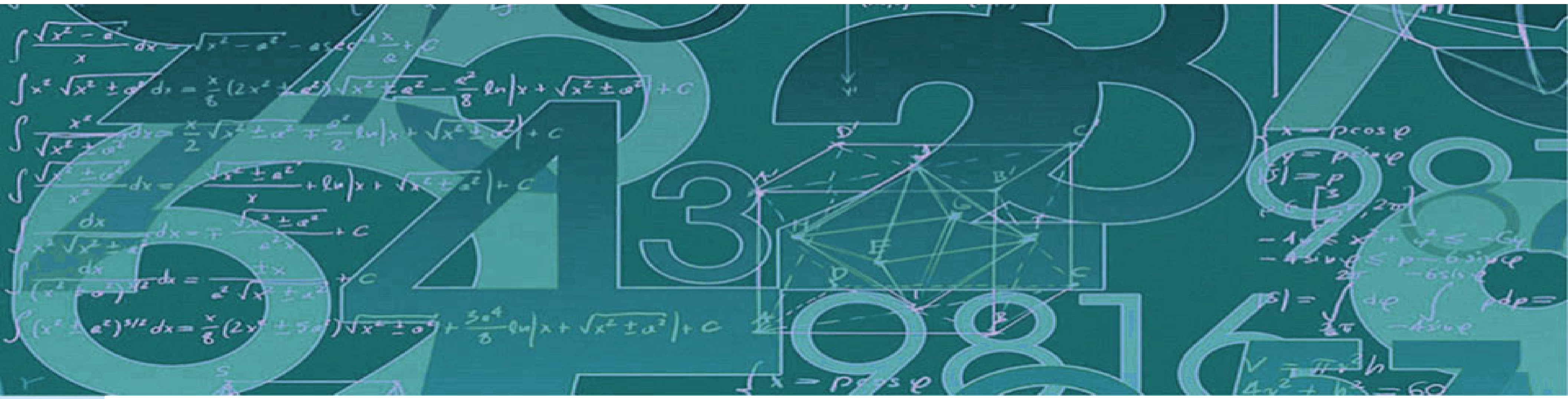
Educational Presentation on Asset Smoothing Methods



Office of the State Actuary
"Supporting financial security for generations."

Updated in 2022

Today's Presentation

- Why smooth assets and what does that even mean?
- Considerations when selecting an asset smoothing method
- Washington State's asset smoothing method
- Example calculation

Why Smooth Assets?

- Manages market volatility
  - Actuaries set assumptions that should be reasonable over a long timeframe, not meant to estimate individual yearly experience
  - Spreads difference between yearly assumed and actual investment return over longer time horizon
- Provides more stable contribution rates and funded ratios

Historical Plan Performance	
Fiscal Year Ending June 30	**Investment Return**
2000	13.56%
2001	(6.75%)
2002	(5.15%)
2003	3.02%
2004	16.72%
2005	13.05%
2006	16.69%
2007	21.33%
2008	(1.24%)
2009	(22.84%)
2010	13.22%
2011	21.14%
2012	1.40%
2013	12.36%
2014	18.89%
2015	4.93%
2016	2.65%
2017	13.44%
2018	10.20%
2019	8.36%
2020	3.71%

What Does It Mean to Smooth Assets?

- Instead of including the entire investment return in the asset value, some of that investment gain/(loss) is deferred
- To determine the investment gain/(loss), the actual investment return is compared to the expected return

	Actual	Expected
a) MVA	$100,000	$100,000
b) Investment Return (%)	10.00%	7.50%
c) Investment Return ($)	$10,000	$7,500

- $10,000 - $7,500 = $2,500 investment gain
  - $2,500 would be incrementally recognized over the course of multiple valuations
- If the actual return was less than expected, that would be an investment loss, but smoothing process is the same

What Should Be Considered When Choosing an Asset Smoothing Method?

- Levers to manage stability
  - Choice of smoothing period, e.g., fixed 5 years, up to 8 years, etc.
  - Corridor around market value, i.e., how much can the smoothed actuarial value of assets differ from the market value on a given measurement date?
- Long-term choice
  - Comfortable with method in good times and bad
- Guidance from plan actuary
  - Adherence to Actuarial Standards of Practice (ASOP)
  - Integration with other components of funding method, e.g., actuarial cost method

What Asset Smoothing Method Does Washington State Use?

- Length of smoothing ranges from 1 to 8 years
  - First reflected in 2003
- 30% corridor in place
  - Actuarial value must fall within 70% and 130% of market value
  - First reflected in 2004
- RCW 41.45.035 defines asset value smoothing technique
  - Investment gains and losses recognized over a period that varies from 1 to 8 years depending on the magnitude of the deviation

Schedule of Asset Smoothing: 7.5% Assumed Annual Return

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%

Note: Rate of Return column will change and center around the assumed rate of return if that assumption changes. For example, starting in FY 22, the assumed annual rate of return will be 7.0%, so all corridors will be reduced by 0.5%, e.g., an actual return of 6.0%-8.0% will have a smoothing period of 1 year.

Smoothing Method Produces Actuarial Value of Assets

- Start with Market Value of Assets (MVA)
- Determine current year deferral, if any
  - A smoothing period of 1 year means immediate recognition, i.e., no deferred gain/loss
- Recognize additional year of past deferrals
- Subtract total deferred gains/losses from MVA
  - Deferring investment gains decreases the AVA
  - Deferring investment losses increases the AVA
- Result is Actuarial Value of Assets (AVA)
- AVA must fall within corridor
  - Above 70% of MVA
  - Below 130% of MVA

Start with Market Value of Assets (MVA)

Calculation of Actuarial Value of Assets						
(Dollars in Millions)						**All Systems**
a. Market Value at 6/30/2020						$104,221
Deferred Gains and (Losses)						
Plan Year Ending	**Actual RoR[1]**	**Initial Gain/(Loss)**	**Smoothing Period**	**Annual Recognition**	**Years Remaining**	**Remaining Deferral**
6/30/2020	4.53%	($2,924)	3[2]	($913)	2[2]	($2,011)
6/30/2019	8.86%	$1,258	2	$629	0	0
6/30/2018	9.56%	$1,749	3	$583	0	0
6/30/2017	14.10%	$4,799	7	$686	3	2,057
6/30/2016	2.40%	($3,904)	6[2]	($648)	1[2]	(648)
6/30/2015	4.58%	($2,013)	4[2]	($503)	0	0
6/30/2014	18.88%	$6,823	8	$853	1	853
b. Total Deferral						**$251**
c. Market Value less Deferral (a - b)						$103,970
d. 70% of Market Value of Assets						$72,955
e. 130% of Market Value of Assets						$135,487
f. Actuarial Value of Assets[3]						**$103,970**

Note: Totals may not agree due to rounding.

[1] *Dollar-weighted return.*

[2] *See the June 30, 2020, AVR for actual plan-specific smoothing periods and years remaining.*

[3] *Actuarial Value of Assets can never be less than 70% or greater than 130% of the Market Value of Assets.*

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Let's Look at the Following Illustrative Example

- The difference between what actually happened and what we expected to happen is an investment gain or loss

	Actual	Expected
a) MVA	$100,000	$100,000
b) Investment Return (%)	10.00%	7.50%
c) Investment Return ($)	$10,000	$7,500

- $10,000 - $7,500 = $2,500 investment gain

Spread Investment Gain/Loss over Required Smoothing Period

a) Actual Market Value Return	10.00%
b) Expected Return	7.50%
c) Asset Gain/(Loss)	$2,500
d) Smoothing Period	3
e) Annual Recognition (c / d)	$833
f) Amount Deferred (c - e)	$1,667

- In this example, $833 of the investment gain will be included in the AVA, while the remaining $1,667 will be excluded and temporarily deferred
  - In year 1, this essentially means the AVA will be reduced by $1,667
  - If this had been an investment loss, the AVA would be increased by the amount deferred
- Deferred gain of $1,667 will be recognized incrementally over the next 2 valuations

Determine Current Year Deferral

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Recognize Additional Year of Past Deferrals

- Each year, every past deferral is reduced to reflect another year of annual recognition
  - This means less money is deferred as more of the historical gain or loss is included in the AVA measure
- Let’s look at the same example as before and see how it will impact future AVA calculations

a) Actual Market Value Return	10.00%
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e) Annual Recognition (c / d)	$833
f) Amount Deferred (c - e)	$1,667

Recognize Additional Year of Past Deferrals

Year	Initial Gain/(Loss)	Smoothing Period	Annual Recognition	Remaining Deferral
1	$2,500	3	$833	$1,667
2	2,500	3	833	834
3	$2,500	3	834	$0
Total			**$2,500**	

- In year 1, the AVA will be reduced by $1,667
- Deferred gain is recognized incrementally over the next 2 valuations
  - In year 2, the AVA will be reduced by $1,667 - $833 = $834
  - In year 3, the AVA will no longer by reduced by this investment experience as the entire investment gain will have been fully recognized in year 3

Recognize Additional Year of Past Deferrals

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Subtract Total Deferred Gains/Losses from MVA

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Putting it All Together

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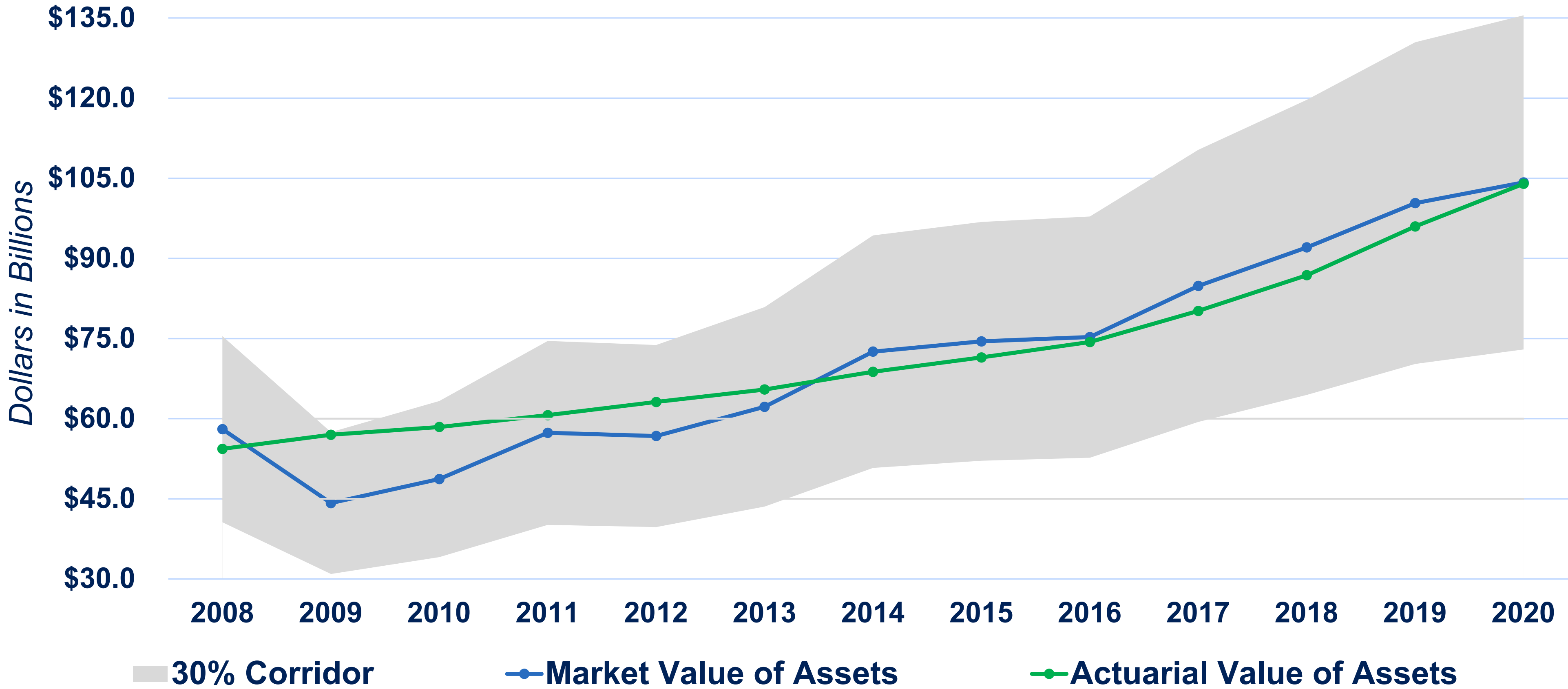
Comparing the Actuarial Value to Market Value



Summary on Asset Smoothing Methods

- Manages short-term investment volatility
- Promotes stable contribution rates and funded ratios
- ASOPs and funding method help inform a reasonable smoothing method
  - Investment gains and losses should be treated the same way
- Washington's smoothing period and corridor defined in statute
  - Current methods reflected in results since 2004

Questions? Please Contact: The Office of the State Actuary
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Thank You

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