

The Hidden Risk – Sequence of Returns in Cash Flow Negative Plans

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Introduction

This first installment in our whitepaper series introduces the foundational challenge facing mature pension plans: negative cash flow. When benefit payments regularly surpass incoming contributions, trustees encounter a structural issue that may affect a plan's funded status. This paper explores the mechanics of sequence of returns risk - a phenomenon where poor investment performance early in the decumulation phase can trigger forced asset sales at depressed prices, compounding losses and accelerating funding deterioration. Understanding this risk is essential for trustees seeking to preserve capital and fulfill their fiduciary duty in an increasingly volatile market environment.

This paper will focus on describing the problem and explaining why it must be managed. Future papers will discuss risk management and governance planning alternatives.

Key Topics for this Paper

- How sequence risk unfolds in pension plans
- Why mature plans are structurally vulnerable
- The illusion of static returns and the danger of relying on fixed return assumptions
- Case study: Comparing scenarios with identical average returns but different timing

Takeaway

Trustees must understand that timing matters more than averages. Early losses in a decumulating plan can permanently impair sustainability - even if long-term returns are strong.

Objective

This paper examines how mature pension plans experiencing negative cash flow are particularly vulnerable to sequence of returns risk - the risk that poor investment performance early in the decumulation phase can irreparably damage a plan's funded status. It proposes actionable strategies to mitigate this risk through improved asset-liability alignment, liquidity management, and governance triggers.

Context

Unlike individual retirees who typically de-risk their portfolios as they age, many mature pension plans maintain aggressive investment strategies despite having high retiree-to-active ratios and persistent negative cash flow. This mismatch between portfolio risk and liability structure exposes plans to force asset sales during market downturns, locking in losses and accelerating funding deterioration.

Why don't trustees feel the need to derisk

- Misunderstanding long-term investment horizons
- Ability to raise contributions
- Trying to beat investment returns for other unrelated plans
- Chasing returns rather than protecting against risk

The Mechanics of Sequence Risk

Sequence of returns risk refers to the disproportionate impact that poor investment performance early in a plan's decumulation phase can have on long-term sustainability. For mature pension plans with negative cash flow, this risk is magnified by the need to liquidate assets to meet benefit obligations.

Unlike accumulation phase investors who can ride out volatility and may even benefit from market volatility, decumulating plans face a structural vulnerability: withdrawals compound losses. When a plan sells assets during a market decline, it not only realizes those losses but also reduces the capital base from which future returns are generated. This creates a feedback loop that accelerates funding deterioration.

How Sequence Risk Unfolds in Pension Plans

1. Market Decline - A downturn reduces asset values across the portfolio.
2. Benefit Payments Continue - With contributions insufficient to cover outflows, the plan must sell assets to meet obligations.
3. Forced Liquidation - Assets are sold at depressed prices, locking in losses.
4. Reduced Asset Base - The portfolio shrinks, limiting recovery potential and increasing the likelihood of future shortfalls.
5. Funding Ratio Erosion - The plan's funded status deteriorates, potentially triggering higher contribution requirements or benefit adjustments.

Why Mature Plans Are Especially Vulnerable

- High Retiree-to-Active Ratios: Plans with more retirees than active workers have fewer incoming contributions to buffer outflows.
- Persistent Negative Cash Flow: When benefit payments consistently exceed contributions, the plan becomes reliant on investment returns and asset sales.
- Aggressive Asset Allocation: Many plans maintain equity-heavy portfolios to chase returns, increasing exposure to volatility.
- Illiquid Holdings: Private equity, private credit, real estate, and other alternatives may be difficult to sell quickly or without loss during downturns.

Figure One. Change in Funding Ratio from 2005 to 2020

Universe: Top 100 Taft-Hartley pension funds

Source: DOL 5500 data and FACT (Rich Hudson)

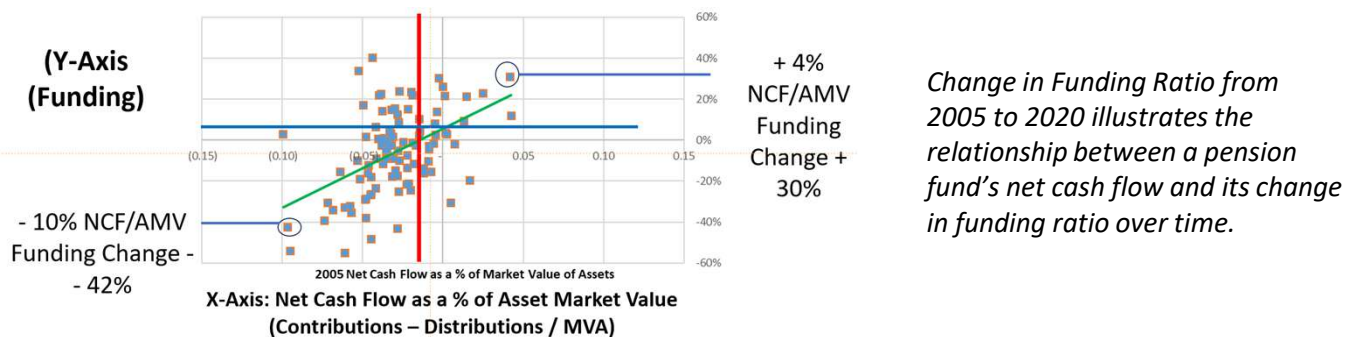


Figure One Overview

- X-axis: Net Cash Flow as a % of Market Value of Assets (NCF/MVA), calculated as (Contributions – Distributions) / Market Value of Assets.
- Y-axis: Change in Funding Ratio (%).
- Data Points: Represent individual pension funds from the Top 100 Taft-Hartley universe.
- **Red Vertical Line** at X=0: Indicates the threshold between positive and negative net cash flow.
- **Blue Horizontal Lines**:
 - At Y = -10%: Corresponds to a funding decline of 42% when NCF/AMV is -10%.
 - At Y = +4%: Corresponds to a funding improvement of 30% when NCF/AMV is +4%.
- **Green Trend Line**: Shows a positive correlation; funds with higher net cash flow relative to asset value tend to experience better funding outcomes, meanwhile, plans with significant negative cash flow tend to experience worse outcomes.



Conclusion

Pension funds with **negative net cash flow** (i.e., paying out more than they receive) tend to see significant declines in funding ratios, while those with **positive net cash flow** show marked improvements. This underscores the importance of liquidity and contribution discipline in maintaining funding health.

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