The Actuarial Profession
making financial sense of the future

15th GCA, Mumbai 2013
Charles Cowling, Chairman, UK Discount Rates Steering Committee

Lessons from UK Discount Rates Project

19th February 2013

Agenda

- Introduction
- Discount Rates Framework
- International perspective
- UK developments
- The future …

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Big questions for the UK Actuarial Profession

Is it appropriate for the Actuarial Profession to have different actuaries in different practice areas producing very different answers to very similar questions?

Is it possible to create a common language and transparent framework for describing and determining discount rates and possibly reduce the diversity of current practice?

UK Actuarial Profession objectives

- Establish cross-practice team
- Analyse current practice on discount rates
- Describe how and why risk is included in discount rates
- Develop a common language and framework to describe current practice
- Consider options for reducing diversity of practice and introduce a transparent framework
- Consider impact and management of change

Key milestones

March 2010	Discount Rates Forum meeting with key stakeholders
May 2010	Publication of *“Actuaries and Discount Rates”* from Chris Daykin and Chinu Patel
January 2011	Publication of “*Developing a framework for the use of discount rates in actuarial work*”
September 2011	Publication of final recommendations from the UK Actuarial Profession
November 2012	Publication of Discount Rates Framework

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Current Practice and Existing Research (Daykin and Patel (2010))

- Reviewed last 400 years and current practice
  - Two broad families of calculations (for discounting liabilities)
  - Matching – price/value of assets that (as far as possible) seek to match characteristics of the liability cash flows
  - Budgeting – price/value of assets used to fund liabilities as they fall due
- Selection appears to be mainly driven by purpose and context
- Important to communicate embedded risk encapsulated within discount rate

Wide range of discount rates used in practice

- Prudent vs. realistic vs. smoothed
  - What is the purpose of the valuation?
  - Discount rates not the only elements in valuations
- Some not directly related to asset markets, e.g. Social Time Preference Rate
  - Based on comparisons of utility through time
- Utility considerations introduce debate on price vs. value
- Consistent valuation of asset and liability cash flows
- Classify between matching and budgeting – is choice binary?

Proposed framework

Discount rates developed within two alternative approaches

- “Matching” (i.e. “Market Consistent”) using discount rates consistent with current market value of assets that replicate the future economic behaviour of the liabilities
- “Budgeting” using discount rates consistent with the expected future returns on the assets held to provide for the cash flows as they fall due

Practical constraints limit extent of pure “matching”

- But, market consistency principle is well established
- Deviations from perfect matching have consequences for risk and solvency of financial firm or organisation

Applications of the Two Approaches

"Matching"

- Transactions, avoiding arbitrage
- Adequacy of assets, knowing that these can secure assets in market if perfect matching can be achieved

"Budgeting"

- Planning, based on assumed rates of return
- Funding, where market transactions or market comparisons are neither required nor anticipated

Matching calculations - Rationale

- If asset and liability cash flows exactly match then would expect them to be given the same value

- Law of One Price / Principle of No Arbitrage / Law of Contemporaneous Value Continuity
  - Nearly identical cash flows should have nearly identical values

$$V\left(k\left(A+B\right)\right)=kV\left(A\right)+kV\left(B\right)$$

Matching calculations - Building blocks

- Include
  - Selection of instruments used to construct discount curves
  - Default risk, premiums for liquidity
  - Allowance for taxation and other expenses
  - More subjective than sometimes thought

N.B.

(a) Discount rates are not the only elements of liability cash flows that may be 'matched'

(b) Often need clarity over what is 'risk-free'

Budgeting calculations - Rationale

- Measurement of liability approached from viewpoint of how the liability is going to be financed
  - Discount rates set by reference to expected returns from pre-determined investment strategy
- Usually greater embedded risk, and therefore greater level of uncertainty attaching to a plan achieving its objectives
  - Less precise, so may be expressed as a single rate rather than a curve
- Main current use: DB pension scheme funding ‘valuations’
  - Also shareholder / enterprise appraisal

Budgeting calculations - Building blocks

- A common current DB funding ‘valuation’ approach
  - Trustees and sponsor agree investment strategy
  - With an expected (long-term) outperformance (e.g. from adopting an equity bias)
  - Higher but more volatile investment returns will lead to lower long term contribution costs. In meantime, scheme health underpinned by sponsor covenant
- Usually, discount rates include an element of prudence vs. statistically ‘expected’ return (sizes of which may vary, e.g. because of strength of sponsor covenant)

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Many countries have been looking at discount rates

Denmark (13 June 2012)

- The Danish government and pensions industry has agreed a package of measures to help insurance companies and pension funds cope with low bond yields, including changes to the long end of the discount yield curve and restrictions on bonuses and dividends

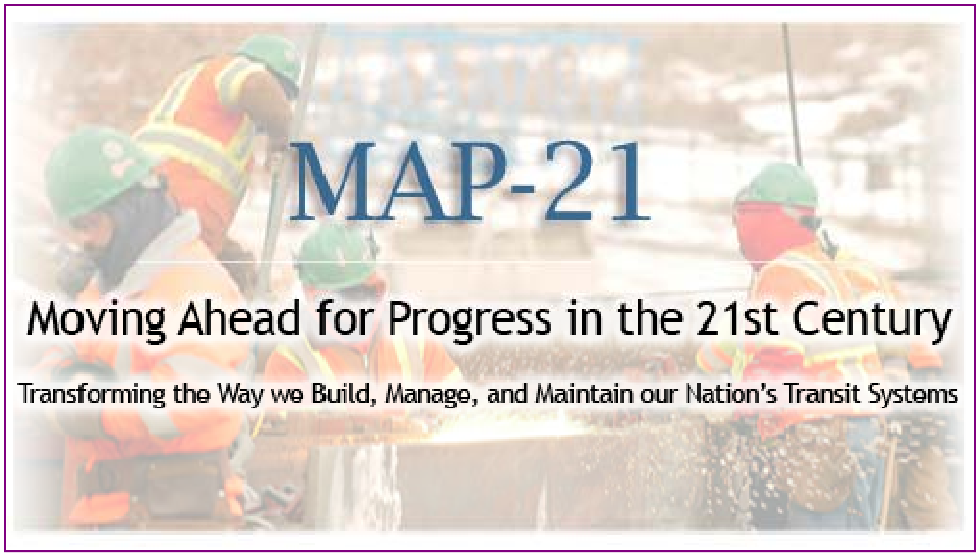
Sweden (19 September 2012)

- Finansinspektionen, Sweden's financial supervisor, has introduced a temporary floor on the interest rate curve used to discount liabilities in order to alleviate the acute situation caused by historically low interest rates

Netherlands (25 September 2012)

- The Financial Assessment Framework (FTK) is the part of the Pension Act (Pensioenwet) that lays down the statutory financial requirements for pension funds. Every month, De Nederlandsche Bank (DNB) publishes the latest Rate Term Structure (RTS) by which pension funds use to value their liabilities. On 25 September 2012, DNB released notes in the form of Q&As on the September Pension Package. The introduction of the Ultimate Forward Rate leads to an adjustment of the RTS beyond the so-called 'last liquid point' (20 years forward). The introduction of the UFR for pension funds brings the regime for funds into line with the regime applying since 30 June 2012 for insurers. The specifications of the UFR (last liquid point at 20 years, convergence period 40 years and a UFR of 4.2%) are equal in both cases.

Discount rates are a big issue in the US



The Moving Ahead for Progress in the 21st Century Act (MAP-21) is a funding and authorization bill to govern United States **federal surface transportation spending**. It was passed by Congress on June 29, 2012, and President Barack Obama signed it on July 6

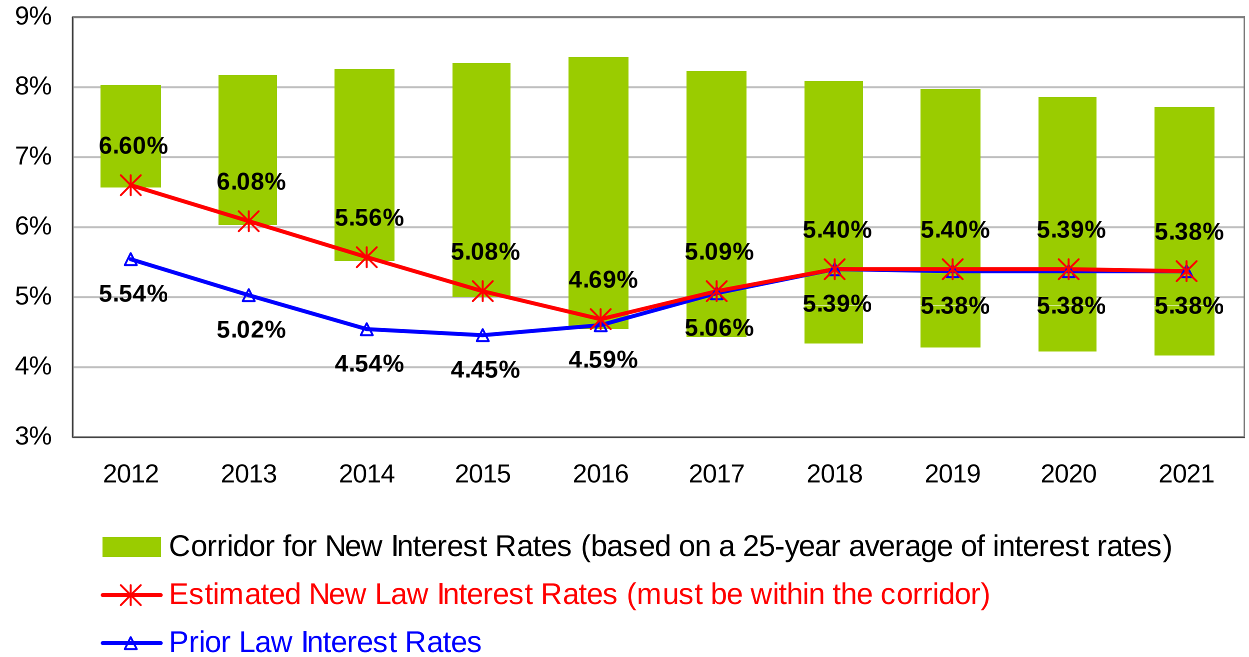
Several unrelated provisions were attached to the bill: A one-year extension of federal **student loan** rates through June 30, 2013; a five-year reauthorization of the national **flood insurance** program through 2017; and a one-year extension to the Secure Rural Schools Act, which compensates rural counties for loss of revenue caused by **reduced timber harvest** on federal lands.

MAP-21 is funded without increasing transportation user fees. (The federal gas tax was last raised in 1993). Instead, funds were generated through the following measures:

….

Change the interest rate that pension plans use to measure their liabilities….

Theory (?) and Practice



Estimated Projected Interest Rates Assuming May, 2012 Rates Rise 100 Basis Points in 2015

"We expect that near-term cash contribution requirements could decline by 30% or more for some plans through 2015 compared to the requirements under the prior law"

But there are problems …

U.S. fiscal disasters

Notable cities, counties and states at or nearing fiscal insolvency

1. California
$16 Billion dollar 2012 deficit, up from $9.2 billion after expected tax revenue failed to materialize. Governor seeks tax increase in fall ballot proposition.

2. Illinois
$43 Billion dollar 2012 deficit leaves state a fiscal and economic mess, with bitter infighting and no solutions in sight

3. Nevada
2011 deficit of $1.8 Billion, or 55 percent of general fund.

4. Stockton & San Bernardino, CA
Swimming in debt and unfunded pension liability, file for bankruptcy in 2012

5. Los Angeles
Former mayor Richard Riordan predicts city will go bankrupt within two years

6.Harrisburg, PA
Filed for bankruptcy in 2012 after a failed waste-to-energy plant investment. Bankruptcy rejected by court.

7. Jefferson County, AL
Largest municipal bankruptcy in history filed in 2011 after county got in over its head in sewer project.

SOURCES: Governing Magazine, Wall Street Journal and Associated Press

DESERET NEWS GRAPHIC

Which will not go away …

FINANCIAL TIMES
January 17, 2013 2:31 pm
Illinois lawmakers fall into pensions gap
By Neil Munshi in Chicago

After the previous legislature failed to pass crucial fiscal reforms, Illinois' new lawmakers sworn in this month have been handed a huge problem: how to close a $96bn unfunded pension liability.

A Moody's downgrade last year gave Illinois the lowest credit rating in the nation and Fitch downgraded its outlook to negative last week on pension reform inaction.

Illinois' pension system is just 35% funded … A "healthy" pension system is generally defined as being 80% funded. In 2010, 34 states were below the 80% threshold, up from 31 states in 2009 and 22 in 2008.

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UK Government Consultation – Pensions and Growth

- Issued 25 January 2013
- Whether to smooth assets and liabilities in scheme funding valuations
- Response by 7 March 2013
- Whether to introduce a new statutory objective for the UK Pensions Regulator
- Response by 21 February 2013

Does smoothing change anything ?

UK Actuaries Survey

- 134 of the 151 actuaries who responded to our questionnaire think the current pension funding legislation contains ample flexibility … but that there needs to be more flexibility from the Pensions Regulator
- 100 think interest rates will revert to higher levels than implied by current market yields … but there is a wide range of views about “normal” levels and when interest rates might return to them
- 34 think such reversion should be anticipated in funding calculations
- 13 think interest rates should be smoothed

What the UK Profession has said

- Would not wish to see a regime that permitted arbitrary discount rates that obscure the cost of pension promises
- Smoothing raises concerns
- Vital that all stakeholders work together to ensure all the intended flexibility in the regime is readily available to schemes
- Consistency of asset and liability valuations is important
- Any explicit adjustment to discount rates for the difficult current conditions should be tested against expected returns

What might smoothing look like?

- What's possible under the European Directive?
- Revised legislation? Or just guidance?
- Permanent or temporary?
- Optional?
- Consistent asset value?
- Smoothed assumptions? Or values?
- What about "expected returns"?
- Smoothing period

Implications for UK Government

- Popular with business
- Potential for higher tax revenues
- Failures would be expected to be more severe, if less frequent.
- Catastrophic claim more likely ➔ a corresponding increase to Pension Protection Fund levies
- Smoothed values are further from the European holistic balance sheet approach than current UK regime
- Showing that UK regime can easily be weakened may increase the likelihood of a European funding standard to protect the security of members’ benefits.

Other implications

- Failure of employers / trustees to agree more likely?
- Lower funding targets are likely to lead to lower security for defined pension benefits
- …but unaffordable benefits may accrue for longer
- More difficult to understand expected progress of funding levels and hence determine appropriate contribution levels
- De-risking/hedging more difficult
- Degree of disclosure required may be significant:
  - Analysts may shift focus to more transparent numbers like solvency estimate
  - Markets may mark down share prices if more opaque measures are adopted

Implications for complying with UK Actuarial Standards

- Actuarial Quality Framework – reliability requires consistent treatment of assets and liabilities
- Pensions Standard:
  - Opinion on appropriateness of assumptions
  - No adjustment to compensate for shortcoming of unrelated assumptions
  - Implications of adopting discount rate
  - Compare discount rate to expected returns

Implications for complying with UK Actuarial Standards

- Reporting Standard
  - Indicate material subsequent changes or events
  - State nature and significance of risk
  - Projections
- Modelling Standard
  - Model shall be a satisfactory representation
  - Check fitness for purpose
  - Model should be no more complex than can be justified
  - Assumptions must be consistent
  - Explain limitations and how users' needs are addressed

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A plea for transparency

- Main difference between matching and budgeting is extent to which advance credit is being taken of a favourable outcome from an investment view which might or might not come good
  - Magnitude of view; and
  - How much of it is being credited for in advance (i.e. level of prudence)
- Matching and Budgeting should produce essentially same answer if ‘expected’ relates to matching / replicating portfolio
- How do any differences affect different interested parties?
- And is this clear to them?

Questions or comments?

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

http://www.actuaries.org.uk/research-and-resources/pages/discount-rates-project

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