The Actuarial Profession
making financial sense of the future

Irish Sovereign Annuities

Shane O'Farrell, Andrew Kay

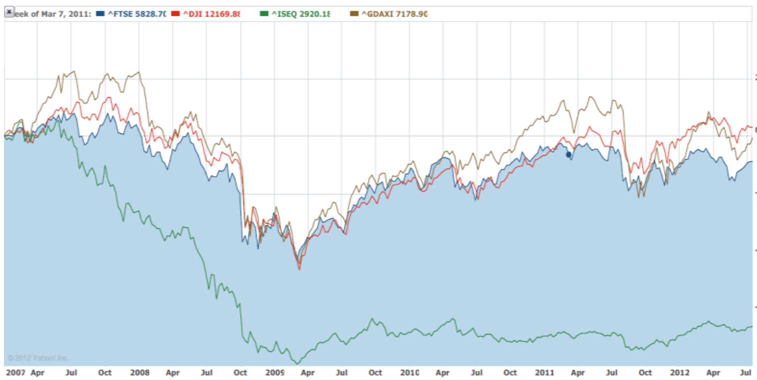
Agenda

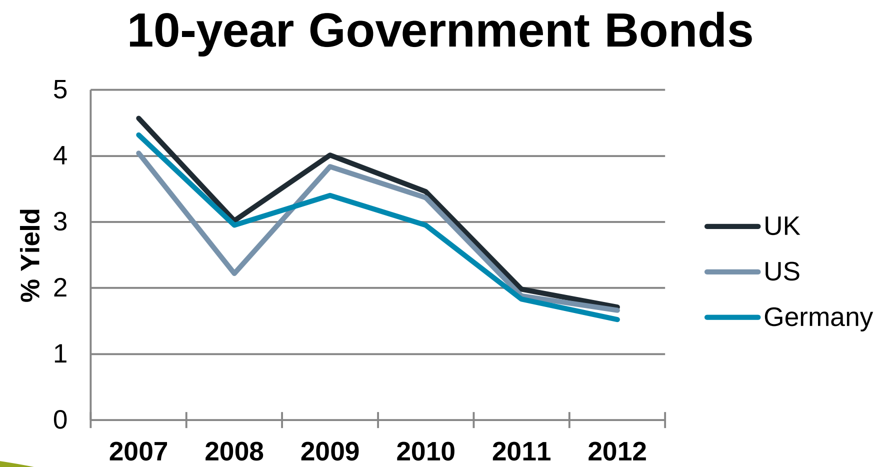
- Background
- What is a Sovereign Annuity?
- Issues with original proposals
- Product development
- Risk management
- Perspectives

Background

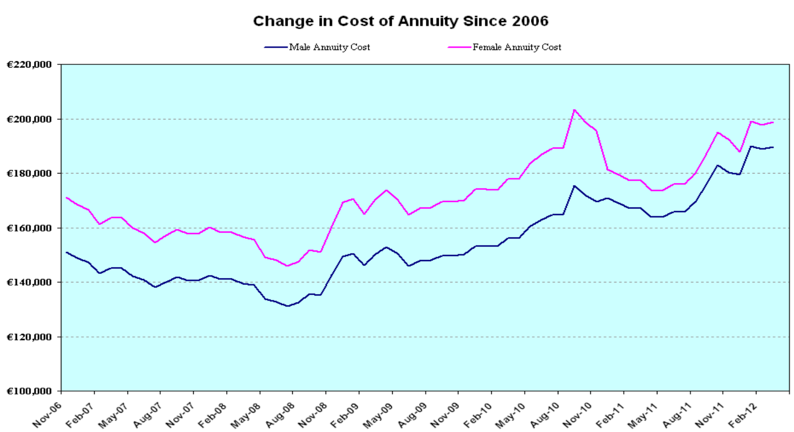
Interest rates

Equity markets





Annuity costs



Pension scheme funding

Irish Pension Scheme Funding Rules ("class 101")

- Schemes subject to funding standard

- Liability values based on:
  - Pensioners – current market value of annuities
  - Actives and deferreds – transfer value

- On wind-up
  - No debt on the employer
  - Pensioner priority - actives and deferreds vulnerable

Possible Solution – Sovereign Annuities

- Allow schemes to take credit for higher yielding bonds

→ Improve DB scheme funding position

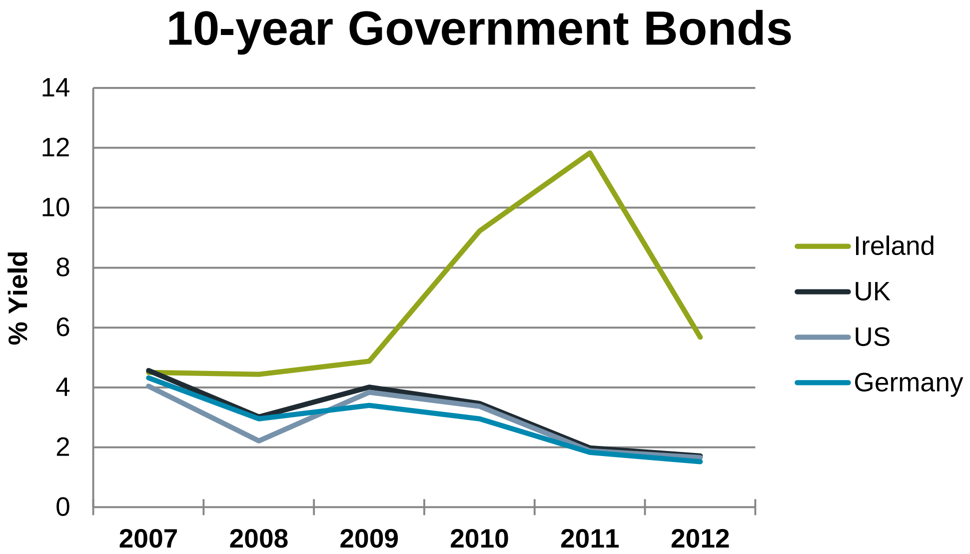
→ Create stable, local demand for Irish debt

→ More equitable distribution of scheme assets

→ Some additional risk

Sovereign debt crisis

- Concern over sovereign debt
- Greek default



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What is a Sovereign Annuity?

- Sovereign Annuity
  - Assurance contract certified by the Pensions Board
  - Annuity payments linked to EU government bonds
  - To meet pension payments/liabilities of pensioners
  - Payments can be reduced in event of ‘non-performance’

How does it work?

- Annuity contract linked directly to ‘reference bonds’
  - bonds issued by either Ireland and/or another Member State of the European Union
  - can reference more than 1 bond
    - Policy must clearly set out percentages referenced to each bond
  - not all payments need to be linked
  - payments cannot be reduced after maturity of reference bonds

Payment adjustment – original guidelines

- Determine reduction in value using specified interest rate
- Convert to a reduction in payments using specified interest rate
- Reduction can be applied immediately or spread forward
  - Define at outset
  - If spread forward, state the longevity assumption to be used
- Also:
  - Have due regard to actuarial advice and PRE
  - Take no account of charges/expenses incurred
  - Payments also adjusted for events of recovery

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Asset-Liability matching on default

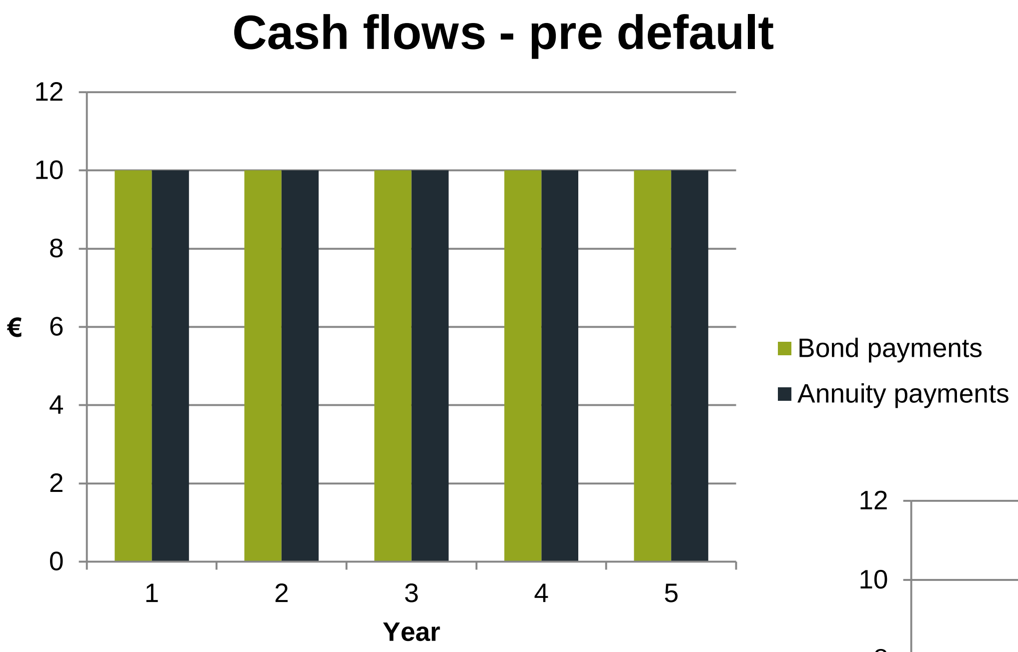
- Considered two default scenarios

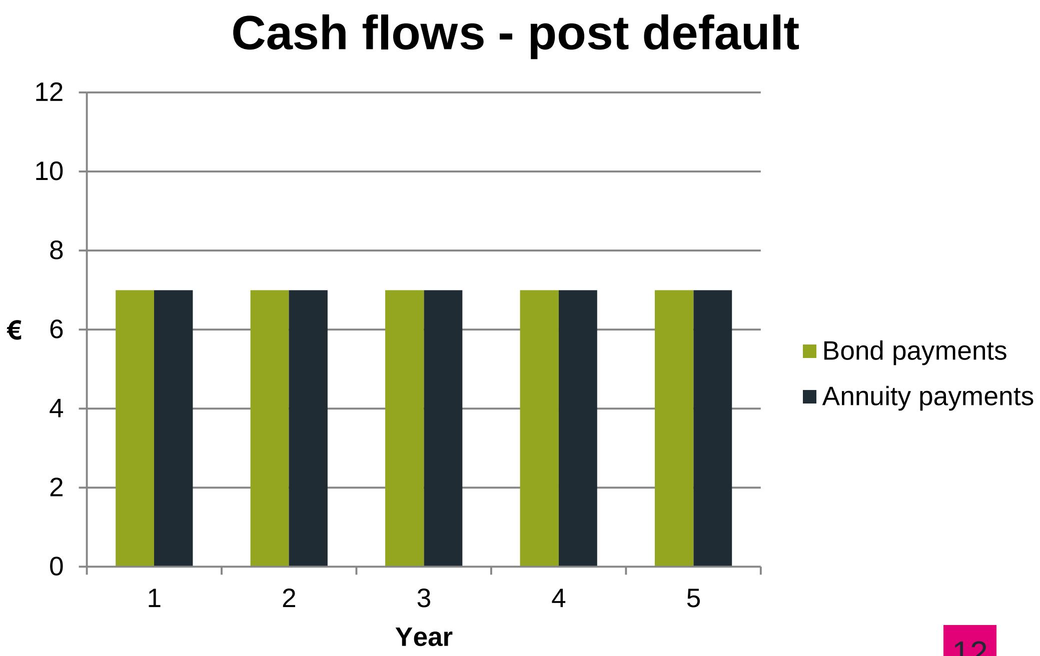
  A. Reduction in bond payments e.g. 30% reduction

  B. Deferral of all bond payments e.g. by 2 years

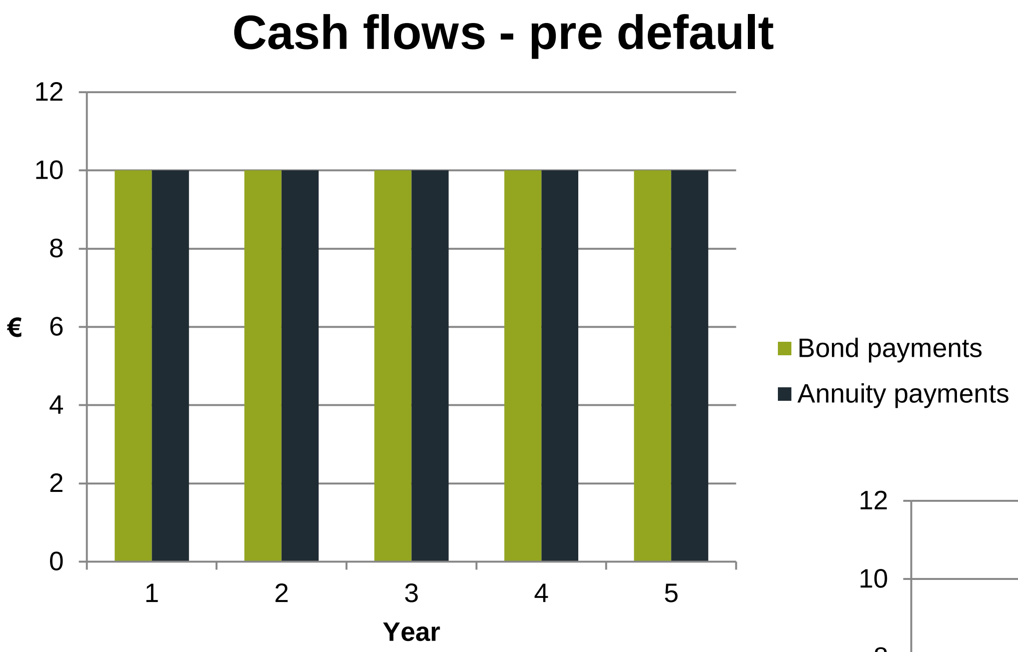
- Simplifications:
  - Assets and liabilities initially cash flow matched
  - Flat interest rate curve…

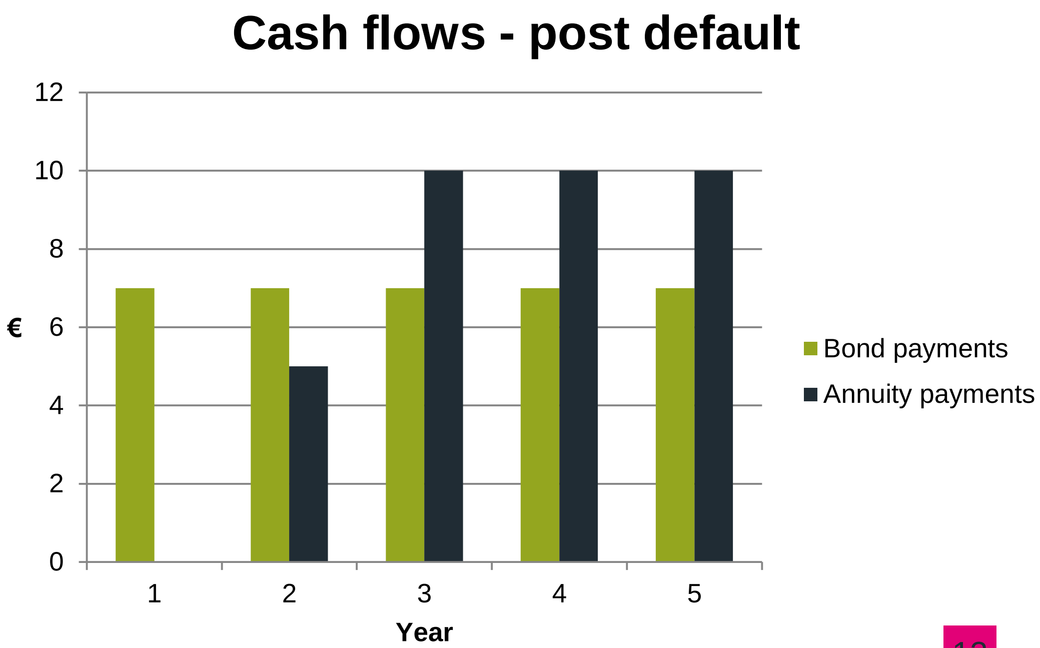
Scenario A – 30% reduction in bond payments
Spread Adjustment



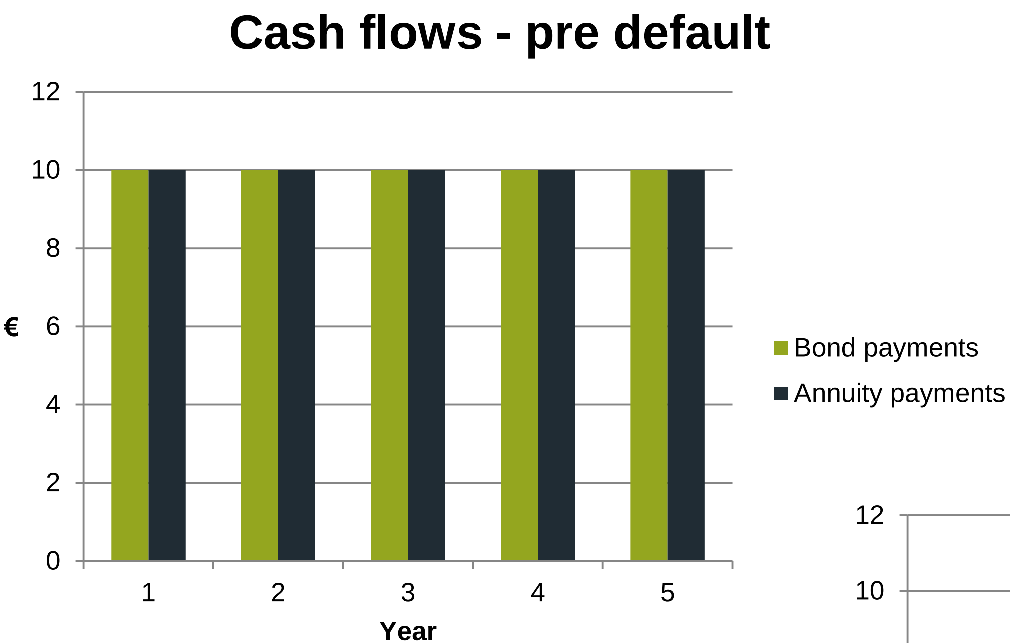


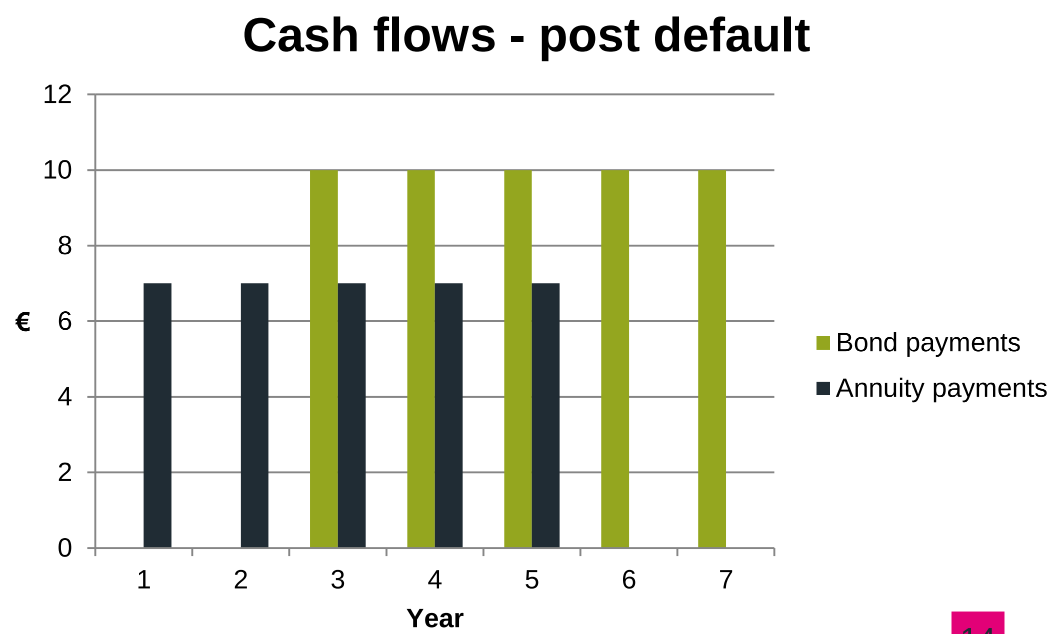
Scenario A – 30% reduction in bond payments
Immediate Adjustment



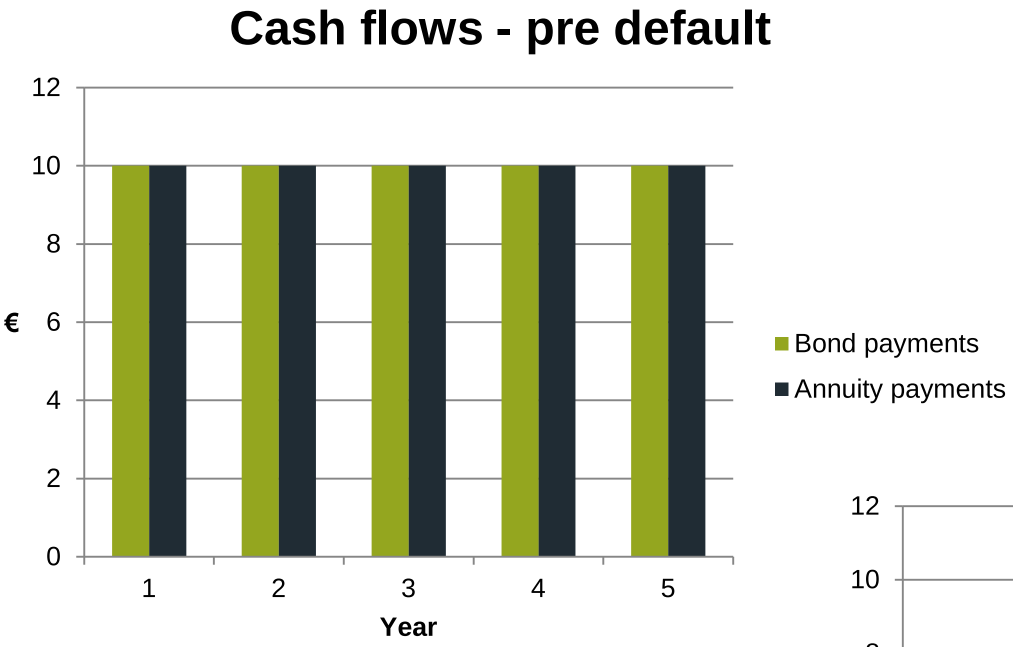


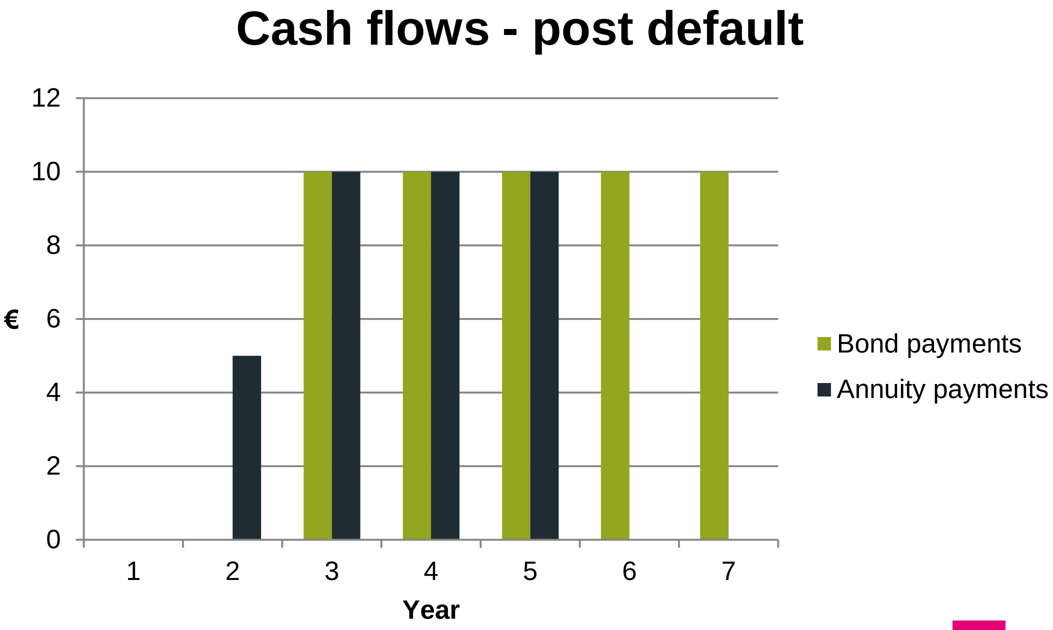
Scenario B – deferral of bond payments
Spread Adjustment





Scenario B – deferral of bond payments
Immediate Adjustment





ALM Summary

Default scenario	Immediate reduction	Spread reduction
A: percentage reduction	Mismatch	No mismatch
B: payment deferral	Mismatch	Mismatch

- Other complications:
  - Default scenario?
  - Interest rate curve and movements?
  - Additional risks of Spread approach (additional defaults)
  - Fixed longevity assumption

→ Too much non-hedgeable risk for insurers?

Reserving considerations – Solvency I (Ireland)

- Discount rate
  - Based on asset yield less allowance for default risk

- Credit risk passed onto policyholders – lower value liability

- Adjust liability cashflows
  - Allow for expected defaults (PD) and LGD
  - Simplified approach?

Reserving considerations – Solvency II

- Discount rate based on risk-free rates
- Adjust liability cash flows for PD and LGD
- Matching Premium
  - Possible restrictions?
- Counter-Cyclical Premium
  - Some benefit

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Alternative approach

- Too much non-hedgeable risk?

Negotiate alternative approach with Pensions Board

- – Direct pass through?
- – Fewer restrictions?
- – Addresses some of the risks – but not all!

Default Calculation Principles

- An exact as possible cashflow match of bond receipts to pensioner out go is structured

- Principle of one to one correspondence as far as possible, some inconsistencies:

1. Annual bond payment versus monthly annuity payment
2. 3 month notice period before adjustment
3. Annuity payments after maturity of final bonds

- Adjustments to annuity payments are based on actual versus expected bond receipts over the previous 12 months.

1. Adjusted benefits come into payment after a 3 month notification period.
2. All benefit adjustments are applied over a 12 month period.
3. The same principle apply to recovery events.

Default Example

- One of the bonds only pays 50% of the coupon due
- The reference table specifies that annuity payments are 23% linked to this bond
- The reduction required in annuity payments is 11.5% - calculated as 23% X 50% (Reference % X Shortfall).
- Annuity payments continue as normal for 3 months following notification
- The adjustment period covers the 12 months after this notification period-annuity reduced by 11.5%.
- Annuity payments will be restored to their full level thereafter (provided there are no subsequent non-performance events)

Target market

- Domestic defined benefit schemes
  - 1,098 DB schemes
  - 532,728 DB members (this includes DB schemes not subject to funding standard)
  - Total Irish pension fund assets = €75.5 billion
    - €48 billion in DB assets

- Explaining the concept
  - Pensions consultants
  - Trustees

Bond Details

- NTMA initially proposed yield 6% or so - less than then current market rates – but tailored, bespoke
- Great bulk demand for Irish due to pricing/local suitability/availability of suitable bonds
- Amortising bonds-like mortgage repayments so level
- Annual payment, in arrears
- Legally pari passu…. but possible argument Sovereign Annuity Bonds less likely to be hit by such action than standard bonds?

Bond Details

GRAB Corp NTMA

National Treasury Management Agency

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NATIONAL TREASURY MANAGEMENT AGENCY IRELAND BOND ANNOUNCEMENTS 13:01 GMT
23-Aug-12

The NTMA has issued 5 new Irish Amortising Bonds today. A total of Eur 1021.3 million was sold at a weighted average yield of 5.91%.

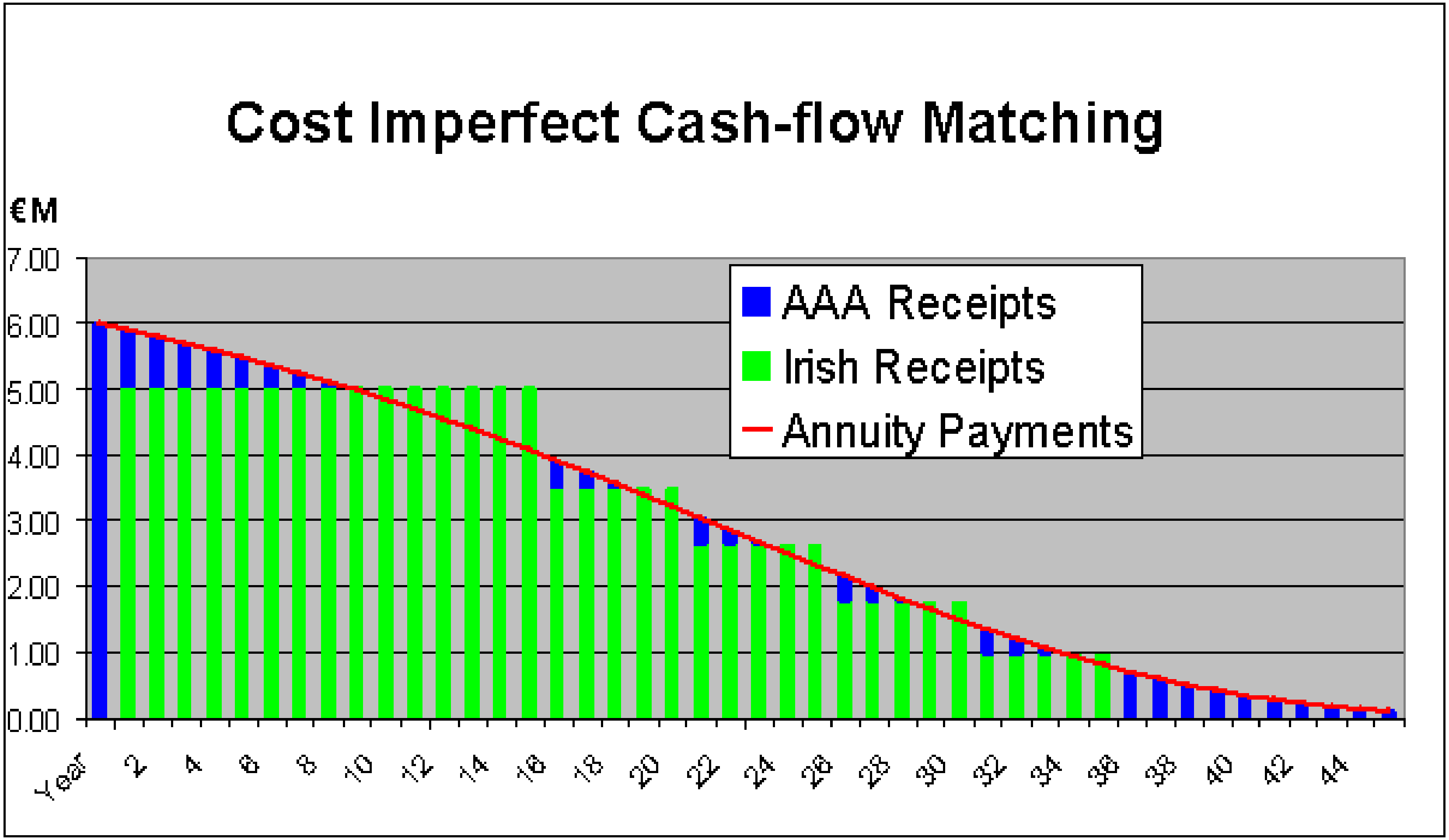
BOND TITLE	ISIN CODE	PRICE	YIELD%	AMT.ISSUED
5.72% Amortising Bond 20 July 2027	IE00B7XWNN51	100.02	5.72	35 M
5.82% Amortising Bond 20 Mar 2032	IE00B7Z55X64	100.04	5.82	34.1 M
5.92% Amortising Bond 20 Jan 2037	IE00B8JXZJ91	100.04	5.92	298.35 M
5.92% Amortising Bond 20 May 2042	IE00B8JYSW68	100.04	5.92	322.9 M
5.92% Amortising Bond 20 Sept 2047	IE00B86ST629	100.00	5.92	330.95 M

The Offering Circulars are available on the NTMA's website www.ntma.ie.

Yield modelling

- 3 month notification period of any default/reduction
- Effectively first 15 months payment guaranteed
- Once annual payment received, monthly payments then guaranteed-so requires “guaranteed” reinvestment
- Exact yield loss f(number of bonds, duration of scheme, “guaranteed yield” at time) etc
- Approx 80bps reduction of the c 400bp spread over AAA (at time)
- Cost of life office solvency rules/prudence

Yield leakage



Other pricing considerations

- Allowance for costs on non-recovery
- Allowance for risk on forced voluntary default
- Residual mismatches
- 3 months' notice period

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Risk Management

- Standard annuity risks
  - Market risk
    - Cash flow and liquidity
      - Similar issues to standard annuities
      - Use coupon-only or amortising bonds
  - Insurance risk
- Sovereign annuity specific risks

Reputational risk?

- If you do…
  - Possible impact on brand?
  - Bulk schemes vs individual sales
  - Domestic vs other EU state bonds

- If you don't…
  - reputational damage by not offering "cheap annuities"?
  - drawdown options actually more risky?

“Voluntary” default

- Consideration of Private Sector Involvement (“PSI”)
- Greek bondholders asked to allow swap (“voluntary action”)
  - Should insurer volunteer in this case?
- Can legal wording help?
- Impact of Collective Action Clauses (CACs)

Other issues

- Impact on longevity reinsurance – potential mismatches
  - “Full” reinsurance (high % Quota Share)
  - Swap – pure longevity hedge

- Strict regulator/certification process

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Perspectives (1)

- Trustees
  - Fairness to members?
  - Regard to reward and risk
- Sponsors
  - Improve scheme funding
- Members
  - Improved funding for ‘actives’ – greater equity
  - If there is a default – deferred payments to surviving pensioners (equity?)

Perspectives (2)

- Government
  - NTMA - new source of funding
    - Value of scheme pension liabilities c.€20-30 billion
  - Pensions Board – consumer protection
  - Central Bank – life company solvency

- Life companies
  - Can additional risks be managed?
  - Will there be a market?

Conclusion

- Highly different, platypus product
- Very much function of the times
- Contains many unique actuarial (and other) challenges!

Questions or comments?

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.