

Longevity Risk and Reinsurance

Strategies for Managing Annuity Blocks

Presented by:

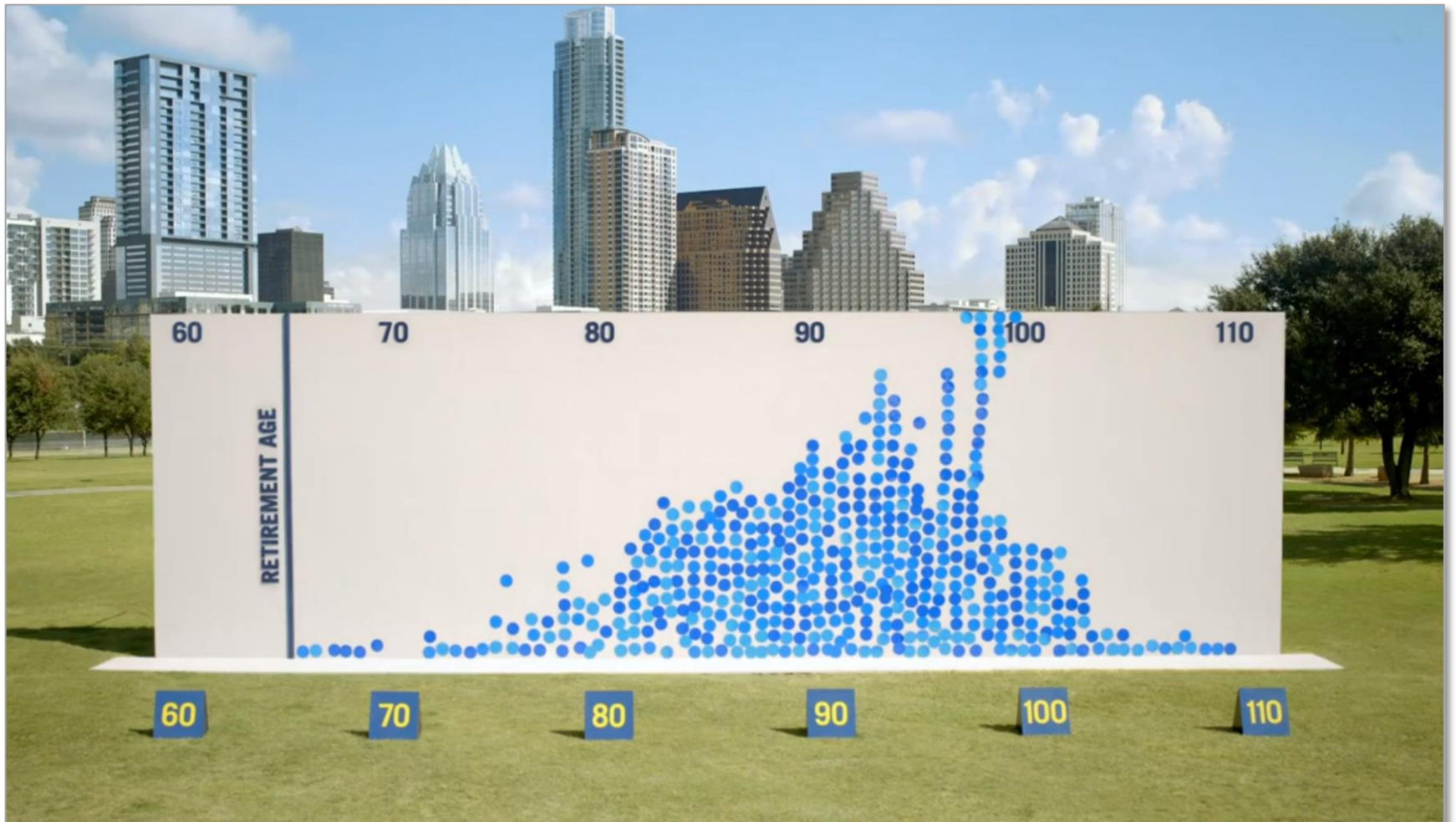
Amy Kessler
Senior Vice President
Head of Longevity Reinsurance
Prudential Retirement®





**TODAY'S GENERATION IS LIVING
7 YEARS LONGER THAN THE PREVIOUS ONE.**

Let's Prepare for a Longer Retirement



What Are the Key Areas of Risk?

1

Investment Risk

Risk that asset performance falls short of expectations

2

Longevity Risk

Risk that annuitants and beneficiaries live longer than expected

3

Inter-generational Risk

Risk that we pay the benefits of today's elderly at the expense of securing the benefits of younger annuitants

Failure to manage these risks is behind today's growing funding gap for pension funds, and creates challenges for annuity providers.

What Sustainability Means of Risk?

1

Investment Risk

Risk that asset performance falls short of expectations

Asset-Liability Risk Management

- Asset/liability matching
- Long duration fixed income (liquid and illiquid)
- Inflation linked assets

2

The Sustainability Model

will help annuity providers

Longevity Risk

Risk that annuitants and beneficiaries live longer than expected

Failure to manage these

risks is behind today's

Management

Diversified insurers can balance mortality and longevity risk exposures

Specialty annuity writers can reinsure longevity risk

3

Inter-generational Risk

Risk that we pay the benefits of today's elderly at the expense of securing the benefits of younger annuitants

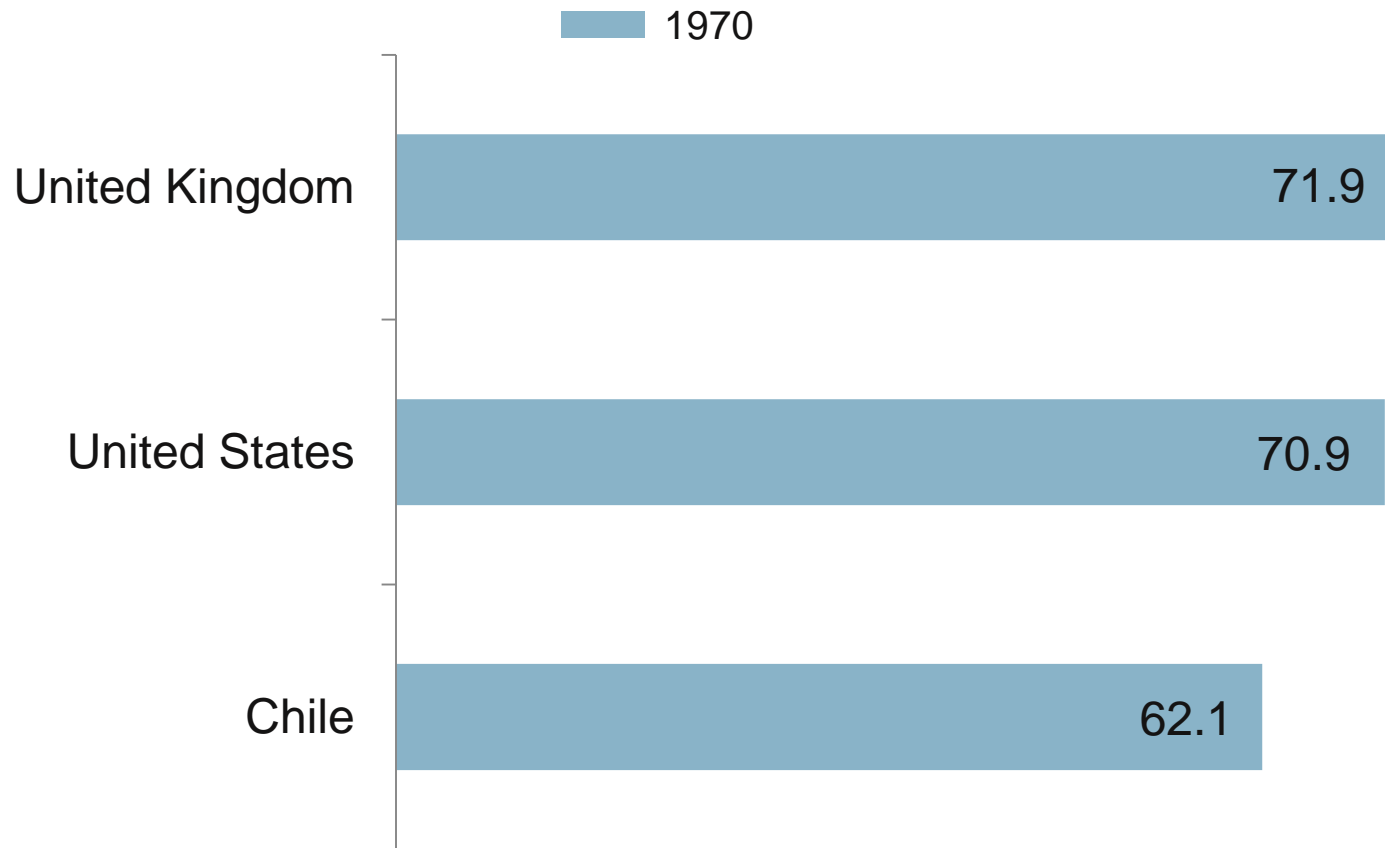
Management

- Protect annuitants through prudent investment and longevity risk management
- Protect annuitants through prudent investment and longevity risk management

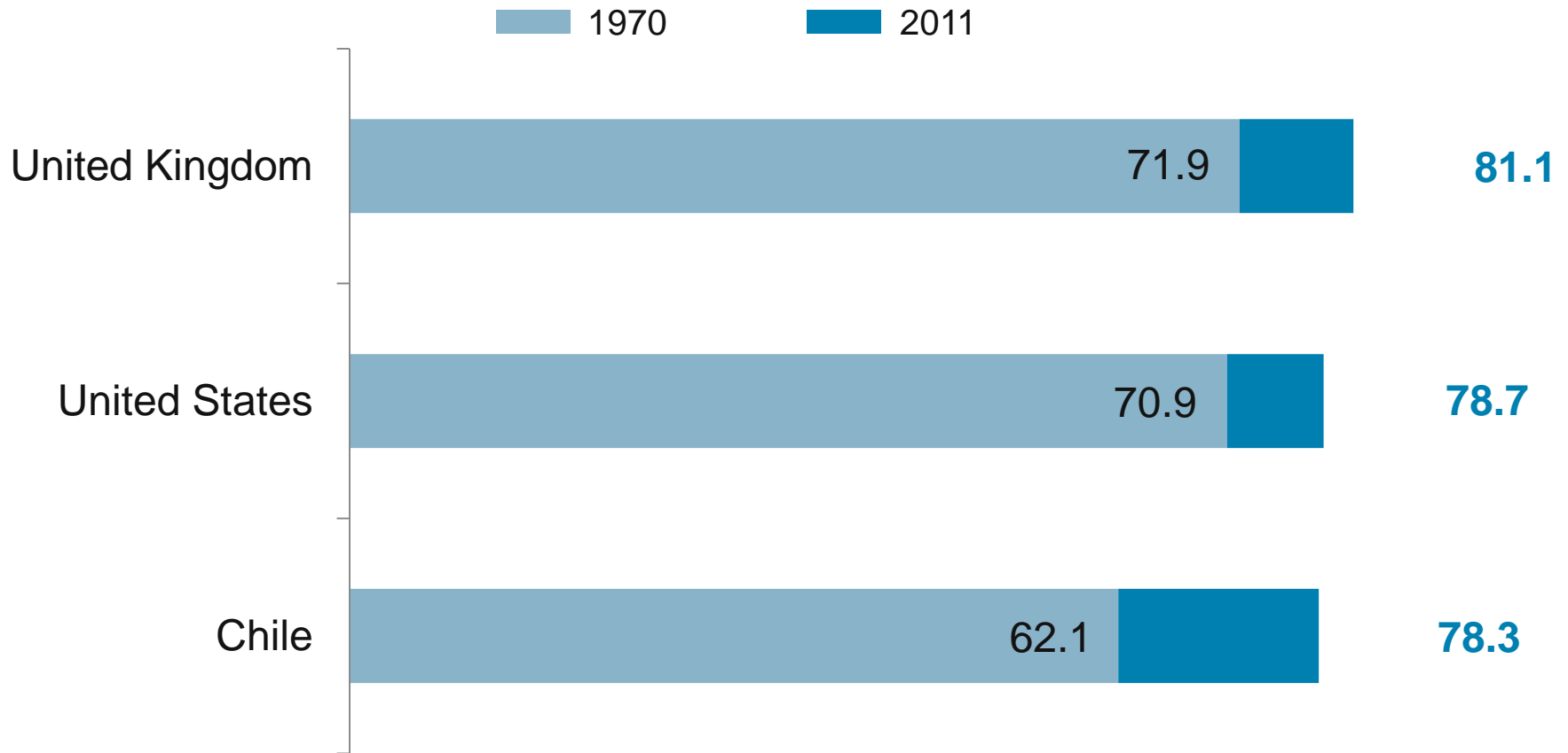
Annuity providers are surrounded by risk.



Life Expectancy at Birth Has Increased More Rapidly in Chile since 1970

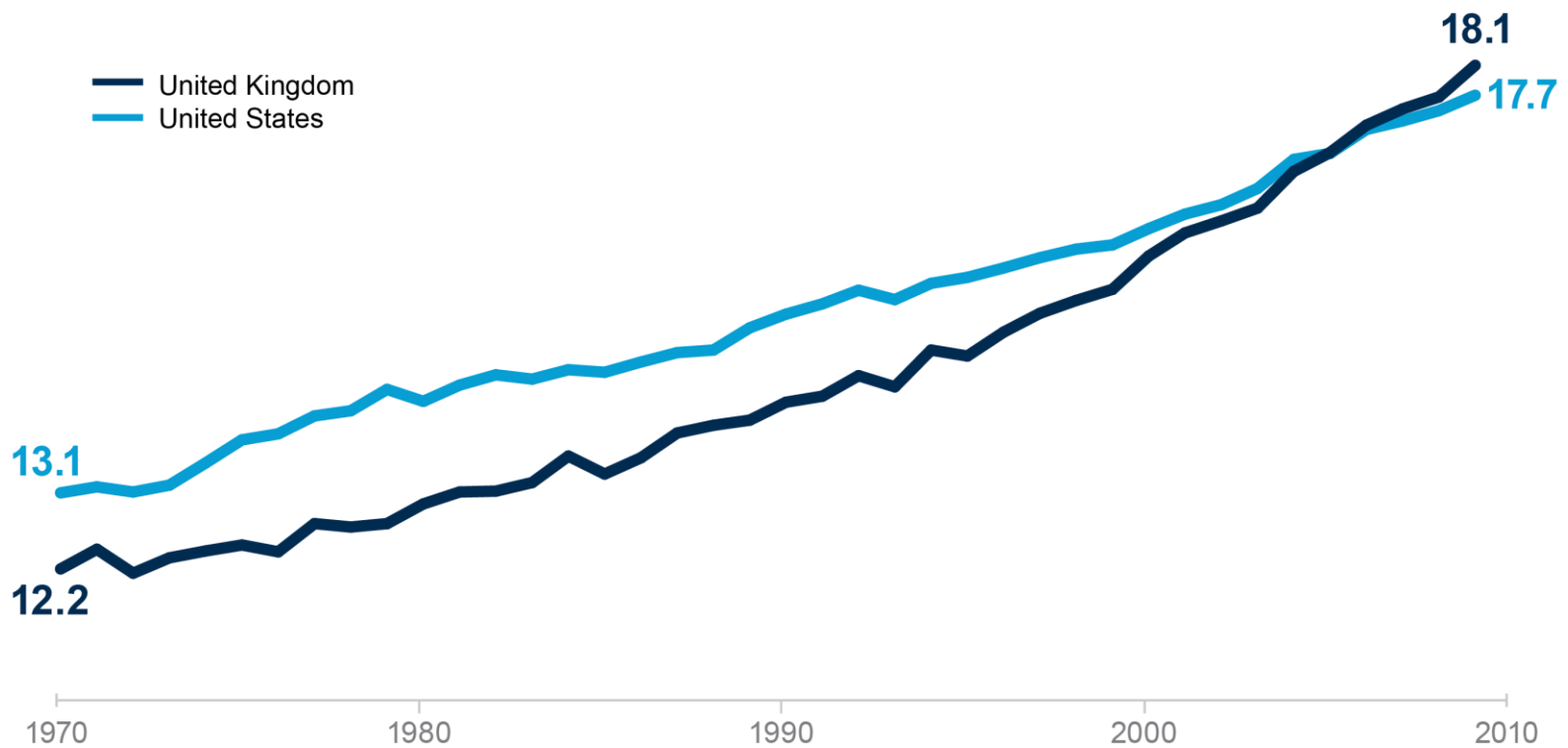


Life Expectancy at Birth Has Increased More Rapidly in Chile since 1970



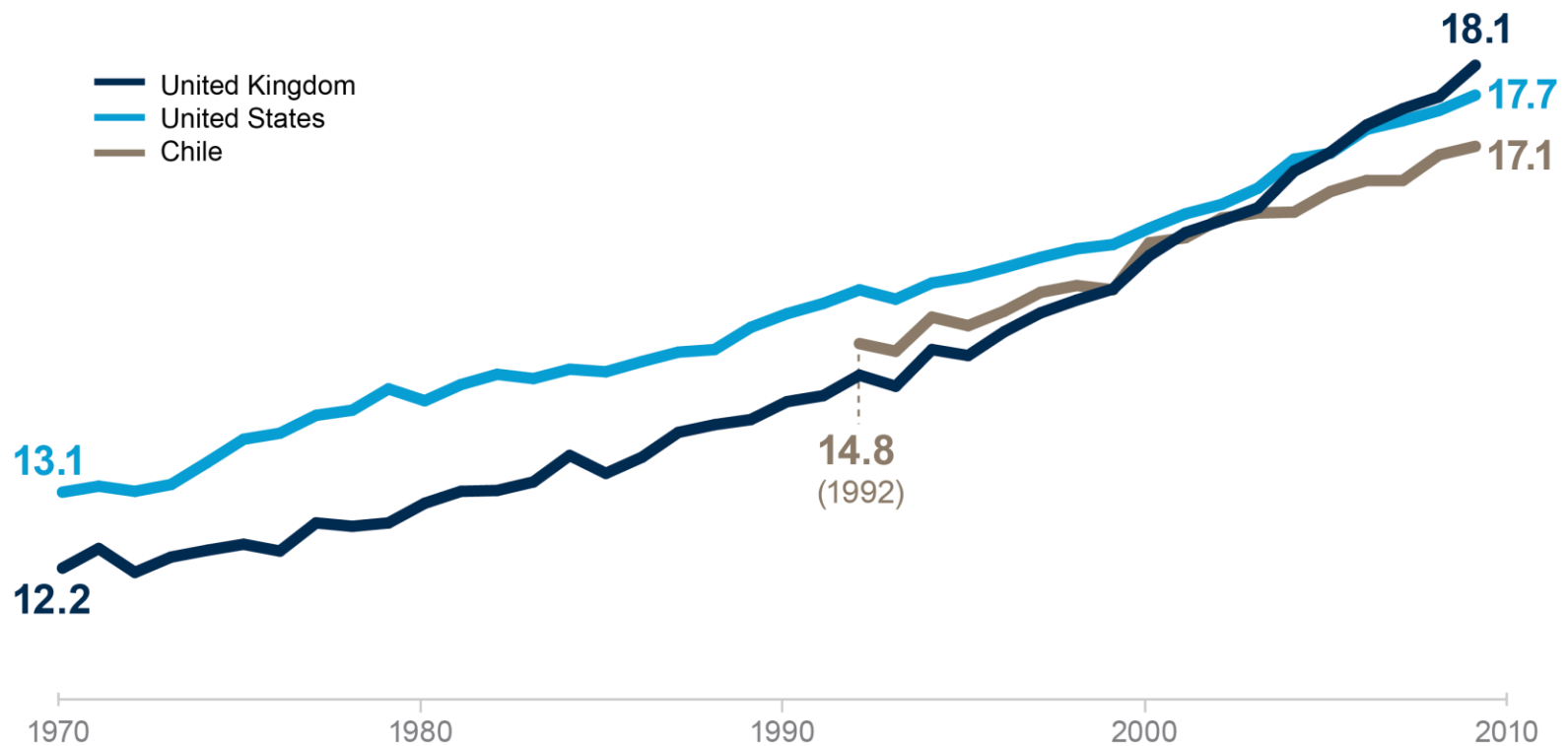
The Retired Lifetime of U.S., U.K. and Chilean Males Has Increased Significantly

Period Life Expectancy from age 65

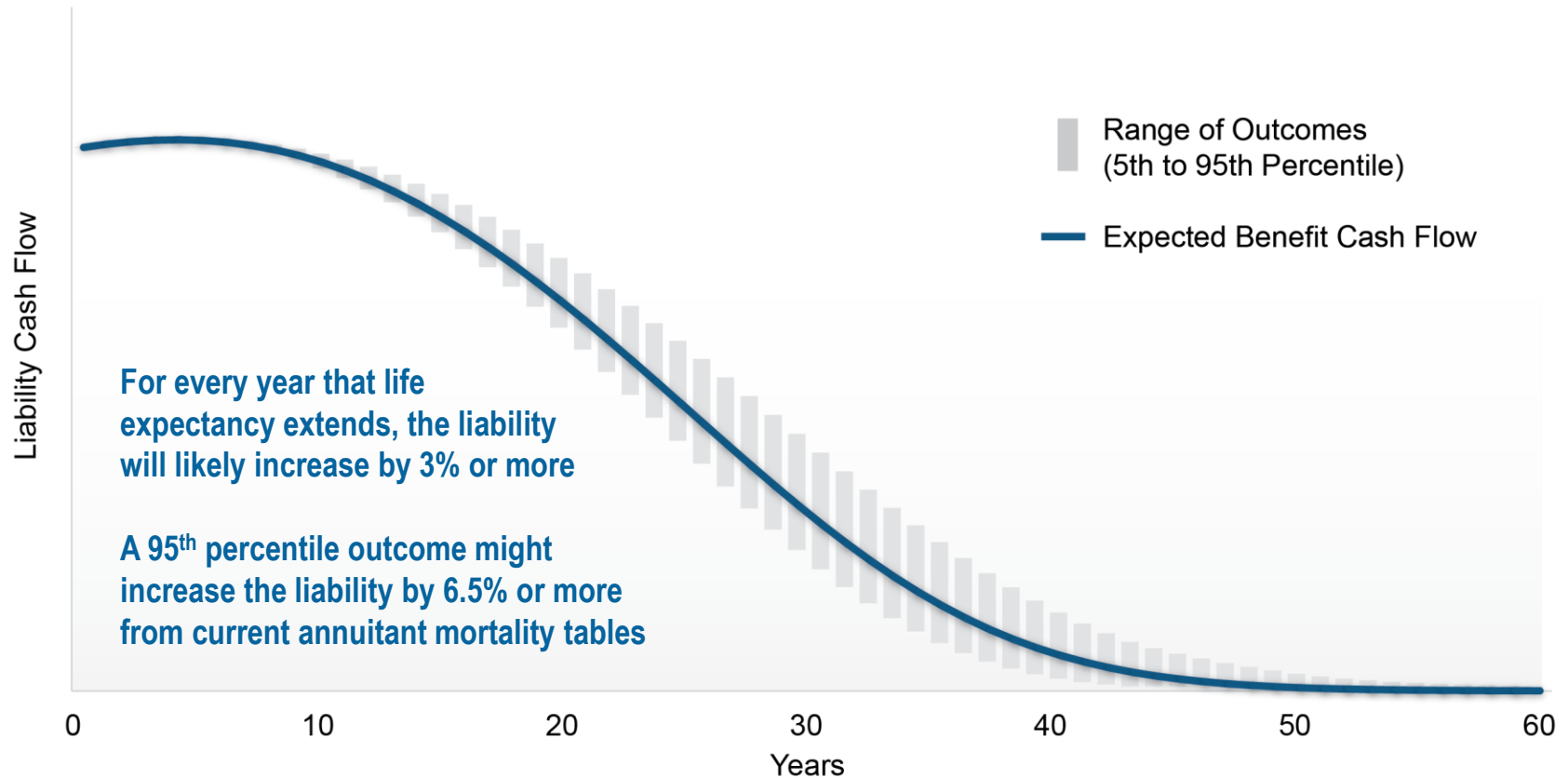


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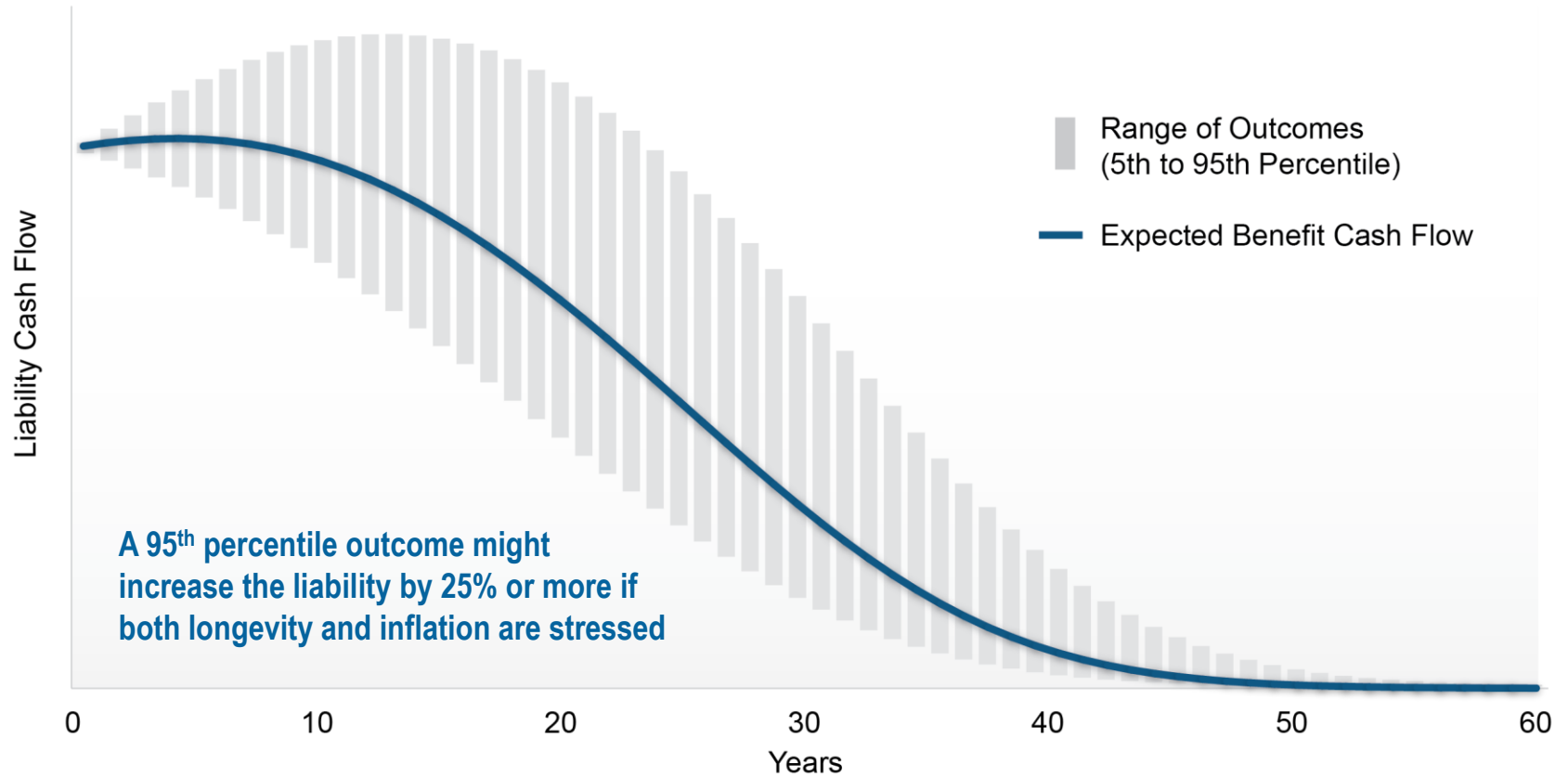
Period Life Expectancy from age 65



Longevity Risk Needs to Become Part of the Risk Management Framework Because it is Material



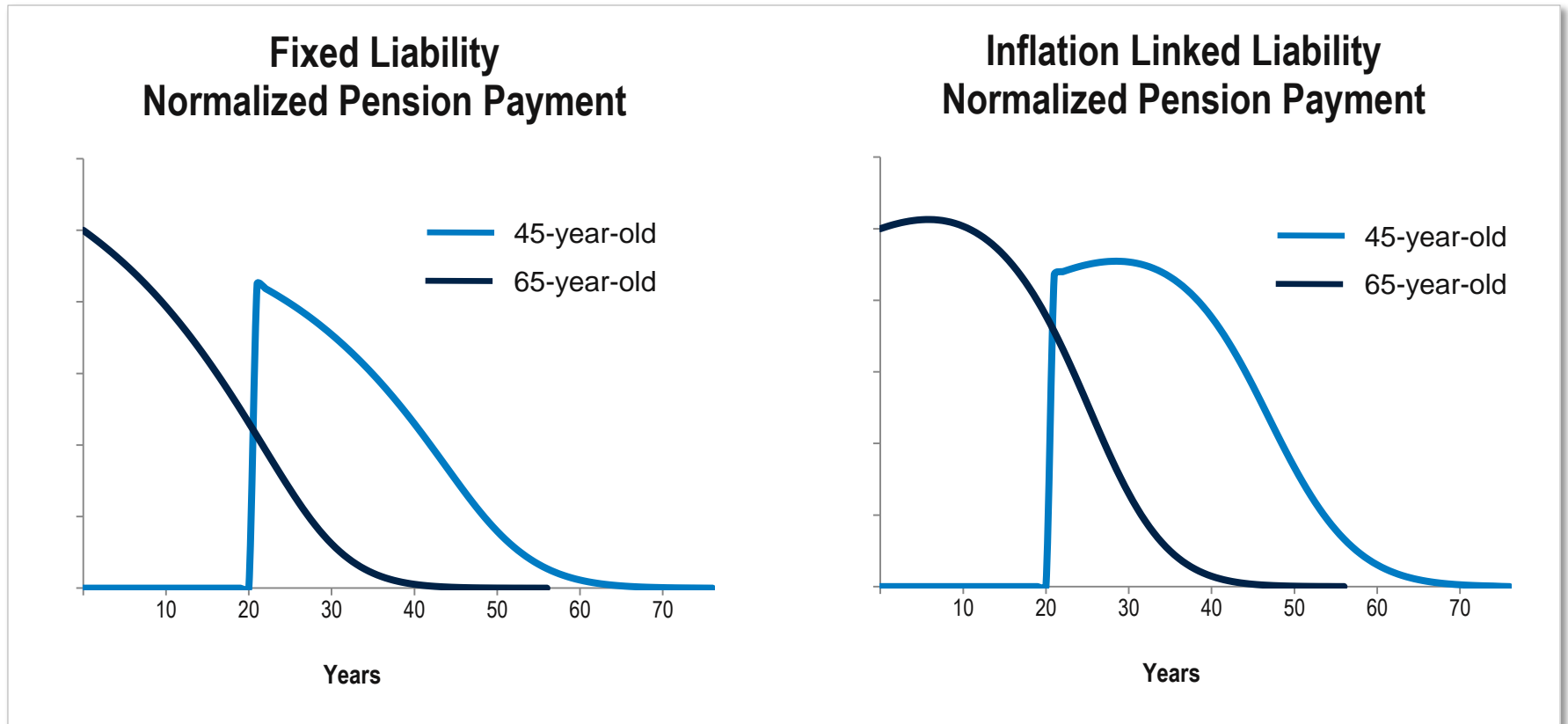
Longevity and Inflation Risk Combine to Magnify Concerns



Source: Prudential.
Assumes a group of retired annuitants, 72% male and 28% female with average age 74.
Benefits include indexed cost of living adjustments which will vary with economic conditions.

**Risk decisions made without longevity risk
in the picture will consistently undervalue
the benefits of risk management.**

Inflation Linked and Deferred Liabilities are the Most Risky for an Annuity Writer

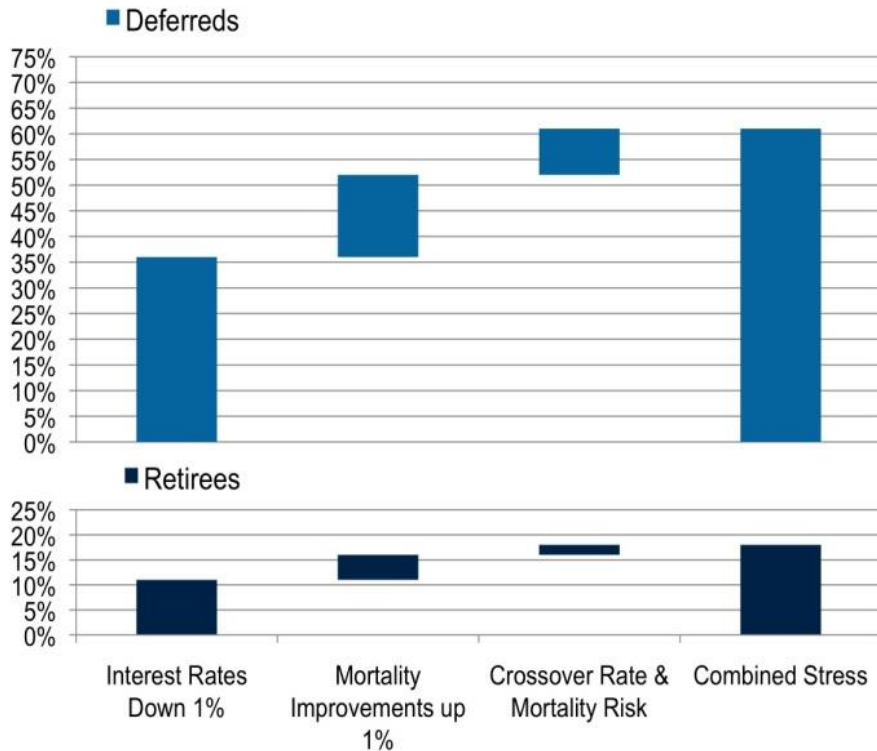


Inflation Linked and Deferred Liabilities are the Most Risky for an Annuity Writer

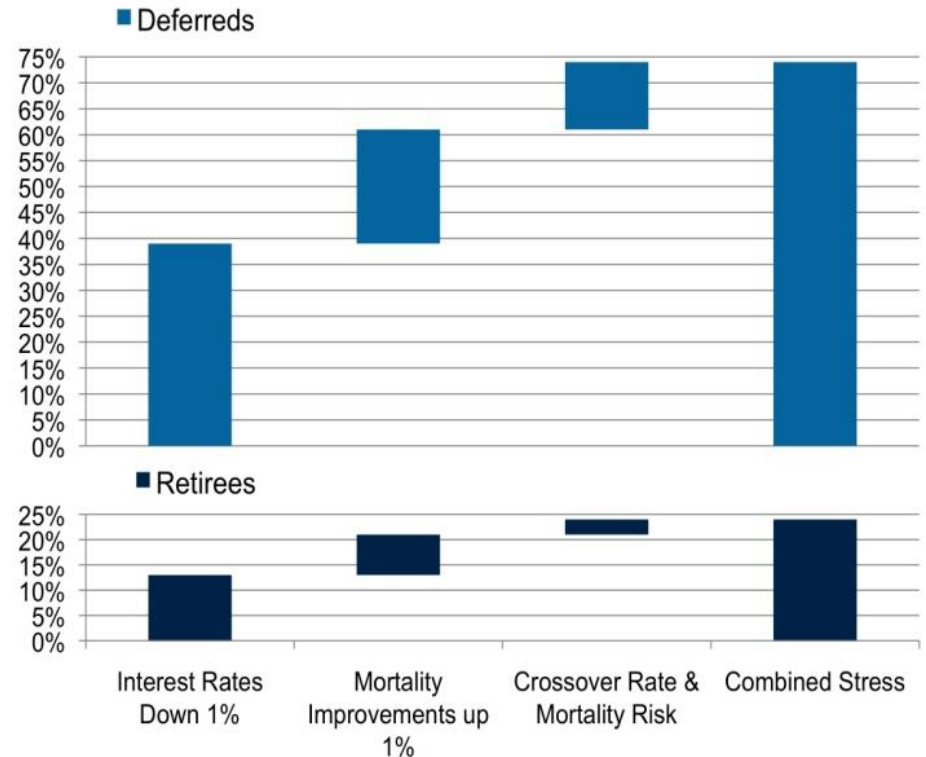
Deterministic Stress on Liabilities

(Impact of a 1% Decline in Rates and a 1% Increase in Mortality Improvements)

Fixed Liability Deterministic Stress



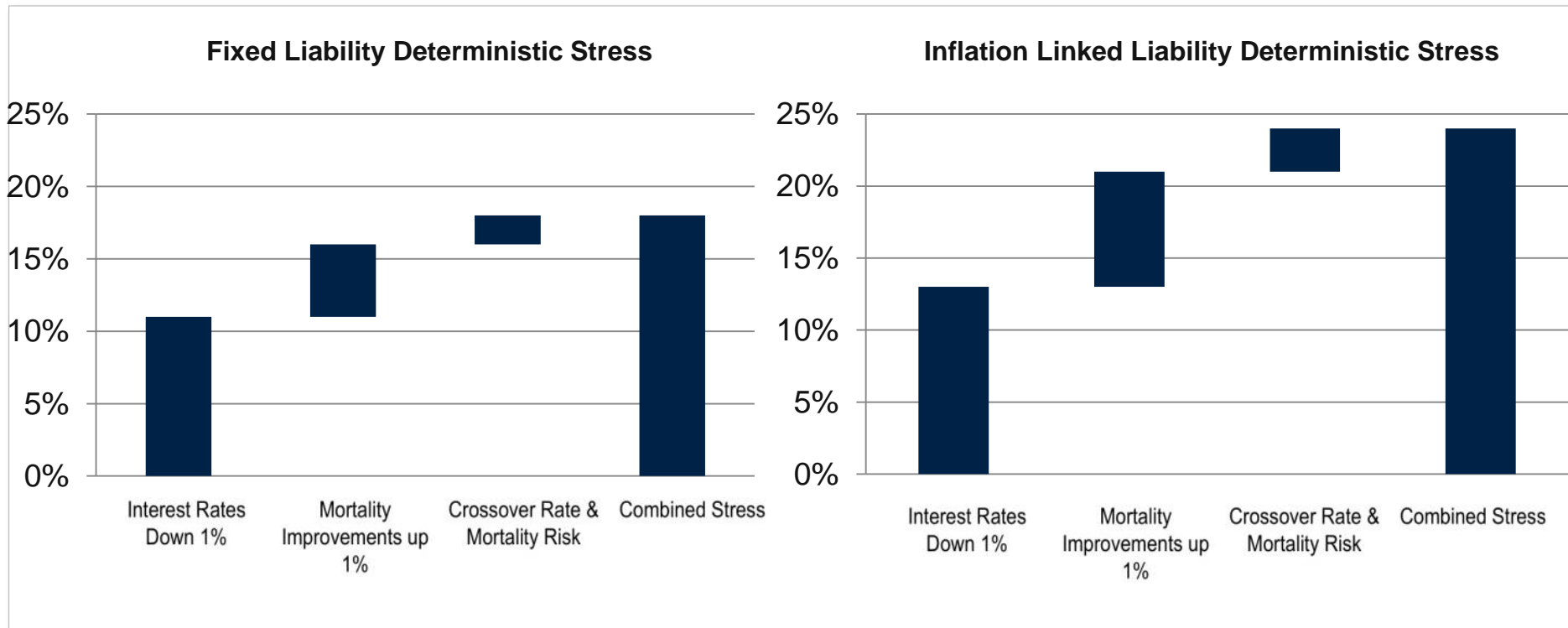
Inflation Linked Liability Deterministic Stress



Inflation Linked and Deferred Liabilities are the Most Risky for an Annuity Writer

Deterministic Stress on Liabilities

(Impact of a 1% Decline in Rates and a 1% Increase in Mortality Improvements)



■ Retirees

**Interest rate risk, longevity risk, and inflation risk
compound each other in the pension liability**

————— *therefore* —————

**leaving longevity risk out of the analysis will
underestimate total risk**

————— *especially in regard to* —————

**inflation linked liabilities and deferred liabilities,
because their longer durations make them significantly
more sensitive to adverse outcomes**

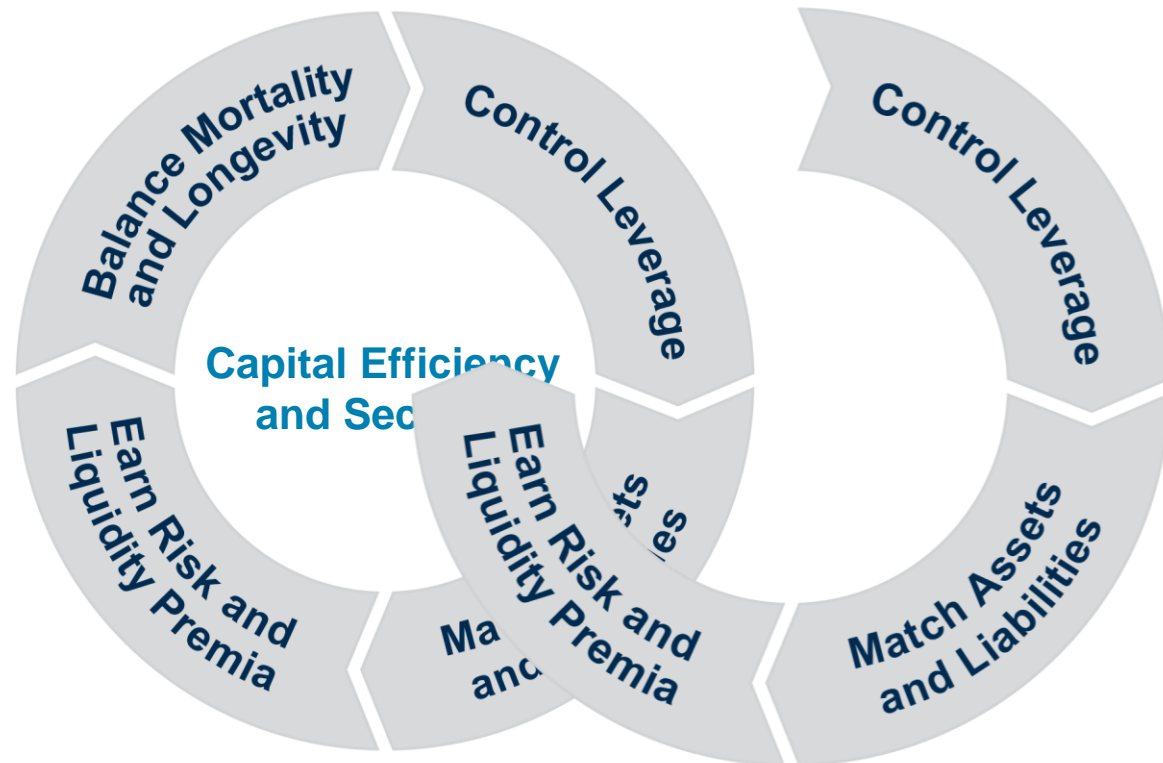
When Should an Insurer Use Longevity Reinsurance?

Diversified Life Company



When Should an Insurer Use Longevity Reinsurance?

Diversified Life Company Specialty Annuity Company



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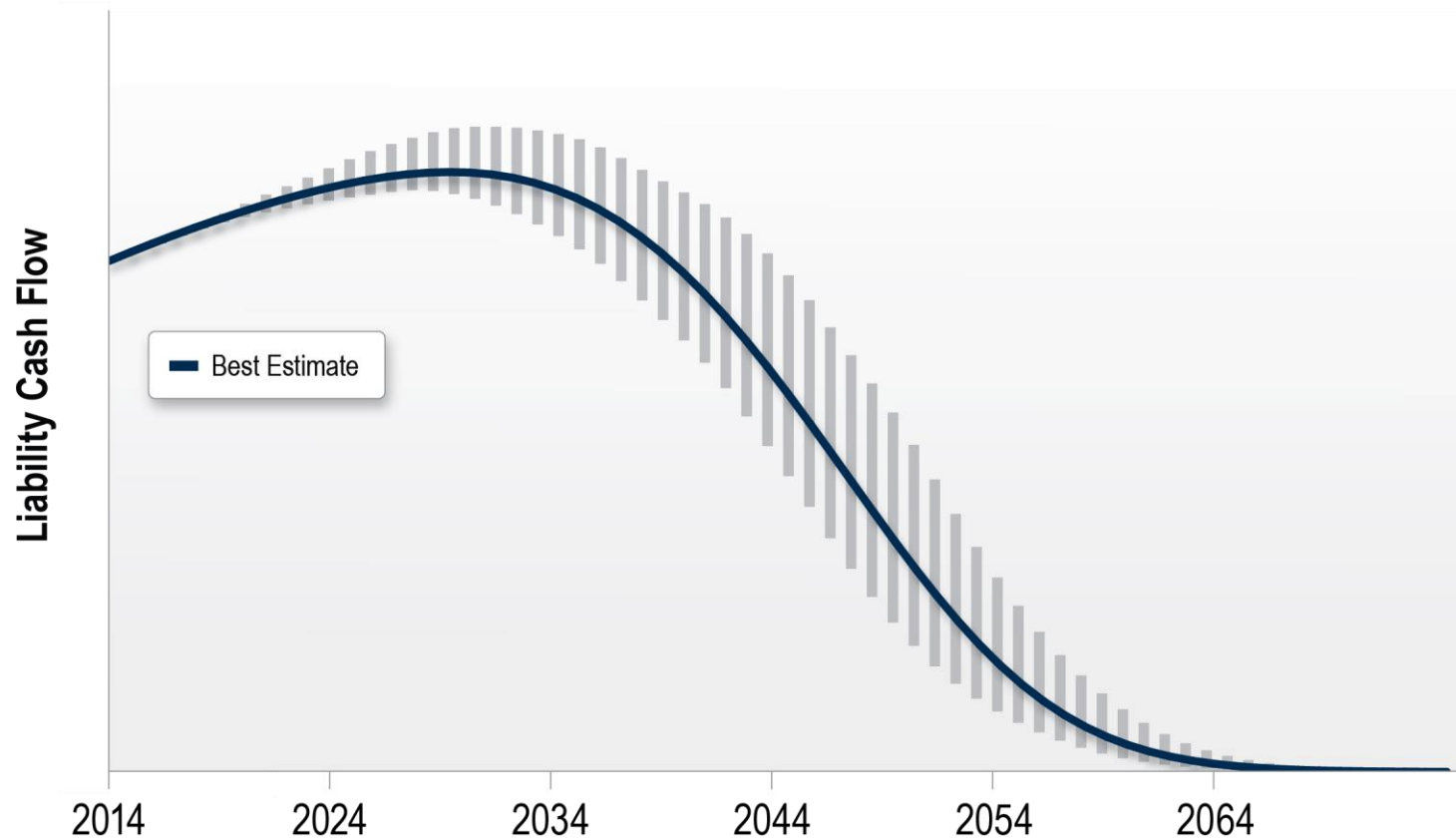
Diversified Life Company



Specialty Annuity Company



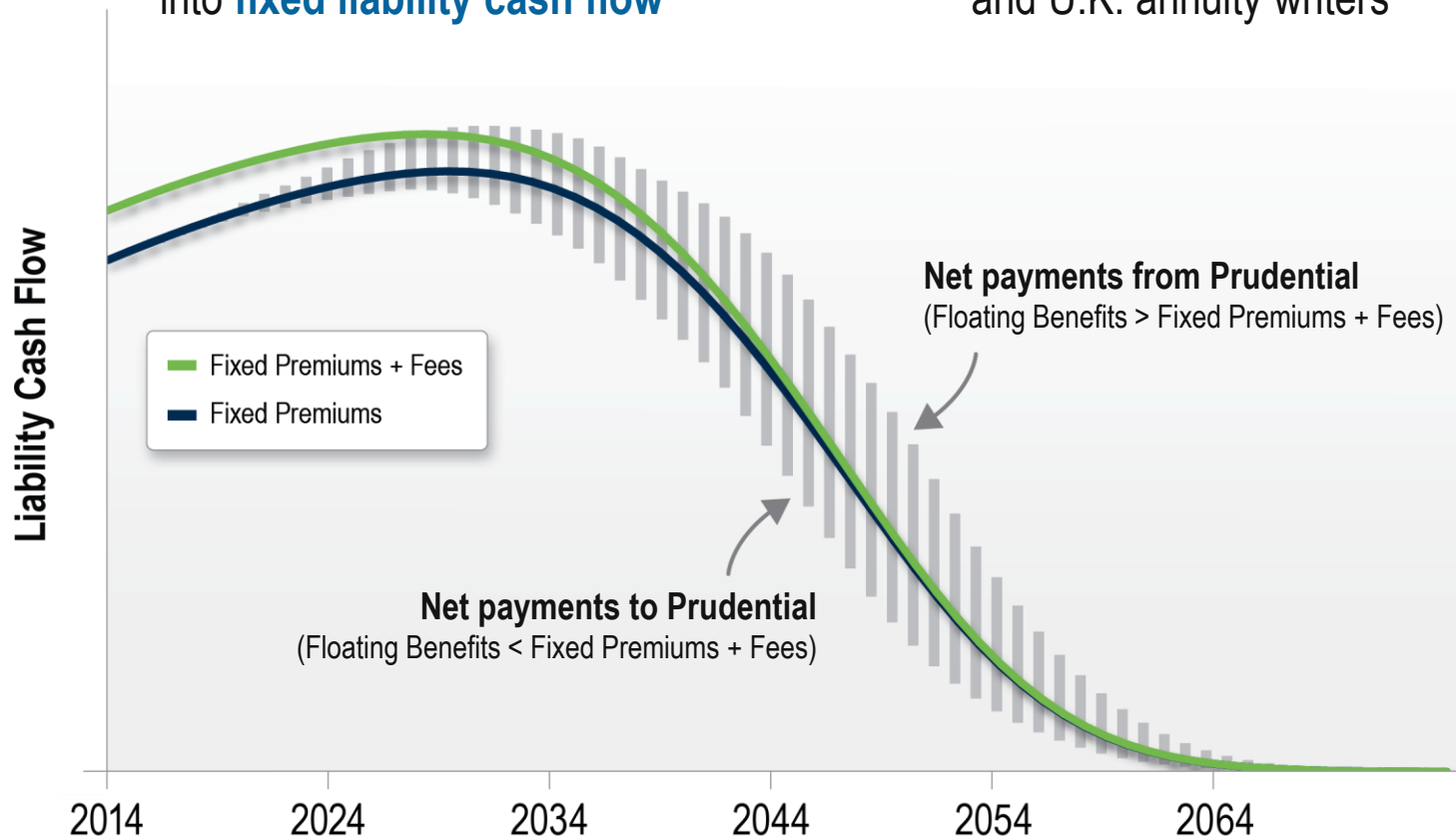
Longevity Reinsurance is Used By U.K. Annuity Writers to Manage Longevity Risk



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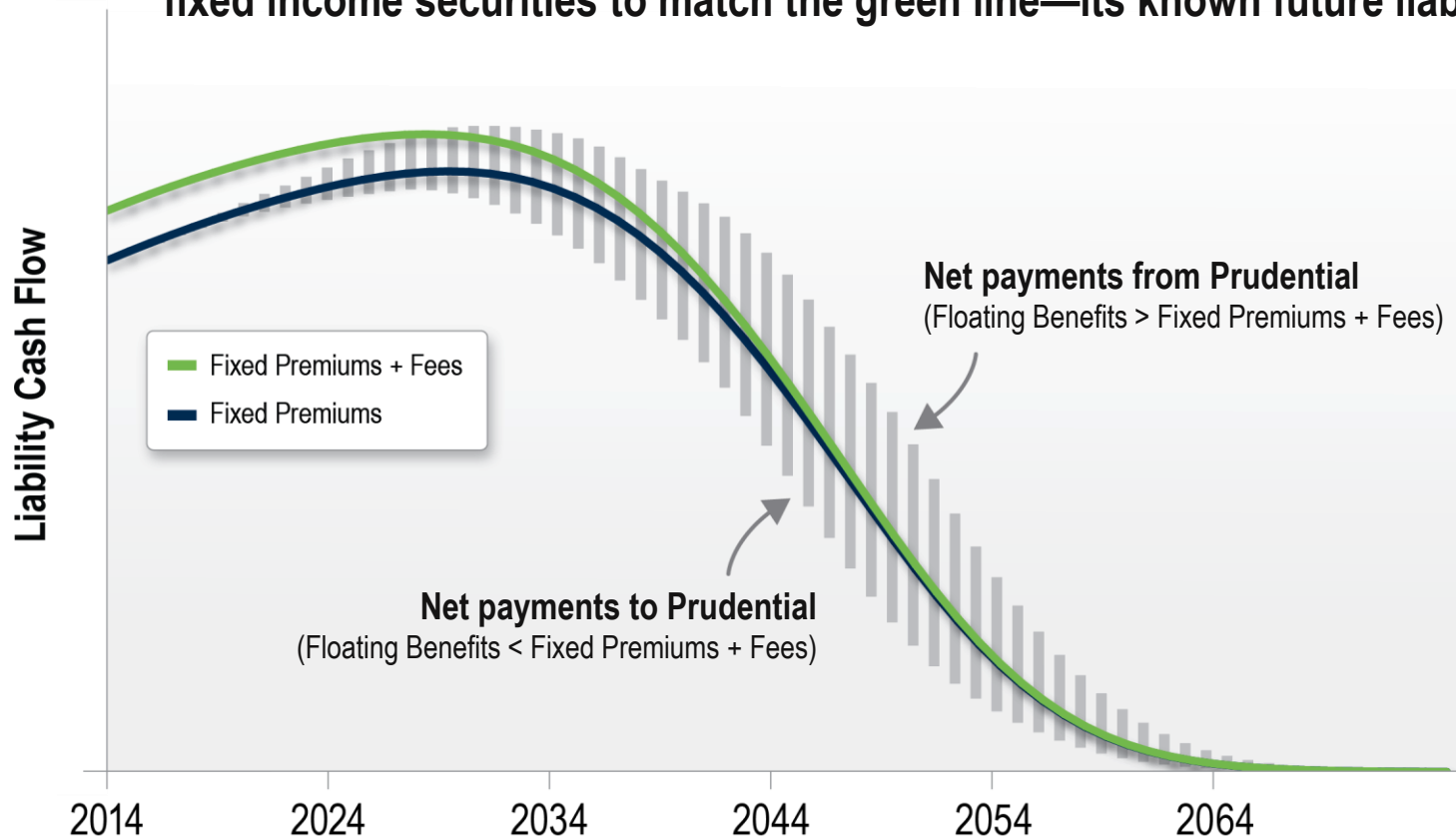
Converts **unknown future liability** into **fixed liability cash flow**

Used by U.K. pension plans and U.K. annuity writers



Longevity Reinsurance is Used By U.K. Annuity Writers to Manage Longevity Risk

With Longevity Reinsurance in place, an annuity writer can invest in fixed income securities to match the green line—its known future liability.



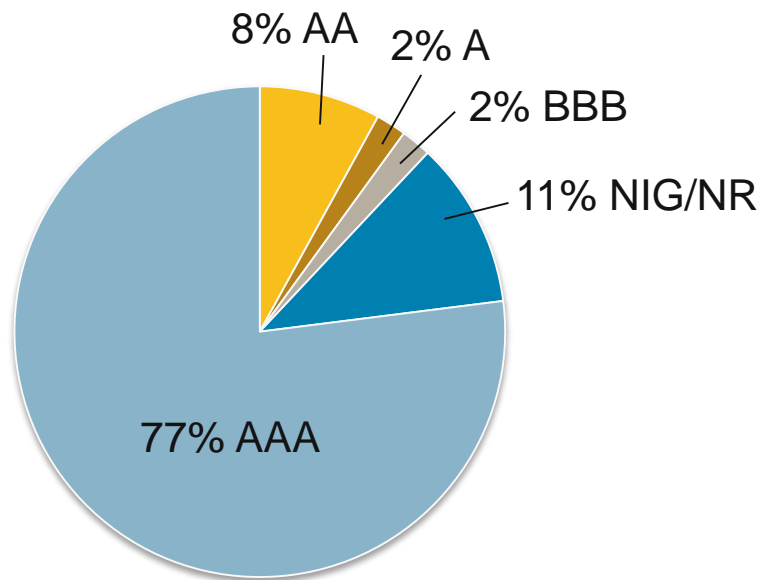
The Asset Strategy Can Combine Liquid and Illiquid Fixed Income Selected for Duration, Yield, or Inflation Protection

	Liquidity	Duration	Yield	Inflation Protected
U.K. Government Bonds	Yes	Yes	Yes	No
U.K. Inflation Linked Government Bonds	Yes	Yes	Yes	Yes
National Rail Bonds	Yes	Yes	Yes	No
Covered Bonds	Yes	No	Yes	No
Corporate Bonds	Yes	No	Yes	No
CLOs	Yes	No	Yes	No
University Housing and Social Housing	No	Yes	Yes	No
Commercial Mortgages	No	Yes	Yes	No
Private Placement Loans	No	Yes	Yes	No
Infrastructure Loans	No	Yes	Yes	No
Inflation Linked Ground Leases	No	Yes	Yes	Yes

Overall yield of the portfolio is roughly 4%

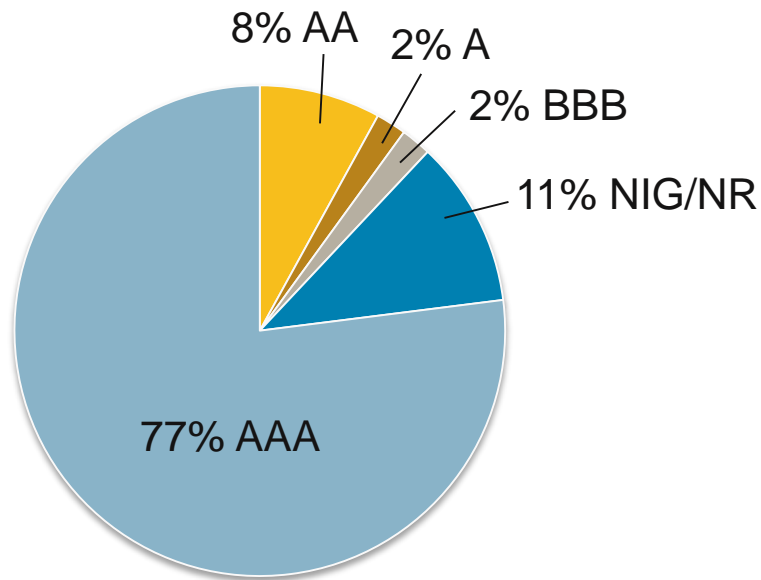
Duration is matched to the liability as closely as possible and swaps may be used to improve the match

The Asset and Liability Strategies Taken Together Are Stress Tested to Determine Capital Requirements

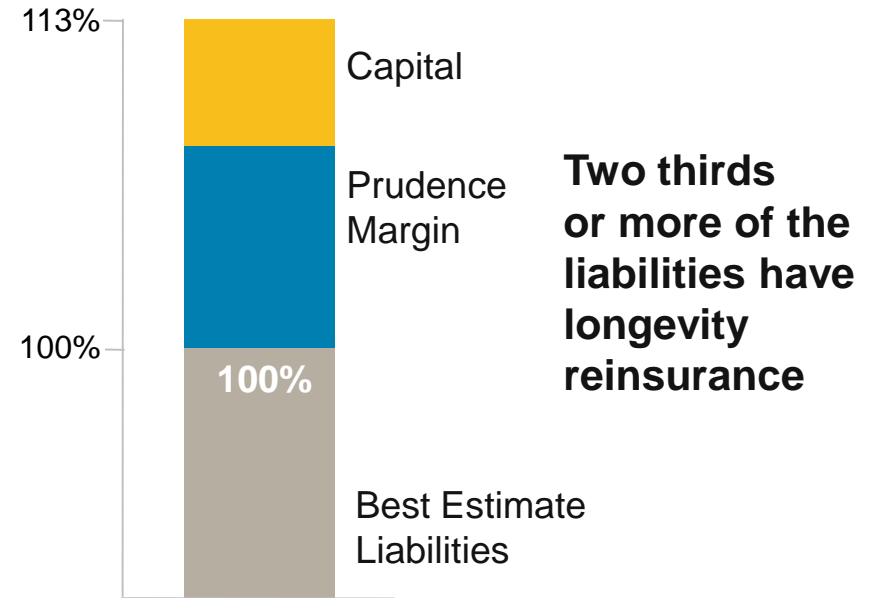


The average rating of the portfolio is AA-

The Asset and Liability Strategies Taken Together Are Stress Tested to Determine Capital Requirements



The average rating of the portfolio is AA-



- Capital is adequate if an insurer can withstand
 - a 20% drop in mortality rates; and
 - a repeat of the financial crisis
- This is a long-term stress at 99.5%
- To write new business, a company must hold 130% of the minimum capital requirement

Let's prepare for a longer retirement
with **sustainable annuity providers.**



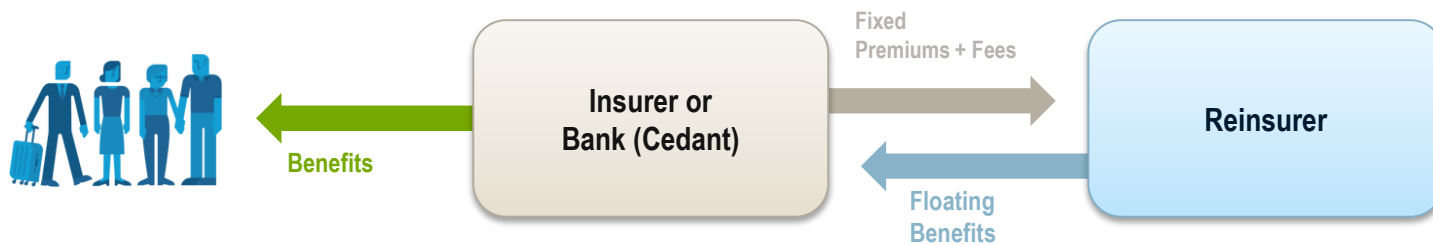
The retirement security of real people depends on it.

Q&A

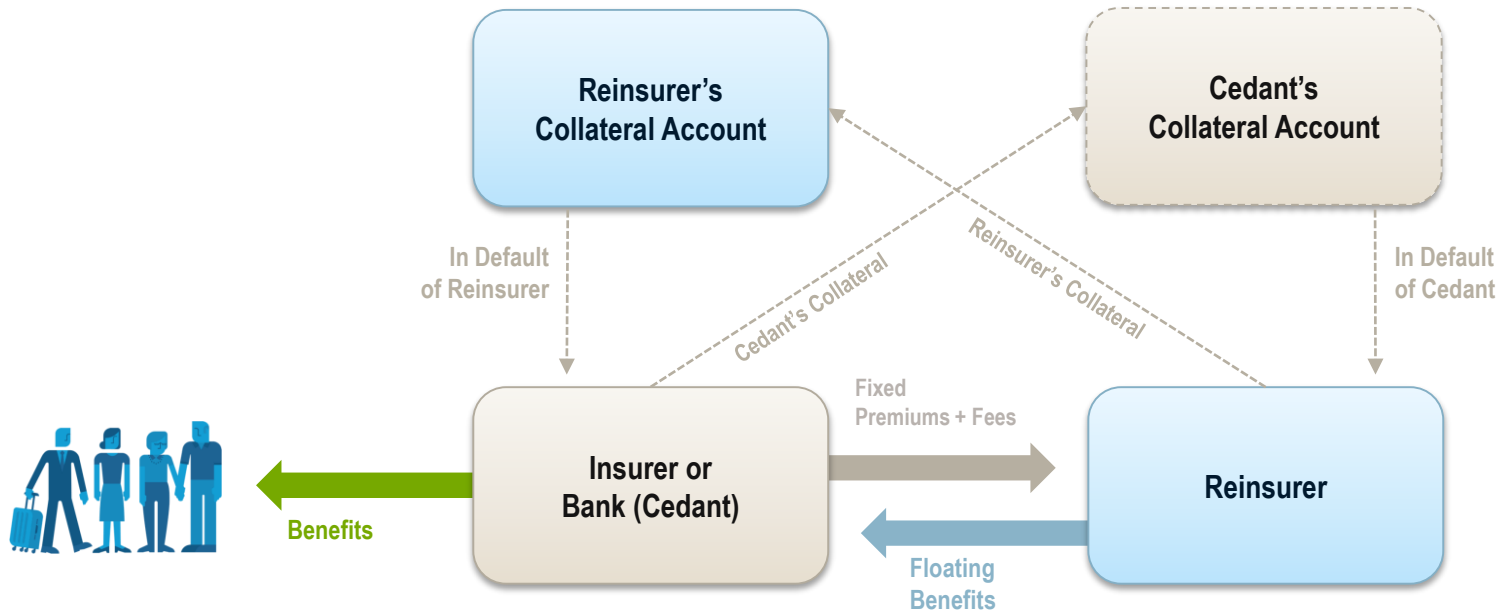
Amy Kessler
Senior Vice President
Head of Longevity Reinsurance
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Longevity Reinsurance is Fully Collateralized to Ensure Full Reinsurance Credit



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