



**The Actuarial Profession**

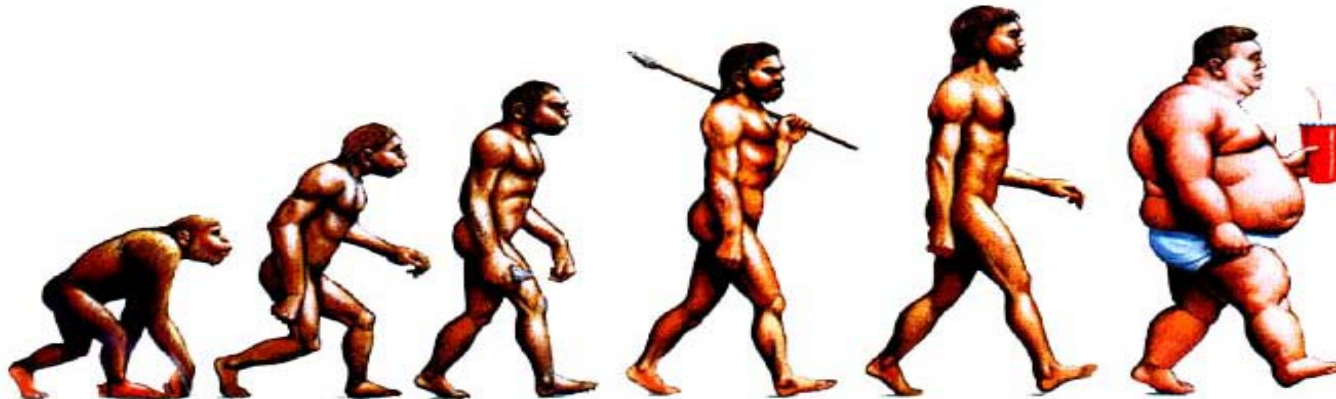
making financial sense of the future

## Current Issues in Pensions

### Matt Wilmington



# A history lesson



Standard tables  
No cohort analysis  
Immature  
schemes  
+ high net interest  
rates  
= defer thinking

Mortality  
improvements  
analysed by  
cohort  
Fading mortality  
improvements still  
the norm

Mortality treated  
as base +  
improvement  
Continued future  
mortality  
improvement  
taken seriously

Mortality rating by  
address (initially  
only bulk  
annuities, now  
individuals)

Per person  
mortality rating is  
standard  
Longevity risk  
understood,  
routinely priced,  
even traded

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But what if experience is different?



LONGEVITY RISK

# Longevity risk vs economic risk

Mortality and most other economic risks are fundamentally different:

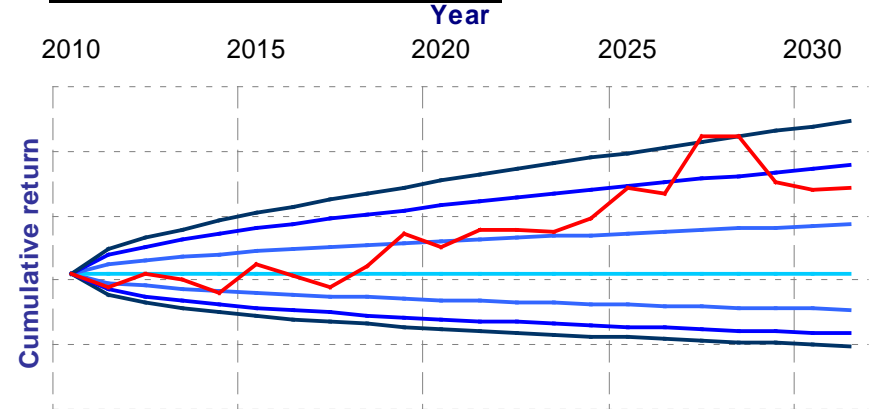
## Economic risks

- The longer I run the risk, the more predictable (in relative terms) the outcome
- “Funnel of doubt” expands at a lower rate further into the future.
- “in the long term, risky assets outperform”

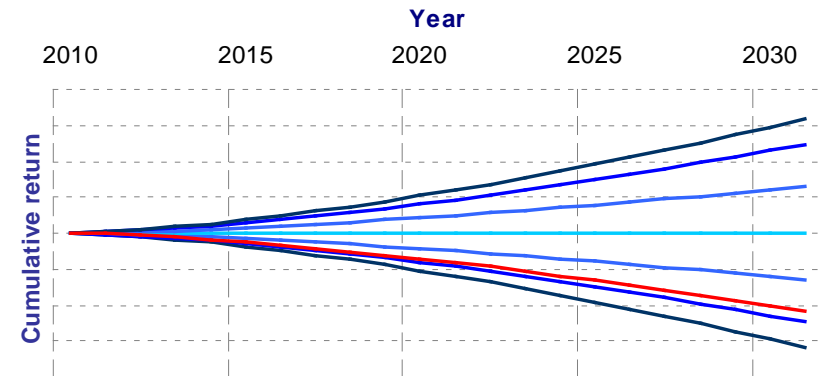
## Longevity risk

- The longer I run the risk, the more extreme the outcome could be
- “Funnel of doubt” diverges
- “*once longevity starts to move against me, it will probably get even worse*”

## Economic risk over time



## Longevity risk over time



# The flavours of longevity risk

## Idiosyncratic Risk

*Even if you knew the “correct” mortality rate, experience will differ, particularly in small schemes*



## Basis Risk

*How your scheme differs from the big population, and the difficulty of measuring this and its implications*



## Trend Risk

*Changes in a general longevity for a big population (e.g. England and Wales, insured lives, or SAPS)*



*“First person to live to 1,000 might be 60 already”*

# Risk management options

## Buy-out

- Transfer all liabilities to an insurance company
- Limited risk remains with the Fund

## Buy-in

- Purchase bulk annuity contract held as an asset of the scheme in respect of some or all of the members of the scheme
- Fund retains Insurer credit risk

## Longevity insurance plus LDI

- LDI plus longevity hedging
- Some investment, inflation and credit risk

## Optimised flightpath

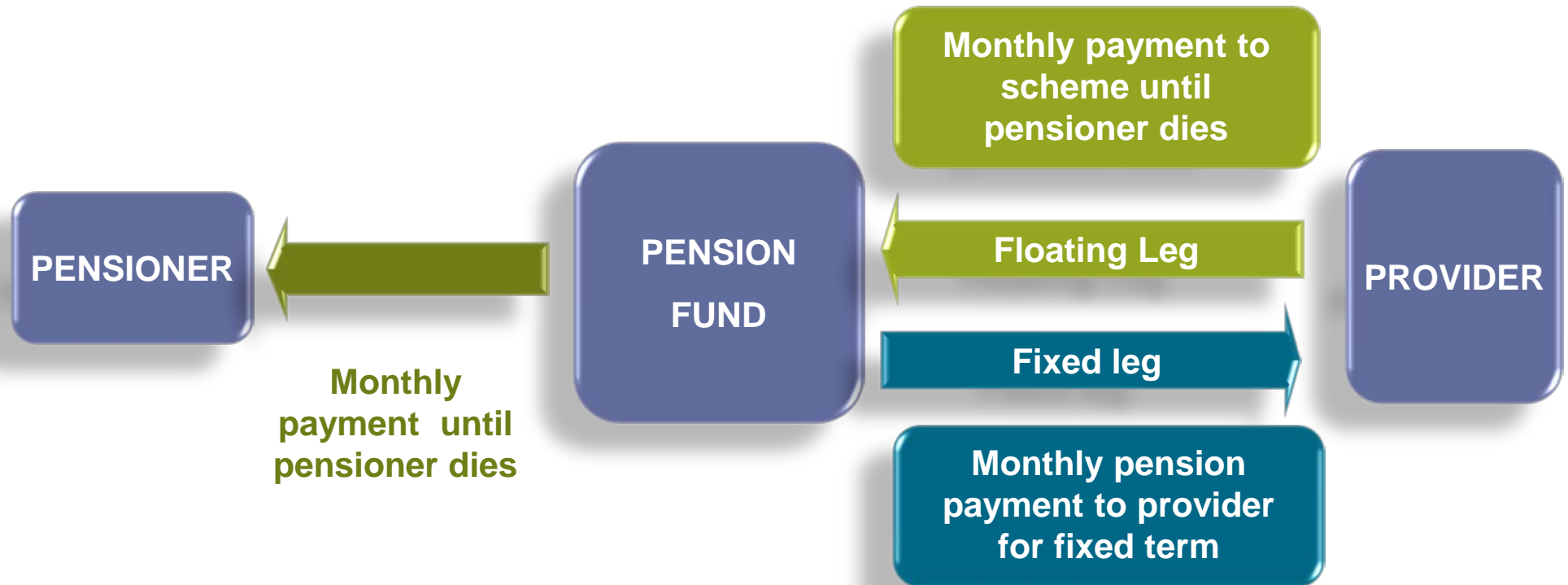
- Remove unrewarded risks
- Moderate(targeted) asset risk

## Traditional pension scheme investment

- Mixture of equities and bonds

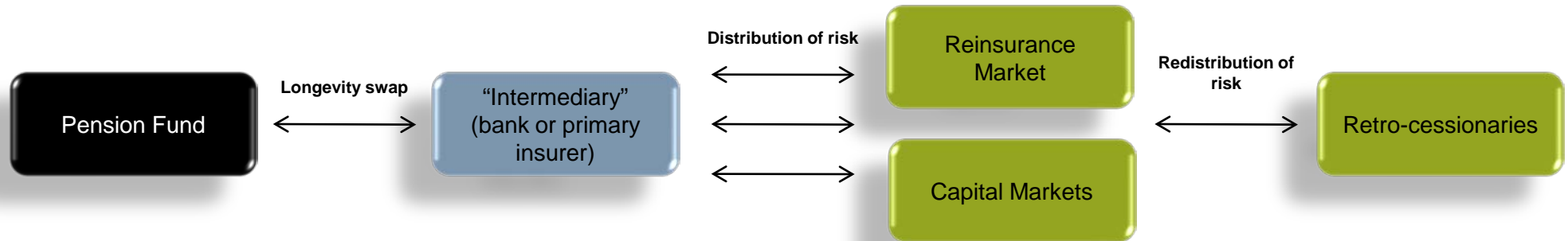
Longevity risk hedged

# Longevity swaps



- Unfunded structure – no up front asset payment to the provider, structure is a cashflow swap
- Members continue to receive pensions from the fund – the provider pays those same amounts into the fund
- Fund is exposed to the credit risk of the provider – however several credit mitigation structures are available
- Fund also retains the investment risk of the assets, inflation risk can be retained or transferred

# Who wants this risk?



- Global reinsurance market “long” on mortality risk, “short” on longevity
- Capital market beginning to demonstrate a level of interest
- Role of the intermediary is to transform risk into an acceptable form



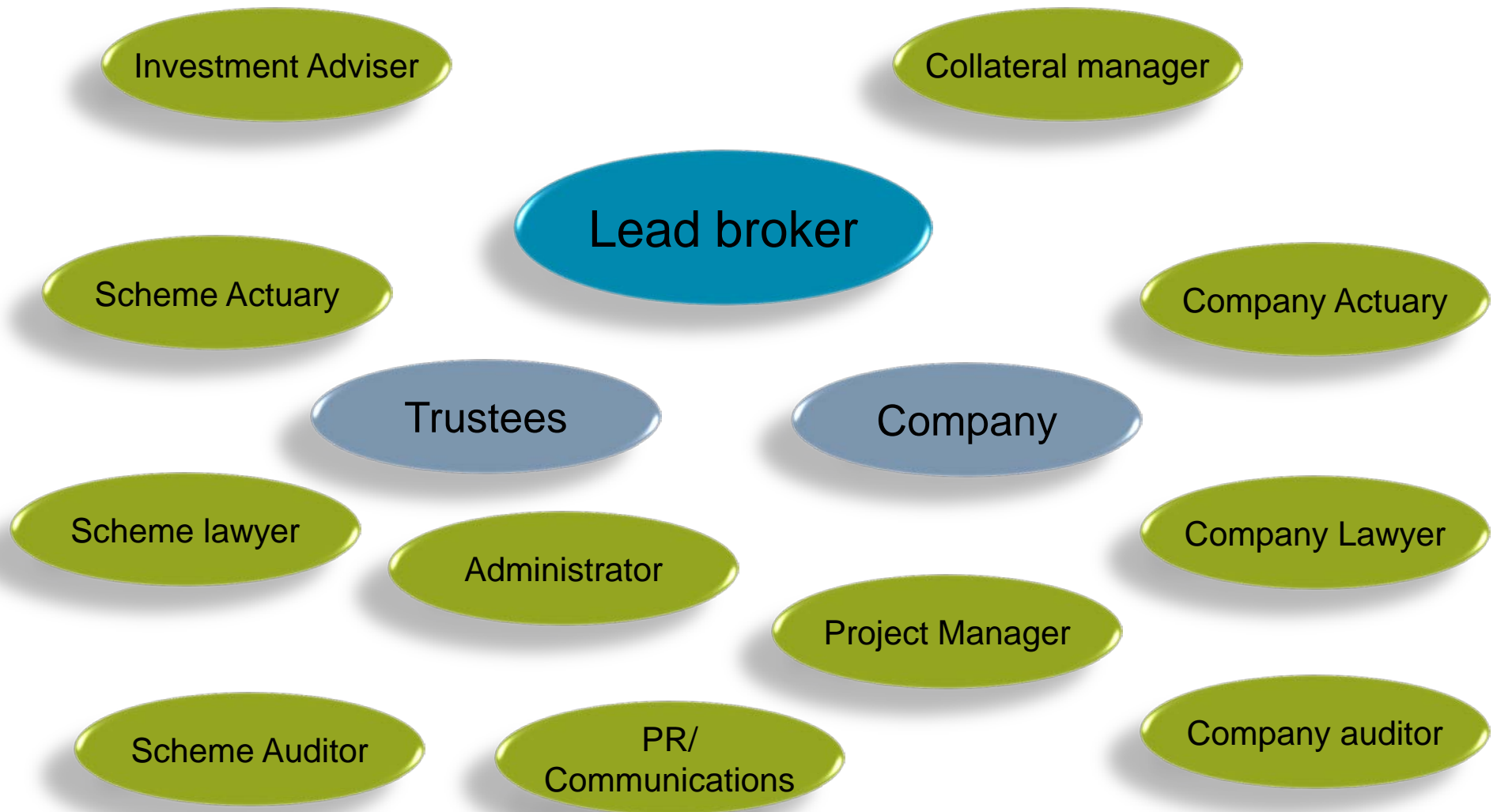
# Anatomy of a longevity hedge







# The cast



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# The difficult bits

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- How do you measure the longevity risk you are removing?
- Collateral
- Truing up data
- Legals



# Collateral

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- Day 1
  - The scheme is likely to have to post
- Assets
  - What have you got
  - What you want to be left with if the worst happens
- Measurement
  - Similar to LDI but still some challenges
- Longevity basis
  - Base table is straight forward
  - Future improvements is a challenge
- Manager costs



# Benefits and data

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- Know your data
- Custom & practice as well as the rules
- Truing up



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# Legal issues

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- Termination
- Surrender
- Annuitisation
- Restructuring
- Novation
- PPF
- Risks transferred e.g. admin risks
- Indemnities and warranties
- Dispute Resolution
- Execution
- Data Protection



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