



# Milliman Sustainable Income Plan™ (SIP)

A 21<sup>st</sup> century retirement solution  
that equitably balances risk

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# Agenda

- Challenges facing traditional multiemployer DB plans
- Retirement risks and plan design
- Addressing challenges through plan design

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# A few terms

- Traditional defined benefit plan = DB plan = Pension plan
- Defined contribution plan = DC plan = 401(k) or money purchase
- Variable annuity pension plan (VAP or VAPP) = DB plan with variable benefits
  - Allowed under a 1953 revenue ruling (not the insurance product)
- Sustainable Income Plan (SIP) = VAP variation to avoid benefit decreases
  - Made possible by 2014 hybrid plan regulations
- Legacy benefits = benefits earned under DB plan before transition to VAP/SIP
  - Transitioning a DB plan impacts future benefits only, so no impact on benefits earned prior to transition ... but also does not fix any funding problems on those benefits

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# Challenges facing defined benefit plans

Why are plans looking at design changes?

- The 2000's revealed some systemic issues with “mature” DB plans
- As plans mature, they become unable to absorb losses
- All plans mature with time
- Funding volatility needs to be limited as plans mature
- Trustees have limited tools to reduce funding volatility
  - Immunization / annuitization: very expensive when interest rates are low
  - Invest with less volatility: difficult when fixed income is unattractive because it will significantly reduce expected return
  - Plan design changes: no current impediment, and action sooner will create the desired change sooner

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# Challenges facing defined benefit plans

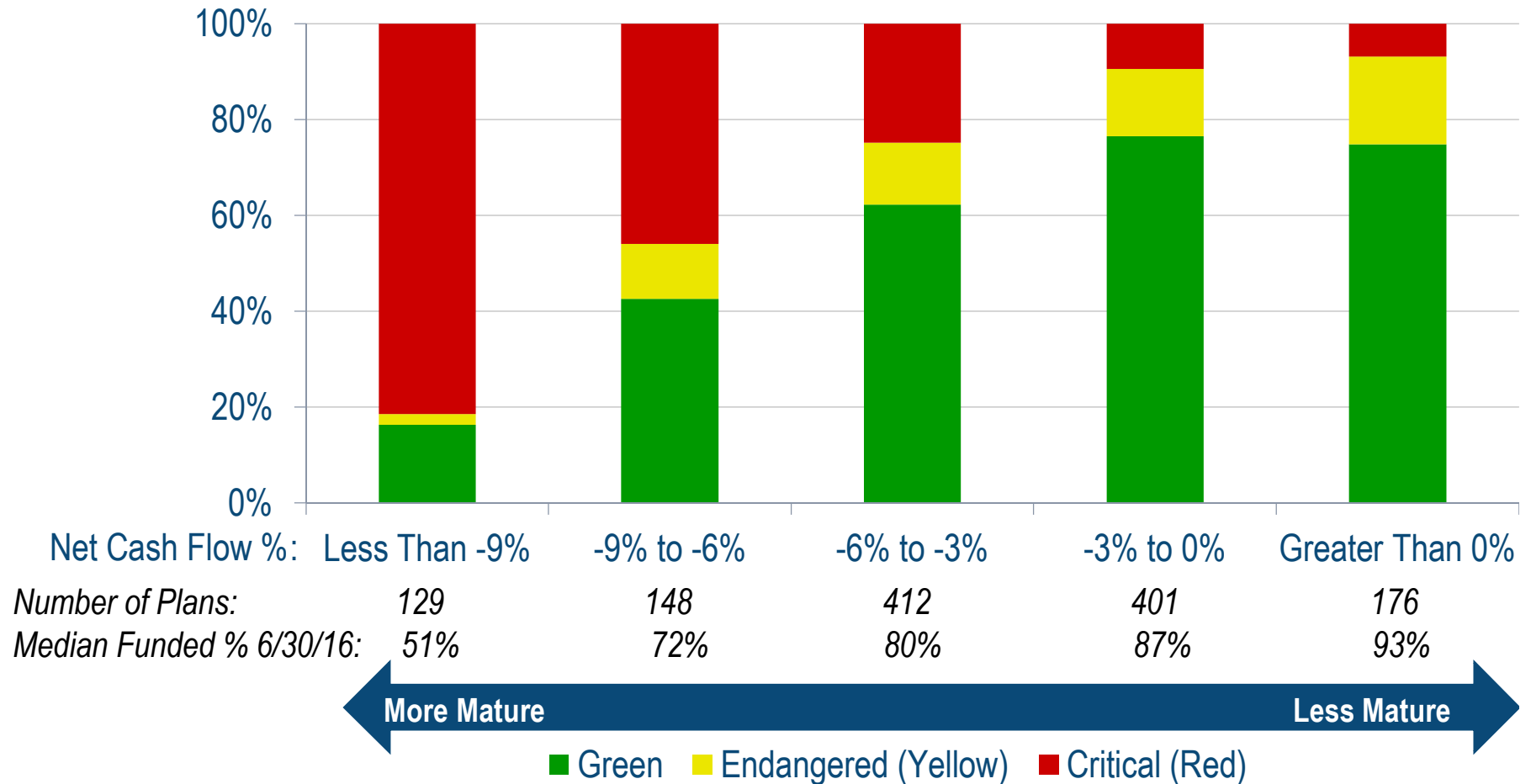
## Plan maturity

- Characteristics of mature pension plans:
  - Plan's overall liability becomes very large relative to hours and contributions
  - High inactive to active ratio – currently about **2:1** for multiemployer universe
  - Increased negative cash flow (money out exceeds money in) – currently about **-4%** of assets for multiemployer universe
- Maturity varies widely by industry and by plan
  - Declining industry accelerates the maturing process because contribution base shrinks

# Challenges facing defined benefit plans

## Zone status by plan maturity

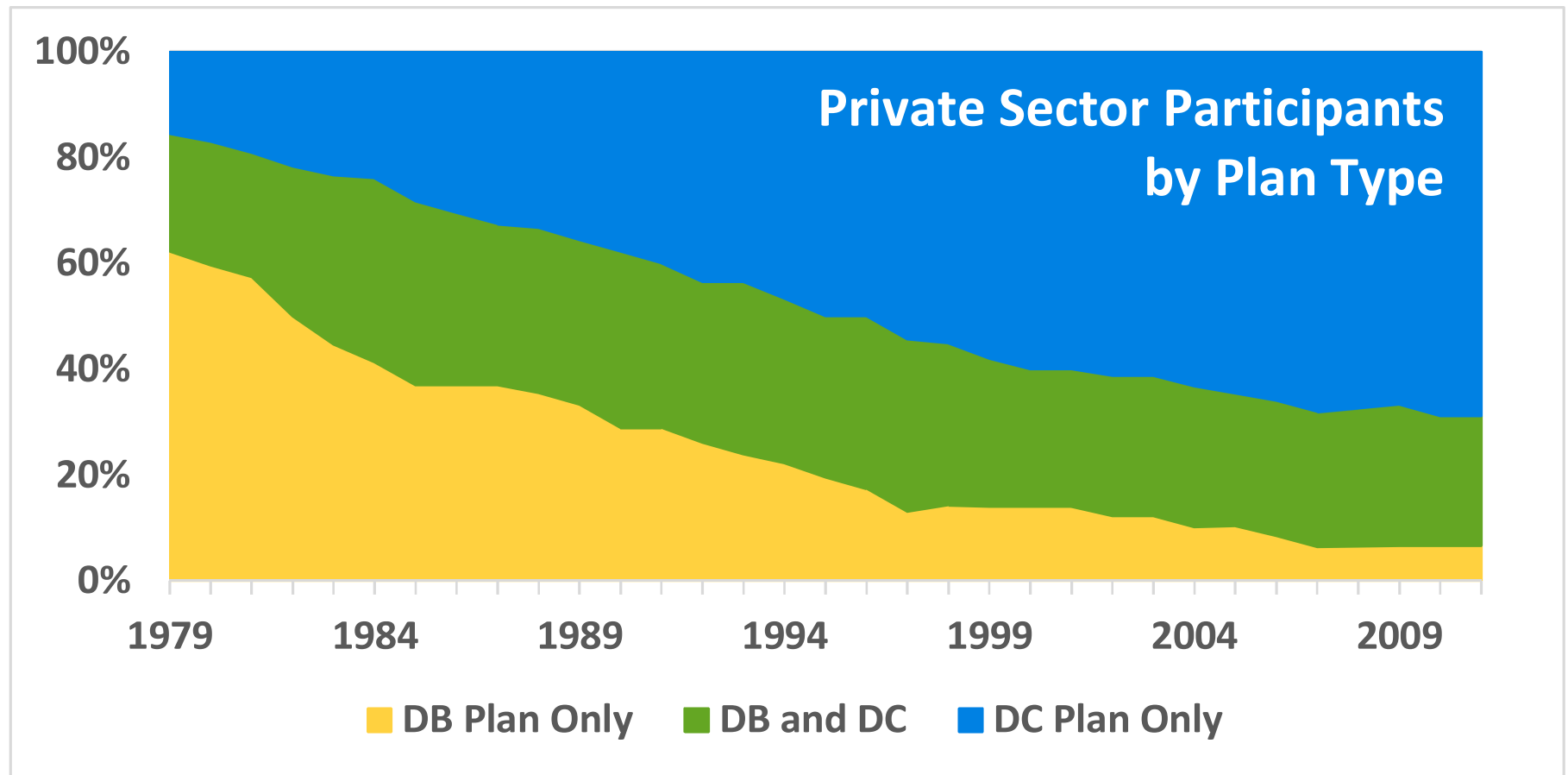
- Most recent zone status (generally 2014) by net cash flow (as % of assets)



Based on most recent publicly available Form 5500 information

# Challenges facing defined benefit plans

## The Corporate sector response



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# Challenges facing defined benefit plans

## Current multiemployer situation

- DC plans are not viewed as desirable for a primary retirement plan
  - Less efficient use of retirement contributions
  - Less security for participants
- Trustees are looking for a “better” **DB** plan design for future benefits that:
  - Can weather poor experience at all levels of maturity
  - Remains stable in all market conditions
  - Provides meaningful and equitable benefits to all generations
  - Remains appealing to participants and employers in all economic situations



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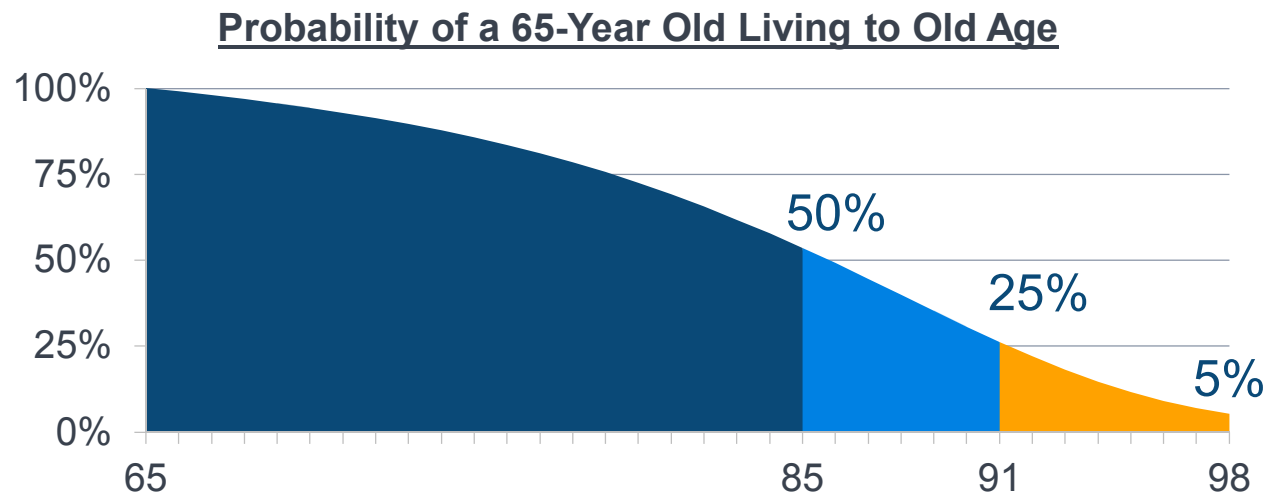
# Retirement risks

- Three primary retirement risks
  - Longevity risk
  - Investment risk
  - Inflation risk

# Retirement risks

## Longevity risk

- The risk associated with not knowing how long you will live



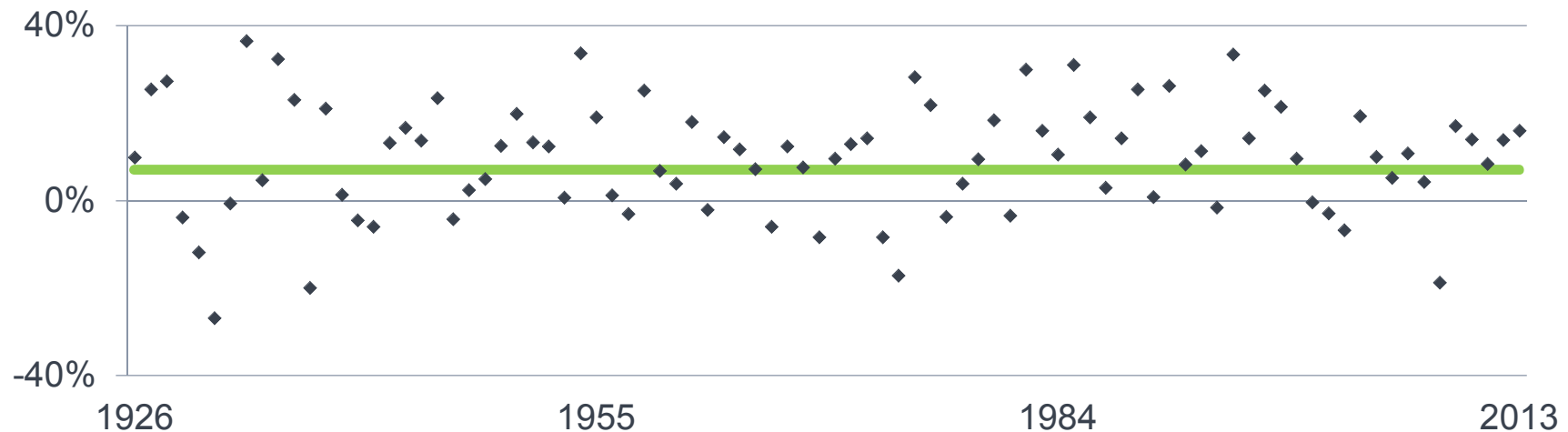
- Very unpredictable on an individual basis
  - Inefficient for individuals to manage this risk
- *Becomes more predictable with more individuals*
  - “Pooled” longevity risk is relatively predictable and easy to manage
  - Longevity is an “insurable risk”

# Retirement risks

## Investment risk

- The risk that asset returns do not meet expectations

Returns for Portfolio of 60% Large Cap Equities / 40% Long Bonds

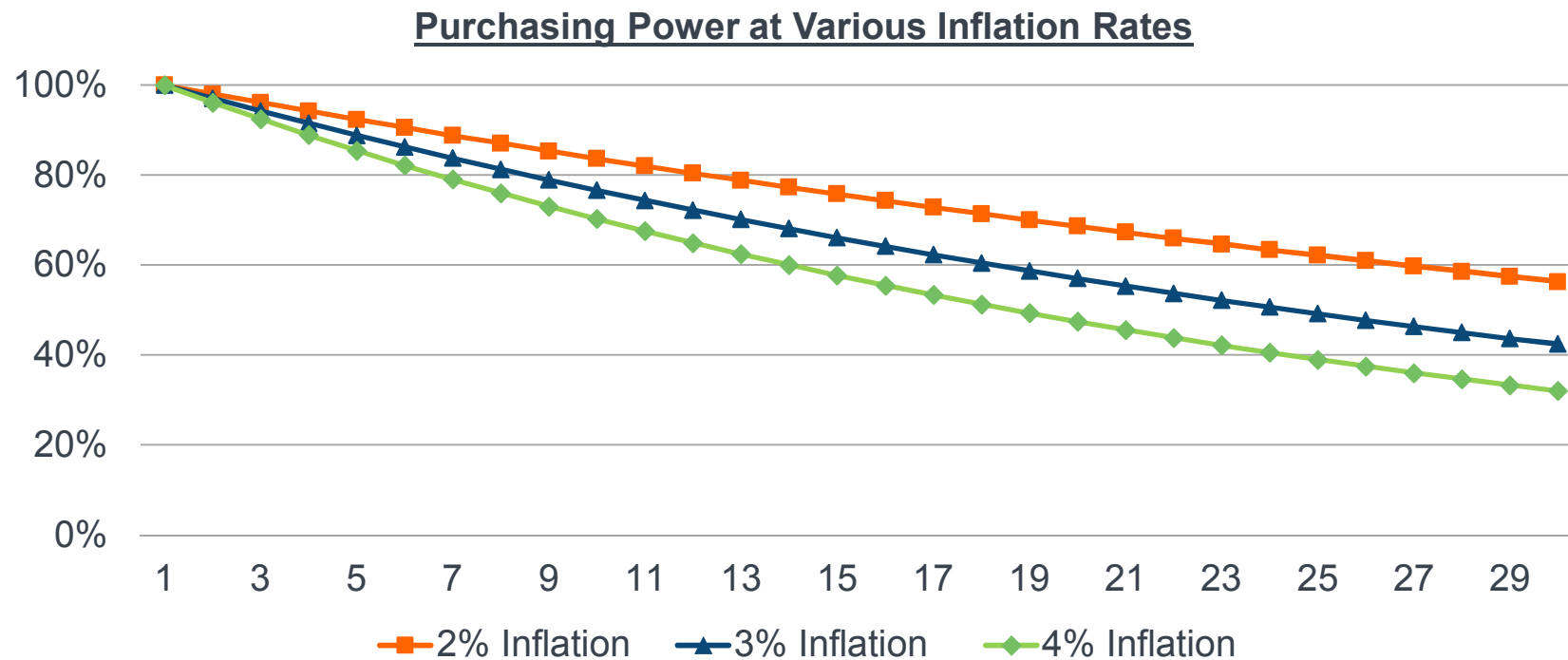


- Investment returns are very volatile and unpredictable
- *Returns do not become more predictable with more assets*
  - Investment performance is not an “insurable risk”
  - Pooling assets is still helpful: professional management and lower expenses

# Retirement risks

## Inflation risk

- The risk associated with loss of purchasing power over time



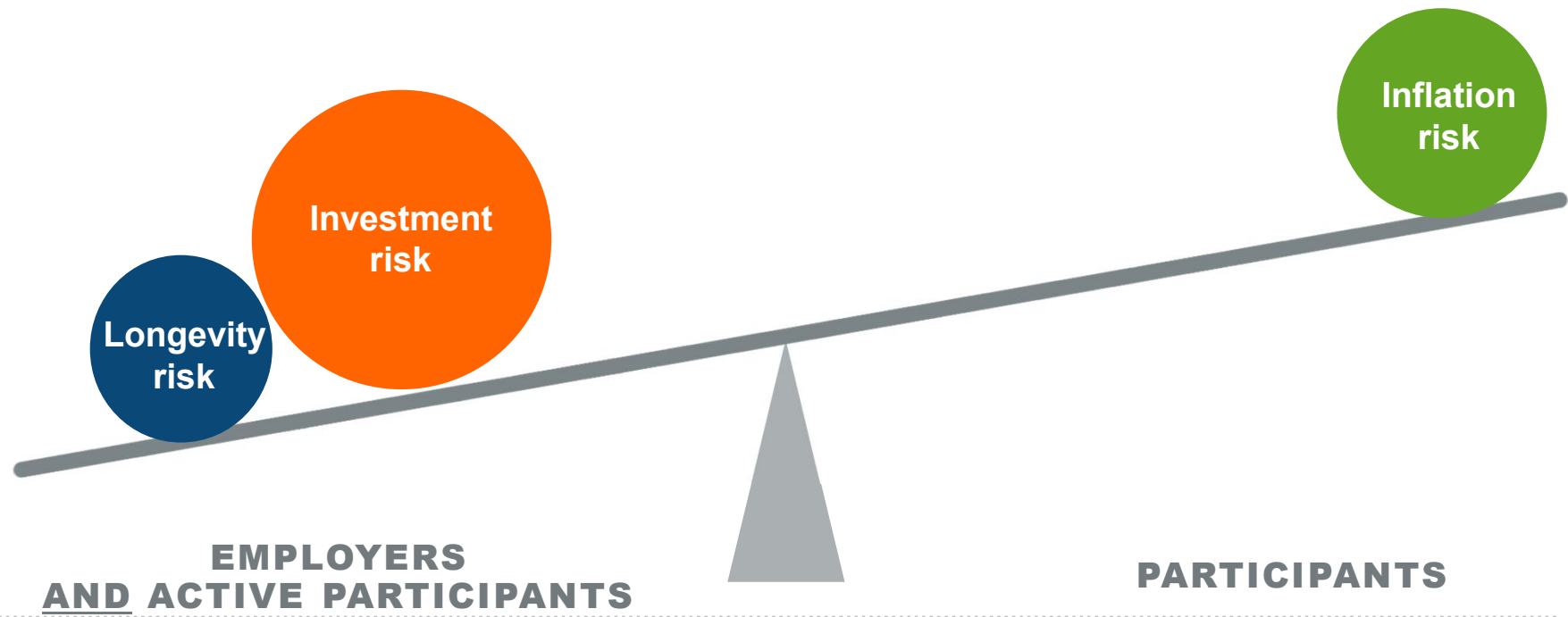
- Inflation is a major risk for retirement security

# Retirements risks

## Risk sharing in traditional DB plan

Plan Sponsor bears **most** of the risks

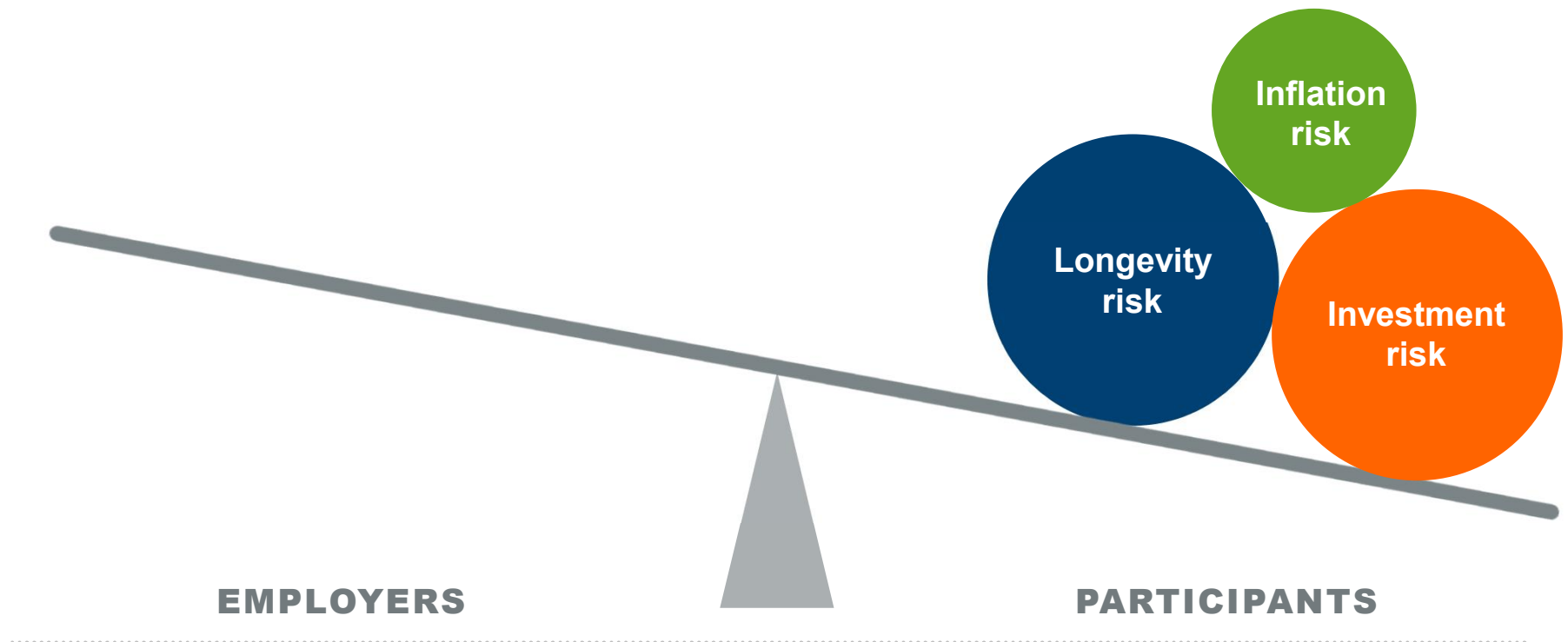
- In multiemployer plans, active participants bear these risks, too



# Retirements risks

## Risk sharing in DC plan

- Plan Sponsor bears **none** of the risks
- Participants bear **all** of the risks

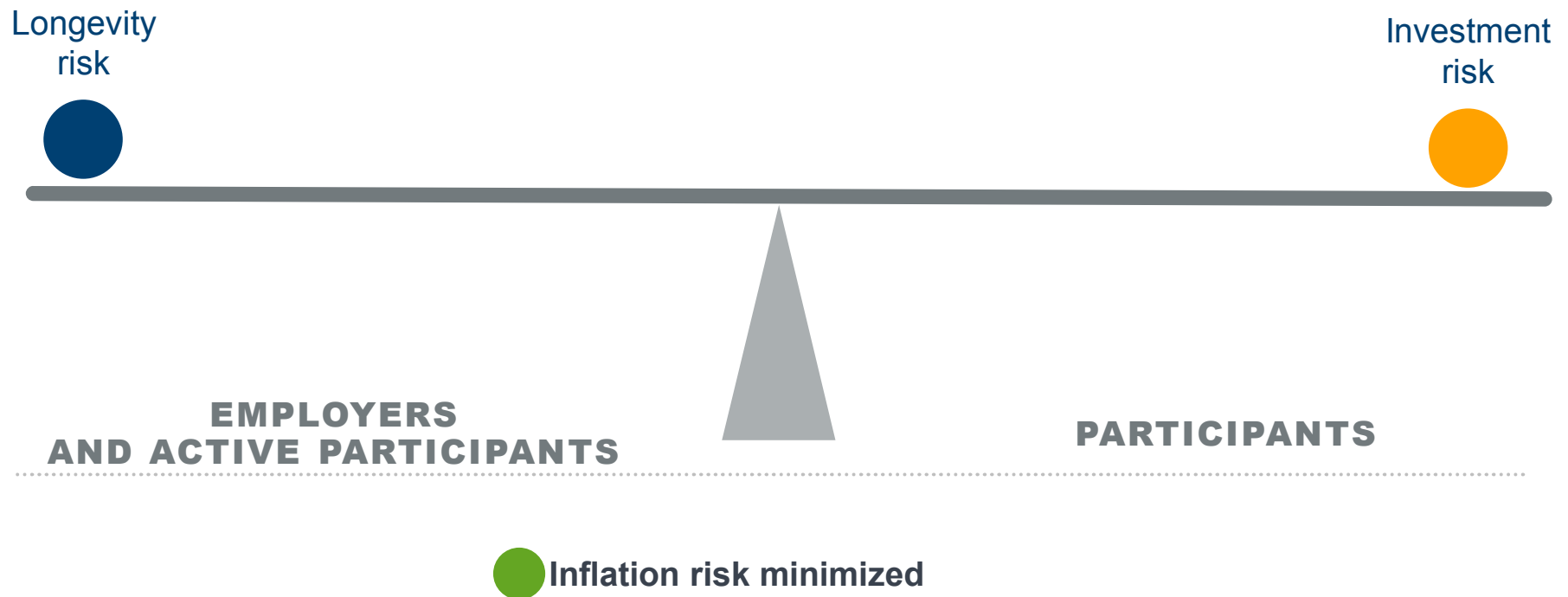


# Retirements risks

## Risk sharing in Sustainable Income Plan

Risks are shared in a rational way

- Longevity risk is predictable and manageable when grouped
- Investment risk is shared equitably across all participants instead of just actives
- Inflation protection is expected (but not guaranteed)



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# Introducing

The Milliman Sustainable Income Plan™



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# SIP development

- SIP is a variation on a Variable Annuity Plan (VAP)
- Legal since 1953
- It is not an insurance product
- Plan stays funded in all market environments
- Not popular due to routine benefit declines, even for retirees
- 2014 regulations issued allowing for creation of SIP

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# The basic VAP

## Overview

- Participant earns a benefit for each year of service
- Employer funds the benefit earned
- Accruals go up AND down based on the Fund's actual return on assets for actives AND retirees
- Plan stays funded in all market conditions
- Keeps assets and liabilities in balance by adjusting liabilities
- VAPs are fully exposed to market volatility

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# The basic VAP

## How it works

- Career average or flat dollar accumulation
- **Hurdle rate**, usually set between 4% and 5%
- Liabilities calculated at hurdle rate
- Contributions must be at least as large as normal cost, plus expenses
- Earned benefits fluctuate annually based on investment return

Return = Hurdle Rate: **accrued benefits do not change**

Return > Hurdle Rate: **accrued benefits increase by excess**

Return < Hurdle Rate: **accrued benefits decrease by shortfall**

- Benefits are volatile, but expected to grow over time
- *Plan provides benefit that can be afforded based on actual plan returns*

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# The basic VAP

## Example

- Suppose a retiree's VAP benefit is \$1,000/month
- The plan has a 4% **hurdle rate** and gets a -1% return
- The new monthly benefit amount under the VAP is \$952

$$\$1,000 * (1-0.01) / (1+0.04) = \textbf{\$952}$$

- The next year, the plan's return is 16%.
- The monthly benefit amount changes to \$1,062

$$\$952 * (1+0.16) / (1+0.04) = \textbf{\$1,062}$$

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# Milliman SIP

## Overview

- Improves on basic VAP by storing excess returns for use when needed
- Has a **cap**, which limits benefit increases in years with particularly high returns
- **Stabilization reserve**: built in years when the **cap** is reached, is used to **shore-up** benefits when returns are less than the **hurdle rate**
- **High-water-mark**: highest benefit level ever paid, and is paid as long as there are sufficient **stabilization reserves**

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# Milliman SIP

## Downside volatility management

Suppose a retiree's benefit is \$1,000/month in a plan with a 4% **hurdle rate**

- The plan gets a -1% return
- The new **underlying benefit** is **\$952**, which is fully funded

$$\$1,000 * (1-0.01) / (1+0.04) = \$952$$

- The retiree receives the \$952 **underlying benefit** plus a \$48 shore-up from the **stabilization reserve**, so the **high-water-mark** benefit of \$1,000 is preserved

# Milliman SIP

## Harvesting the upside

- The next year, the adjustment is applied to the **underlying benefit** of \$952
- The Plan's return is 16%, which would result in a basic VAP increase of 11.5%, to \$1,062

$$(1+0.16) / (1+0.04) - 1 = \mathbf{11.5\%}$$

- But, the SIP has a **cap**, so benefit increases are limited to 10%
- The monthly benefit amount changes to **\$1,047**

$$\$952 * 1.10 = \mathbf{\$1,047}$$

- The excess above 10% builds the **stabilization reserve** to **shore-up** benefits for future downturns
- New **high-water-mark** of \$1,047 to be protected

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# Milliman SIP

## The stabilization reserve

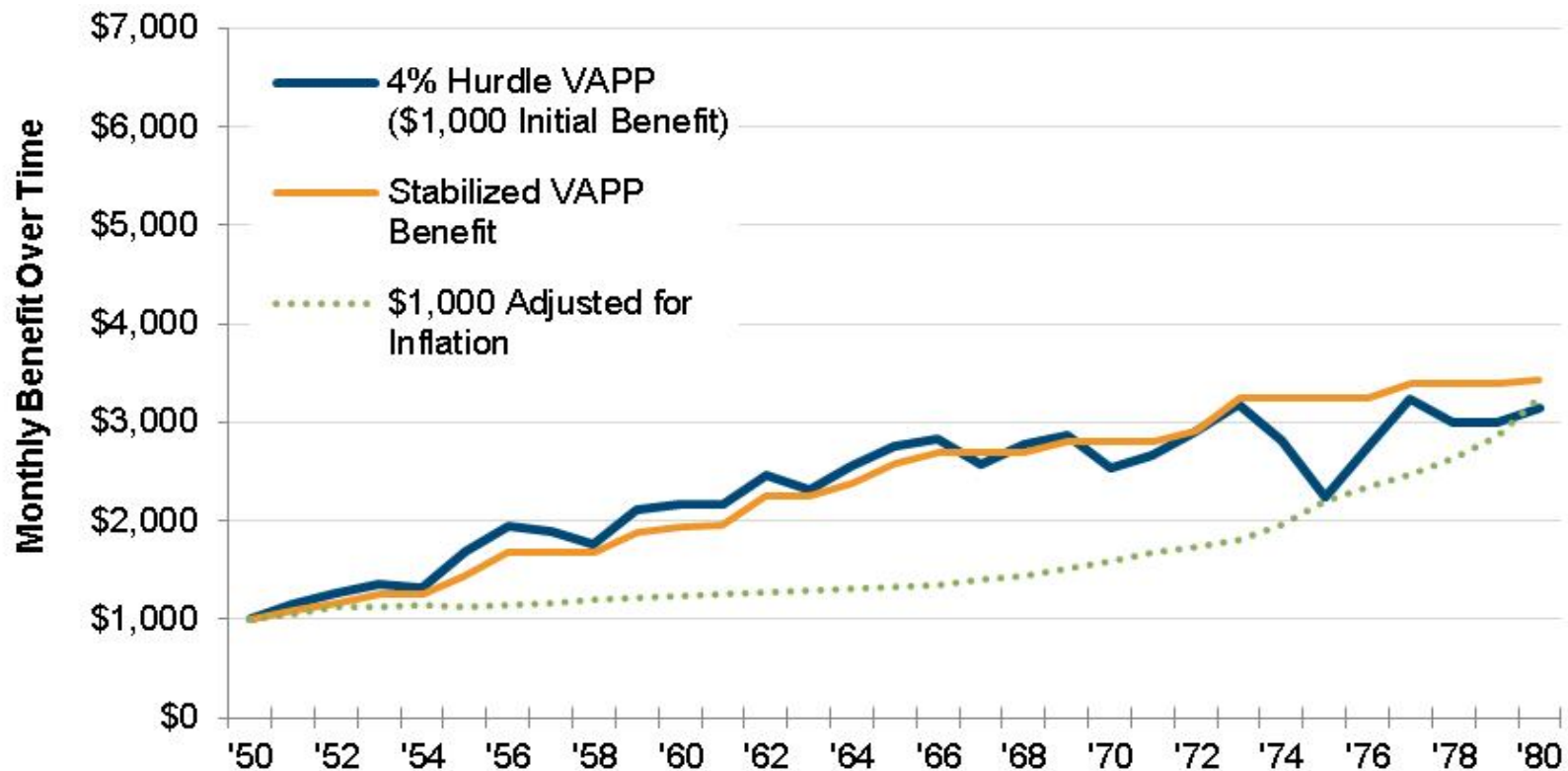
- Both the traditional benefits and the SIP benefits are in the same plan
- Assets and liabilities are tracked separately for each design
- Reserves are built from
  - Contributions, set aside for reserve building
  - Excess return above the cap
- Shore-ups can be paid whenever there are sufficient stabilization reserves
- Do not have to wait until the traditional plan is over 100% funded
- If reserves run out, benefit reverts to fully funded underlying benefit



# Milliman SIP

## Historical example

- VAP vs. SIP over time for a \$1,000 retirement benefit
  - Cap increases at 8%, limit funded status to 125%, 4% hurdle
  - Sample returns are based on 60% stocks / 40% bonds from **1950 to 1980**

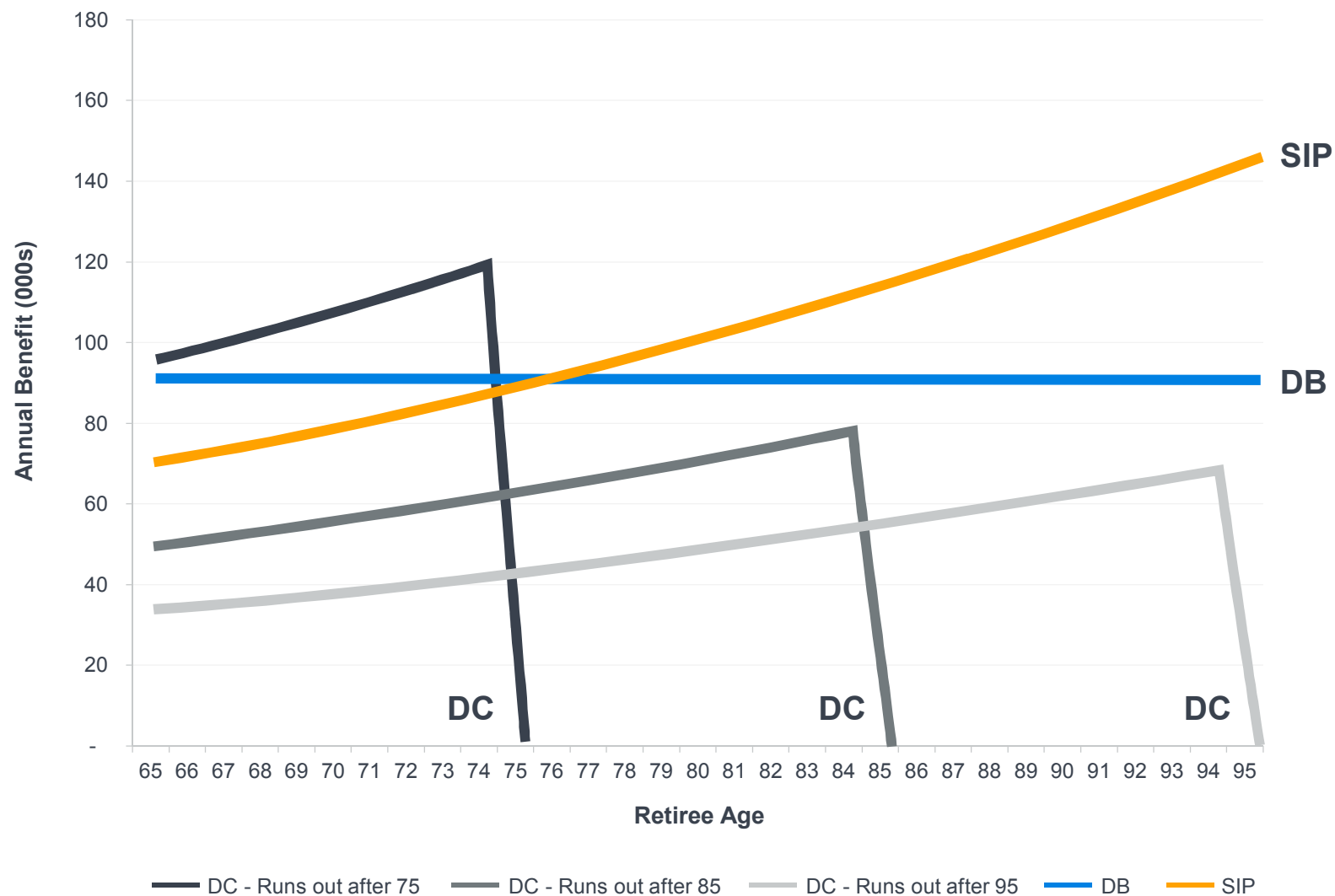


## DC and DB side-by-side comparisons

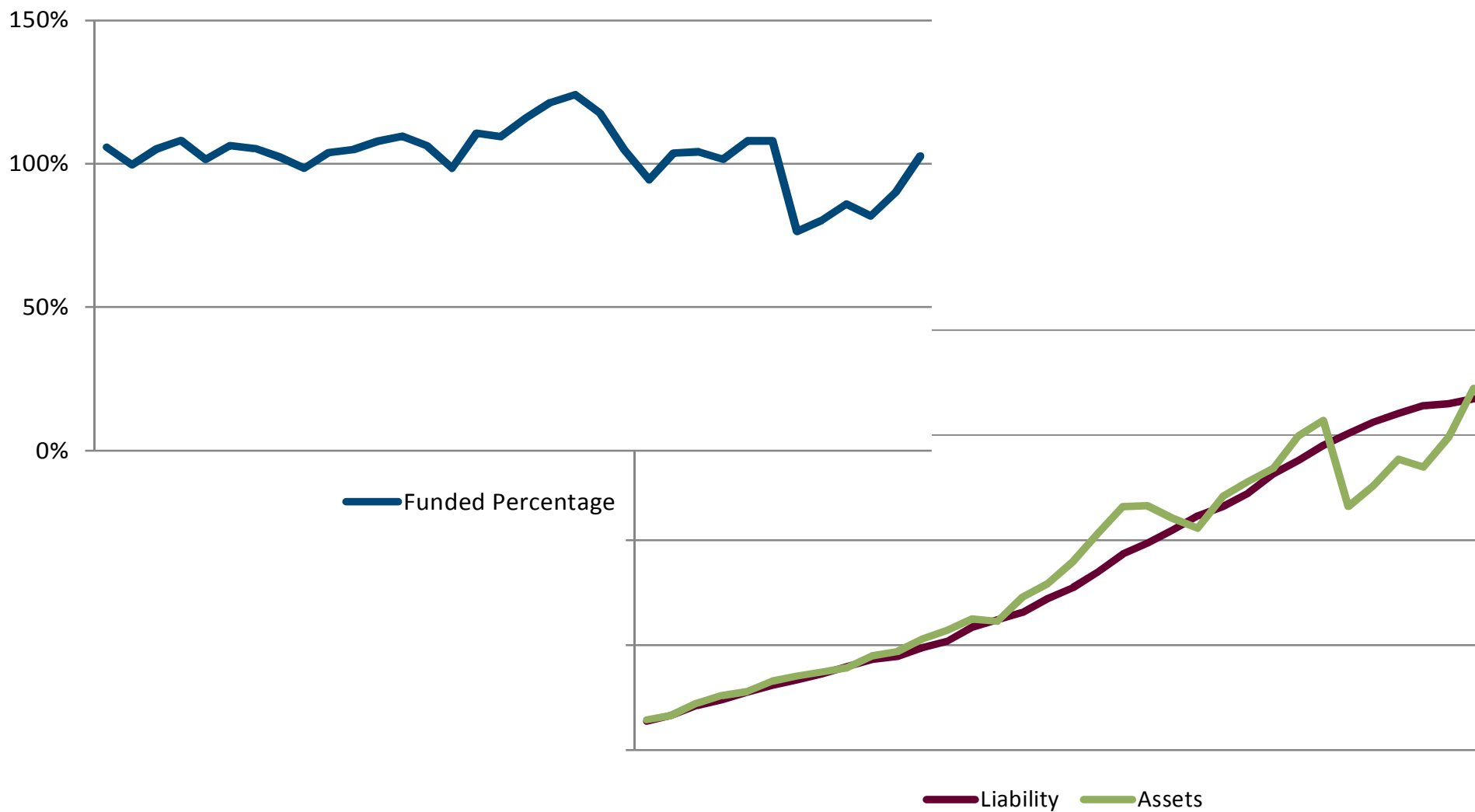
### Notes and assumptions

- Based on accumulated benefits in DB and SIP
- Based on accumulated account balance in DC
- The same accumulated value for each plan at age 65
- Assets earn 6.6% in all years
- Retirement income increases 2.5% per year for inflation in DC and SIP

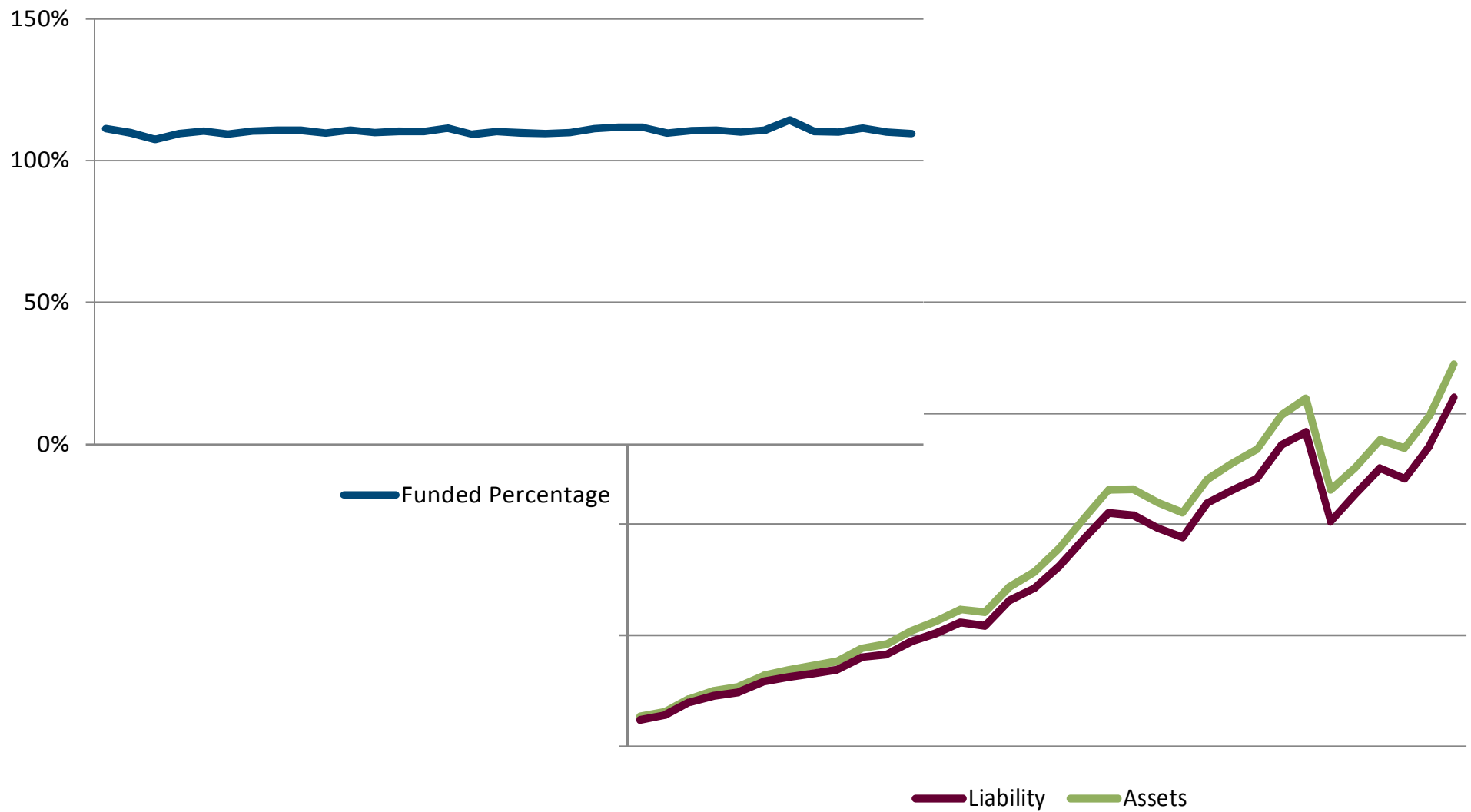
## Benefits side-by-side DC v. DB v. SIP



## Funding side-by-side **Traditional DB Plan**



## Funding side-by-side Milliman SIP



# Milliman SIP

## Comparison of Features

Feature	Traditional DB Plan	DC Plan	SIP
Benefit fixed in retirement (as long as Plan avoids insolvency)	✓		
Longevity protection (cannot outlive benefit)	✓		✓
Longevity pooling (can plan for average life expectancy)	✓		✓
Supports retention and retirement planning	✓		✓
Allocates contributions to long service	✓		✓
Professional investment management	✓		✓
Stable cost		✓	✓
Investment losses do not harm bargaining and ability to compete		✓	✓
Well funded in all economic conditions (no withdrawal liability)		✓	✓
No intergenerational risk transfer		✓	✓
Designed to provide post-retirement inflation protection			✓

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# Milliman SIP

## Advantages

- Remains well funded in all market conditions
- The contribution is stable from year to year
- Does not negatively impact collective bargaining and ability to compete
- Provides lifelong benefits, longevity risk pooled
- Inflation protection expected
  - Professional investment management to maximize returns and benefits
  - Provides a larger benefit per dollar contribution than DC plans
- No risk transfer from one generation to another
- Provides benefits that can be afforded based on actual plan experience

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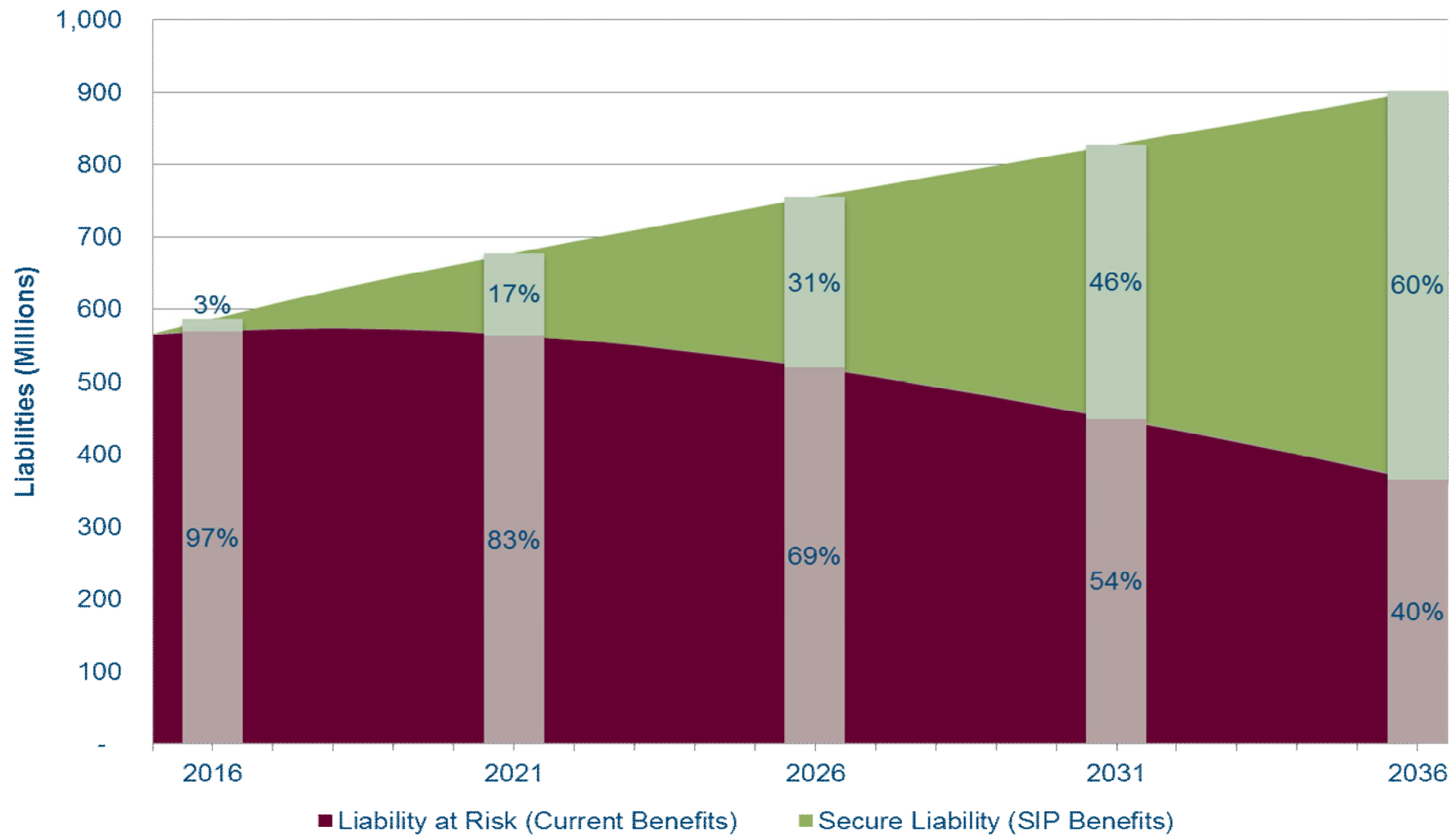
# Milliman SIP

## Challenges

- Benefit decreases, though generally VERY unlikely, are possible
  - Although in this situation there would still be no underfunding, no intergenerational risk transfer, and no withdrawal liability
- For identical cost as current DB plan, accrual rate will be smaller
  - Accruals are smaller initially, but are expected to increase over time
- Fundamental paradigm shift in thinking
- Does not solve legacy liability challenges



# SIP liability replacement over time



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# Milliman SIP

The best of both worlds

## For **employers**

- Stable contribution requirements
- Plan stays fully funded
- Maximum benefit per \$1 of contribution

## For **participants**

- Lifelong benefits
- Inflation protection
- Maximum benefit per \$1 of contribution

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## Milliman SIP Summary

- Most traditional DB plans that are struggling simply had unfavorable returns at the wrong time in their life cycle
- All plans mature and become more susceptible to market downturns
- Traditional DB plans, by design, must make up for investment performance below expectations through contribution increases and adjustments to future benefit accruals
  - This can become an overwhelming burden for actives in a mature plan
- A SIP is a **DB plan** that can help create a sustainable path forward
  - Provides benefits that can be afforded based on investment performance
  - Provides lifelong benefits that are unlikely to decrease at a stable cost
  - Benefits remain well-funded in all market conditions
  - Designed to provide inflation protection

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# Contact

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