



**The Actuarial Profession**

making financial sense of the future

Life Conference and Exhibition 2010

Eugene Dimitriou, Peter Telford, David Shaffer



# Life and Longevity Markets Association

7-9 November 2010

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# Agenda

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- **Longevity market overview**  
**Eugene Dimitriou**
- Introduction to the LLMA
- Who will benefit and how

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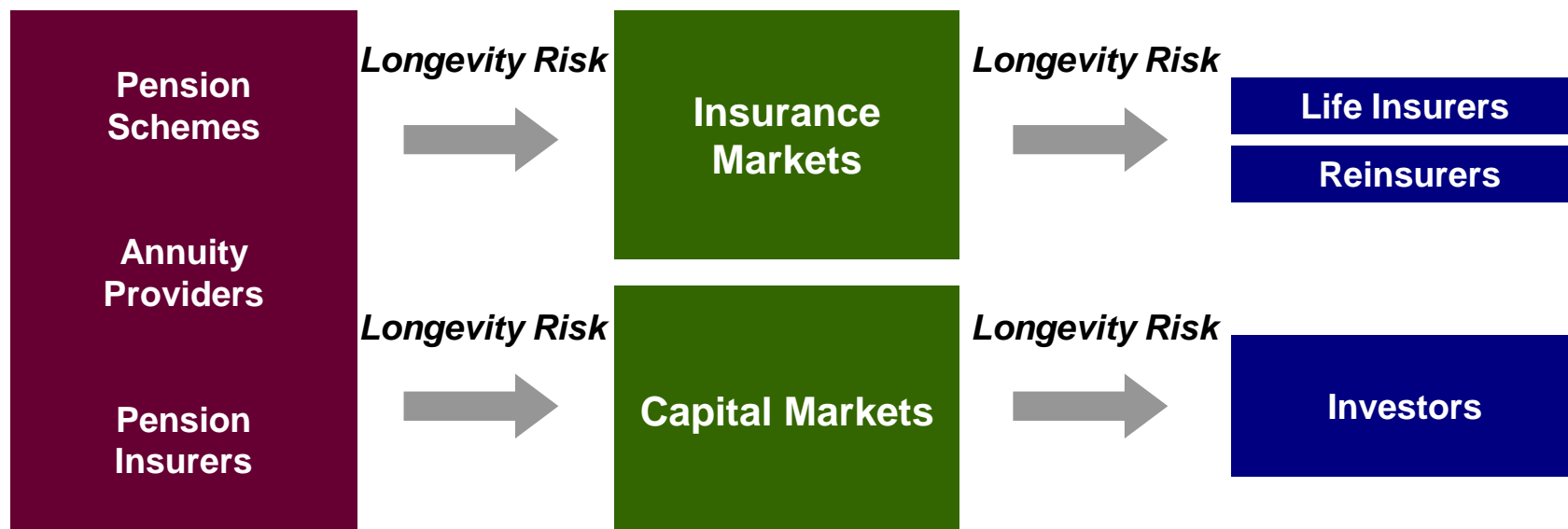
# The issue of longevity

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- A material concern for pension funds and sponsors
- Unrewarded, historically underestimated, unmanaged risk
- Who are the 'best' owners/managers of the risk?
- Barriers to development of a liquid market
- The LLMA aims to overcome these barriers

# Longevity risk, a major concern

- Important for funds and sponsors to hedge
- Established insurance markets
- Capital markets are an emerging, complementary channel
- Additional capacity and potentially greater liquidity



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# Insurance-linked securities (ILS)

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- Insurance risks are routinely passed to the capital markets
- Risks transferred include weather, earthquake, pandemic
- Longevity risk is a natural extension

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# Why launch now

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- Pensioner longevity continues to increase
- Pure longevity deals are emerging
- Growth of market is constrained only by capacity
- Insurance markets cannot absorb all the risk
- Risk owners need a traded market in longevity
- Uncorrelated risk is attractive to investors
- Solvency II

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# The potential size of the longevity market is ... large

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- Global market > \$25 trillion
  - UK public sector : (approx figures)
    - State pensions £1170bn
    - Unfunded and local authorities £ 930bn
  - UK private sector :
    - Future pensioners £ 500bn
    - Current pensioners £ 500bn
  - Annuity providers £ 125bn
  - Defined contribution plans £ 450bn
- } Primary focus

# Longevity hedges – some recent deals

Date	Risk seller	Solution provider	Value of liabilities covered £m	Documentation
<b>Jun 2010</b>	British Airways (Airways Pension Scheme)	Rothesay Life (Goldman Sachs)	1,300	Reinsurance
<b>Feb 2010</b>	BMW (UK) Operations	Abbey Life (Deutsche Bank)	3,000	Reinsurance
<b>Dec 2009</b>	The Royal County of Berkshire	Windsor Life (Swiss Re)	750	Reinsurance
<b>Dec 2009</b>	Babcock International Group	Credit Suisse	300	Swap
<b>Sep 2009</b>	Rosyth Royal Dockyard	Credit Suisse	350	Swap
<b>Jul 2009</b>	RSA Insurance Group	Rothesay Life (Goldman Sachs)	1,900	Reinsurance
<b>Jun 2009</b>	Devonport Royal Dockyard	Credit Suisse	500	Reinsurance
<b>Mar 2009</b>	Norwich Union	Royal Bank of Scotland	475	Both
<b>Oct 2008</b>	Canada Life	J.P. Morgan	500	Swap



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# Transacting longevity swaps – key issues

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- General challenges:
  - Complexity, decision timescales
  - No consensus model, opaque basis risk
  - Novelty, language
  - Credit risk
- Particular challenges for investors
  - Detailed due diligence, long maturity, illiquidity
- Standardisation and education can help

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**Peter Telford**
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# What is the LLMA

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- Not-for-profit company
- Promoting development of a liquid traded market
- Owned and funded by banks, insurers and reinsurers
  - AXA, Deutsche Bank, J.P. Morgan, Legal & General, Morgan Stanley, Pension Corporation, Prudential, RBS, Swiss Re, UBS
- Open to new members
- Initial focus on UK, other countries may follow

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## Benefits of the LLMA's work

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- More transparency, less complexity
- Faster implementation of deals
- Greater certainty and comfort on structure, documentation, pricing
- Improved market understanding
- Larger, more efficient, sustainable market

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# What the LLMA will do

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- Develop standards, methods and benchmarks
  - Terminology
  - Product definitions and contract forms
  - Indices and index methods
  - Valuation models
  - Risk management framework

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# What the LLMA will not do

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- Trading
- Market-making
- Trading platform
- House view
- Life settlements

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# LLMA governance and resourcing

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- Board representative from each member firm
- Project Committee oversees four Workstreams:
  - Technical
  - Documentation
  - Accessibility
  - Governance
- Member firms provide the resources, including Workstream staff

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# LLMA workstreams

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- Technical – create standard components and processes:
  - Products and collateral
  - Data and indices
  - Valuation and risk management
  - Market infrastructure
- Documentation – create standard contracts and documents
- Accessibility – distribute standards, promote the LLMA
- Governance – maintain controls and budgets



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# Longevity index framework

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- First LLMA work product – draft released Aug 2010
- Aim is to create a generally accepted standard
- A framework, not a recipe:
  - Principles to which indices should adhere
  - Standard methods for building indices

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# LLMA longevity index principles

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1. Tradability
2. Transparency
3. Robustness
4. Objectivity
5. Simplicity
6. Clear governance
7. Timeliness
8. Continuity
9. Consistency
10. Universality

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# LLMA longevity index methods

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- Standards for all aspects of development and operation
- Underlying population
- Input data:
  - Source, frequency, timing lag
  - Reliability, late or missing data
- Index methodology
- Index metrics (outputs):
  - Mortality rates, life expectancies, survival rates, granularity
- Calculations and production process
- Discretion and restatement

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**David Shaffer**

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# The longevity market of today

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- Not a liquid market:
  - A few thousand buyouts / buyins
  - < 20 pure longevity trades
- Long lead times, bespoke documentation, opaque pricing
- One format – “complete” risk transfer
- Retrocession also time consuming
- Limited market capacity, diseconomy of scale
- Large minimum deal size
- Very long contracts

# Benefits of a liquid market (1)

	Benefits	Drivers
Pension funds and sponsors	<ul style="list-style-type: none"><li>• Hedging ability</li><li>• Increased risk capacity</li><li>• Greater security</li></ul>	<ul style="list-style-type: none"><li>• Greater confidence on pricing and structure</li><li>• Benchmark for risk exposure</li></ul>
Regulators	<ul style="list-style-type: none"><li>• Standard product components</li><li>• Secondary market</li></ul>	<ul style="list-style-type: none"><li>• Insight on risk</li><li>• Transparent market activity</li></ul>
Gov't	<ul style="list-style-type: none"><li>• Hedging public-sector schemes</li><li>• Robust pension provision</li></ul>	

## Benefits of a liquid market (2)

	Benefits	Drivers
Investors	<ul style="list-style-type: none"><li>• Uncorrelated asset class</li><li>• Increased appetite</li></ul>	<ul style="list-style-type: none"><li>• Greater confidence on pricing and structure</li><li>• Clear risk and reward</li></ul>
Banks and market makers	<ul style="list-style-type: none"><li>• Vanilla and tailored products</li><li>• Liquid secondary market</li></ul>	<ul style="list-style-type: none"><li>• Increased client confidence</li><li>• Knowledge and readiness to trade</li></ul>
Insurers and reinsurers	<ul style="list-style-type: none"><li>• Increased flexibility and capacity</li><li>• Potential capital efficiency</li></ul>	<ul style="list-style-type: none"><li>• Greater confidence on pricing and structure</li><li>• Risk appetite</li><li>• Educate regulators</li></ul>

# Types of longevity trade

## Parties

1. Pension funds
2. Insurance co.
3. Reinsurers
4. Banks
5. Investors



## Economic Substance

1. Assets transactions
2. Longevity swaps
3. Q-forwards
4. S-forwards
5. Shares in a company
6. Longevity bonds
7. Structured notes
8. Cat bonds



## Basis

1. Indemnity basis
2. Index basis

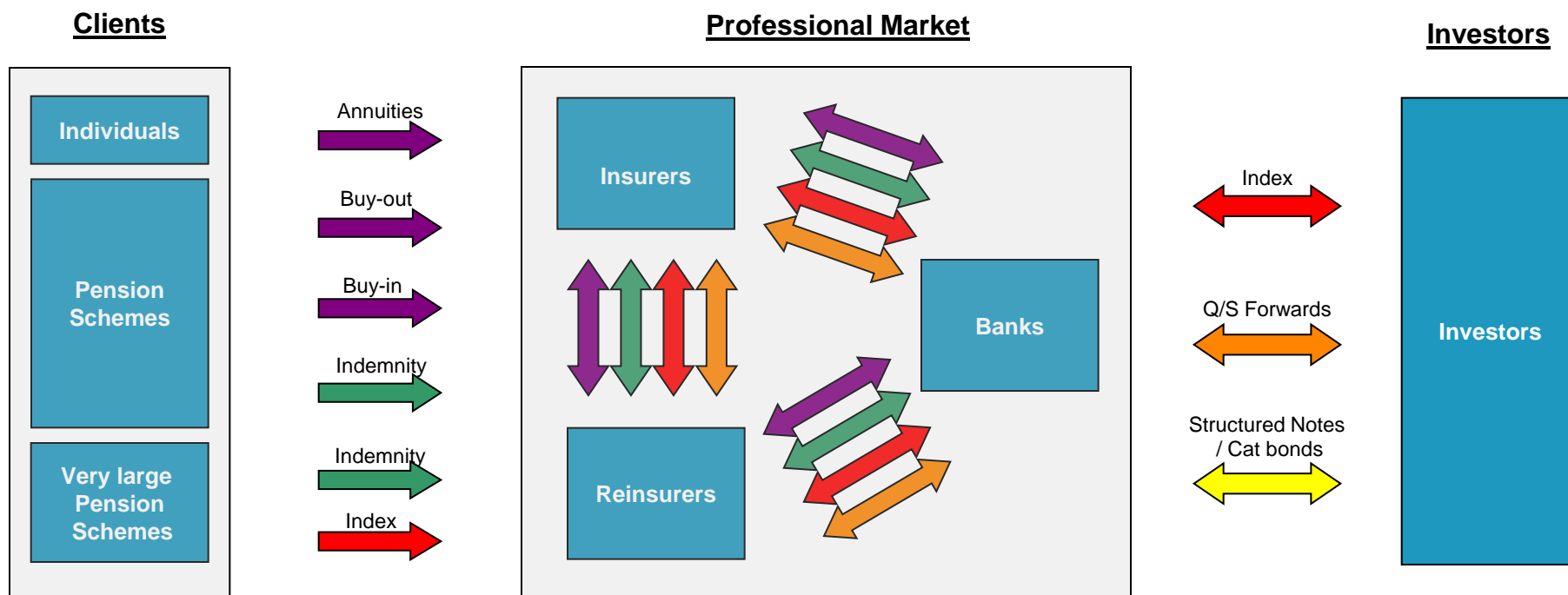


## Legal Structures

1. Derivatives
2. Insurance / reinsurance
3. Debt or equity
4. Bulk buy-in or buy-out
5. Part VII transfer



# The longevity market of tomorrow ?



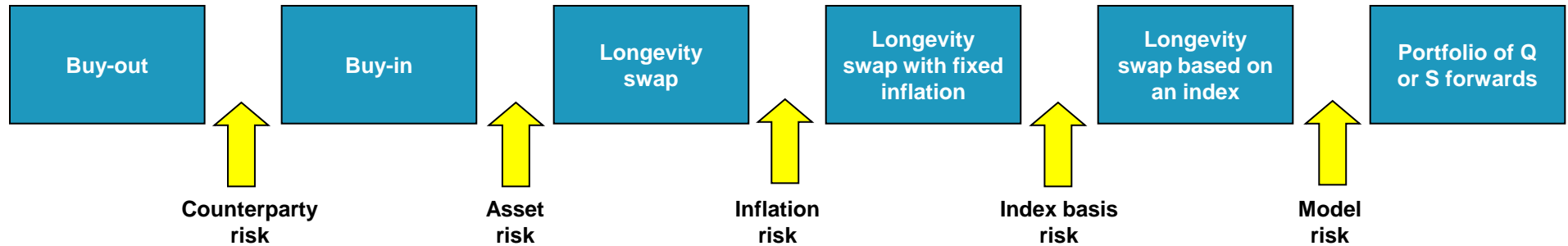
## Legal Form

- Asset transactions
- Longevity Swap – Indemnity basis
- Longevity Swap – Index basis
- Q or S Forwards
- Structured Notes / Cat bonds

- Risk mainly sourced via indemnity transactions
- Trading and secondary transfer aided by Q- and S- forward trades, alongside indemnity transactions
- Investors engaged through structures linked to Q- and S- forwards, as well as current ILS structures

# Basis risks

## Full hedge



## Partial hedge

- Hedgers and hedgees need to consider how to price for each risk and how much capital to hold against each risk.
- Some work has been done on quantifying some of these risks. There is lots more to do ...

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# Questions or comments?

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Expressions of individual views by members of The Actuarial Profession and its staff are encouraged.

The views expressed in this presentation are those of the presenter.

