

Variable Annuity Working Party

Update for Professional Seminar 28/09/07

Working Party

Key Objectives

- Produce a Paper for presentation to sessional meetings of the Faculty and Institute in March 2008
- Established as a Working Party under the Finance, Investment and Risk Management Board

Why the interest ?

- It's the next big thing ?
- Compelling customer proposition
- Challenging Pricing
- Sophisticated modelling
- Next generation asset liability management techniques
- Complex Risk Management

Membership

- Colin Ledlie – Standard Life
- Andrew Berman – Deutsche Bank
- Dermot Corry – Life Strategies
- Gary Finkelstein – Milliman
- Alan Ritchie – Standard Life
- Ken Su – Standard Life
- Colin Wilson – Barrie and Hibbert

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Outline of Paper

1. Introduction
2. The UK Market Context
3. Definition of a Variable Annuity
4. International Markets
5. Example Product Design and Features
6. Analysis of Customer Outcomes
7. Pricing & Valuation
8. Risk Management
9. Managing Market Risk / Implementation of a Hedging Programme
10. Regulatory Issues / Offshore Market Market Development / Treating Customers Fairly / Compliance

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Discussion Topic 1 Example Product Design

- The paper will illustrate issues and actuarial techniques by reference to a sample product design: a very simple "Variable Annuity" guarantee that would sit as an option on a pension contract with income drawdown.

The option is a Guaranteed Minimum Withdrawal Benefit (GMWB), which guarantees the customer that they can receive the minimum level of income for the rest of their life.

- Sample Customer: 65, male
- GMWB level: 5% of Guaranteed Base
- Guarantee Base (GB): Initially 100% of premium.
Each anniversary before age 75 steps up to the fund value (FV) if this is higher, subject to a maximum increase at any time of 15%
Equity: 60% (FTSE All Share Total Return tracker)
Fixed Interest: 40% (Zero coupon swaps fund, duration 10 years)
Rebalanced once a quarter (without discretion)
- Asset mix of fund:
- Charges:
 - AMC - 0.75% of fund value
 - Commission - 0.50% of fund value
 - Guarantee - 1.00% of Guarantee Base
- Flexibility: Guarantee rider can be "switched off" and the guarantee charge will cease to apply. The customer can then decide to buy an open-market annuity or to remain invested in income drawdown, subject to regulatory restrictions.

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Discussion Topic 2 Regulatory Constraints

- Does current legislation in the UK impede innovative product development ?
- What are the key changes / regulatory developments that would support the product designs that meet customer needs ?
- Are we likely to see these products manufactured offshore ?

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Discussion Topic 2 Regulatory Issues

- TCF, transparency, & pricing
- Income drawdown – GAD limits
- Liability valuation – method and basis
- Hedge asset use & admissibility
- Regulatory
 - Capital (Solvency Margin, ICA etc)
 - Tax

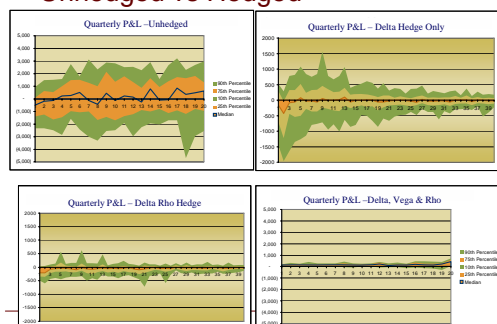
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Discussion Topic 3 Risk Management

- What are the key risks associated with the products ?
- How robust will hedging techniques be in stressed market conditions ?
 - Immediate balance sheet stress
 - Longer term cash flow projections

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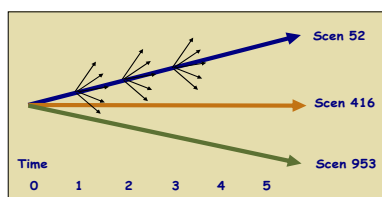
Cash Flow Tests Unhedged vs Hedged



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Financial Projections - Requirements

- Requires stochastic-in-stochastic models
- Understand how your liability value changes over time, when your liability value needs to be calculated stochastically



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Indicative Economic Capital at Risk (% of Account Value)

Hedge	Cashflow Projection	Immediate Stress Test
Unhedged	9	12
Delta	3.5	5
Delta Rho	2.75	2.75
Delta Rho Vega	2	1
Delta Rho Vega Gamma	1.75	0.75

- Depends on product, business mix, scenario basis, hedge parameters, and risk measures
- Understanding the drivers of risk capital is essential in assessing the benefits of hedging.

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