Flexible De-Risking

Actuarial Office

November 12, 2013

CalPERS

Today's Objective

- Educate the board about possible de-risking strategy
- Discussion on the practicality of de-risking
- Obtain direction from the Board on whether de-risking should be further developed

Agenda

Part I: The Concept of De-Risking

Part II: Can it Work?

Part III: Discussion and Next Steps

De-Risking

- There are various approaches to de-risking:
  - Flexible de-risking
  - Systematic de-risking
  - Combination of flexible and systematic

Flexible De-Risking – Concept

- Reduce funding risk when least painful
- Make changes after good investment years
- Do not increase risk after poor investment years

Flexible De-Risking - Concept

- How is de-risking accomplished?
  - After a good return, first reduce the discount rate (adding a margin for adverse deviation).
  - Second, gradually modify the asset allocation to reduce the volatility and expected return.
  - Reduced volatility will lower the probability of investment shocks that threaten the funding of the system.

Flexible De-Risking – Concept

- When would it occur?
  - Following years of exceptional returns that will allow us to de-risk without negatively impacting employer rates.
- What return will be required?
  - A return of 14-18% will allow most plans to have a 25 bps reduction in the discount rate without increasing the rate above the level they were projected to go.

Systematic De-Risking – Concept

- Define a target risk level
  - Expressed as a desired expected investment volatility
- Define a time-frame for de-risking
- Construct a schedule of de-risking events that achieves the target volatility in the specified time frame.

Systematic De-Risking – Example

Current Risk Level:

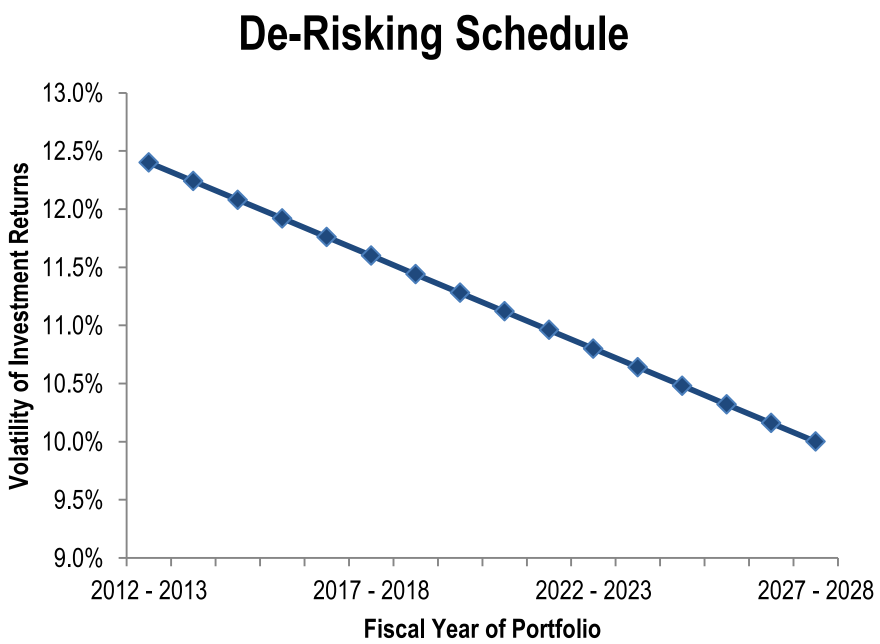
- 12.5% Volatility

Target Risk Level:

- 10% Volatility

De-Risking Time Frame

- 15 Years



Systematic + Flexible De-Risking – Concept

- Start with the idea of Systematic de-risking
  - Define target risk level and time-frame
  - Construct a schedule
- Make larger reductions in risk in years with good investment returns using the mechanism of Flexible De-Risking.
- If you are ahead of the schedule due to a good investment year, you have the option to not de-risk in bad years to keep rates steady.

Agenda

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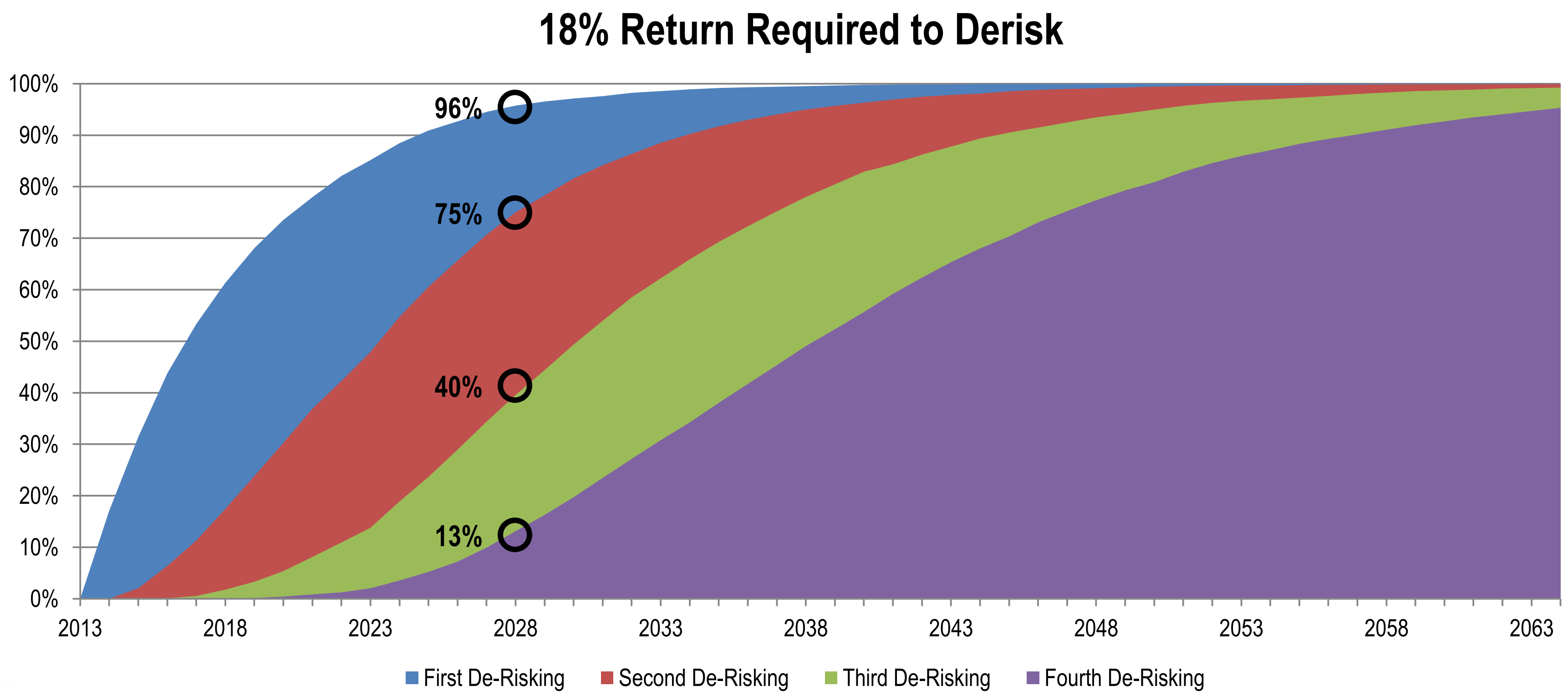
Can Flexible De-Risking Work?

- Key is for the fund to achieve returns in excess of assumed discount rate
- What return is required?
  - A return of 14-18% will allow most plans to have a 25 bps reduction in the discount rate without increasing the rate above the level they were projected to go.

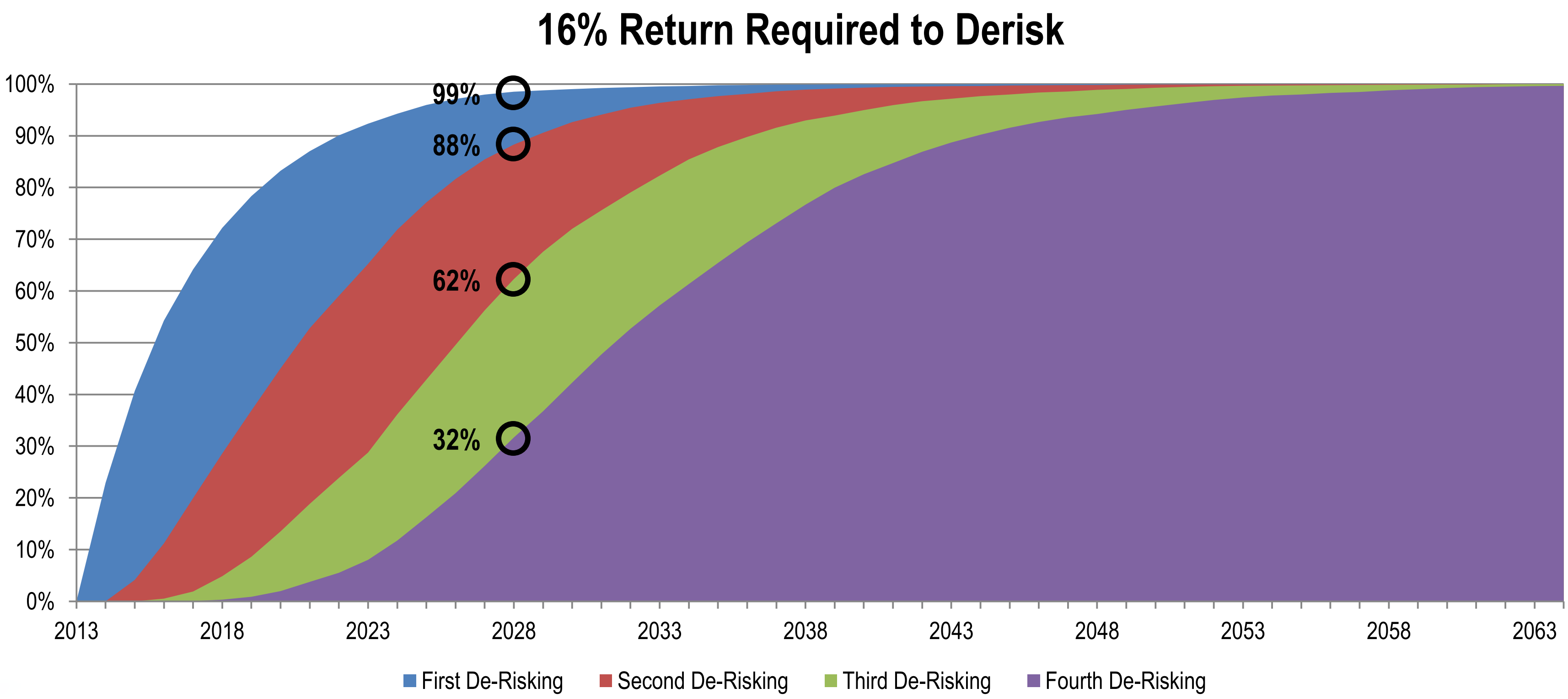
Can Flexible De-Risking Work?

- How likely is a de-risking “event”?



Can Flexible De-Risking Work?

- How likely is a de-risking “event”?



Flexible De-Risking – Example

Initial Risk Level:

- 12% Volatility

Minimum Return to De-Risk:

- A "good year" will be a return greater than 18%

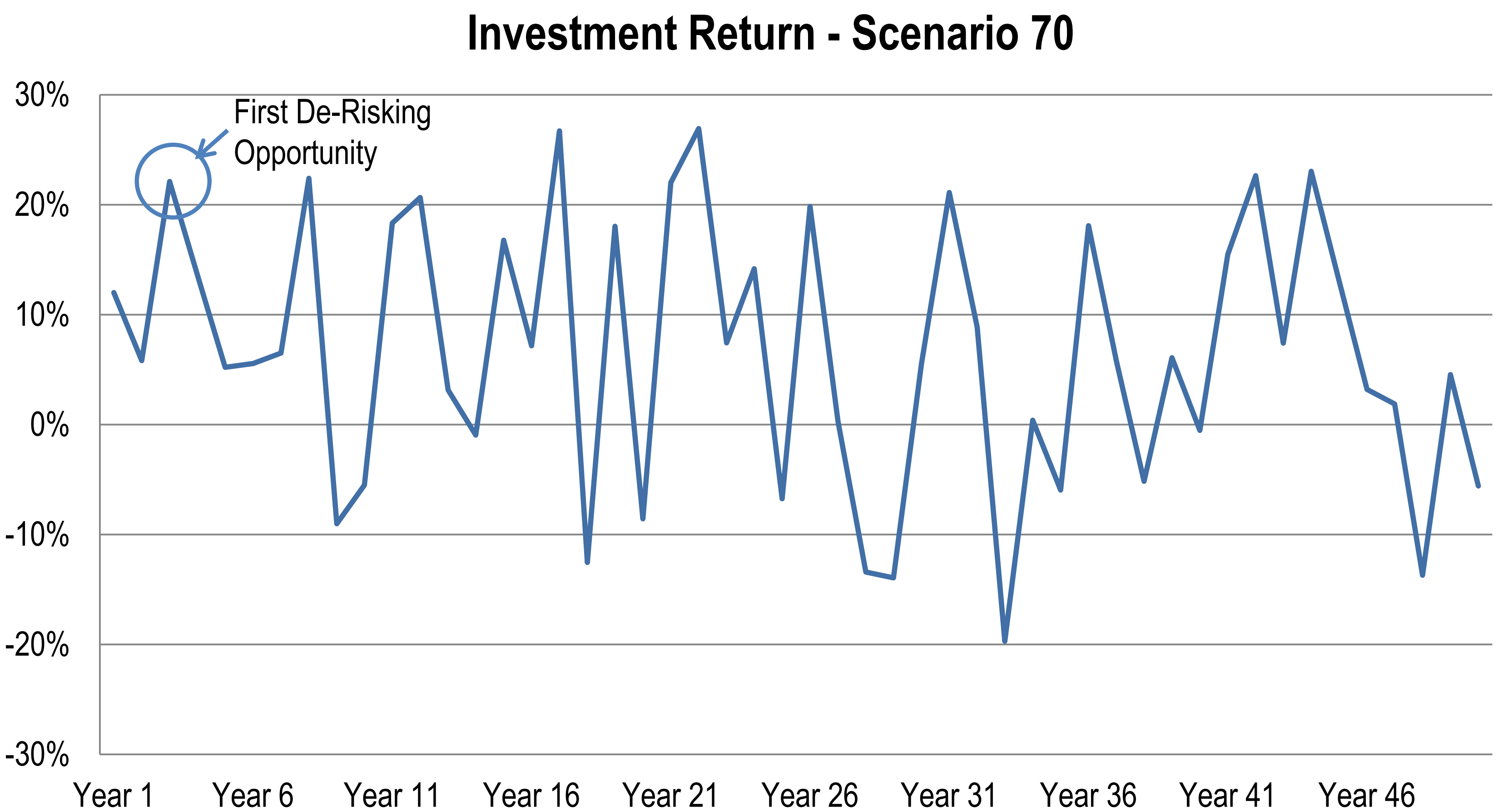
Risk Reduction per Good Return:

- 25 bps reduction in discount rate (equivalent to about a 1% reduction in volatility)

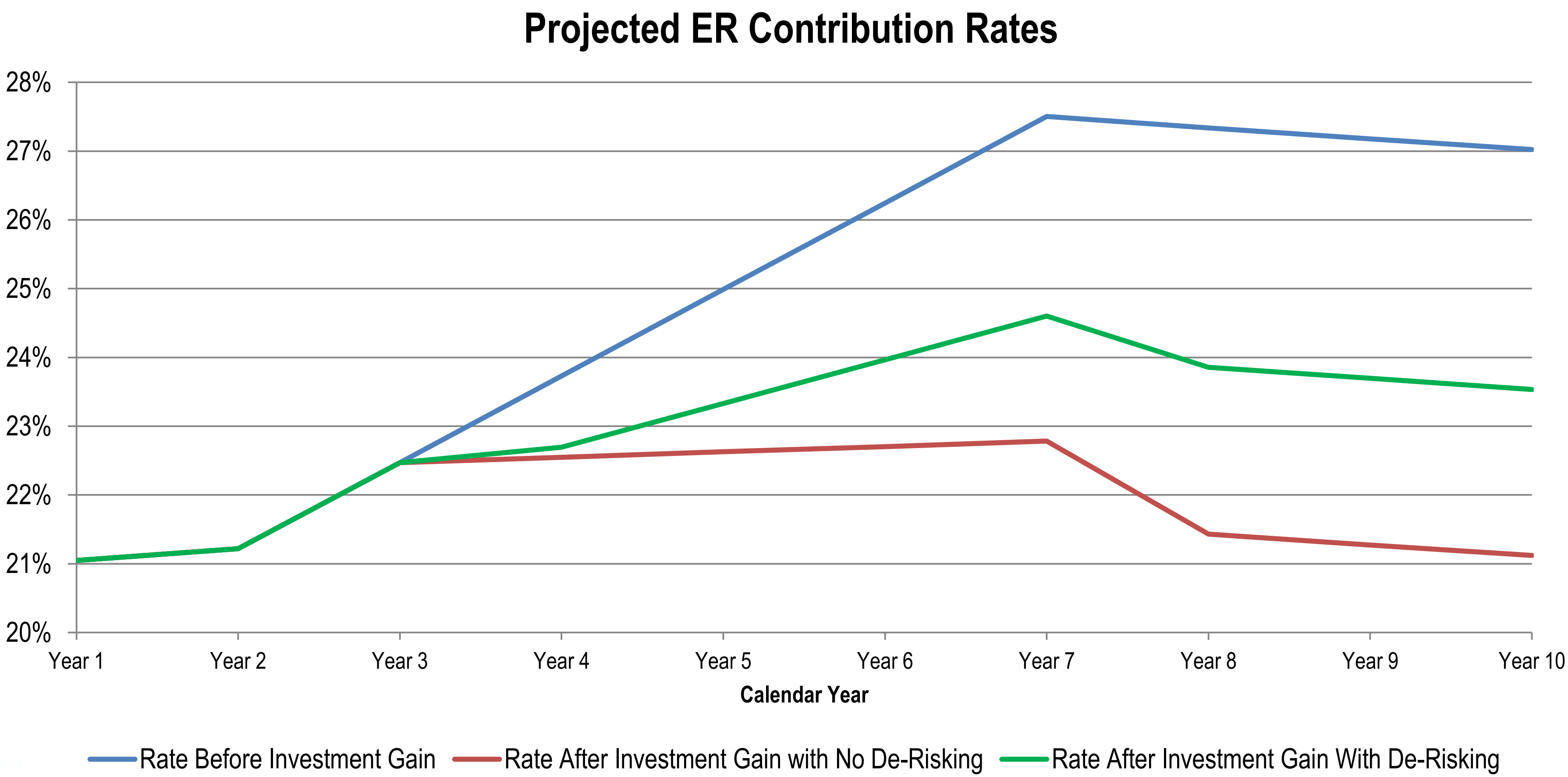
Plan Considered

- State Miscellaneous

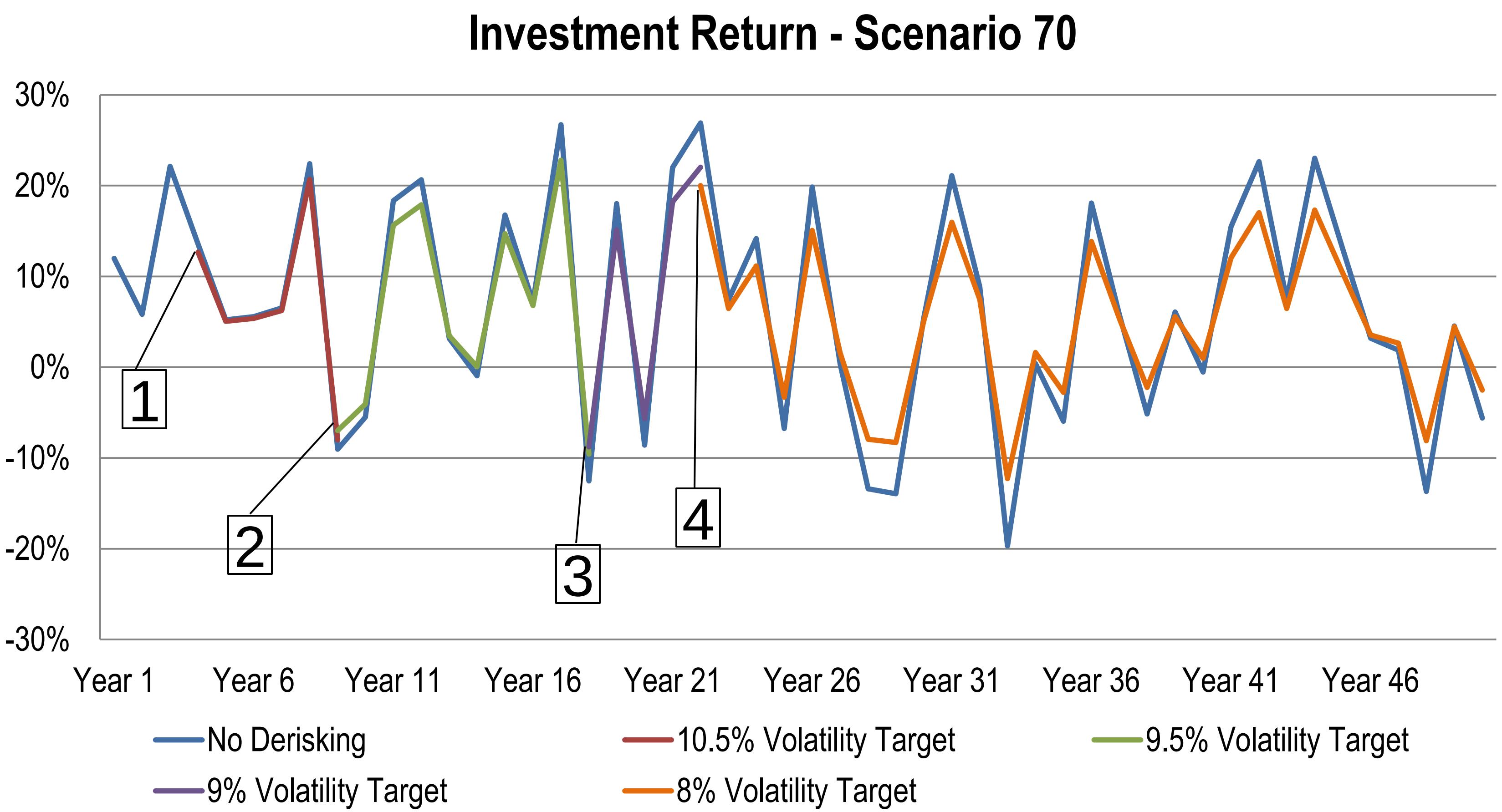
Flexible De-Risking – Example



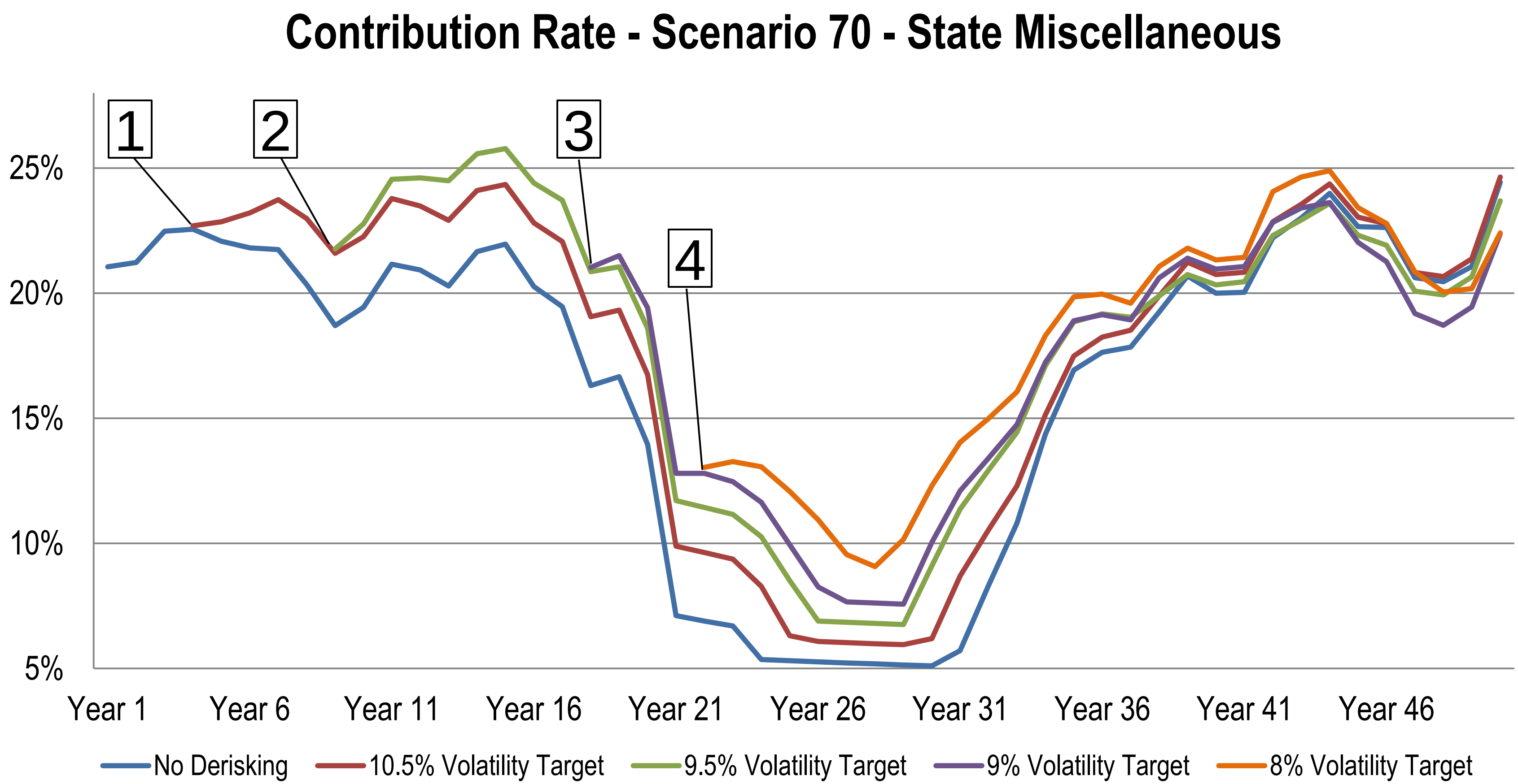
Flexible De-Risking - Example



Flexible De-Risking – Example



Flexible De-Risking – Example



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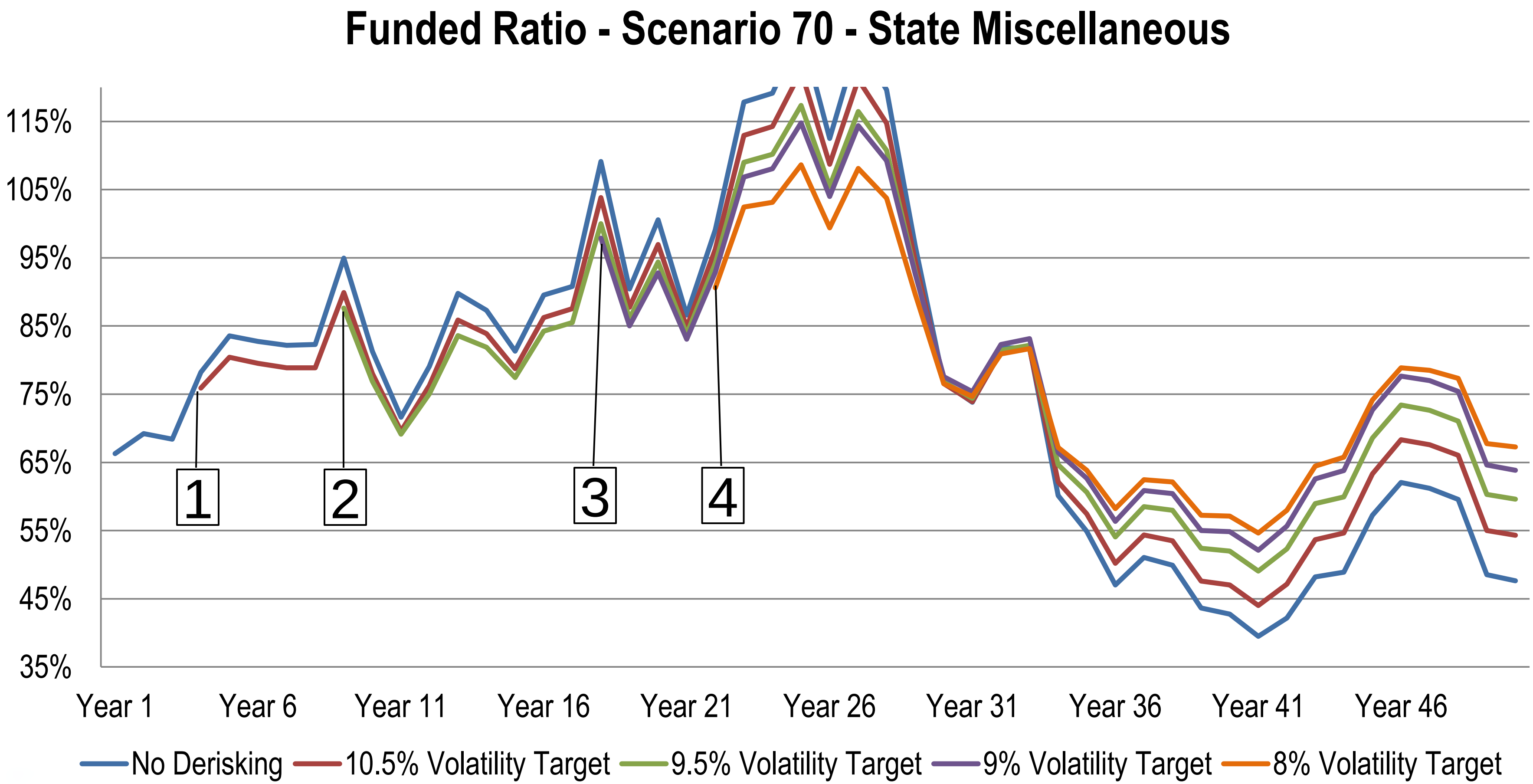
Flexible De-Risking – Example



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Guiding Questions for Discussion:

- What is the appropriate level of volatility for our portfolio?
- Should we pursue de-risking?
- If yes, when should we start?
- Which approach?
  - Flexible, systematic or combination?
- How long until we reach desired level of volatility?

Appropriate Level of Volatility

- If we were 100% funded, would we be comfortable with the level of risk in the system?
- What is the appropriate level of volatility for our portfolio?

Appropriate Level of Volatility

If we were 100% funded today with:

12.5% Volatility

- 50% probability of falling below 80% funded in the next 30 Years
- 25% probability of falling below 60% funded in the next 30 Years

10% Volatility

- 40% probability of falling below 80% funded in the next 30 Years
- 15% probability of falling below 60% funded in the next 30 Years

8% Volatility

- 35% probability of falling below 80% funded in the next 30 Years
- 10% probability of falling below 60% funded in the next 30 Years

Should we Pursue De-Risking?

- Yes, if the Board believes the current level of volatility is too high.
- Assuming we pursue de-risking…

If Yes, When Should we Start?

- Options:
  - Table the idea for a few years until employer rates have stabilized and the impact of recent changes has been fully reflected
  - Wait until reaching 100% funded
  - Implement when first de-risking event occurs (e.g. 18% or more investment return is achieved)

Which De-Risking Approach?

- Flexible
  - Ad hoc
  - Automatic as per Board policies
- Systematic
- Combination of both

Flexible De-Risking – Implementation Options

Ad Hoc

- When a good return occurs, staff brings action item to the board recommending whether to de-risk or not.

Board Policy

- Board policy sets the parameters that trigger a de-risking event
- Staff implements a de-risking event if:
  - Good return is achieved
  - Current volatility levels are above long term volatility target
- Board is notified of change as an information item.

Which De-Risking Approach?
Flexible De-Risking – Pros and Cons

Pros:

- Potential to reduce risk quickly
- Has minimal immediate impact on employer Rates
- Lower employer Contribution rate volatility over time
- Helps to prevent boom and bust cycles

Cons:

- Not guaranteed to reduce risk if returns are not good enough
- May result in higher member and employer contribution rates
- All plans are different – some plans may experience increased rates after de-risking event

Which De-Risking Approach?
Systematic De-Risking – Pros and Cons

Pros:

- Guaranteed to reduce risk over the specified period
- Predictable impact on employer rates
- Lower employer Contribution rate volatility over time
- Helps to prevent boom and bust cycles

Cons:

- Will compound the increase in employer rates when de-risking follows a poor investment return
- May result in higher member and employer contribution rates

How long until we reach desired level of volatility?

- If the Board’s desire is to reduce the level of volatility, over how many years should we take to reach that level?

Next Steps (If Directed to Move Forward)

- Obtain formal approval of de-risking concept
  - Spring/summer of 2014
- Develop and obtain approval of formal de-risking policies
  - Both investment and actuarial policies
  - Fall/winter 2014-2015

Questions?