Asset Smoothing Methods

Lisa Won, ASA, FCA, MAAA
Senior Actuary

Aaron Gutierrez, MPA, JD
Policy Analyst

Office of the State Actuary
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Recap of Previous OSA Presentation (Funding Methods)

- All funding methods have pros and cons
- LEOFF 2 funding method uses parts of both Aggregate and EAN funding methods
- No Unfunded Actuarial Accrued Liability (UAAL)
- Normal Cost Contribution Rate volatility managed in two ways
  - Rate floor (percentage of EANC)
  - Asset smoothing method

Today's Presentation: Asset Smoothing Methods

- What is an asset smoothing method and why might you want one?
- What are some considerations for choosing a method?
- How does asset smoothing method work in Washington?
- Comparing methods for LEOFF 2

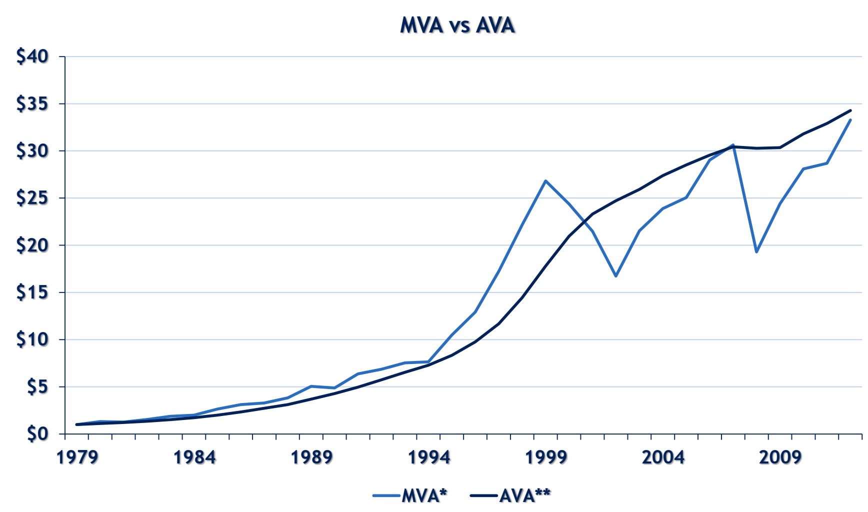
What Is An Asset Smoothing Method?

- Way of managing short term volatility in the investment market
- Provides more stable contribution rates
- Spreads impacts out over longer time horizon
  - If actual rate of return (ROR) is above or below the expected ROR, then a portion of the impact is deferred

Many Ways To Structure Smoothing Method

- For example, can spread gains/losses over years or decades
- Opinions differ on
  - Which measures to smooth
  - Whether any smoothing should take place
- As a practical matter, typically referring to a set portion of returns amortized over less than a decade

Sample Eight-Year Fixed Asset Smoothing



*We assumed MVA increased by the S&P 500 returns.
**We smoothed the AVA over a fixed 8 year period beginning in 1980. We assumed an investment rate of return of 7.50% during this time period.

Considerations When Choosing An Asset Smoothing Method

- Integration with other components of funding method
  - Characteristics of actuarial cost method
  - Asset allocation of the Washington State Investment Board (WSIB)
- Constancy
  - Smoothing method should be a long-term choice
  - Otherwise could be used to “shop” for results
- Guidance from plan actuary
  - Adherence to Actuarial Standards of Practice (ASOPs)

Actuarial Standard Of Practice No. 44

- Consistent treatment of actuarial gains and losses
  - No bias in asset smoothing method
  - Gain or loss smoothed over the same period of time
- Actuarial assets fall within reasonable range around the market assets
  - Typically accomplished with a corridor (cap)
- Differences are recognized within a reasonable period of time

To What Degree Should We Smooth The Assets?

- Many combinations available
- Short or long-term
  - Typically range from three to ten years
- Width of corridor
  - Typically +/- 20 to 30 percent around market value
- Fixed or dynamic
  - All gains and losses smoothed over fixed amount of time, e.g. five years
  - Amount of smoothing varies by size of deviation from expected

How Does Asset Smoothing Method Work?

- In Washington, smoothing depends on size of change and has boundaries
  - Length of smoothing ranges from one to eight years
  - Thirty percent corridor in place
    - Actuarial value must fall within 70 percent and 130 percent of market value
- RCW 41.45.035 - "changes to plan asset values that vary from the long-term investment rate of return assumption shall be recognized in the actuarial value of assets over a period that varies up to eight years depending on the magnitude of the deviation of each year's investment rate of return relative to the long-term rate of return assumption"

Schedule of Asset Smoothing For LEOFF 2

Annual Gain/Loss		
Rate of Return	**Smoothing Period**	**Annual Recognition**
14.5% and up	8 years	12.50%
13.5-14.5%	7 years	14.29%
12.5-13.5%	6 years	16.67%
11.5-12.5%	5 years	20.00%
10.5-11.5%	4 years	25.00%
9.5-10.5%	3 years	33.33%
8.5-9.5%	2 years	50.00%
6.5-8.5%	1 year	100.00%
5.5-6.5%	2 years	50.00%
4.5-5.5%	3 years	33.33%
3.5-4.5%	4 years	25.00%
2.5-3.5%	5 years	20.00%
1.5-2.5%	6 years	16.67%
0.5-1.5%	7 years	14.29%
0.5% and lower	8 years	12.50%

Smoothing Method Produces Actuarial Value of Assets

- Start with the Market Value of Assets (MVA)
- Subtract total deferred assets/losses
  - Prior year deferrals are rolled forward
  - Current year deferral added
- Result is Actuarial Value of Assets (AVA)
- AVA must fall within the corridor
  - Above 70 percent of MVA
  - Below 130 percent of MVA

Calculating the Actuarial Value of Assets – LEOFF 2

Calculation of Actuarial Value of Assets				
(Dollars in Millions)				LEOFF 2
a.	Market Value at 6/30/2012			$6,640
b.	Deferred Gains and (Losses)			
	Plan Year Ending	Years Deferred	Years Remaining	
	6/30/2012	7	6	(334)
	6/30/2011	8	6	524
	6/30/2010	5	2	87
	6/30/2009	8	4	(827)
	6/30/2008	8	3	(184)
	6/30/2007	8	2	116
	9/30/2006	8	1	36
	Total Deferral			($581)
c.	Market Value less Deferral (a - b)			$7,222
d.	70% of Market Value of Assets			$4,648
e.	130% of Market Value of Assets			$8,633
f.	**Actuarial Value of Assets***			**$7,222**

Note: Totals may not agree due to rounding.

**Actuarial Value of Assets can never be less than 70% or greater than 130% of the market value of assets.*

The Mathematics Behind The Smoothing

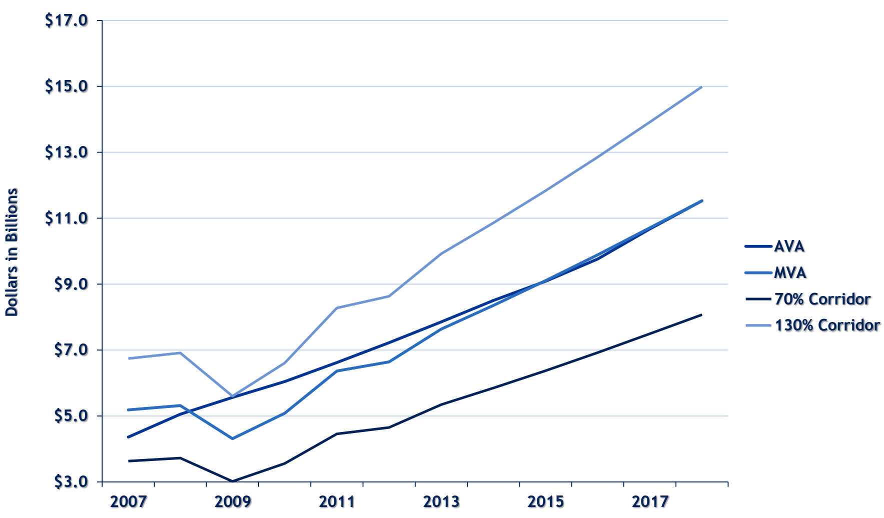
Plan Year Ending June 30	2010	2011	2012
a) Actual Return	12.99%	21.08%	1.45%
b) Expected Return	8%	7.50%	7.50%
c) Asset Gain/(Loss)	219	699	(390)
d) Years to Smooth	5	8	7
e) Annual Recognition (c/d)	44	87	(56)
f) Years Remaining	2	6	6
g) Amount Deferred at 6/30/12 (e*f)	87	524	(334)

Putting The Pieces Together

Calculation of Actuarial Value of Assets						
(Dollars in Millions)						LEOFF 2
a.	Market Value at 6/30/2012					$6,640
b.	Deferred Gains and (Losses)			0	0	
	Plan Year Ending	Actual ROR	Gain/(Loss)	Years Deferred	Years Remaining	
	6/30/2012	1.45%	(390)	7	6	(334)
	6/30/2011	21.08%	699	8	6	524
	6/30/2010	12.99%	219	5	2	87
	6/30/2009	-22.64%	(1,653)	8	4	(827)
	6/30/2008	-1.33%	(491)	8	3	(184)
	6/30/2007	22.74%	464	8	2	116
	9/30/2006	15.77%	285	8	1	36
	Total Deferral					($581)
c.	Market Value less Deferral (a - b)					$7,222
d.	70% of Market Value of Assets					$4,648
e.	130% of Market Value of Assets					$8,633
f.	**Actuarial Value of Assets***					**$7,222**

Note: Totals may not agree due to rounding.
**Actuarial Value of Assets can never be less than 70% or greater than 130% of the market value of assets.*

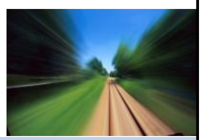
Comparing The Actuarial Value to Market Value*



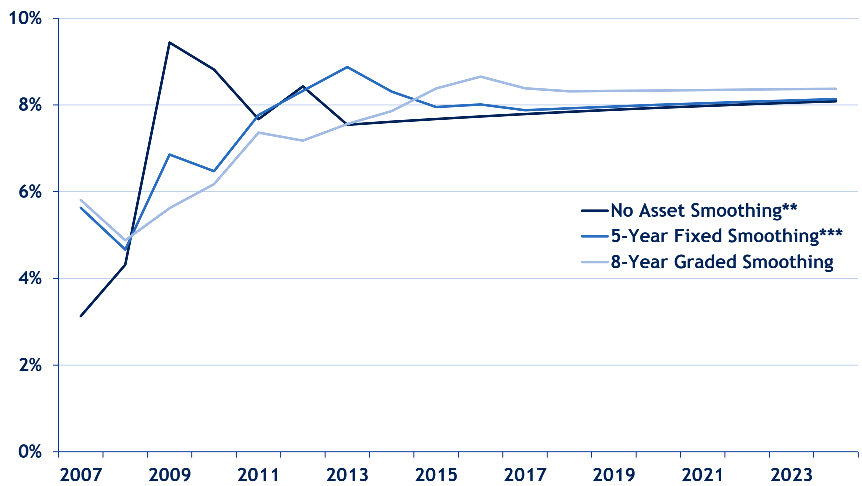
**Results after 2012 are based upon OSA's 2012 Projections, which include investment returns through 6/30/2013.*

A Hypothetical Look At Different Methods For LEOFF 2

- No asset smoothing
  - All gains and losses recognized immediately (no deferrals)
- Five-year fixed smoothing
  - Each year's gain or loss is smoothed over five years
  - Twenty percent corridor around the market value (80 percent – 120 percent)
- Eight-year graded smoothing (Current method)
  - Smoothing varies based on how large the gain/loss is
    - Maximum smoothing is eight years
  - Thirty percent corridor around the market value (70 percent – 130 percent)



Estimated LEOFF 2 Contribution Rates Under Various Methods*



**We assumed no contribution rate floors were in place for any of the methods.*
***Under the "No Asset Smoothing" approach, we assumed there were no asset gains (or losses) prior to 2007.*
****Under the "5-Year Fixed Smoothing" approach, we assumed the Board began smoothing assets over a fixed 5-year interval beginning in 2007.*

Summary

- Managing short-term volatility in gains and losses
- Promotes stable contribution rates
- Many options available
- Selecting a method involves
  - Integration with other components of funding method
  - Constancy: long-term decision
  - Guidance from plan actuary
- Washington smoothing depends on size of change and has boundaries
  - Length of smoothing ranges from one to eight years
  - Thirty percent corridor in place

Questions