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Projection of the With-Profits Balance Sheet under ICA+

John Lim (KPMG) & Richard Taylor (AEGON)

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Introduction

- Projecting the with-profits business explicitly is already carried out by UK insurers for a number of reasons.
- ICA+ represents a transition step between ICA and Solvency II.
- This talk will focus on the issues to consider when performing with-profits balance sheet projections, in particular the importance of allowing for different types of estate distribution methods.
- Richard Taylor from AEGON will then present an example of how AEGON project certain items of their with-profits balance sheet with key focus on the specific needs of their with-profits fund in a robust and pragmatic manner.

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John Lim
KPMG

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Projecting the With-Profits Balance Sheet

- Projection of the with-profits balance sheet is required to assist in the effective management specifically in the following areas:

Projection of the With-Profits Balance Sheet

Run-off plans and estate distribution	Future solvency	Internal business planning and forecasting

- Specific regulatory guidance for the 1st two requirements is limited when it comes to with-profits – the PRA/FCA requirements (SUP Appendix 2.15 and COBS 20.2) only focus on the relative short term (minimum of 3 years).
- If the with-profits fund is on run-off, the projection period should cover the entire run-off period to enable an equitable distribution of the estate, far longer than the outdated SUP 2.15 requirements above.

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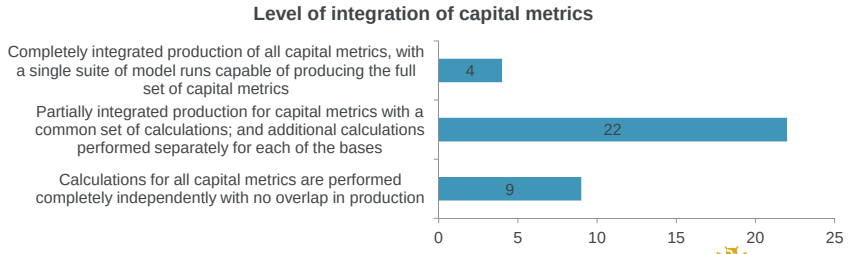
Capital Metrics Integration across RBS, ICA / ICA+ & Solvency II Bases

- The general principles when projecting the with-profits balance sheet apply similarly across the RBS, ICA and ICA+ basis.
- The graph below from the KPMG Technical Practices Survey Report 2013 showed that most insurers partially integrate the production of their capital metrics and a further 11% fully integrate the production of the capital metrics.



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What to Project and How to Project?

- It is important to consider the 2 basic principles hand in hand when projecting the with-profits balance sheet under any basis.

- It is often tempting to dive straight into the projection methodology (How) before thinking about (What) items to project first and what metrics to produce.
- This can potentially incur significant model development costs which produces inaccurate and unrealistic results.
- Actuaries and senior management should both be involved in the decision making process of the projection build.

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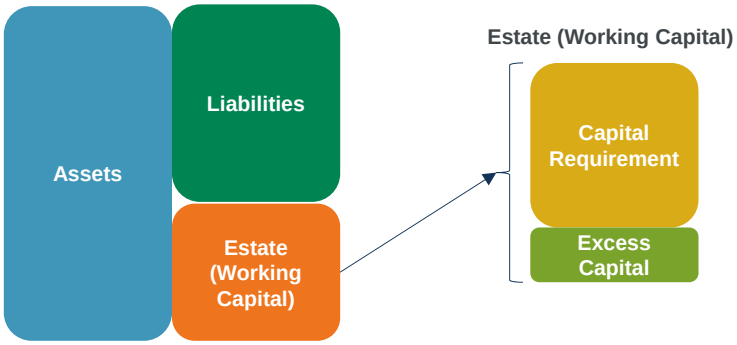
What should the Projection of the With-Profits Balance Sheet include?



- The projection should properly allow for the estate distribution method in order to enable an equitable estate distribution whilst also ensuring the with-profits fund is solvent while on run-off.

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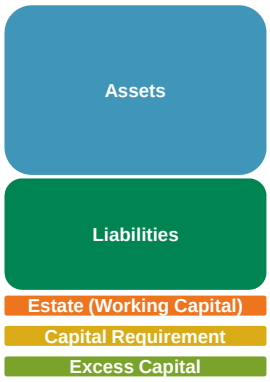
What Cashflows should be included?

- A typical projection of the with-profits balance sheet item cash flows at each projection time step should include:



Forecast summary balance sheet for the with-profits fund	
(1)	Equities
(2)	Property
(3)	Fixed interest investments
(4)	Derivatives
(5)	All other assets
(6)	**Total assets**
(7)	Policyholder liabilities
(8)	Cost of guarantees, options and smoothing
(9)	Other liabilities
(10)	**Total liabilities**
(11)	**Excess of assets over liabilities**
(12)	**Capital requirement (RCM, ICA, ICA+, SCR)**
(13)	**Net excess/(deficiency) of assets**

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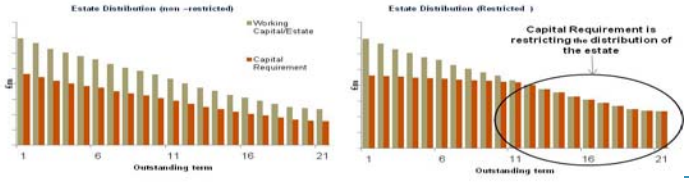
Impact of Projecting the Balance Sheet on Estate Distribution

- In the UK, most with-profit funds are mature and will ultimately be run-off and closed. A majority of these funds have significant estate that are yet to be distributed to policyholders.

Key aims of estate distribution

Zero working capital once fully run off	Equitable distribution	Solvent with-profits fund

- The key challenge in developing an estate distribution approach is balancing the need for a fair distribution while ensuring the with-profits fund is self-supporting and solvent. Projection is therefore crucial because the pace of estate distribution is dependant on the projected capital requirements.



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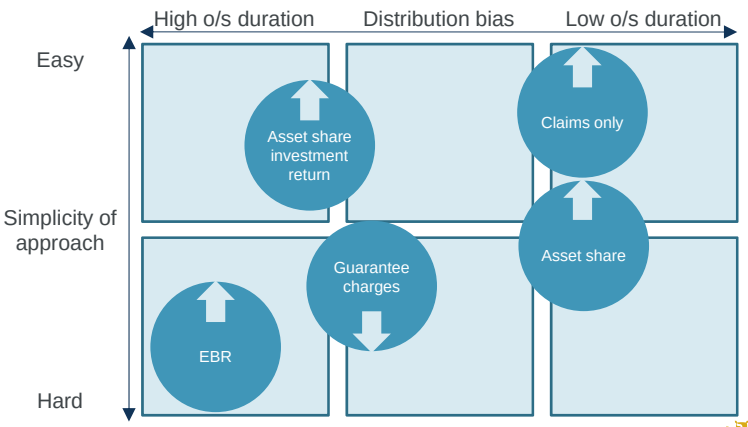
Estate Distribution Methods



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Modelling Issues before starting the With-Profits Projection

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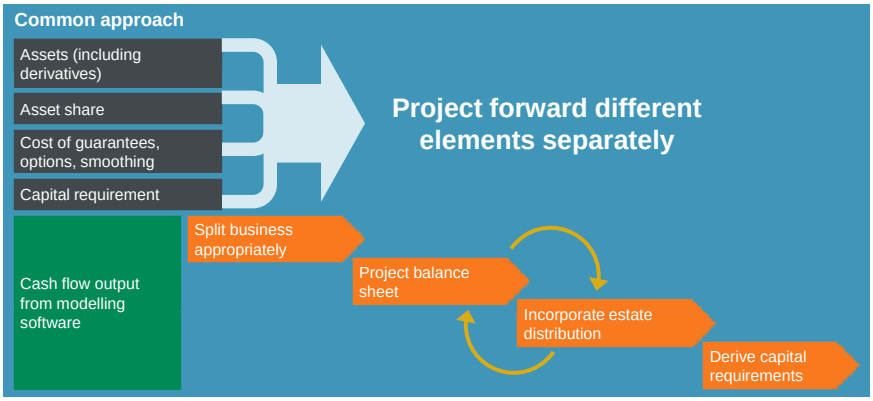
With-Profits Balance Sheet Projection Process



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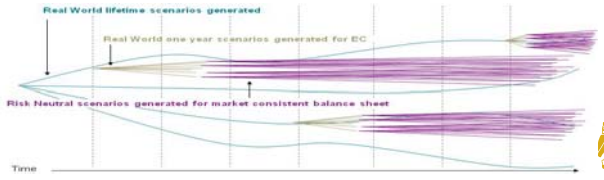
Summary of Modelling Approaches used in the With-Profits Projection

Factor Based	Factors/risk drivers can be used to estimate the change in assets, liabilities and/or capital requirements. Factors can be applied at different levels of granularity and also have varying levels of sophistication.
Formulas/ Lite models	Replicating portfolios, curve fitting, time dependant loss functions or other formulas to approximate the change in assets, liabilities and/or capital.
Direct Evaluation	Determine a scenario to directly calculate the capital and cost of guarantees at time 0. Future capital amounts can then be derived from this assuming this scenario remains appropriate. Scenario is normally expressed as relative adjustments. Application of the scenarios can be applied at different levels of granularity.
Nested stochastic	A nested stochastic approach allows the theoretically correct calculation of the capital and COGs requirements at each future time period, but is it feasible and easily validated?



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Possible Factors used in the Factor Based Approach

Factor	Description
Premiums	• Volume measure • Mortality and lapse risks
BEL	• Volume measure • Demographic risks
Claims	• Demographic risks
Asset share/unit fund	• Market risk (with-profits and unit-linked products)
Sum at risk	• Mortality risk (non-pandemic and pandemic)
Surrender profit / loss	• Lapse risk
Duration/dollar duration	• Interest rate risk
Features of guarantees (e.g. term, moneyness)	• Market volatility risk
Policies in force	• Volume measure • Operational risk

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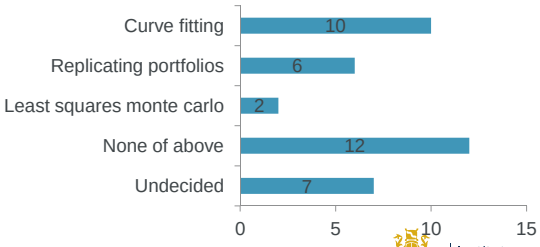
Formulas / Lite Models

- Insurers are starting to incorporate parts of their Solvency II model into their ICA calculations, such as capital calculation technique, risk aggregation approach and lite models (see below)

- The KPMG Technical Practices Survey Report 2013 published in October showed that more than half of insurers who responded plan to use lite models such as replicating portfolios, curve fitting or least squares Monte Carlo in their ICA calculation.

Use of replicating portfolios, curve fitting or least squares Monte Carlo in models in ICA calculation



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Other Key Issues to consider when Projecting the Balance Sheet

- Projection of ALM techniques used to manage the with-profits fund is often a key driver of the estate run-off and distribution planning. Here are further issues in addition to modelling which should be considered.

How is the roll-over of hedging derivatives or internal delta hedges allowed for in the projection

For matched business (such as heavily ITM policies) do the projections consider reinvestment/disinvestment risk?

Allow for disinvestment plans as the fund runs –off, in particular, for asset classes such as property?

Management Actions – i.e. Permissive or Restrictive Approach

Assess whether the hedging strategy remains appropriate and the cost as the business runs off?

- Often, less focus is given to the asset side of the projections and the above areas can often be neglected under sensitivity runs.

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AEGON

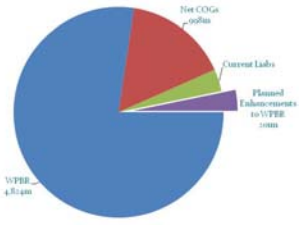
Transform Tomorrow

Richard Taylor
AEGON UK

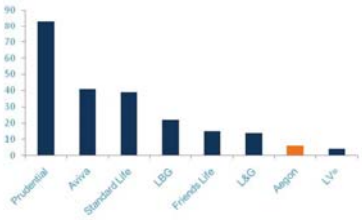
Real Life Example: Aegon WPSF

Aegon RBS

Realistic liabilities £6.2m @ Dec 12



Realistic liabilities Dec 12



1960: First TWP business written

1981: First UWP business written

1993: Scottish Equitable Demutualisation

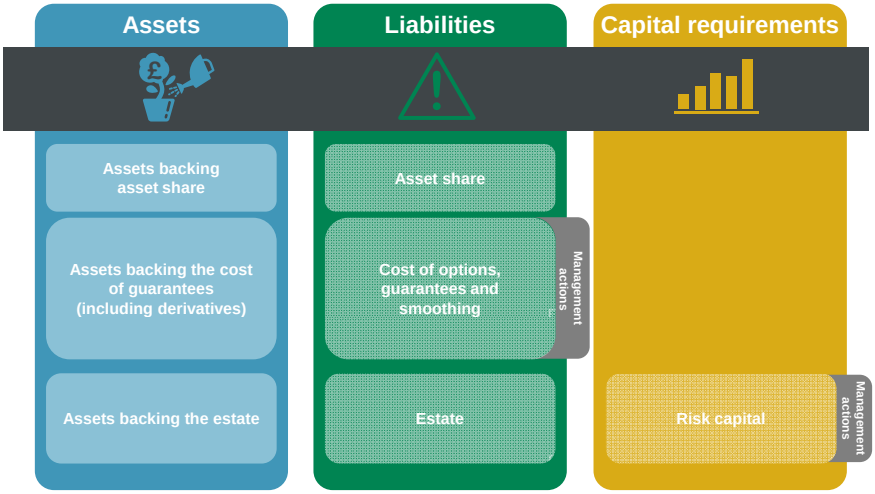
2002: NGWP fund created

1992: Closed to TWP business

2002: Closed to UWP business

2013: Closed to NGWP business

With-Profits Balance Sheet



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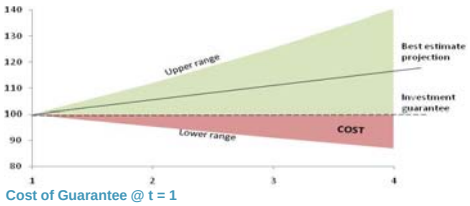
Cost of Guarantees & Derivatives

Cost of Guarantee @ t = 0

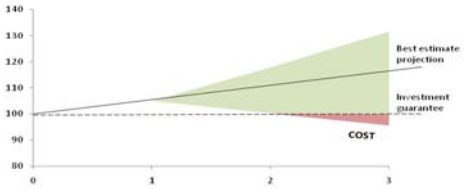
stochastic calculation



MV = £10
Intrinsic value = £0
Time value = £10

Cost of Guarantee @ t = 1

deterministic projection from t=0 to t= 1, stochastic calculation @ t = 1



MV = £2
Time value = £2

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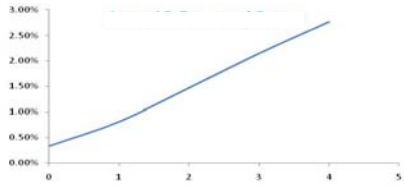
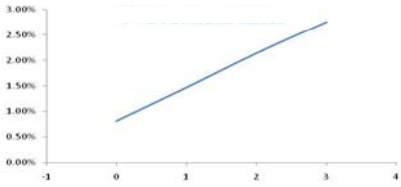
ESG Projection

Risk Free Yields

June 13 forward rates

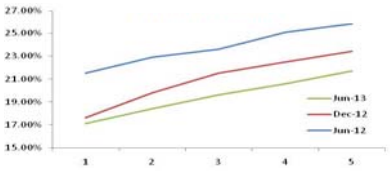


T +1 forward rates



Volatility

Equity volatility



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Management Actions

Regular Actions

examples:

- Change asset backing ratio's
- Increase/decrease guarantee charges
- Cut reversionary bonus
- Reduce/increase estate distribution

Further Actions

examples:

- Maximum regular actions
- Stop smoothing
- Clawback of past estate distributions

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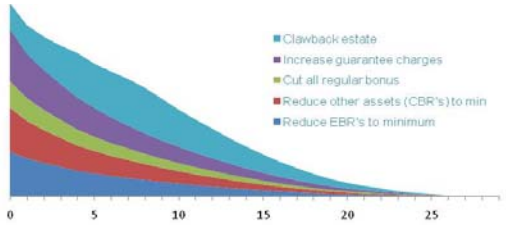
Required Capital

Required capital allowing for regular actions only

Impact of management actions on required capital



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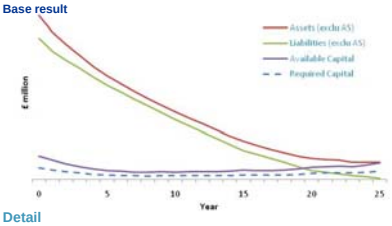
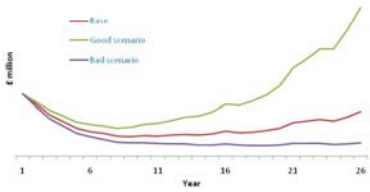
Outputs

Whole fund

Base result

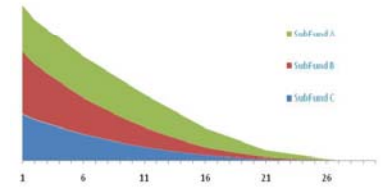


Sensitivity of available capital

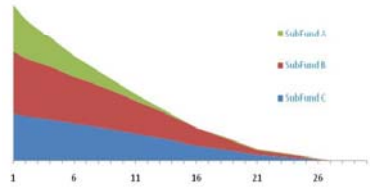


Detail

Asset share



Cost of guarantee



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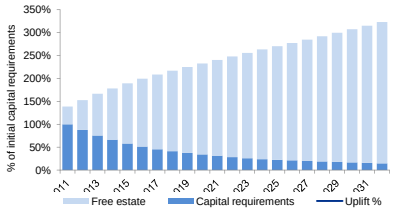
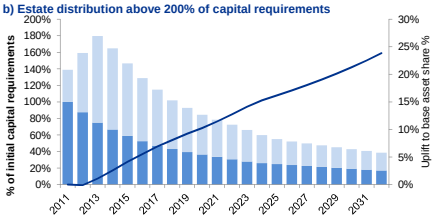
Impact of Capital Requirements on Estate Distribution

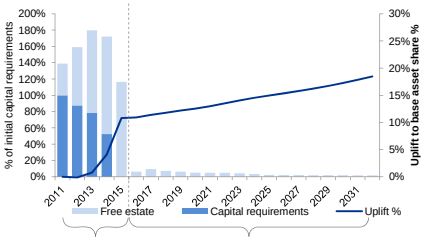
a) No estate distribution



b) Estate distribution above 200% of capital requirements



c) Estate distribution above 200% of capital requirements with a management action to remove past estate distributions in a stress scenarios



Initial uplift period – all of the current estate is distributed to policyholders via uplifts to asset shares.

Any additional increases to the estate that arise are distributed to policyholders as they emerge either by additional uplifts to asset shares or increases to asset share investment returns.

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Pros / Cons

Approach	PRO	CON
Deterministic / Stochastic Hybrid (Direct evaluation)	Simple Easy to Present Market Consistent	Labour Intensive Limited Scenarios
Limited use of modelled management actions	Transparent Avoid unrealistic scenarios	Inconsistent with reported balance sheet May not fully reflect reality
Factor based approach	Simple Transparent	May not fully reflect reality

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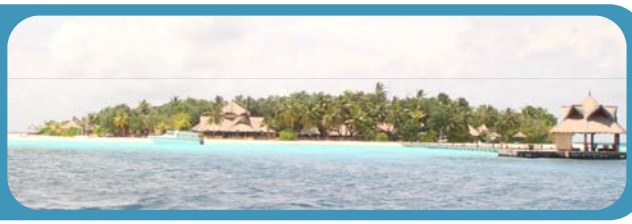
Next Steps?

Dream?



Reality?

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Questions

Comments

Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

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

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