diego City Employees' Retirement System



July 17, 2009



Topics

A. Public Plans in General

1. Extraordinary Investment Environment
2. Extraordinary Impact on Public Plans
3. Options Being Considered

B. SDCERS in Particular

1. Effect of FY 2009 Investment Results
2. Options available to SDCERS
3. Analysis of Options

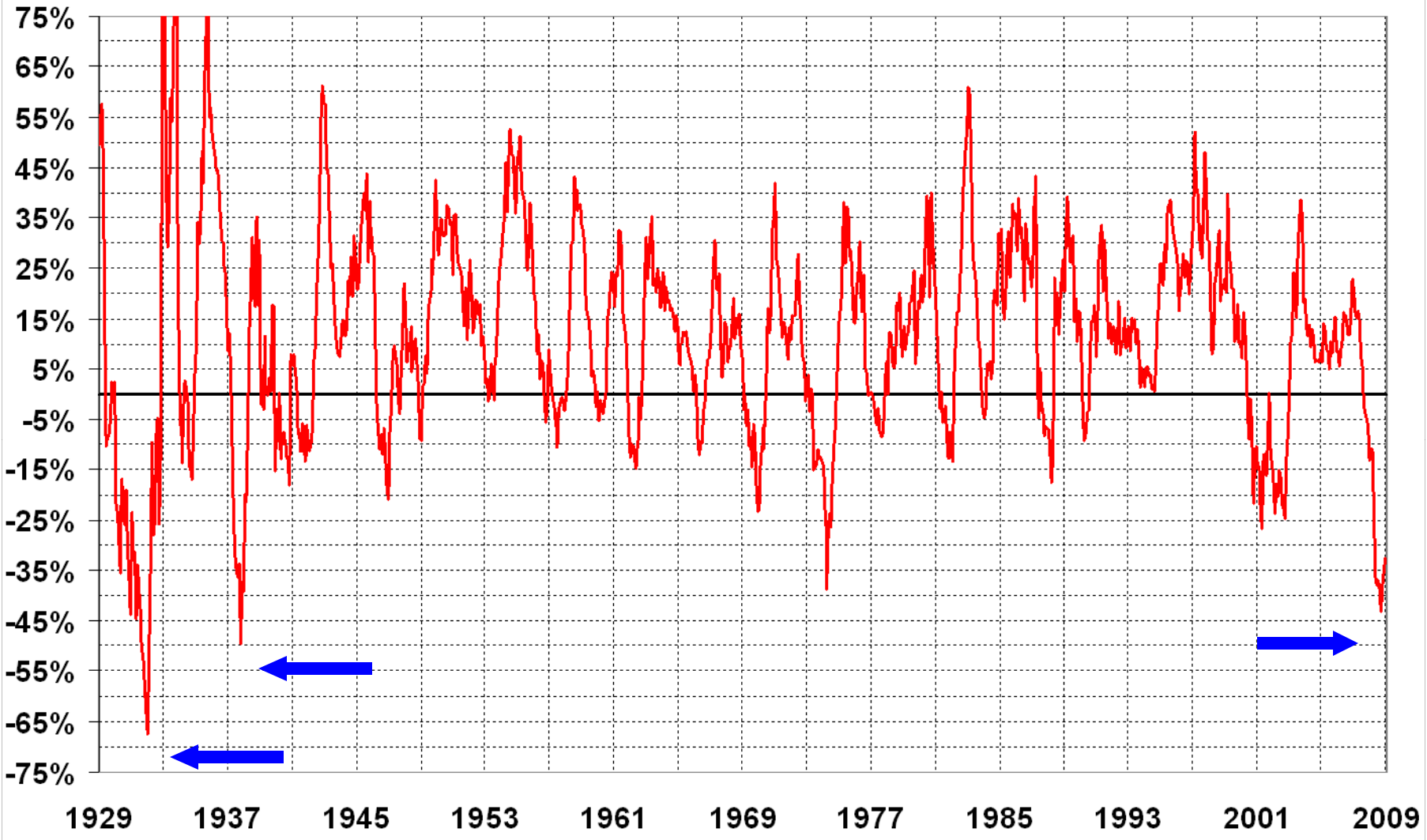


Extraordinary Investment Environment



S&P 500 Annual Returns

June 30, 1929 – June 30, 2009





Extraordinary Market Environment

Fiscal Yr Ending	S&P 500 Return	Fiscal Yr Ending	S&P 500 Return	Fiscal Yr Ending	S&P 500 Return
6/30/1932	-67.6%	6/30/2001	-14.8%	6/30/1942	-9.3%
6/30/2009	-26.4%	6/30/1974	-14.5%	6/30/1988	-6.9%
6/30/1931	-23.4%	6/30/1947	-13.3%	6/30/1934	-6.1%
6/30/1930	-22.9%	6/30/2008	-13.1%	6/30/1984	-4.6%
6/30/1970	-22.8%	6/30/1962	-12.7%	6/30/1940	-2.7%
6/30/1938	-20.0%	6/30/1982	-11.4%	6/30/1939	-1.9%
6/30/2002	-18.0%	6/30/1949	-9.5%	6/30/1958	-0.6%

Number of negative July fiscal years by decade

1930's	6	1970's	2
1940's	4	1980's	3
1950's	1	1990's	0
1960's	1	2000-2009	4



Impact on Public Plans



Prior to FY 2009

- Median funding ratio (assets over liabilities) for large public systems was 86%
- Funding ratios since 2004 had been generally stable or improving
- Annual Required Contributions were more predictable



The Aftermath of FY 2009

Investment Results

- Public plans' funding ratios declining by 20% or more
- Substantial increase in Unfunded Actuarial Liabilities (UALs)
- Public plan sponsors facing significant increases in their contributions (ARC) over the next 5 years
- Plan sponsors experiencing major loss of revenues with resulting negative impact on system members



Options Being Considered Nationwide

1. No Changes (mostly plans without corridors)
2. Modify Benefits (few plans have this option)
3. Consideration of Alternative Funding Methodologies
 - a) Asset corridors
 - b) Smoothing period or %
 - c) Amortization period
4. Some combination of 2 and 3
5. Ignore ARC requirements



What Other Public Plans Are Doing

California Plans

- CalPERS
- CalSTRS
- Los Angeles City
- Los Angeles County
- San Francisco
- San Diego County
- Others

- New York City
- Baltimore
- Philadelphia
- Kansas City
- Miami
- Arlington County, VA
- Maine
- Delaware
- Fairfax County, VA



CalPERS

- Current method
 - 15 year smoothing
 - 80% - 120% corridor
 - Gains/losses amortized over rolling 30 year periods
- Expected result at 6/30/09
 - Ratio of AVA to MVA expected to be 144% if no corridor
 - Significant effect on contribution rates if 120% corridor applied
- Adopted changes to methods
 - Corridor goes to 140% at 6/30/09
 - Corridor reduced to 130% at 6/30/10
 - Corridor goes back to 120% at 6/30/11
 - Gains/losses over next three years isolated and amortized over fixed and declining 30 year periods



LA City

- Current method
 - 5 year smoothing
 - 80% - 120% corridor
- Expected result at 6/30/09
 - Ratio of AVA to MVA expected to be 151% if no corridor
 - Significant effect on contribution rates if 120% corridor applied
- Options being discussed
 - Removing or increasing corridor to 130% or 140%
 - Increasing smoothing period to 7, 10 or 12 years



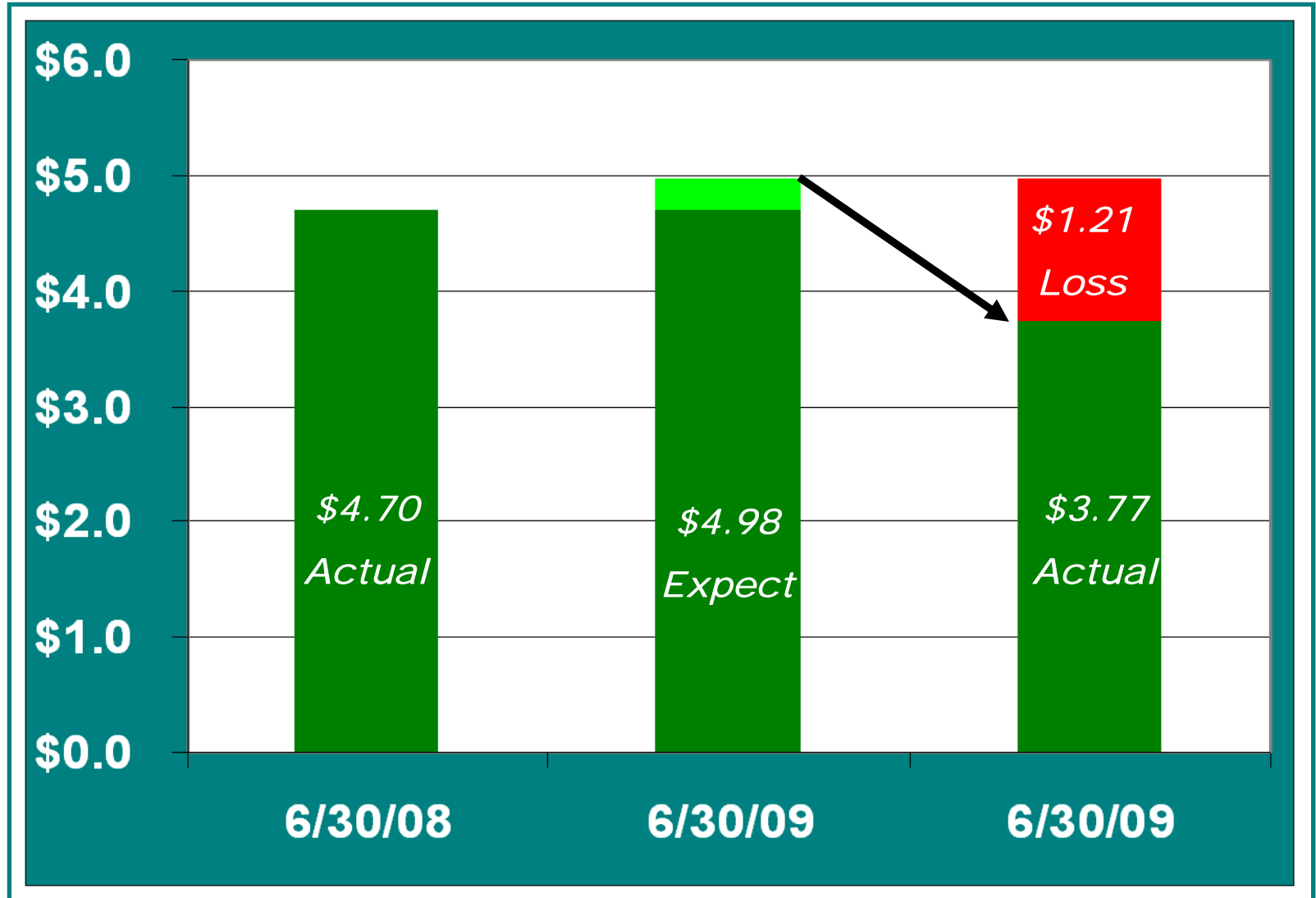
Impact of FY 2009 Investment Results On SDCERS

- Trust Fund
- Membership
- Plan Sponsors



Market Value of Trust Fund Assets

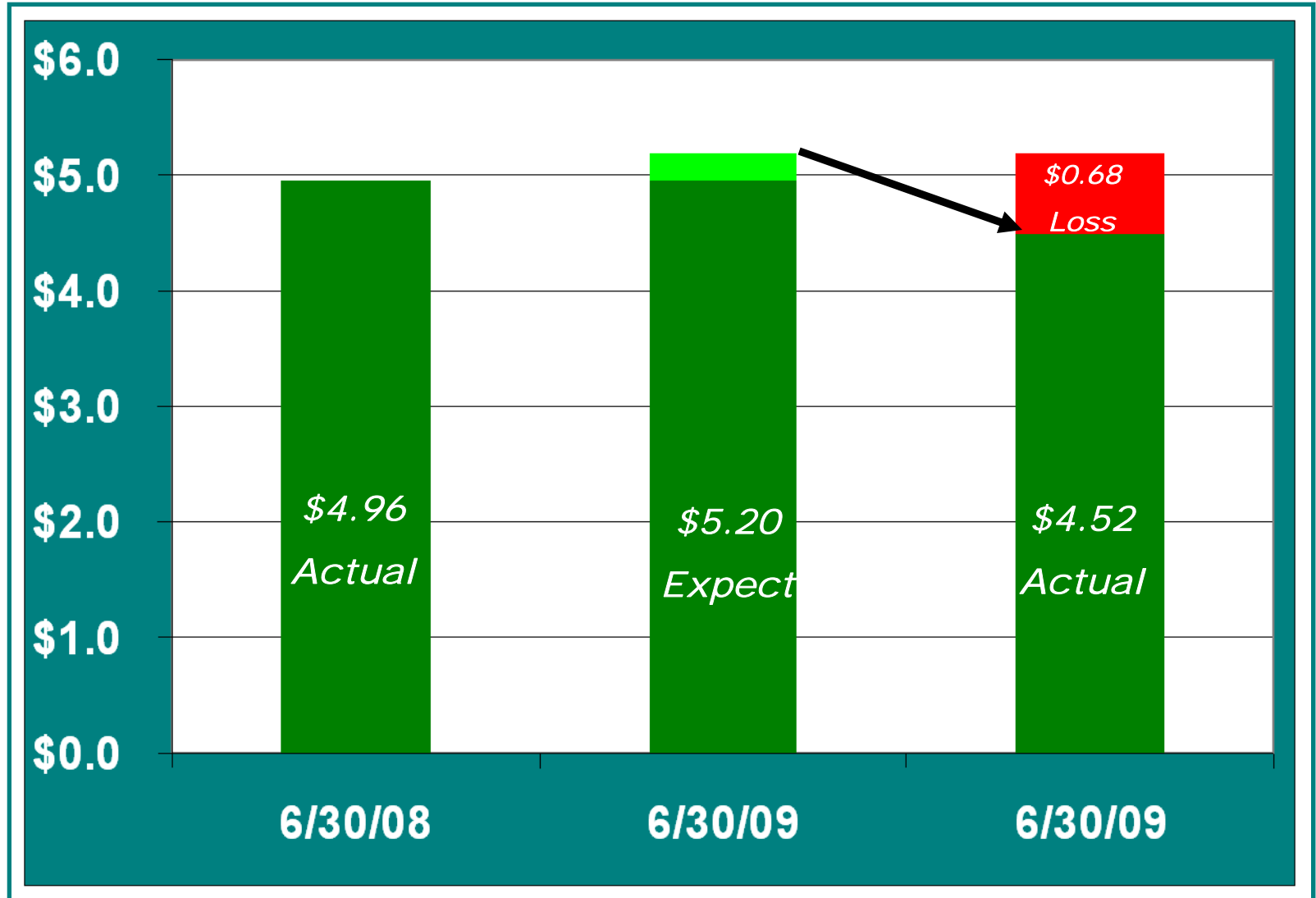
(\$ billions)





Actuarial Value of Trust Fund Assets

(\$ billions)





Impact on SDCERS' Membership

- Active Members
 - Salary reductions (= lower ultimate pensions)
 - Layoffs
- New Hires
 - Lower pay increases
 - Pension benefits already reduced
- Retirees
 - No impact on pensions
 - Pressure to reduce COLA's and other non-pension benefits



FY 2009 Impact on SDCERS Without Any Change

- City
 - ARC expected to increase nearly 50% (to \$224.8 million) in FY2011, and more than 100% (to \$318.1 million) by FY2015
 - UAL expected to increase more than 50% (to \$2.03 billion) in FY2011, and more than 100% (to \$2.62 billion) by FY2015
- Unified Port District
 - ARC expected to increase more than 50% (to \$11.2 million) in FY2011, and more than 100% (to \$16.0 million) by FY2015
 - UAL expected to increase nearly 200% (to \$59.7 million) in FY2011, and more than 300% (to \$89.1 million) by FY2015
- Airport Authority
 - ARC expected to increase by 33% (to \$4.0 million) in FY2011, and nearly 100% (to \$5.4 million) by FY2015
 - Surplus of \$1.3 million expected to become UAL of \$8.1 million in FY2011, and more than \$17 million by FY2015



Options Available to SDCERS

1. No Changes
2. Examine Alternative Funding Methodologies



Option 1. No Changes

Upside

- Maximizes SDCERS' funding level
- Requires no changes to current methods and procedures

Downside

- May force plan sponsors to take other actions that will be detrimental to SDCERS' membership



Option 2.

Examine Alternative Funding Methodologies

Upside

- Lowers the chance plan sponsor will take actions detrimental to SDCERS' membership
- More reasonable way to deal with the unprecedented market downturn
- Reflective of what other large public plans are doing

Downside

- Defers today's costs to future
- Lower funding ratio
- By changing for June 30, 2009 valuation will future valuation methodologies be more subject to change?



Possible Alternative Funding Options

- A. Lowering the smoothing percentage (e.g., from 25% to 10%)
- B. Lengthening the amortization period for investment losses up to 30 years (now at 15)
- C. Widening or removing the 80%/120% corridor
- D. Any of these could be applied temporarily



A. Lowering the Smoothing Percentage

- Currently at 25%
- If lowered to 10%
 - there will be little or no impact on results without also widening the 120% corridor at the same time
 - Doing both might not comply with actuarial standards of practice
- If 120% corridor is widened or removed, the impact of 10% smoothing on the ARC would be very substantial (e.g., reduces ARC by \$50+ million per year)



NASRA Survey of Smoothing Periods*

<u>Years</u>	<u>Number of Systems</u>
0	7
3	7
4	19
5	70
6	1
7	3
8	7
10	6
15	1

** For plans using the expected value smoothing method, the period was calculated as 100% divided by the smoothing percentage (for SDCERS 100%/25% =4)*



B. Lengthening The UAL Amortization Period (from 15 to 30 years)

- Meets GASB's ARC standards
- Would have a small impact on SDCERS (\$4 million reduction on FY2011 ARC) unless negative amortization requirement is removed at the same time
- With one-year suspension of negative amortization, impact would be significant (\$25 million reduction on FY2011 ARC)



C. Widening or Removing Asset Corridor

- SDCERS “corridor” limits the actuarial value of assets to be no greater than 120% of market value
- Without a corridor, the FY 2009 actuarial value of assets would be about 131% of the market value
- 120% corridor inherited from ERISA (private sector)
- Corridors not specifically required by actuarial standards of practice (ASOP’s) but clearly suggested
- 50% of Cheiron’s large public sector clients have corridors, 50% don’t. Of those with corridors:
 - Top range is between 105% to 120%
 - All are currently examining alternatives



ASOP 44 – September 2007

The method that should produce actuarial values of assets that bear a reasonable relationship to the market values.

The method is likely to produce actuarial values of assets that, in the actuary's judgment, satisfy the following:

- 1) The asset values fall within a reasonable range around the corresponding market values, **AND**
- 2) Any differences between the actuarial value of assets and the market value are recognized within a reasonable period of time.

In lieu of satisfying both (1) and (2), the method could be acceptable if, in the actuary's judgment (i) it produces values within a sufficiently narrow range around market value **or** (ii) recognizes differences from market value in a sufficiently short period.



Key Measure 1: How Close

- “How close” is mostly relevant to the corridor
- Impact of different corridors
 - 120%: 1/6 of AVA is not there
 - 125%: 1/5 of AVA is not there
 - 133%: 1/4 of AVA is not there
 - 150%: 1/3 of AVA is not there
- SDCERS June 30, 2009 AVA/MVA 131% ratio may not be “sufficiently close” to MVA

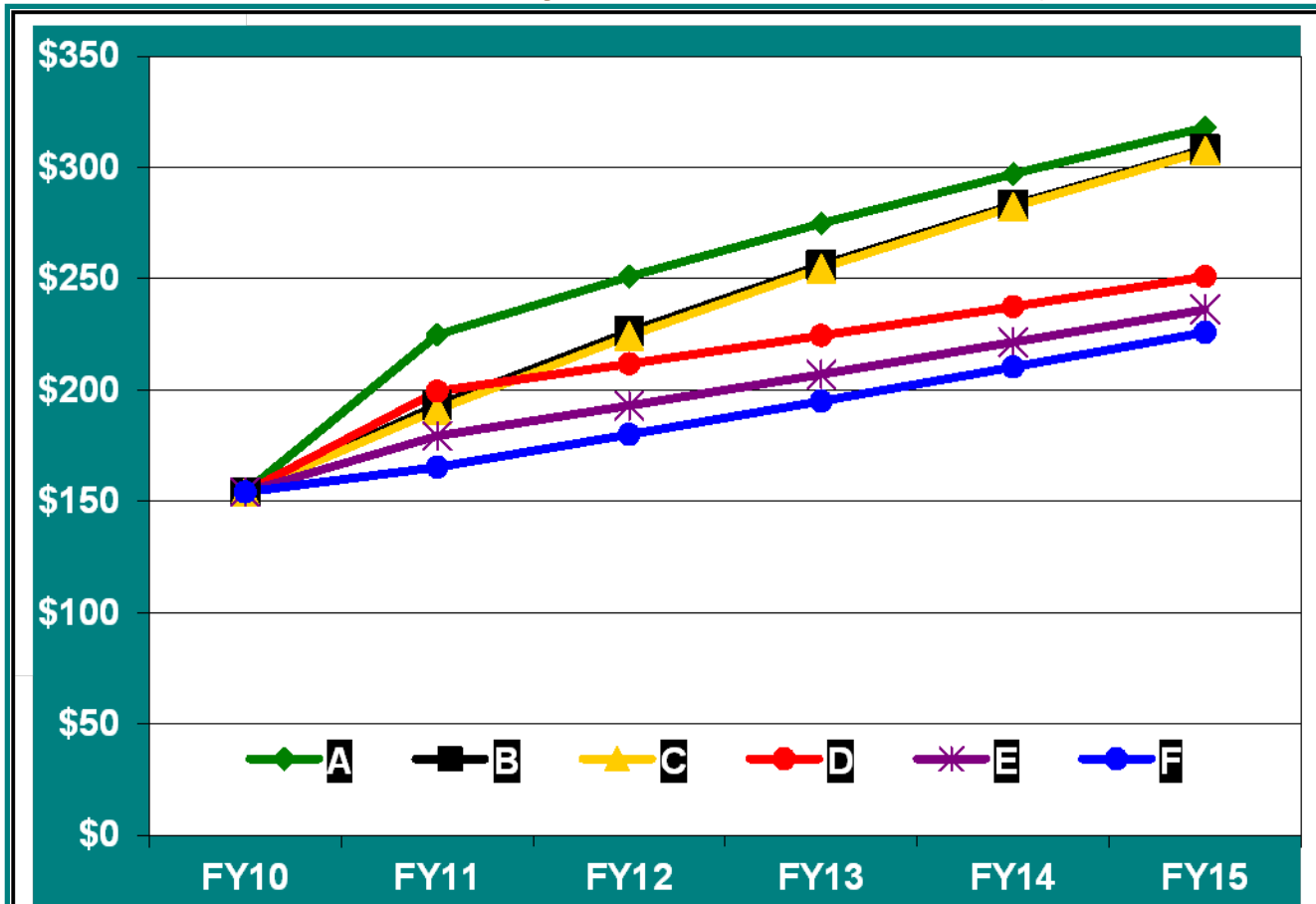


Key Measure 2: How Long

- “How long” is mostly relevant to the smoothing percentage
- SDCERS uses “expected value” method
 - 25% of difference between expected AVA and MVA recognized
 - Under current smoothing method MVA is expected to be within
 - 7% of AVA within 4 years
 - 5% of AVA within 5 years
 - 1% of AVA within 11 years
- For SDCERS the “sufficiently short” standard is likely met



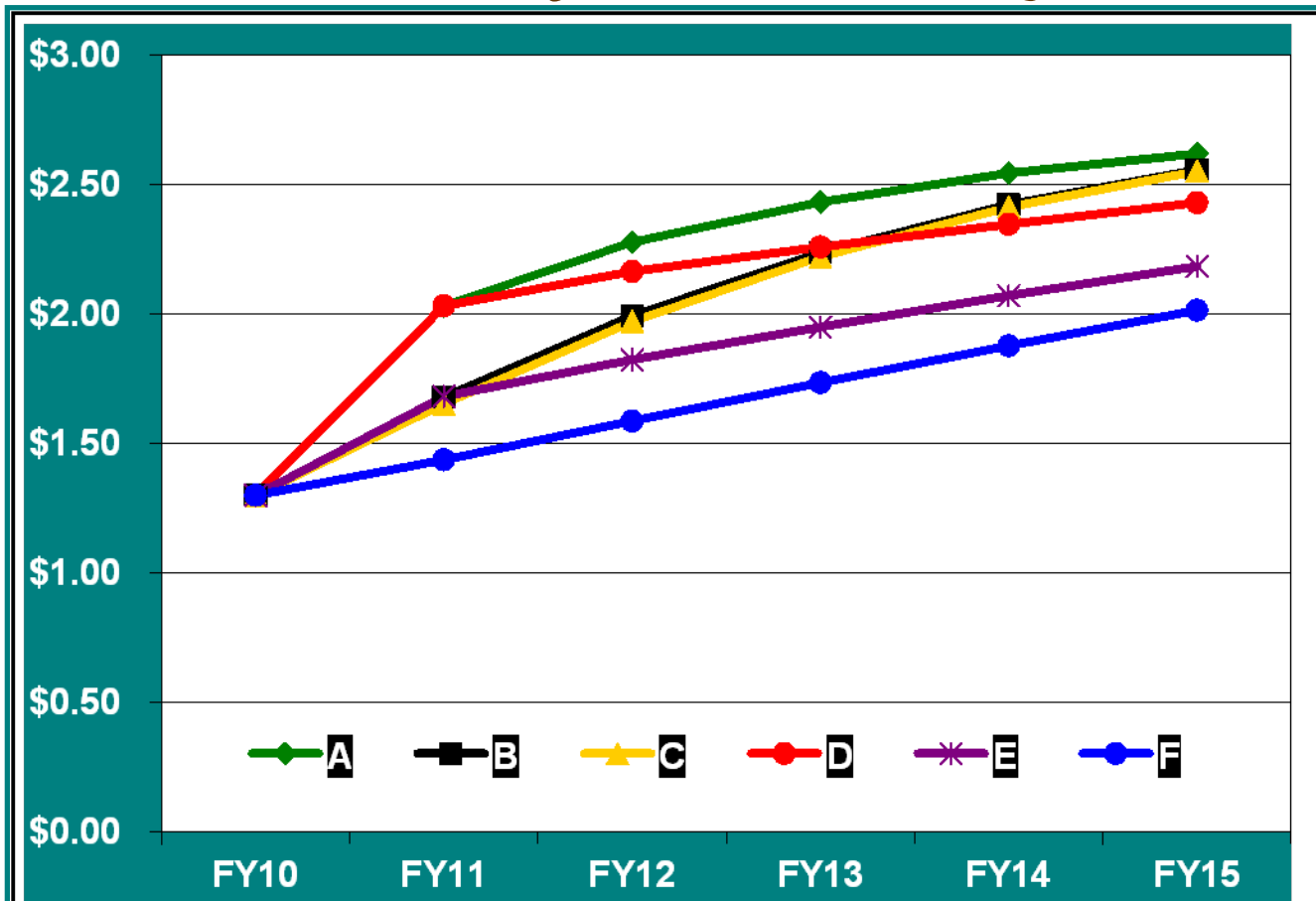
SDCERS-City ARC Projections



	A	B	C	D	E	F
smoothing	25%	25%	25%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	No	No	No



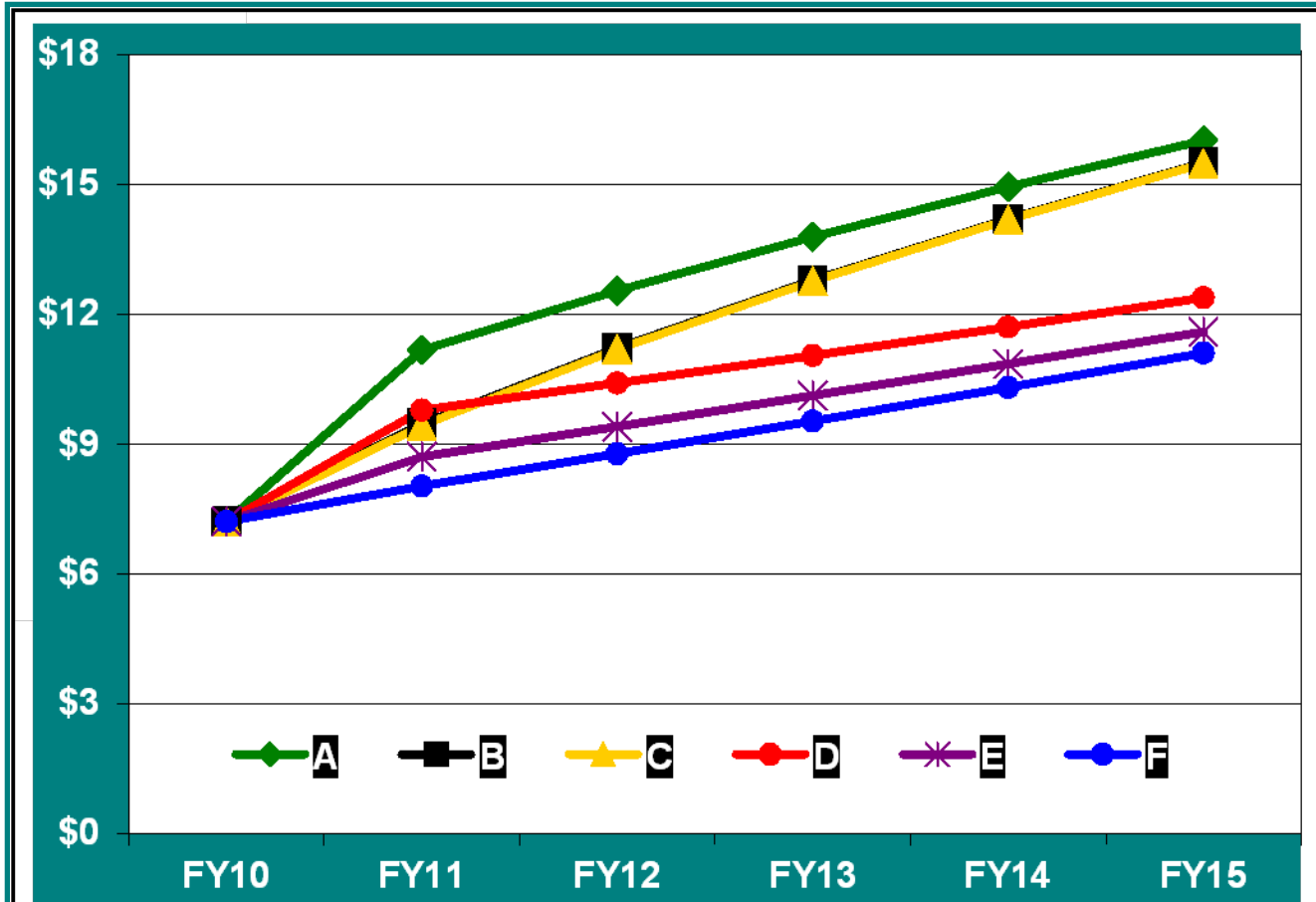
SDCERS-City UAL Projections



	A	B	C	D	E	F
smoothing	25%	25%	25%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	No	No	No



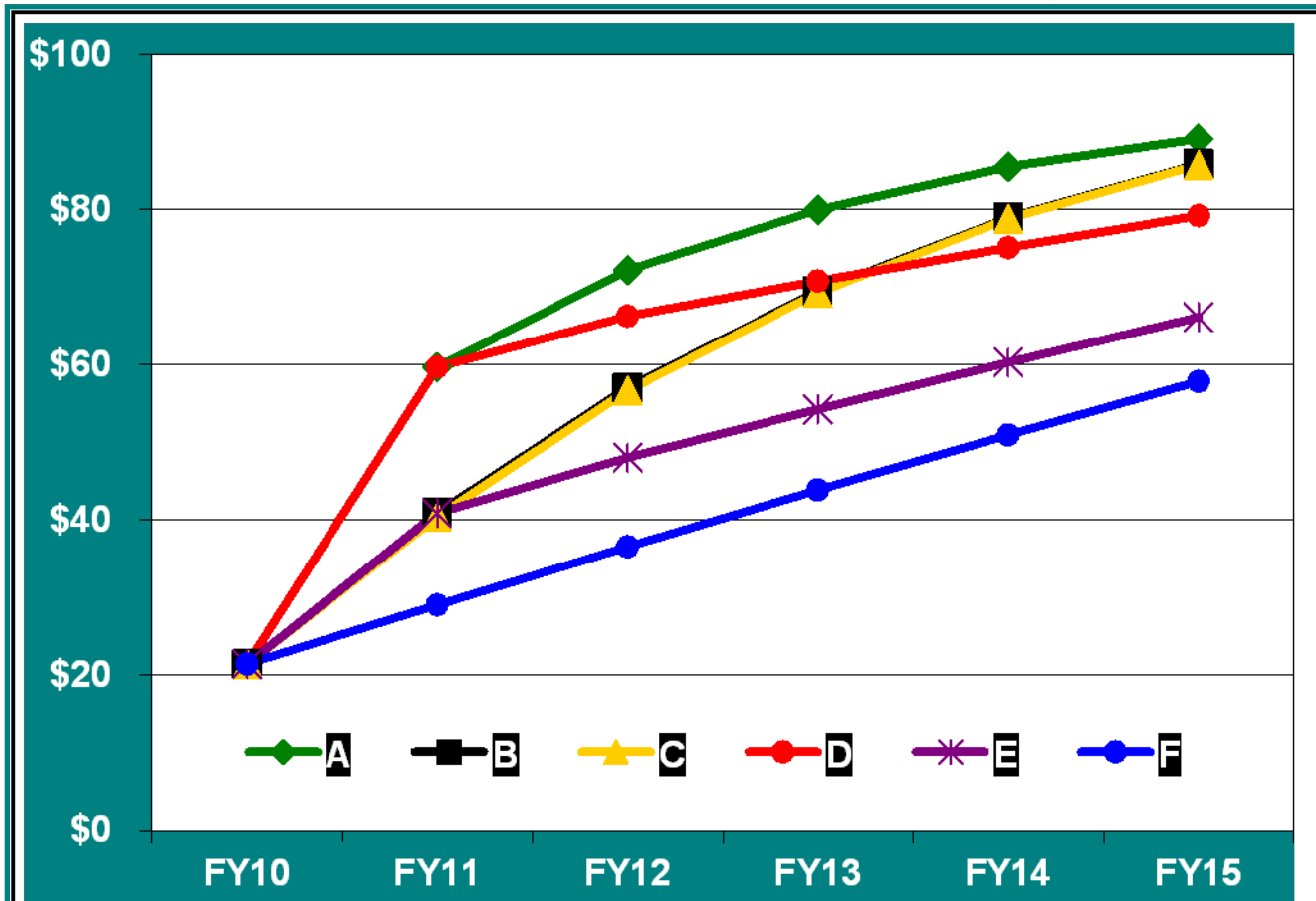
SDCERS-UPD ARC Projections



	A	B	C	D	E	F
smoothing	25%	25%	25%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	No	No	No



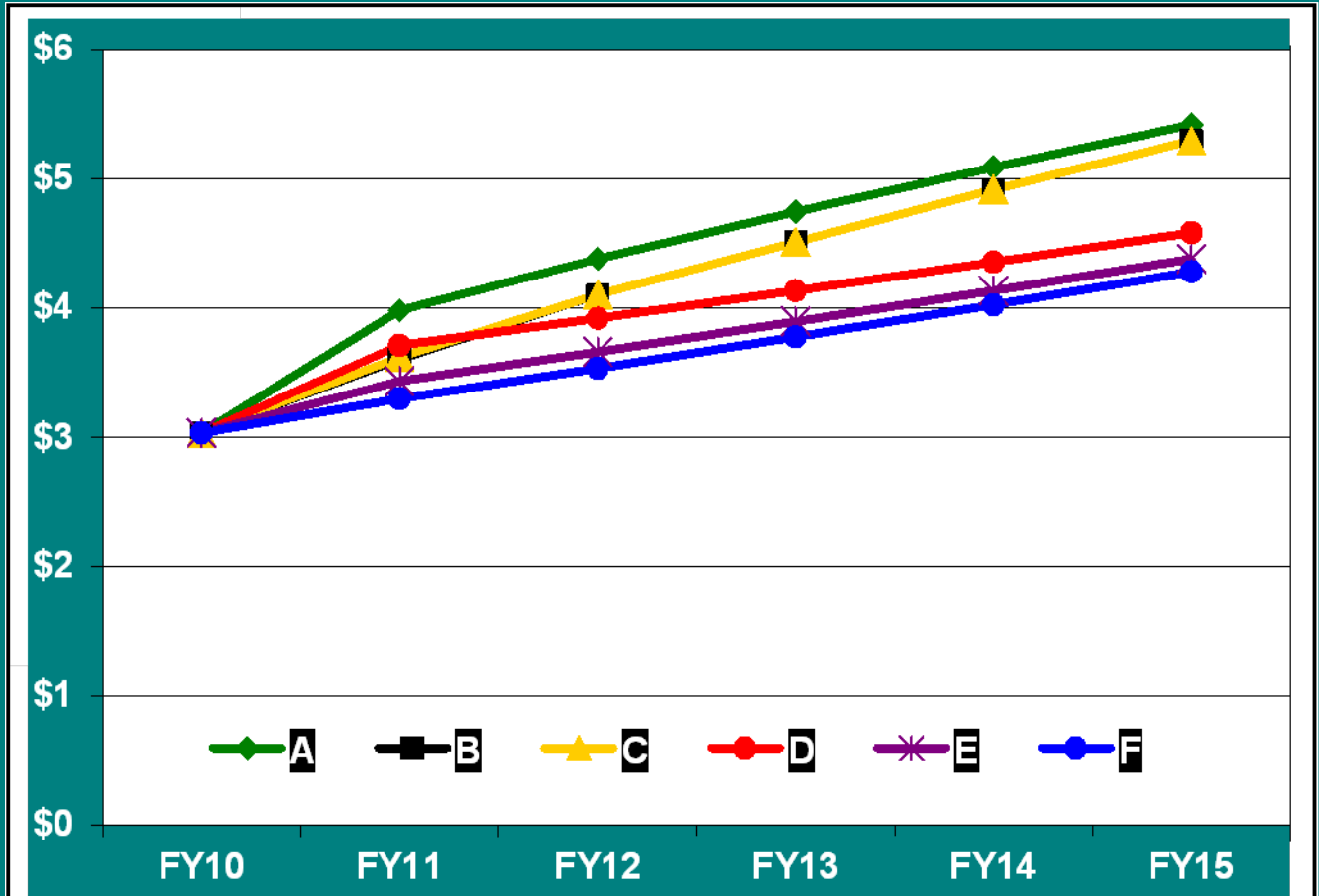
SDCERS-UPD UAL Projections



	A	B	C	D	E	F
smoothing	25%	25%	25%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	No	No	No

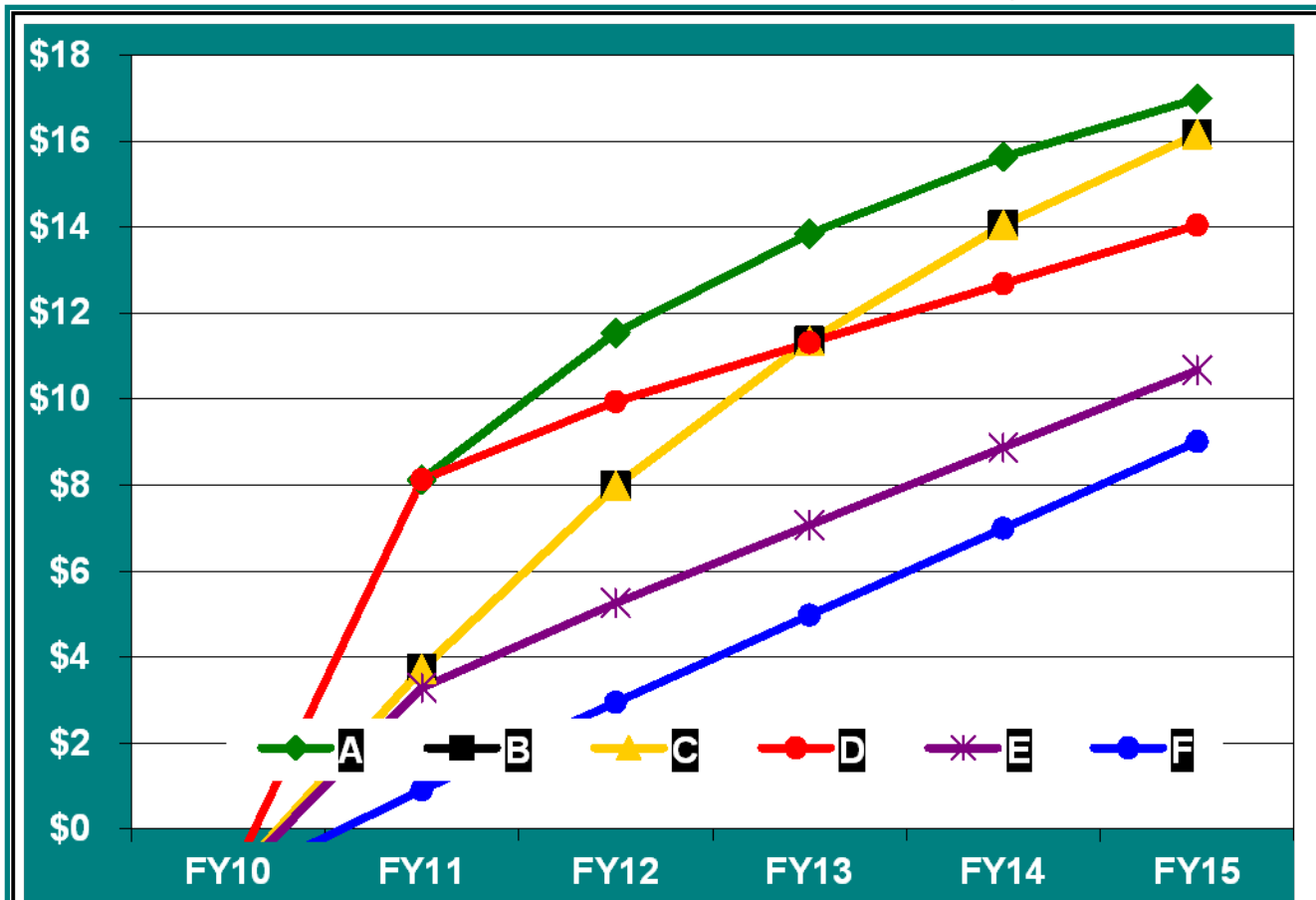


SDCERS-AA ARC Projections



	A	B	C	D	E	F
smoothing	25%	25%	25%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	No	No	No

SDCERS-AA UAL Projections



	A	B	C	D	E	F
smoothing	25%	25%	25%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	No	No	No



Stress Testing Other Scenarios





Summary

- Two options available to SDCERS for the June 30, 2009 valuation
 - No change
 - Modify funding methodology
 - Widen or remove AVA/MVA corridor
 - Lower smoothing percentage
 - Increase amortization of investment losses from current 15 years (requires removal of no negative amortization to have a meaningful impact)



Summary

- If the Board elects to modify funding methodology
 - Apply change for all future years
 - Apply change temporarily (e.g., only to investment losses attributable to FY2009 investment results)



Summary

- Board decision is needed by October



Examples and Projections

1. Example on how Asset Smoothing Works
2. Example on Negative Amortization
3. Detailed Plan Sponsor UAL and ARC projections



1. SDCERS' Asset Smoothing Method

- Annually accept 100% of the assumed return, but only 1/4 of returns above or below expected value. This is not the same as a “four-year” smoothing method
- Subject to corridor of 80% to 120% around actual market value (corridor has not applied in over 20 years)
- For June 30, 2009 valuation it is likely that corridor will apply, which will offset much of the potential smoothing of investment losses
- Issue of extraordinary recent asset losses is a topic of discussion with all plan sponsors (public and private) and actuaries



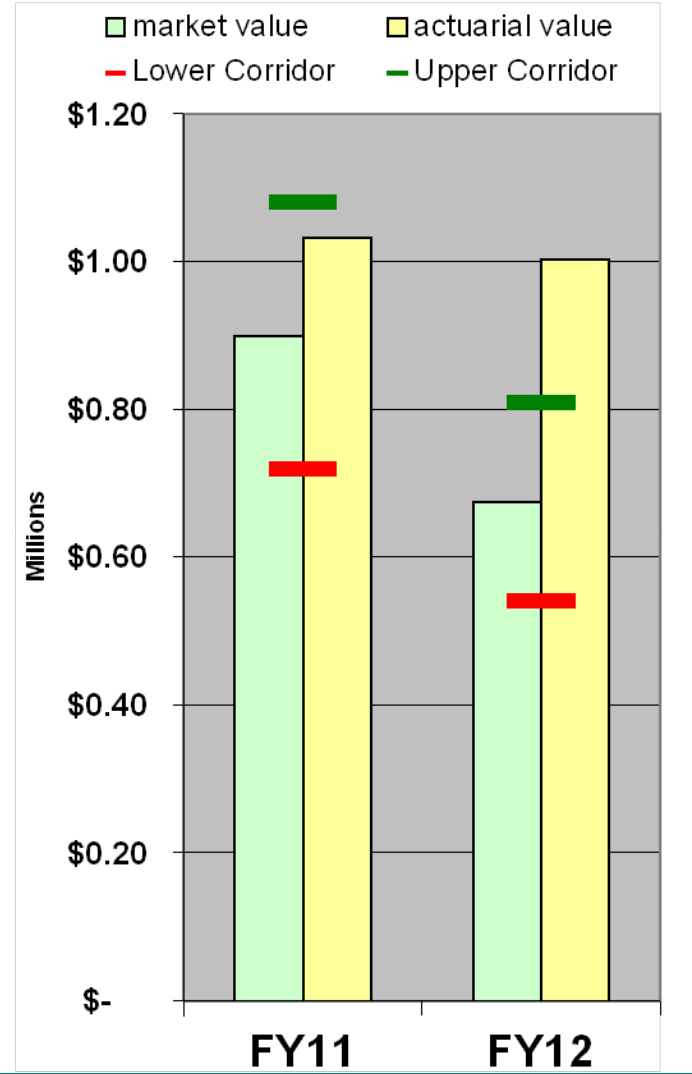
SDCERS' Asset Smoothing Method

Example of How it Works

line		FY11 6/30/2009	FY12 6/30/2010
1	Market Value of Assets (MVA) Start of Year	\$ 1,000,000	\$ 900,000
2	Actual Market Investment Return during Year	-10.00%	-25.00%
3	MVA end of year	\$ 900,000	\$ 675,000
4	Actuarial Value of Assets (AVA) Start of Year	\$ 1,000,000	\$ 1,033,125
5	Expected Investment Return during Year	7.75%	7.75%
6	Expected AVA End of Year (Exp AVA)	\$ 1,077,500	\$ 1,113,192
<i>Determining Actuarial Value End of Year</i>			
7	MVA minus Exp AVA (3)-(6)	\$ (177,500)	\$ (438,192)
8	25% of (MVA minus EVA), or line 7	\$ (44,375)	\$ (109,548)
9	AVA end of year (line 6 +line 8) without corridor	\$ 1,033,125	\$ 1,003,644

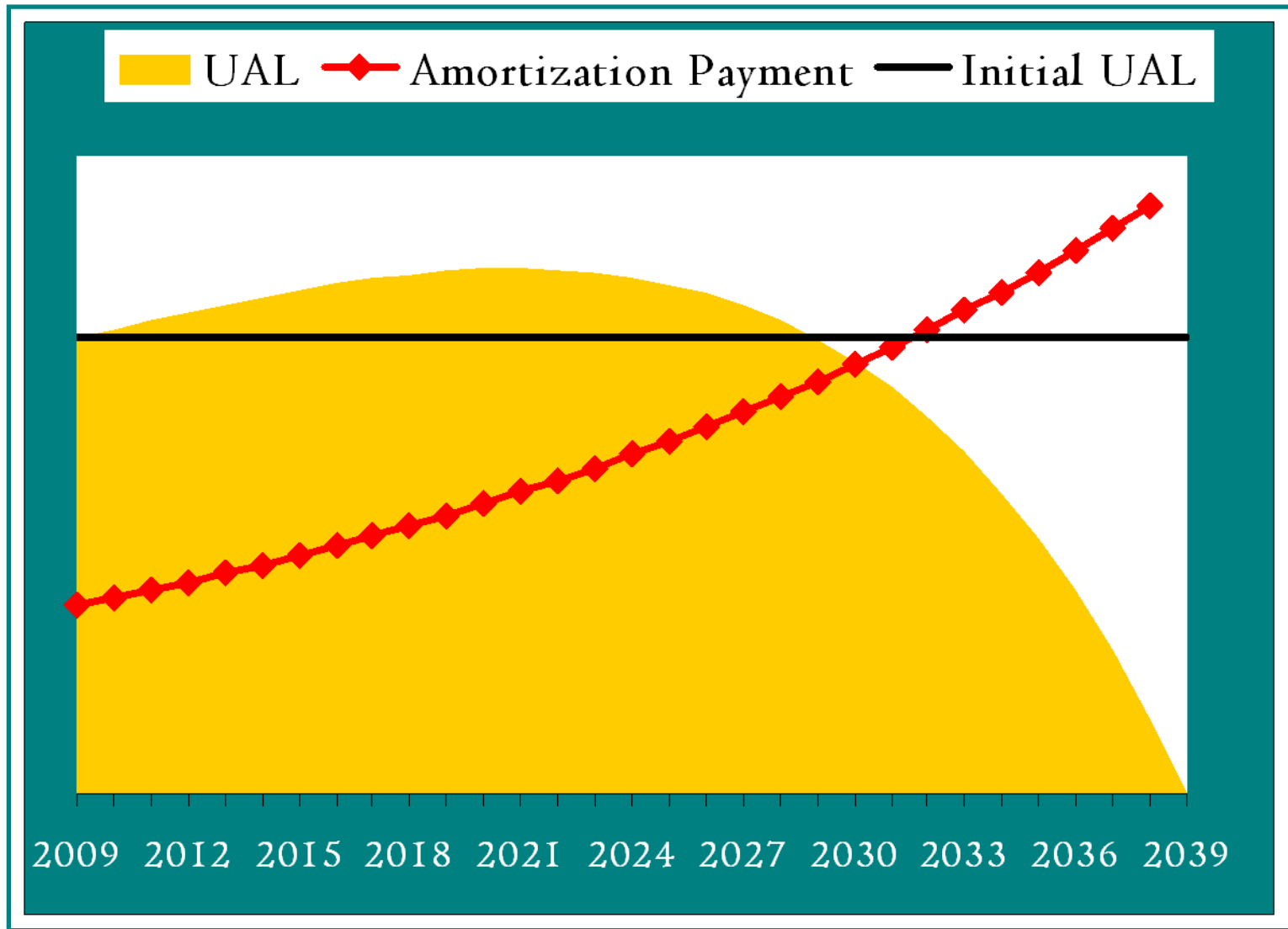
Lower Corridor
Upper Corridor

80%
120%



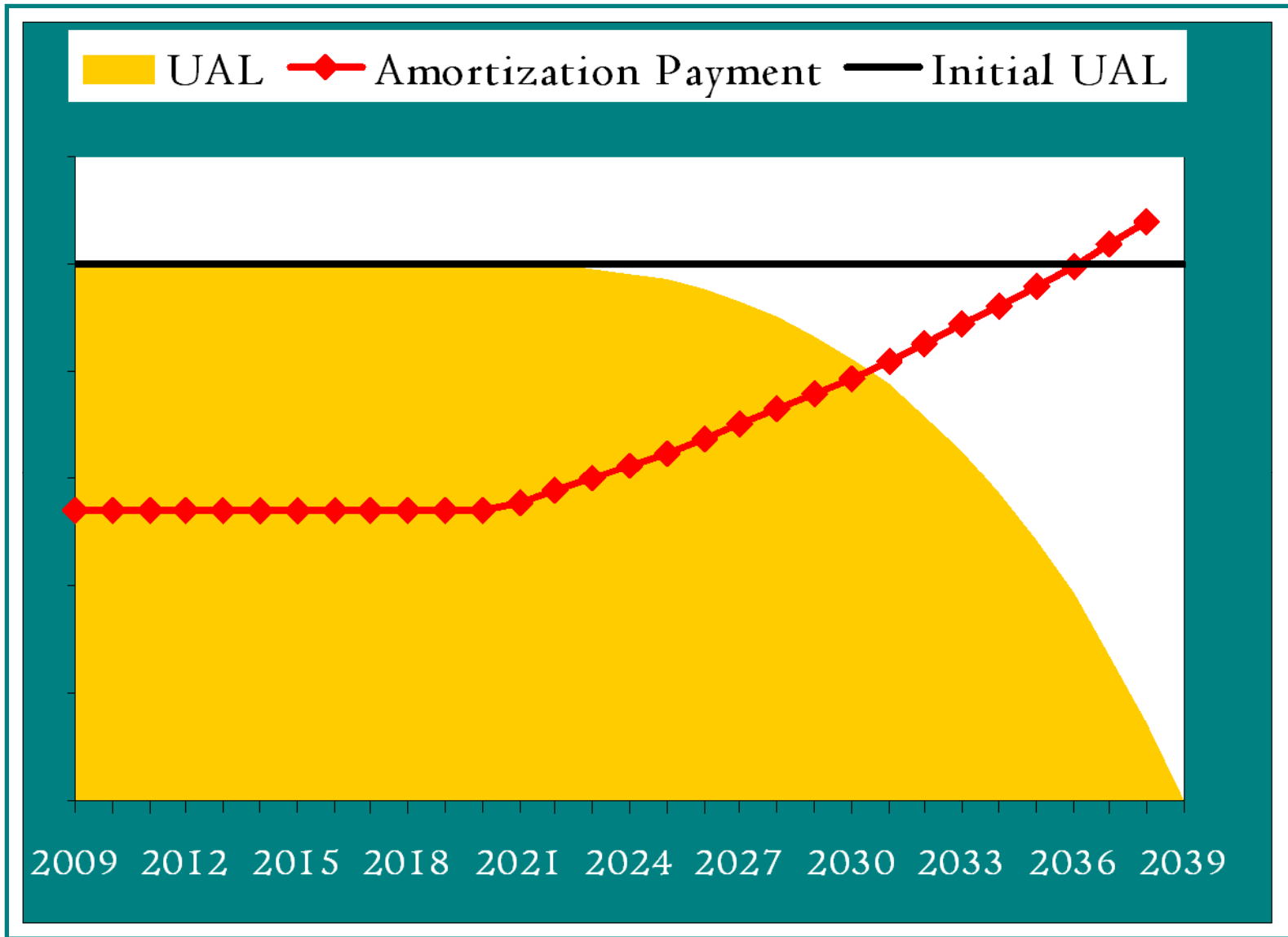


2a Example With Negative Amortization





2b Example Without Negative Amortization





3. Projections

(assuming 7.75% return after 6/30/09)

Proj	avoid negative amortiztn	asset smoothing %	amortiztn period	MVA/AVA upper corridor	Proj	avoid negative amortiztn	asset smoothing %	amortiztn period	MVA/AVA upper corridor
1	yes	25%	15	120%	13	No	25%	15	120%
2	yes	25%	15	130%	14	No	25%	15	130%
3	yes	25%	15	none	15	No	25%	15	none
4	yes	25%	30	120%	16	No	25%	30	120%
5	yes	25%	30	130%	17	No	25%	30	130%
6	yes	25%	30	none	18	No	25%	30	none
7	yes	10%	15	120%	19	No	10%	15	120%
8	yes	10%	15	130%	20	No	10%	15	130%
9	yes	10%	15	none	21	No	10%	15	none
10	yes	10%	30	120%	22	No	10%	30	120%
11	yes	10%	30	130%	23	No	10%	30	130%
12	yes	10%	30	none	24	No	10%	30	none



SDCERS-City ARC Projections (\$ millions)

Not Allowing Negative Amortization

	1	2	3	4	5	6
smoothing	25%	25%	25%	25%	25%	25%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	Yes	Yes	Yes
	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>
FY10	\$ 154.2	\$ 154.2	\$ 154.2	\$ 154.2	\$ 154.2	\$ 154.2
FY11	\$ 224.8	\$ 193.2	\$ 191.0	\$ 220.4	\$ 193.2	\$ 191.0
FY12	\$ 250.9	\$ 226.3	\$ 224.4	\$ 242.0	\$ 220.0	\$ 218.3
FY13	\$ 274.9	\$ 256.2	\$ 254.7	\$ 257.0	\$ 241.5	\$ 240.2
FY14	\$ 297.1	\$ 283.3	\$ 282.2	\$ 269.2	\$ 259.1	\$ 258.3
FY15	\$ 318.1	\$ 308.3	\$ 307.5	\$ 279.3	\$ 273.6	\$ 273.2

	7	8	9	10	11	12
smoothing	10%	10%	10%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	Yes	Yes	Yes
	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>
FY10	\$ 154.2	\$ 154.2	\$ 154.2	\$ 154.2	\$ 154.2	\$ 154.2
FY11	\$ 224.8	\$ 193.2	\$ 174.3	\$ 220.4	\$ 193.2	\$ 174.3
FY12	\$ 240.6	\$ 210.9	\$ 190.1	\$ 233.2	\$ 206.8	\$ 188.5
FY13	\$ 256.9	\$ 229.3	\$ 210.1	\$ 241.4	\$ 218.1	\$ 201.8
FY14	\$ 273.7	\$ 248.2	\$ 230.4	\$ 249.0	\$ 228.9	\$ 214.8
FY15	\$ 290.9	\$ 267.5	\$ 251.2	\$ 256.5	\$ 239.4	\$ 227.5



SDCERS-City ARC Projections (\$ millions)

Allowing Negative Amortization

	13	14	15	16	17	18
smoothing	25%	25%	25%	25%	25%	25%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	No	No	No	No	No	No
	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>
FY10	\$ 154.2	\$ 154.2	\$ 154.2	\$ 154.2	\$ 154.2	\$ 154.2
FY11	\$ 224.8	\$ 192.8	\$ 190.3	\$ 199.5	\$ 179.4	\$ 177.8
FY12	\$ 250.9	\$ 226.3	\$ 224.4	\$ 218.3	\$ 202.8	\$ 201.5
FY13	\$ 274.9	\$ 256.2	\$ 254.7	\$ 235.8	\$ 224.0	\$ 223.1
FY14	\$ 297.1	\$ 283.3	\$ 282.2	\$ 252.3	\$ 243.6	\$ 242.9
FY15	\$ 318.1	\$ 308.3	\$ 307.5	\$ 268.1	\$ 261.9	\$ 261.4

	19	20	21	22	23	24
smoothing	10%	10%	10%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	No	No	No	No	No	No
	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>
FY10	\$ 154.2	\$ 154.2	\$ 154.2	\$ 154.2	\$ 154.2	\$ 154.2
FY11	\$ 224.8	\$ 192.8	\$ 170.6	\$ 199.5	\$ 179.4	\$ 165.4
FY12	\$ 240.6	\$ 210.9	\$ 190.1	\$ 211.8	\$ 193.0	\$ 180.0
FY13	\$ 256.9	\$ 229.3	\$ 210.1	\$ 224.5	\$ 207.1	\$ 195.0
FY14	\$ 273.7	\$ 248.2	\$ 230.4	\$ 237.5	\$ 221.5	\$ 210.3
FY15	\$ 290.9	\$ 267.5	\$ 251.2	\$ 251.0	\$ 236.2	\$ 226.0



SDCERS-City UAL Projections (\$ billions)

Not Allowing Negative Amortization

	1	2	3	4	5	6
smoothing	25%	25%	25%	25%	25%	25%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	Yes	Yes	Yes
	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>
FY10	\$ 1.30	\$ 1.30	\$ 1.30	\$ 1.30	\$ 1.30	\$ 1.30
FY11	\$ 2.03	\$ 1.68	\$ 1.65	\$ 2.03	\$ 1.68	\$ 1.65
FY12	\$ 2.28	\$ 1.99	\$ 1.97	\$ 2.28	\$ 1.99	\$ 1.97
FY13	\$ 2.43	\$ 2.24	\$ 2.22	\$ 2.44	\$ 2.24	\$ 2.22
FY14	\$ 2.54	\$ 2.42	\$ 2.41	\$ 2.56	\$ 2.43	\$ 2.42
FY15	\$ 2.62	\$ 2.56	\$ 2.55	\$ 2.65	\$ 2.58	\$ 2.57

	7	8	9	10	11	12
smoothing	10%	10%	10%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	Yes	Yes	Yes
	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>
FY10	\$ 1.30	\$ 1.30	\$ 1.30	\$ 1.30	\$ 1.30	\$ 1.30
FY11	\$ 2.03	\$ 1.68	\$ 1.44	\$ 2.03	\$ 1.68	\$ 1.44
FY12	\$ 2.16	\$ 1.82	\$ 1.59	\$ 2.16	\$ 1.82	\$ 1.59
FY13	\$ 2.23	\$ 1.93	\$ 1.73	\$ 2.24	\$ 1.94	\$ 1.73
FY14	\$ 2.29	\$ 2.03	\$ 1.86	\$ 2.30	\$ 2.04	\$ 1.86
FY15	\$ 2.33	\$ 2.12	\$ 1.97	\$ 2.36	\$ 2.14	\$ 1.99



SDCERS-City UAL Projections (\$ billions)

Allowing Negative Amortization

	13	14	15	16	17	18
smoothing	25%	25%	25%	25%	25%	25%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	No	No	No	No	No	No
	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>
FY10	\$ 1.30	\$ 1.30	\$ 1.30	\$ 1.30	\$ 1.30	\$ 1.30
FY11	\$ 2.03	\$ 1.68	\$ 1.65	\$ 2.03	\$ 1.68	\$ 1.65
FY12	\$ 2.28	\$ 1.99	\$ 1.97	\$ 2.28	\$ 1.99	\$ 1.97
FY13	\$ 2.43	\$ 2.24	\$ 2.22	\$ 2.46	\$ 2.25	\$ 2.24
FY14	\$ 2.54	\$ 2.42	\$ 2.41	\$ 2.61	\$ 2.46	\$ 2.45
FY15	\$ 2.62	\$ 2.56	\$ 2.55	\$ 2.73	\$ 2.64	\$ 2.63

	19	20	21	22	23	24
smoothing	10%	10%	10%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	No	No	No	No	No	No
	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>
FY10	\$ 1.30	\$ 1.30	\$ 1.30	\$ 1.30	\$ 1.30	\$ 1.30
FY11	\$ 2.03	\$ 1.68	\$ 1.44	\$ 2.03	\$ 1.68	\$ 1.44
FY12	\$ 2.16	\$ 1.82	\$ 1.59	\$ 2.16	\$ 1.82	\$ 1.59
FY13	\$ 2.23	\$ 1.94	\$ 1.73	\$ 2.26	\$ 1.95	\$ 1.74
FY14	\$ 2.29	\$ 2.04	\$ 1.86	\$ 2.35	\$ 2.07	\$ 1.88
FY15	\$ 2.33	\$ 2.12	\$ 1.98	\$ 2.43	\$ 2.18	\$ 2.01



SDCERS-UPD ARC Projections (\$ millions)

Not Allowing Negative Amortization

	1	2	3	4	5	6
smoothing	25%	25%	25%	25%	25%	25%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	Yes	Yes	Yes
	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>
FY10	\$ 7.2	\$ 7.2	\$ 7.2	\$ 7.2	\$ 7.2	\$ 7.2
FY11	\$ 11.2	\$ 9.5	\$ 9.4	\$ 10.2	\$ 8.7	\$ 8.7
FY12	\$ 12.5	\$ 11.2	\$ 11.2	\$ 11.4	\$ 10.2	\$ 10.2
FY13	\$ 13.8	\$ 12.8	\$ 12.8	\$ 12.3	\$ 11.5	\$ 11.5
FY14	\$ 14.9	\$ 14.2	\$ 14.2	\$ 13.1	\$ 12.5	\$ 12.5
FY15	\$ 16.0	\$ 15.5	\$ 15.5	\$ 13.7	\$ 13.4	\$ 13.4

	7	8	9	10	11	12
smoothing	10%	10%	10%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	Yes	Yes	Yes
	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>
FY10	\$ 7.2	\$ 7.2	\$ 7.2	\$ 7.2	\$ 7.2	\$ 7.2
FY11	\$ 11.2	\$ 9.5	\$ 8.4	\$ 10.2	\$ 8.7	\$ 8.0
FY12	\$ 12.0	\$ 10.4	\$ 9.4	\$ 10.9	\$ 9.5	\$ 8.8
FY13	\$ 12.8	\$ 11.3	\$ 10.4	\$ 11.5	\$ 10.2	\$ 9.5
FY14	\$ 13.7	\$ 12.3	\$ 11.5	\$ 12.0	\$ 10.9	\$ 10.3
FY15	\$ 14.6	\$ 13.3	\$ 12.5	\$ 12.5	\$ 11.6	\$ 11.1



SDCERS-UPD ARC Projections (\$ millions)

Allowing Negative Amortization

	13	14	15	16	17	18
smoothing	25%	25%	25%	25%	25%	25%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	No	No	No	No	No	No
	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>
FY10	\$ 7.2	\$ 7.2	\$ 7.2	\$ 7.2	\$ 7.2	\$ 7.2
FY11	\$ 11.2	\$ 9.5	\$ 9.4	\$ 9.8	\$ 8.7	\$ 8.7
FY12	\$ 12.5	\$ 11.2	\$ 11.2	\$ 10.7	\$ 9.9	\$ 9.9
FY13	\$ 13.8	\$ 12.8	\$ 12.8	\$ 11.6	\$ 11.0	\$ 11.0
FY14	\$ 14.9	\$ 14.2	\$ 14.2	\$ 12.5	\$ 12.0	\$ 12.0
FY15	\$ 16.0	\$ 15.5	\$ 15.5	\$ 13.3	\$ 13.0	\$ 13.0

	19	20	21	22	23	24
smoothing	10%	10%	10%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	No	No	No	No	No	No
	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>
FY10	\$ 7.2	\$ 7.2	\$ 7.2	\$ 7.2	\$ 7.2	\$ 7.2
FY11	\$ 11.2	\$ 9.5	\$ 8.4	\$ 9.8	\$ 8.7	\$ 8.0
FY12	\$ 12.0	\$ 10.4	\$ 9.4	\$ 10.4	\$ 9.4	\$ 8.8
FY13	\$ 12.8	\$ 11.3	\$ 10.4	\$ 11.0	\$ 10.1	\$ 9.5
FY14	\$ 13.7	\$ 12.3	\$ 11.5	\$ 11.7	\$ 10.8	\$ 10.3
FY15	\$ 14.6	\$ 13.3	\$ 12.5	\$ 12.4	\$ 11.6	\$ 11.1



SDCERS-UPD UAL Projections (\$ millions)

Not Allowing Negative Amortization

	1	2	3	4	5	6
smoothing	25%	25%	25%	25%	25%	25%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	Yes	Yes	Yes
	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>
FY10	\$ 21.5	\$ 21.5	\$ 21.5	\$ 21.5	\$ 21.5	\$ 21.5
FY11	\$ 59.7	\$ 40.9	\$ 40.4	\$ 59.7	\$ 40.9	\$ 40.4
FY12	\$ 72.2	\$ 57.0	\$ 56.7	\$ 72.3	\$ 57.2	\$ 56.8
FY13	\$ 79.9	\$ 69.5	\$ 69.3	\$ 81.1	\$ 70.4	\$ 70.2
FY14	\$ 85.5	\$ 79.0	\$ 78.8	\$ 88.0	\$ 81.0	\$ 80.8
FY15	\$ 89.1	\$ 85.8	\$ 85.7	\$ 93.3	\$ 89.4	\$ 89.3

	7	8	9	10	11	12
smoothing	10%	10%	10%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	Yes	Yes	Yes
	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>
FY10	\$ 21.5	\$ 21.5	\$ 21.5	\$ 21.5	\$ 21.5	\$ 21.5
FY11	\$ 59.7	\$ 40.9	\$ 29.1	\$ 59.7	\$ 40.9	\$ 29.1
FY12	\$ 66.1	\$ 47.9	\$ 36.5	\$ 66.3	\$ 48.1	\$ 36.6
FY13	\$ 69.2	\$ 53.3	\$ 43.4	\$ 70.3	\$ 54.2	\$ 43.9
FY14	\$ 71.6	\$ 58.2	\$ 49.8	\$ 74.0	\$ 60.1	\$ 51.0
FY15	\$ 73.6	\$ 62.5	\$ 55.6	\$ 77.6	\$ 65.8	\$ 57.9



SDCERS-UPD UAL Projections (\$ millions)

Allowing Negative Amortization

	13	14	15	16	17	18
smoothing	25%	25%	25%	25%	25%	25%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	No	No	No	No	No	No
	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>
FY10	\$ 21.5	\$ 21.5	\$ 21.5	\$ 21.5	\$ 21.5	\$ 21.5
FY11	\$ 59.7	\$ 40.9	\$ 40.4	\$ 59.7	\$ 40.9	\$ 40.4
FY12	\$ 72.2	\$ 57.0	\$ 56.7	\$ 72.3	\$ 57.2	\$ 56.8
FY13	\$ 79.9	\$ 69.5	\$ 69.3	\$ 81.6	\$ 70.5	\$ 70.2
FY14	\$ 85.5	\$ 79.0	\$ 78.8	\$ 89.1	\$ 81.4	\$ 81.2
FY15	\$ 89.1	\$ 85.8	\$ 85.7	\$ 95.3	\$ 90.3	\$ 90.2

	19	20	21	22	23	24
smoothing	10%	10%	10%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	No	No	No	No	No	No
	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>
FY10	\$ 21.5	\$ 21.5	\$ 21.5	\$ 21.5	\$ 21.5	\$ 21.5
FY11	\$ 59.7	\$ 40.9	\$ 29.1	\$ 59.7	\$ 40.9	\$ 29.1
FY12	\$ 66.1	\$ 47.9	\$ 36.5	\$ 66.3	\$ 48.1	\$ 36.6
FY13	\$ 69.2	\$ 53.3	\$ 43.4	\$ 70.8	\$ 54.3	\$ 43.9
FY14	\$ 71.6	\$ 58.2	\$ 49.8	\$ 75.1	\$ 60.3	\$ 51.0
FY15	\$ 73.6	\$ 62.5	\$ 55.6	\$ 79.2	\$ 66.1	\$ 57.9



SDCERS-AA ARC Projections (\$ millions)

Not Allowing Negative Amortization

	1	2	3	4	5	6
smoothing	25%	25%	25%	25%	25%	25%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	Yes	Yes	Yes
	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>
FY10	\$ 3.0	\$ 3.0	\$ 3.0	\$ 3.0	\$ 3.0	\$ 3.0
FY11	\$ 4.0	\$ 3.6	\$ 3.6	\$ 4.0	\$ 3.6	\$ 3.6
FY12	\$ 4.4	\$ 4.1	\$ 4.1	\$ 4.4	\$ 4.1	\$ 4.1
FY13	\$ 4.7	\$ 4.5	\$ 4.5	\$ 4.7	\$ 4.5	\$ 4.5
FY14	\$ 5.1	\$ 4.9	\$ 4.9	\$ 5.0	\$ 4.8	\$ 4.8
FY15	\$ 5.4	\$ 5.3	\$ 5.3	\$ 5.2	\$ 5.1	\$ 5.1

	7	8	9	10	11	12
smoothing	10%	10%	10%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	Yes	Yes	Yes
	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>
FY10	\$ 3.0	\$ 3.0	\$ 3.0	\$ 3.0	\$ 3.0	\$ 3.0
FY11	\$ 4.0	\$ 3.6	\$ 3.4	\$ 4.0	\$ 3.6	\$ 3.4
FY12	\$ 4.2	\$ 3.9	\$ 3.7	\$ 4.2	\$ 3.9	\$ 3.7
FY13	\$ 4.5	\$ 4.1	\$ 4.0	\$ 4.5	\$ 4.1	\$ 4.0
FY14	\$ 4.8	\$ 4.4	\$ 4.3	\$ 4.7	\$ 4.4	\$ 4.3
FY15	\$ 5.0	\$ 4.7	\$ 4.6	\$ 4.9	\$ 4.7	\$ 4.6



SDCERS-AA ARC Projections (\$ millions)

Allowing Negative Amortization

	13	14	15	16	17	18
smoothing	25%	25%	25%	25%	25%	25%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	No	No	No	No	No	No
	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>
FY10	\$ 3.0	\$ 3.0	\$ 3.0	\$ 3.0	\$ 3.0	\$ 3.0
FY11	\$ 4.0	\$ 3.6	\$ 3.6	\$ 3.7	\$ 3.5	\$ 3.5
FY12	\$ 4.4	\$ 4.1	\$ 4.1	\$ 4.0	\$ 3.8	\$ 3.8
FY13	\$ 4.7	\$ 4.5	\$ 4.5	\$ 4.3	\$ 4.1	\$ 4.1
FY14	\$ 5.1	\$ 4.9	\$ 4.9	\$ 4.6	\$ 4.4	\$ 4.4
FY15	\$ 5.4	\$ 5.3	\$ 5.3	\$ 4.8	\$ 4.7	\$ 4.7

	19	20	21	22	23	24
smoothing	10%	10%	10%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	No	No	No	No	No	No
	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>	<u>ARC</u>
FY10	\$ 3.0	\$ 3.0	\$ 3.0	\$ 3.0	\$ 3.0	\$ 3.0
FY11	\$ 4.0	\$ 3.5	\$ 3.3	\$ 3.7	\$ 3.4	\$ 3.3
FY12	\$ 4.2	\$ 3.8	\$ 3.6	\$ 3.9	\$ 3.7	\$ 3.5
FY13	\$ 4.5	\$ 4.1	\$ 3.9	\$ 4.1	\$ 3.9	\$ 3.8
FY14	\$ 4.8	\$ 4.4	\$ 4.2	\$ 4.4	\$ 4.1	\$ 4.0
FY15	\$ 5.0	\$ 4.7	\$ 4.6	\$ 4.6	\$ 4.4	\$ 4.3



SDCERS-AA UAL Projections (\$ millions)

Not Allowing Negative Amortization

	1	2	3	4	5	6
smoothing	25%	25%	25%	25%	25%	25%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	Yes	Yes	Yes
	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>
FY10	\$ (1.3)	\$ (1.3)	\$ (1.3)	\$ (1.3)	\$ (1.3)	\$ (1.3)
FY11	\$ 8.1	\$ 3.7	\$ 3.7	\$ 8.1	\$ 3.7	\$ 3.7
FY12	\$ 11.5	\$ 8.0	\$ 8.0	\$ 11.5	\$ 7.9	\$ 7.9
FY13	\$ 13.8	\$ 11.4	\$ 11.4	\$ 13.8	\$ 11.3	\$ 11.3
FY14	\$ 15.6	\$ 14.0	\$ 14.0	\$ 15.6	\$ 14.0	\$ 14.0
FY15	\$ 17.0	\$ 16.2	\$ 16.2	\$ 17.1	\$ 16.1	\$ 16.1

	7	8	9	10	11	12
smoothing	10%	10%	10%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	Yes	Yes	Yes	Yes	Yes	Yes
	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>
FY10	\$ (1.3)	\$ (1.3)	\$ (1.3)	\$ (1.3)	\$ (1.3)	\$ (1.3)
FY11	\$ 8.1	\$ 3.3	\$ 0.9	\$ 8.1	\$ 3.3	\$ 0.9
FY12	\$ 10.0	\$ 5.3	\$ 3.0	\$ 9.9	\$ 5.3	\$ 2.9
FY13	\$ 11.1	\$ 6.9	\$ 4.9	\$ 11.0	\$ 6.9	\$ 4.9
FY14	\$ 12.1	\$ 8.5	\$ 6.7	\$ 12.1	\$ 8.5	\$ 6.7
FY15	\$ 13.0	\$ 10.0	\$ 8.5	\$ 13.0	\$ 10.0	\$ 8.5



SDCERS-AA UAL Projections (\$ millions)

Allowing Negative Amortization

	13	14	15	16	17	18
smoothing	25%	25%	25%	25%	25%	25%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	No	No	No	No	No	No
	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>
FY10	\$ (1.3)	\$ (1.3)	\$ (1.3)	\$ (1.3)	\$ (1.3)	\$ (1.3)
FY11	\$ 8.1	\$ 3.7	\$ 3.7	\$ 8.1	\$ 3.7	\$ 3.7
FY12	\$ 11.5	\$ 8.0	\$ 8.0	\$ 11.5	\$ 7.9	\$ 7.9
FY13	\$ 13.8	\$ 11.4	\$ 11.4	\$ 13.8	\$ 11.3	\$ 11.3
FY14	\$ 15.6	\$ 14.1	\$ 14.1	\$ 15.6	\$ 14.0	\$ 14.0
FY15	\$ 17.0	\$ 16.2	\$ 16.2	\$ 17.1	\$ 16.1	\$ 16.1

	19	20	21	22	23	24
smoothing	10%	10%	10%	10%	10%	10%
corridor	120%	130%	none	120%	130%	none
amortization	15	15	15	30	30	30
avoid neg amort	No	No	No	No	No	No
	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>	<u>UAL</u>
FY10	\$ (1.3)	\$ (1.3)	\$ (1.3)	\$ (1.3)	\$ (1.3)	\$ (1.3)
FY11	\$ 8.1	\$ 3.3	\$ 0.9	\$ 8.1	\$ 3.3	\$ 0.9
FY12	\$ 10.0	\$ 5.3	\$ 3.0	\$ 9.9	\$ 5.3	\$ 2.9
FY13	\$ 11.1	\$ 7.0	\$ 5.0	\$ 11.3	\$ 7.1	\$ 5.0
FY14	\$ 12.1	\$ 8.6	\$ 6.9	\$ 12.7	\$ 8.9	\$ 7.0
FY15	\$ 13.0	\$ 10.2	\$ 8.8	\$ 14.0	\$ 10.7	\$ 9.0