99% VS. 101%: WHAT'S THE DIFFERENCE?

WHAT FULL FUNDING MEANS, WHAT IT DOESN'T, AND WHAT YOU CAN DO ABOUT IT

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MAIN TAKEAWAYS/OBJECTIVES

1. Where do pension liabilities come from?
2. How does "**full funding**" differ from being **unfunded**?
3. What can we do to balance **stability** *and* **sufficiency** of funding contributions?
    a) Pension funding policy
    b) OPEB funding policy
    c) Investment policy

There is no such thing as "*The END of FUNDING*"

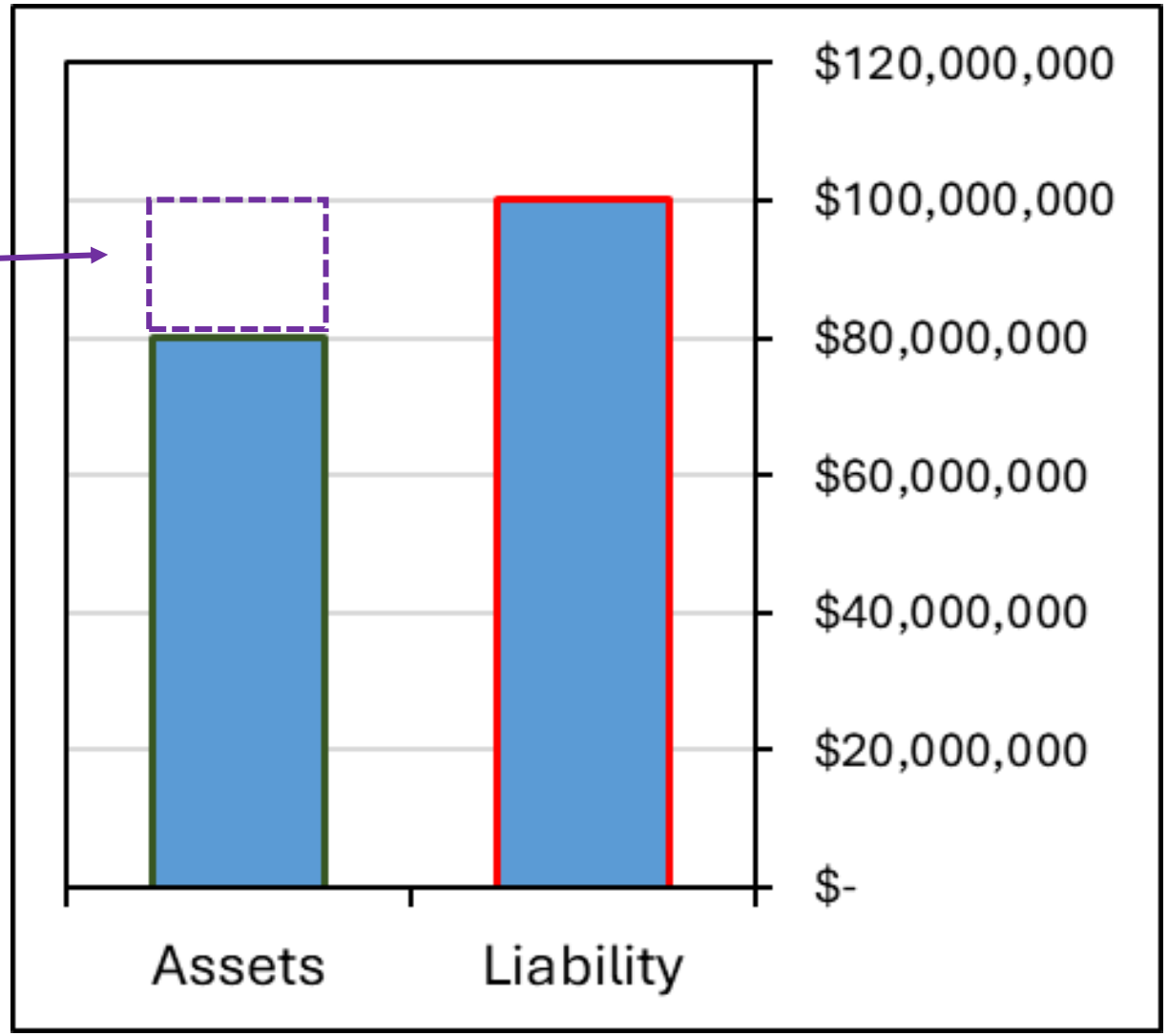
~~FULL~~ FUNDING: THE DEFINITION

- Comparison between *assets* and *liabilities*
  - Liability = How many benefits will be paid in the future for **service up to this date**?
  - Assets = How much in assets have been **set aside** to pay said benefits?
- Actuarial Valuations
  - Determine how much to pay **into** the Fund, based on how much is expected to be paid **out**

FULL FUNDING: THE DEFINITION

- **“Unfunded liability”** = portion of liability not yet covered by assets
  - Amortization component of appropriations used to pay this amount down

- “Full” Funding: **assets meet *or* *exceed* liabilities**
  - No remaining liability to finance → **reduced appropriations**



FULL FUNDING: THE PERCEPTION

- Benefits are paid for, “Once and for all”

- “Mortgage” analogy
  - Often used to explain amortization of unfunded liability
  - Expect reduction in appropriations to be permanent

PICTURED: a retirement board celebrates achieving fully funded status. They do not have to worry about pensions anymore.

FULL FUNDING: THE REALITY

But why? Two reasons:

- "Service Cost" / "Normal Cost"
  - Employees continue to earn more service
  - Fully funded = paid for benefits employees have earned… SO FAR
  - Full funding is a (perpetually) moving target
- Gains and losses will occur
  - Fully funded = funded until further notice, or funded "as far we know"

So, if “fully funded” just means “fully funded so far, until further notice”, then…

1. WHAT ACTUALLY CHANGES AT 100%?

- MGL Chapter 32, Section 22D/F → can reduce contributions

2. WHAT IS THE POINT OF PRE-FUNDING ANYWAY?

- Responsible budgeting / “generational equity”
- Investment return → reduced costs

PENSIONS COME FROM PAYROLL

+1 Year SVC

Current Employee

Age 45

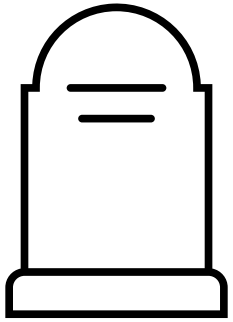
$100k/year

+$2,500/year benefit

Retired

Age 65

+$55,000 lifetime benefits



Death

Age 87

(retired 22 years)

SERVICE COST / NORMAL COST

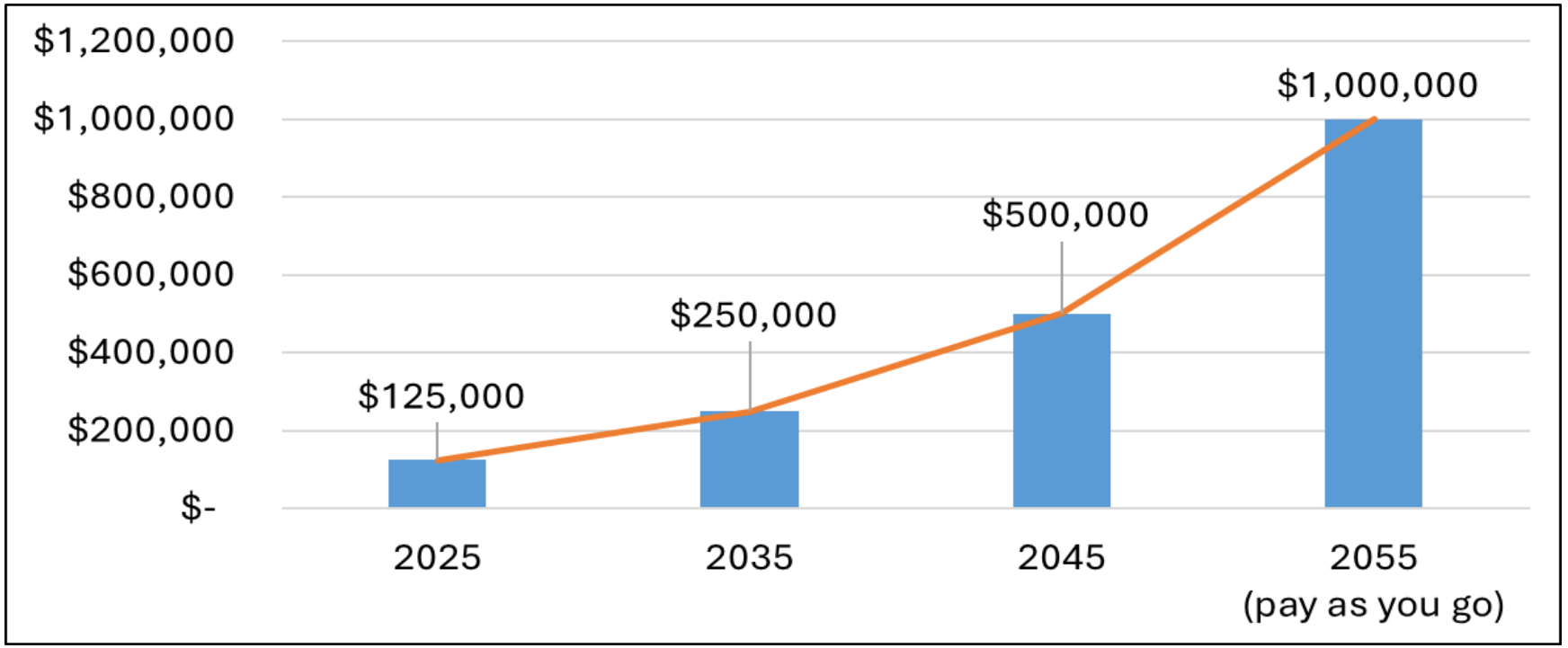
If benefits won't be paid for many years, **why fund now**?

1. Benefits paid later **because** of service earned today

2. Investment Return: those who pay early pay **less**

“~~Pay now or Pay later~~”→ Pay now or pay MORE later

Example: cost of $1M benefit payroll for 2055, assuming 7% investment return



THREE SOURCES OF MONEY FOR BENEFITS:

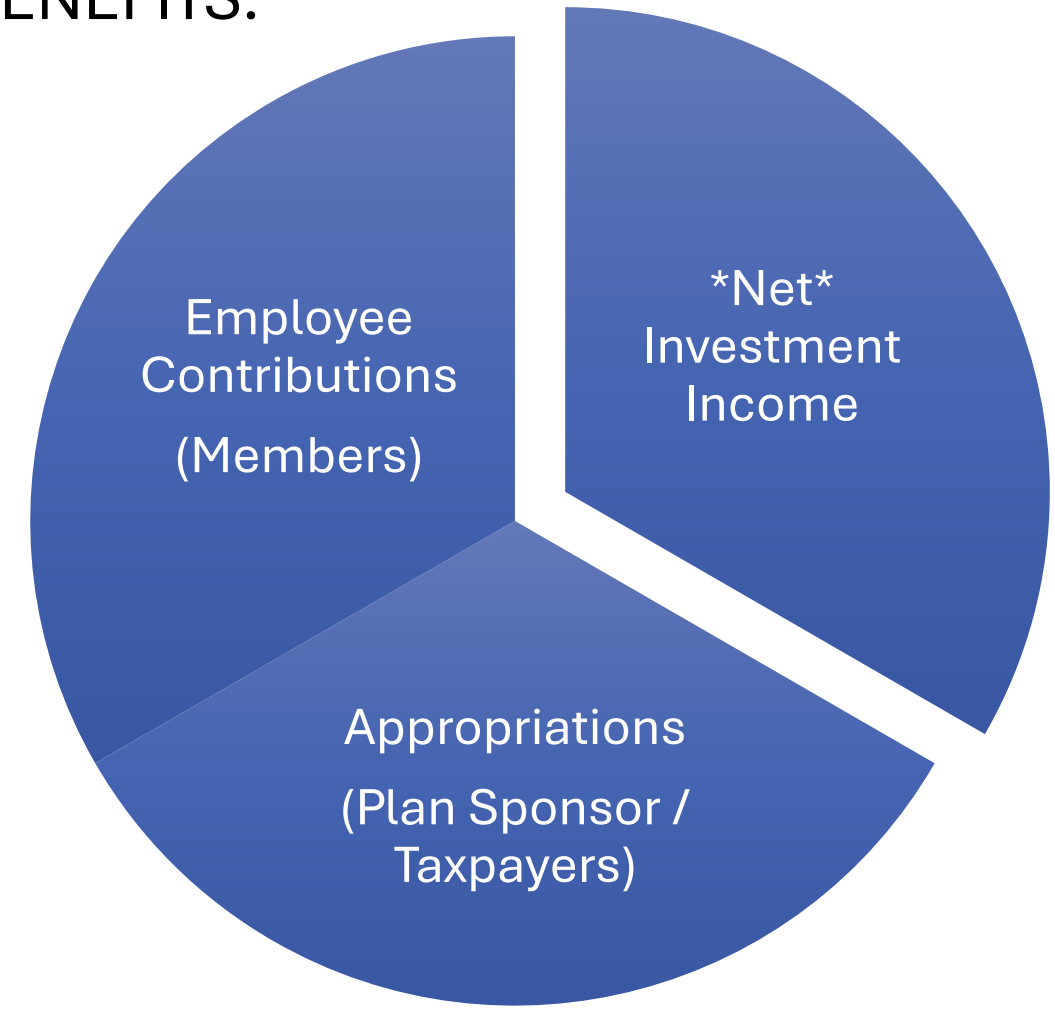
Net Investment Income dollars have no direct effect on employee contributions

→Each dollar of return reduces required employer appropriations

→Losses do not directly affect benefits

→2009: Ch32 pension has your back… 401(k), not so much

Employer takes both the benefits and risks of investment



MORE MONEY… MORE (COMPLICATED) PROBLEMS:

➢More Return

Returns are generally positive in the long run

Positive return on more assets = more returns

➢More Volatility

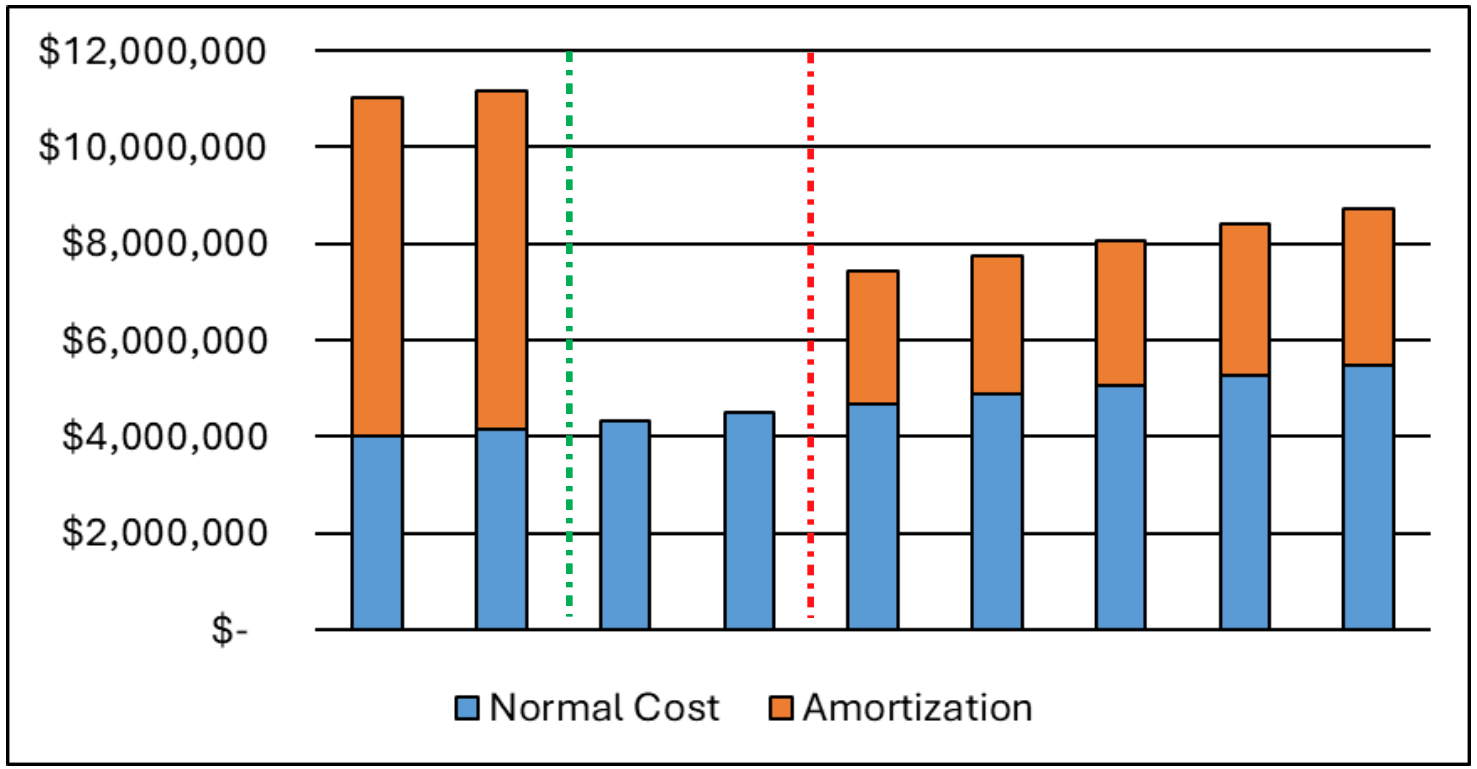
Asset returns can be volatile → swings in value will become greater in magnitude as your fund grows, leading to greater

CONTRIBUTION VOLATILITY

CHAPTER 32: What are your options at 100%?

BIGGEST CHANGE: if you drop your contribution and later become unfunded again (likely), you do **NOT** have to resume funding at your prior level, as long as you *still* fund by 2040.

Example: appropriations of ~$10-12M prior to full funding, dropped to $4M when fully funded.
→Later became unfunded, began funding again at ~$7-8M

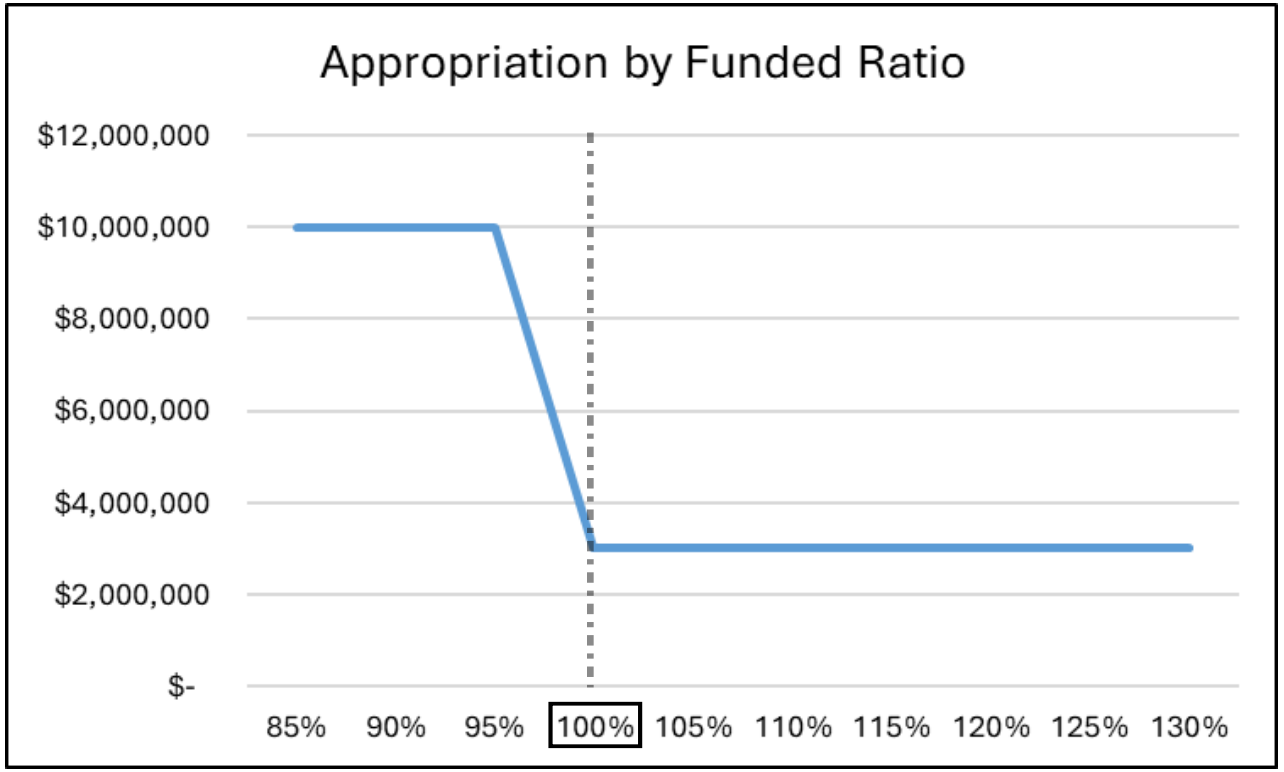


PROBLEM: While reduced cost is nice, we swiftly run into a lot of contribution volatility

→ **"Stop and start"** funding a significant challenge for well funded systems

CONTRIBUTION VOLATILITY: where does it come from?

“Stop-and-start” funding more likely when choosing to stop in the first place.



PROBLEM:

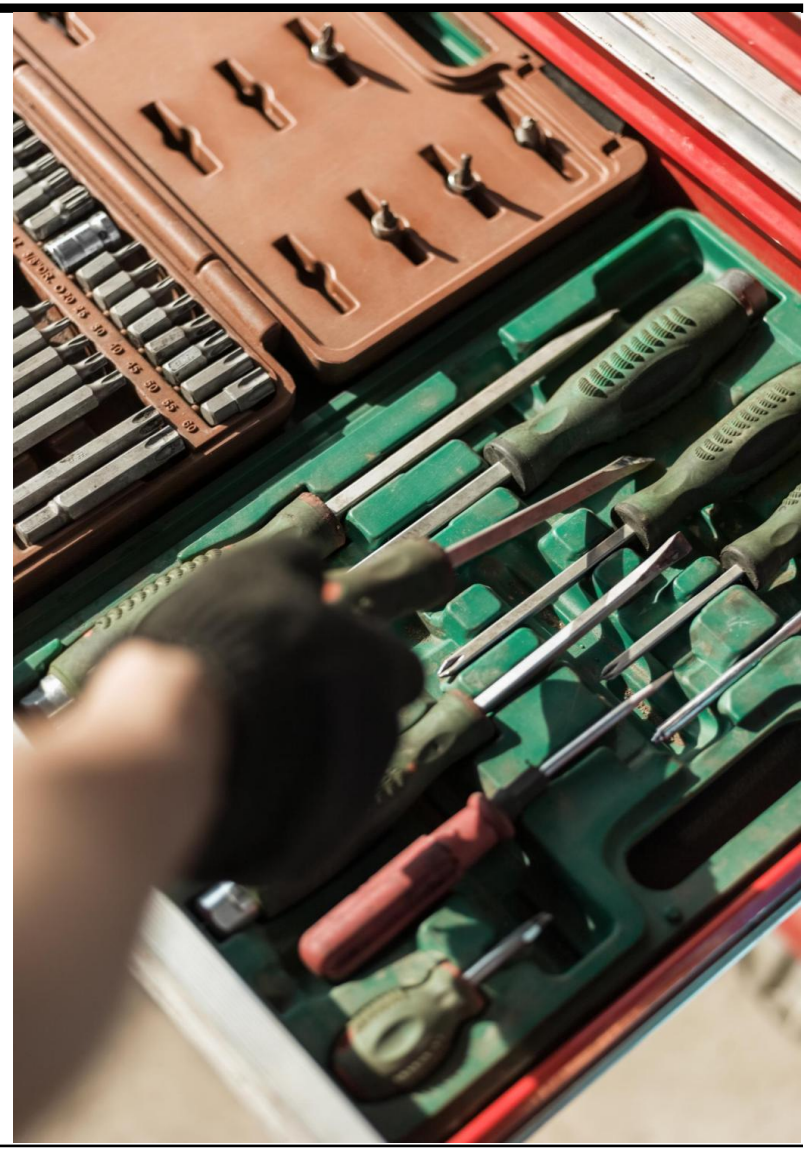
Funding plateau at 100% leads to immediately reduced contributions which increase the likelihood of having to start back up again

Change in **NET CASH FLOW** also leaves fund more vulnerable to swings in asset return

POLICY GOALS

- How can **stable** contributions reliably fund an **unstable** liability?

- What can we do to protect our funded status from risk?
  - Investment policy
  - Pension funding approach
  - Combined Pension/OPEB budgeting



How Does the Asset Side of Things Change?

→ Same Stuff, Different Day in many respects

- The portfolio asset return still needs to meet the amount of the discount rate to maintain funded status
- There is no "bonus" for being fully funded; still need to take what the market gives you.

If anything, managing the asset portfolio becomes trickier.

→ Funded status volatility goes up as funded status increases.

- The math is difficult - "If you decline 50%, need 100% return to get back to even"
- There's no "safety net" of coming additional contributions; the normal cost contributions assume they'll be invested as expected.

Case Study: A Typical System Under Different Circumstances

→ One way to get a feel for the outcomes is to work through an example.

- Examine a long-term (i.e., 20-year) time period with different paths of performance
- Assume an asset allocation

Asset Class	Target Weight
Global Equity	36.0%
Private Equity	16.0%
High Yield Bonds	9.0%
Investment Grade Bonds	15.0%
Real Estate (Private)	10.0%
Infrastructure (Private)	4.0%
Hedge Funds	10.0%

→ Assume payout and discount rate parameters

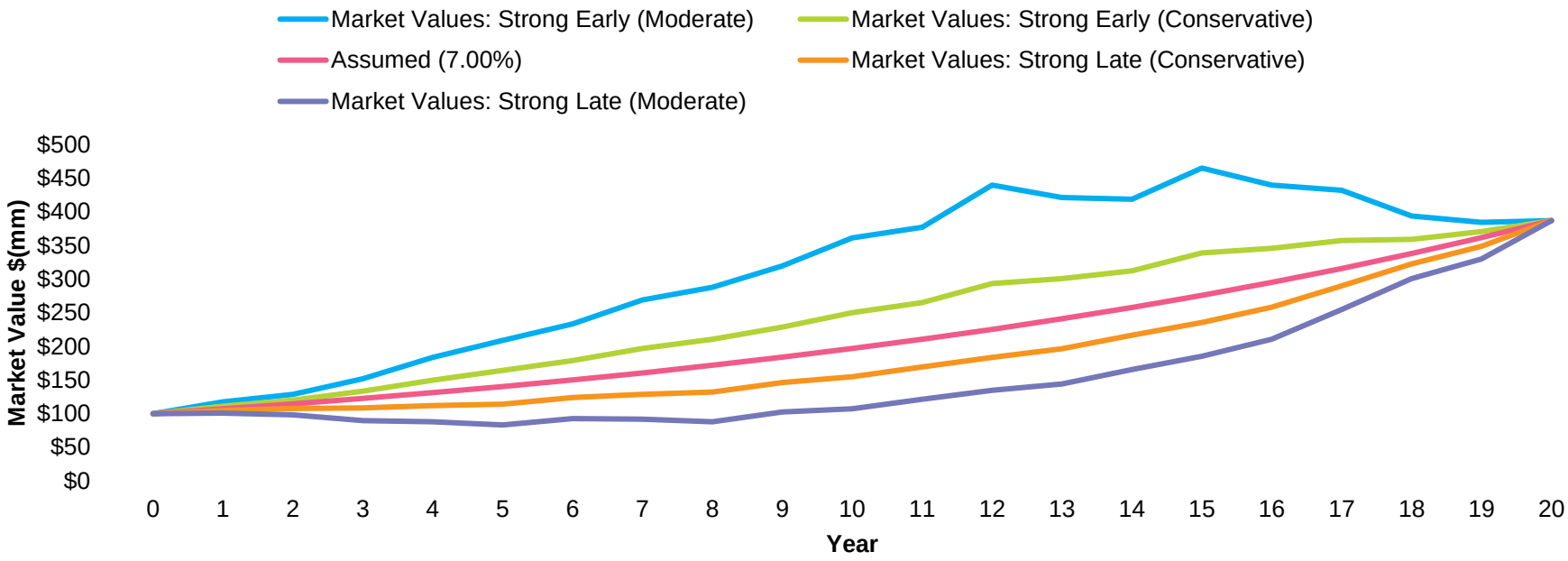
- 7% discount rate, 100% funded initially, $100 million initial value
- 4% net cash outflow in Years 1-10 (contributions less benefit payments and admin costs)
- 10% net cash outflow in Years 11-20 (contributions less benefit payments less admin costs)

Asset Case Study: Paths of Return Matter Less With No Cash Outflows

→ The following examples show an array of return paths

- Hitting the expected rate of return (7%) exactly every year
- Having a period of stronger-than-expected performance earlier in the period but weaker later and vice versa[1]
  - Conservative assumption is least different from the forecasted return (25th and 75th percentiles)
  - Moderate assumption differs more from the forecasted return (5th and 95th percentiles)

→ If there are no cash flows the timing of returns does not really matter…you end up in the same place!



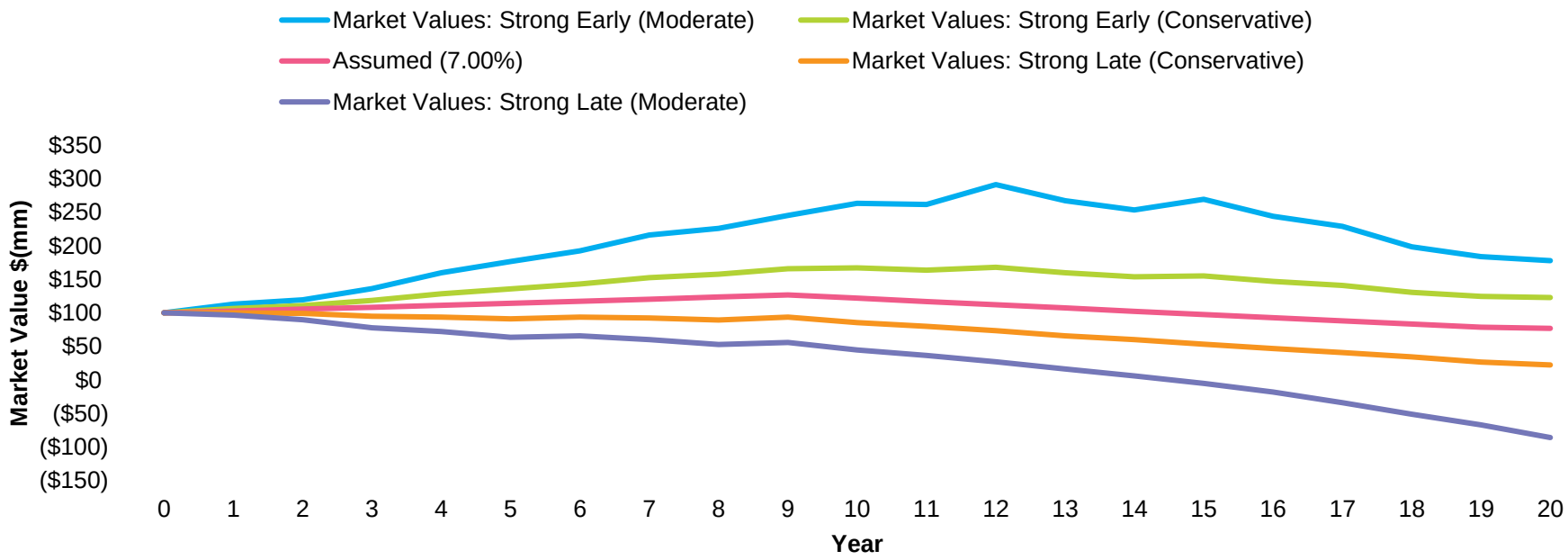
1 Examples assume weak/strong returns for 10 years followed by 10 years of strong/weak returns.

Asset Case Study: Paths of Return DO Matter WITH Cash Outflows

→ If you go through the same exercise with net cash outflows

- Hitting the expected rate of return (7%) you're okay
- For the other situations, the timing of strong versus weak performance can material impact the System
  - An early strong moderate return would be over $60mm dollars greater than the 7% baseline
  - However, a late strong return would be approximate $50mm less than the 7% baseline

→ Unsurprisingly, better returns gained earlier are more advantageous than better returns later



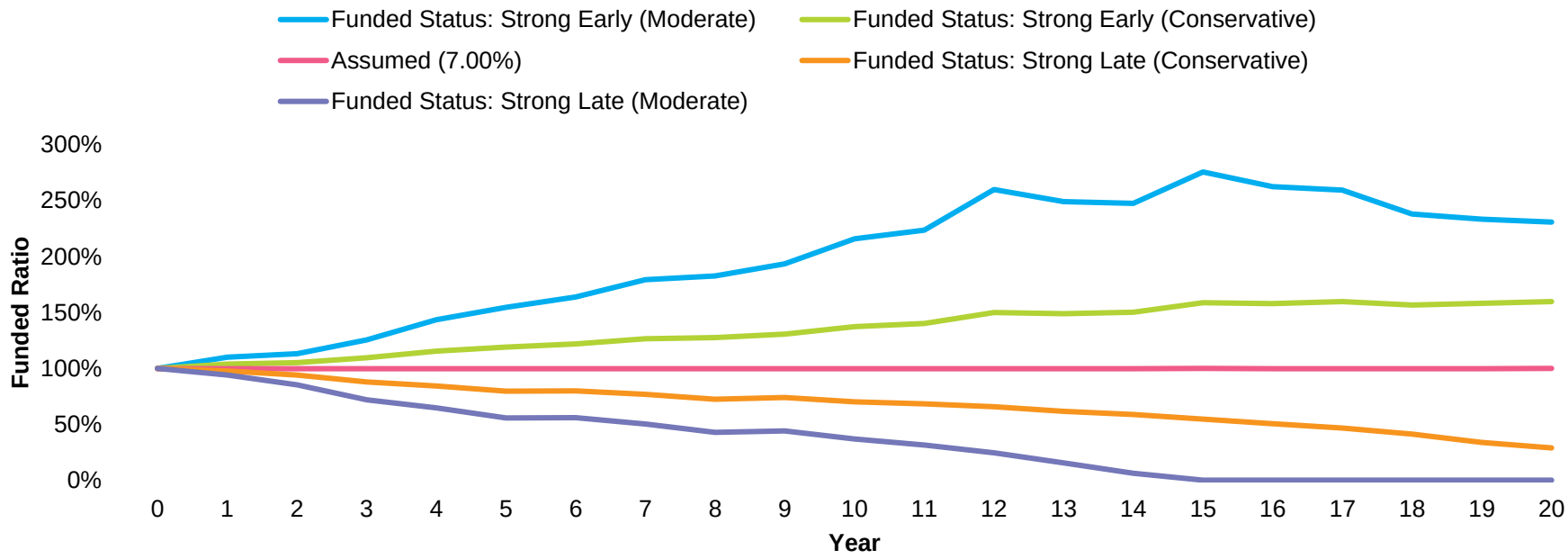
Asset Case Study: Funded Status With Cash Outflows

→ Funded status understandably takes a hit under the same conditions

→ Even if you start at 100% funded, if you have a string of weaker than expected performance in the near term you can end up in a pickle

- Without intervention, the moderate scenario does not even participate in the entire back half of the forecast while the more conservative forecast drops to less than 30% funded at the 20-year point

→ Overseeing the investments clearly does not stop at the100% funding level



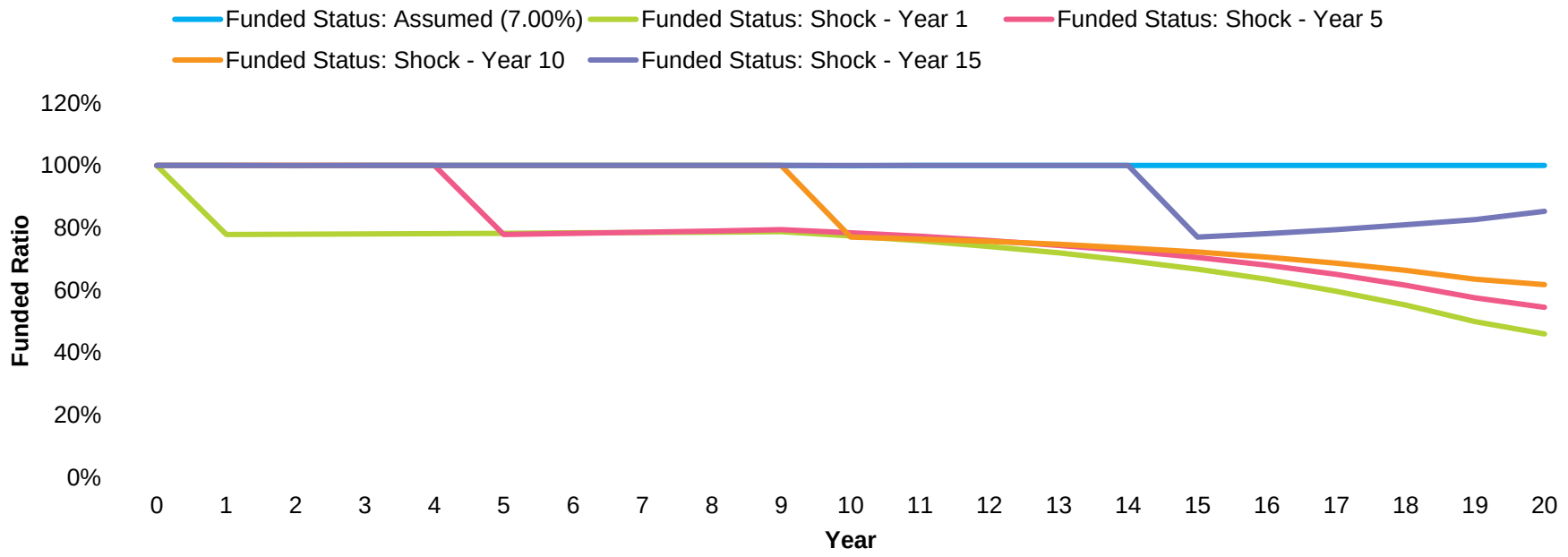
Asset Case Study: Funded Status With a Bad Market

→ The prior examples are smoothed out – we have not considered what happens if there is a market selloff.

→ Below, we assume a 25% decline in equity markets at different points in time (Years 1, 5, 10, and 15)

- We DO assume the equity market recovers after the initial decline
- We assume the portfolio otherwise earns the assumed rate of return

→ Only at the furthest out point (Year 15) is the portfolio able to independently make a comeback without external help



What Can We Do to Protect Ourselves?

→ Given how hard everyone is working to get to being fully funded, what can we do to protect that status?

- Adjusting the portfolio
- Cash flow matching
- Funding policies

→ These approaches are not mutually exclusive, all of them can employed simultaneously to varying extents.

What Can We Do to Protect Ourselves?: Adjusting the Portfolio

→ A seemingly straightforward way to avoid the risk of market drawdowns is to reduce equity market exposure in the portfolio by increasing the allocation to bonds and other diversifiers

- Both investment returns and funded status should be less volatile over time

→ However, expected long term returns often decline somewhat

- "Less risky" in the short term can make achieving the long-term target "more risky"

→ Increasing expected long-term portfolio return helps mitigate the risk of missing the target in the long term

- However, the risk of a near-term market hiccup disrupting the portfolio increases

→ Even if a Board clearly picks the risks (long or short term) it wants to mitigate, sometime times the market does not behave how you would expect.

- We have had markets recently where correlations among asset classes were much higher than one would expect from the historical record.

What Can We Do to Protect Ourselves?: Cash Flow Matching

→ Board Members often ask about "matching" expected future liabilities with future income streams from bonds and other instruments.

→ The most extreme form of cash flow matching is a 100% liability hedge where virtually all future payments are covered by expected cash flows from a portfolio of bonds.

- Common among corporate plans that have both their assets and liabilities discounted using market-based yield curves. Both assets and liabilities move similarly with respect to market rates, maintaining a stable funded status and predictable contributions.
- Investors with flat liability discounting curves typically require lower discount rates or exceedingly high funded ratios to use such an approach.
- It seems unlikely that prevailing yields on lower-risk fixed income investments will rise enough to allow for a complete hedge for assumed rates of return in excess of 6%.

→ However, cash flow matching does not need to be an "all or nothing" proposition. It is possible to match only a portion of the liability (e.g. 3 years of project benefit obligations).

- Pros: Predictable handling of short-term obligations, reduced market volatility, transparency.
- Cons: Often reduces long-term expected return, cost fluctuates along with interest rates, very susceptible to default risk.

What Can We Do to Protect Ourselves?: Funding Policies

→ Although a fully funded Retirement System generally does not need "extra" contributions, there is no prohibition on taking them

- Can initially "overfund" for a few years or adopt a policy that "tops up" the Pension during downward swings in funded status from another source
  - Example: Budget allocation previously used for pension payments which is then used to pay OPEB contributions can periodically "top up" the pension
- Can be a tough discussion to get additional pension contributions when there are other pressing needs and shrinking (in inflation-adjusted terms) budgets
  - "Didn't we already do this?!"

→ Asset smoothing can help make additional funding more measured

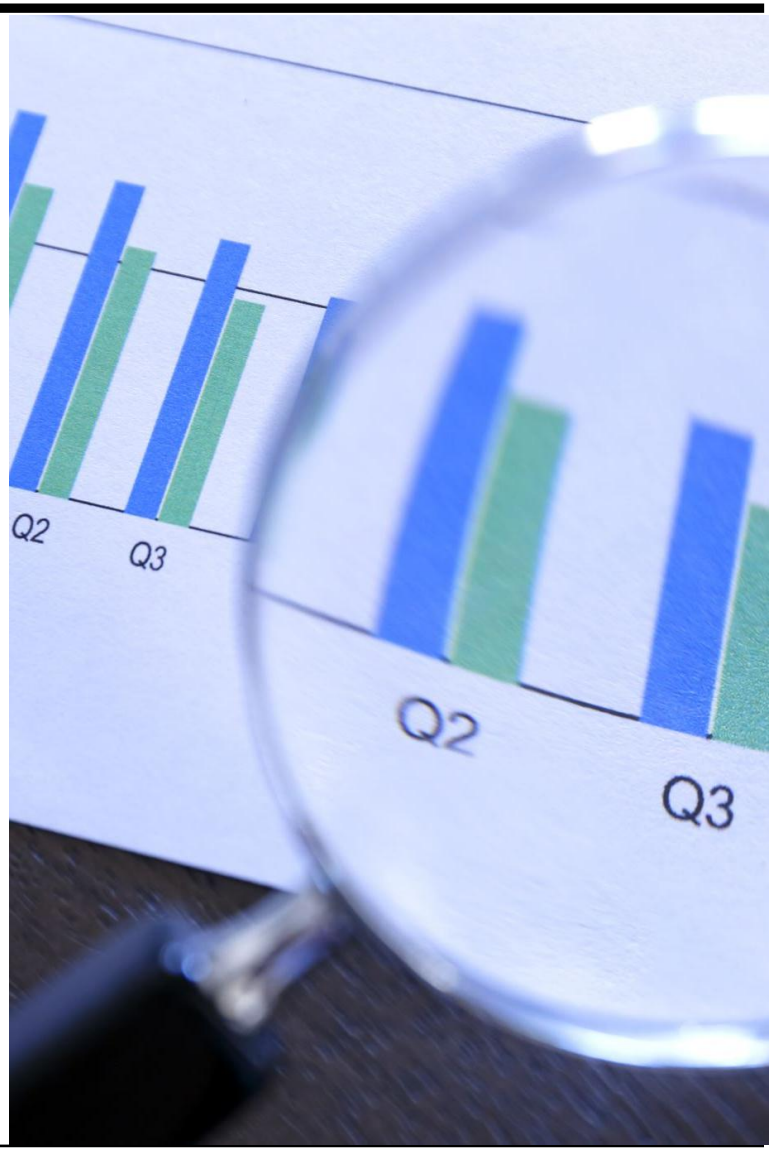
ACTUARIAL SMOOTHING

By recognizing gains and losses over a specified period of time, you can reduce short-term fluctuation in contributions

- Still cannot extend beyond 2040; the amount of relief this can offer is limited by that constraint

Smoothing can occur for gains/losses on the asset **OR** liability side of the equation

2040 limit applies either way

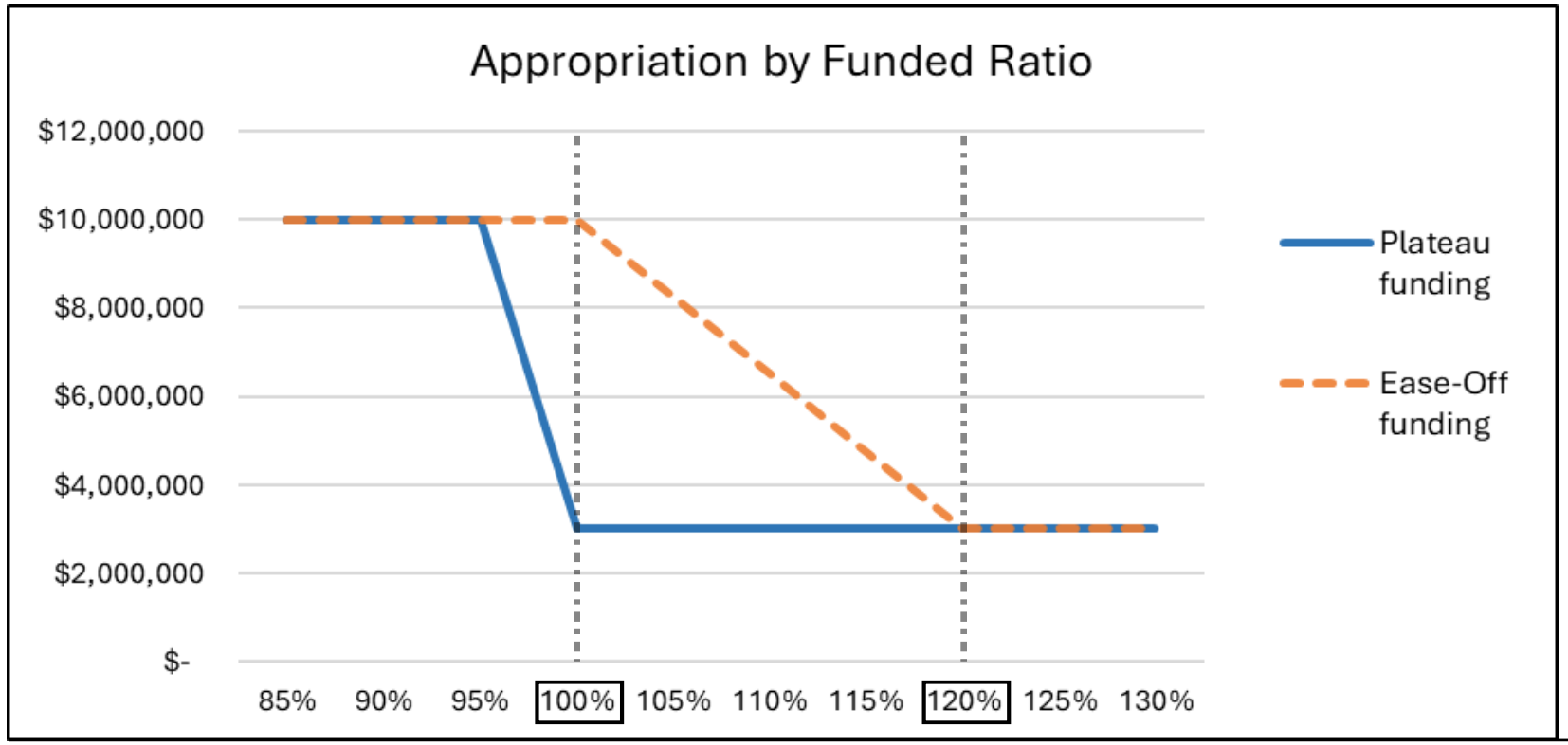


CHAPTER 32: What are your options at 100%?

SOLUTION:

<u>When funded, ease off the throttle. Don't cut the engine.</u>

"EASE-OFF" FUNDING: Instead of dropping off at 100% (or extending that plateau to 120%), gradually reduce contributions as you pass full funding instead of decreasing them too rapidly.



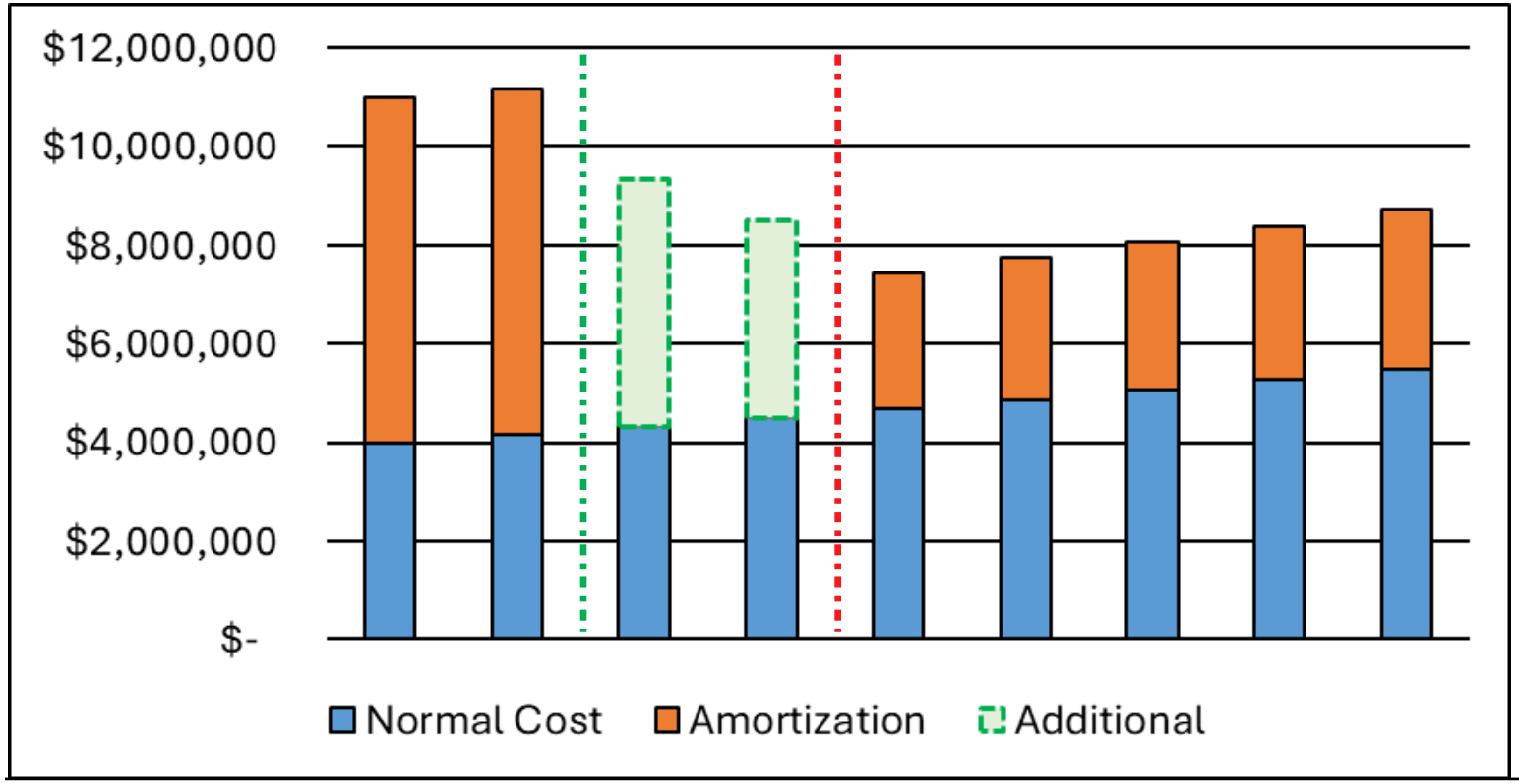
“EASE-OFF” funding example

Earlier Scenario: appropriations of ~$10-12M prior to full funding → dropped to $4M when fully funded

→Now only drops to $9M instead

→When the system becomes unfunded, $7-8M contributions are still a decrease

→Less volatile (although initially more expensive), but still offers budgetary relief upon reaching 100%



PROS and CONS

of approaches to limiting contribution volatility

Method	PROS	CONS
Asset Smoothing & Gain/Loss Amortization	• Stabilize results through short-term volatility	• Can fall behind if smoothing is too long • Amortization limited to 2040 per Ch32
"Ease-off" funding past 100%	• Reduce contribution volatility • Maintain stronger funding status	• Authority to request funding beyond 100% unclear
Aggregate Cost Method	• No end-of-funding date • Time horizon for funding based on actual covered population	• Lack of flexibility • Not allowed by Ch32
Contribution Smoothing	• Reduce contribution volatility	• Limited to 2040 per Ch32

2040: PROBLEMS

- CCA Whitepaper: *"Historical experience suggests that short amortization periods, **such as less than 15 years,** provide too little volatility management"*
  - FY2040 now less than 15 years away

- "What if 2039 is a bad year?"
  - What if 2041 is a bad year? What now?
  - Even if 2026 is a bad year, that will be enough to create funding difficulty for many systems
  - As we have seen, volatility issues don't stop at full funding, in any year

2030 wasn't the "end of funding". 2040 isn't, and 2050 won't be.

2040: SOLUTIONS

We've been here before.

- During pension reform, actuaries provided recommendations to the legislature

  These were good recommendations, which should be followed next time

  This lesson will be repeated until it is learned.

- Reform last time was hastened by 2008

  Better to be proactive than reactive the next time, particularly as Ch32 already constrains funding policy

MUNICIPAL FINANCE

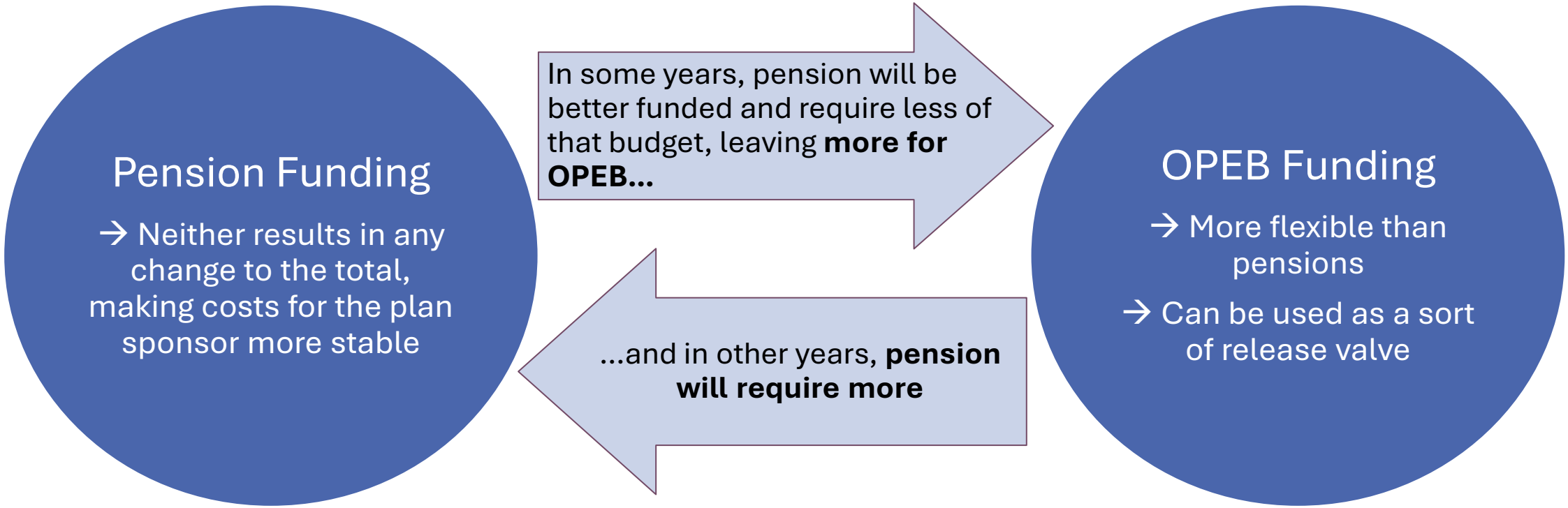
Appropriations are a significant cost center, and **contribution volatility can be a major challenge** to plan sponsors

Payroll drives pension costs—but the connection often catches municipal decision-makers off guard when the bill comes due.

How can Boards collaborate with their sponsors to **mitigate contribution volatility** when results are volatile?

BUDGET FOR COMBINED RETIREMENT

A “**Total Retirement Budget**” can finance a combination of **cash** contributions to pension and OPEB



OPEB FUNDING *POLICY*

The **desire to fund OPEB**, and even the practice of having made some contributions, **are not the same as a documented funding policy**

Creating the **commitment to fund** (or to begin funding when pension is complete) allows OPEB funding to have a profound impact somewhere many have not yet considered…

GASB Accounting

GASB 67/68

Rules for reflecting **pension** liabilities for **accounting**

Discounting

As mentioned earlier, **returns make future payments less costly today**

...but this only applies when you are **investing / funding**

✓ **Investment Rate Funding is Standard in MA→ because pensions are required to fund in MA**

GASB 74/75

Rules for reflecting **Other Post-Employment Benefits (OPEB)** liabilities

THE PROBLEM

OPEB not always funded → **Lower discount rate** → **MUCH higher liabilities**

THE SOLUTION

When plan sponsors **begin to fund OPEB** (and create the commitment to do so), they are able to use a **higher discount rate**, significantly **lowering liabilities** and improving their overall financial outlook

Funding Commitment = Lower Liabilities

GASB 74/75: Funding Example

Before funding: $100M in OPEB liability, **$1M** in assets

By committing to fund:

- **$0.5M** per year *until pension is funded* (up from $0.2M)
- **50%** of the reduction in their pension contribution *after pension is funded*, increasing 2% thereafter

Their discount rate increased, **lowering reported liability by $35M**

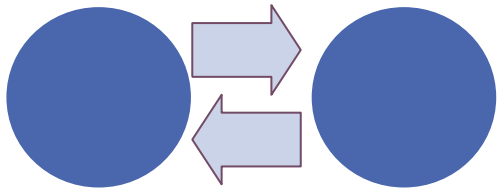
$0.5M in funding → $35M in reduced liability

This WILL VARY by Town/City/etc.

Bond Ratings Impact: like an updated grading rubric, rating agencies are **placing greater emphasis on retiree liabilities**. Lowered bond ratings may be the result of such emphasis, without taking a darker view of those liabilities per se.

SUMMARY

Managing contribution volatility requires **thinking holistically** about retirement obligations.



Combined Retirement Budget

Documented OPEB Funding Policy

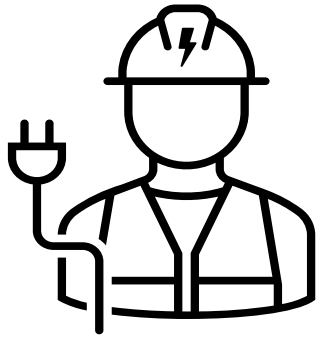
Leverage GASB Accounting Rules

SUMMARY: THE REAL DIFFERENCE BETWEEN 99% AND 101%

Unfunded	Fully Funded
MGL Chapter 32: Fund by 2040 AND increase from last year	MGL Chapter 32: Fund by 2040 ~~AND increase from last year~~
Less money: • Less return → more long-term cost • Less volatility	More money: • More return → less long-term cost • More volatility
• Normal Cost adds to liability every year • Gains and losses occur	• Normal Cost adds to liability every year (SAME) • Gains and losses occur (SAME)
• Long schedule → more time to absorb loss • Higher unfunded liability → more stable • Higher appropriations → more positive cash flow	• Short schedule → less time to absorb loss • Lower unfunded liability → more volatile • Lower appropriations → negative cash flow

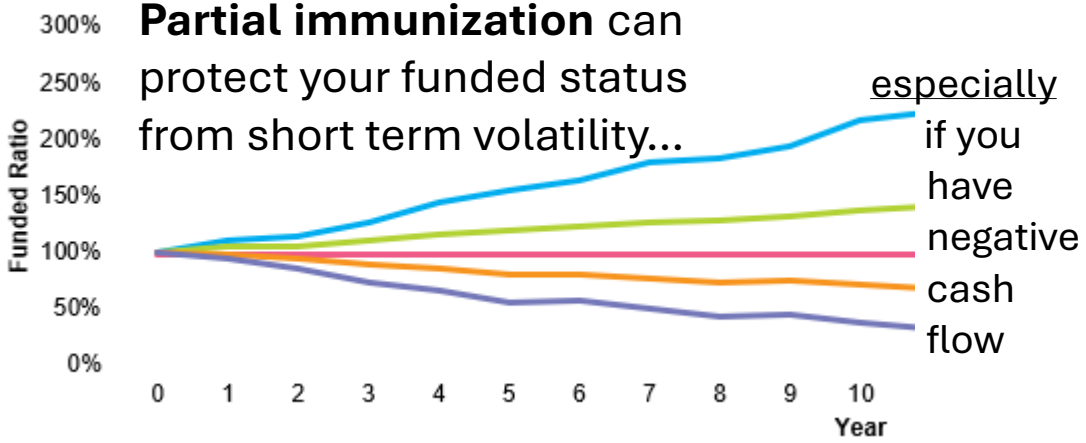
SUMMARY

… but it's easier to **stay ahead** than it is to *catch up*

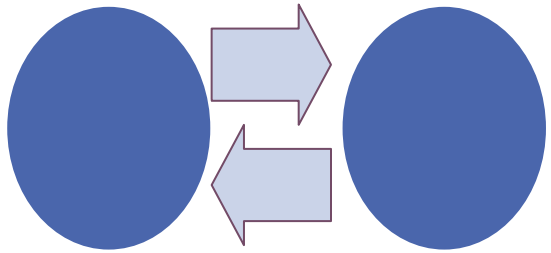


Pensions come from **payroll**

Partial immunization can protect your funded status from short term volatility…



<u>especially</u> if you have negative cash flow



OPEB funding can spread funding volatility across multiple bases, and enhance your overall financial picture

CHANGES ARE NEEDED, but there is **much** you can do *now!*