

Practical issues and  
the implications of ICA

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## Agenda

- What is an ICA?
- Case studies
- How to improve capital efficiency

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What is an ICA?



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## FSA high level rules

### PRU 1.2.13R

" A firm must at all times maintain overall financial resources, including capital and liquidity resources, which are adequate, both as to amount and quality, to ensure that there is no significant risk that its liabilities cannot be met as they fall due"

### PRU 1.2.25R

" For each of the major sources of risk identified ... the firm must carry out stress and scenario analyses that are appropriate to the nature of those major sources of risk, as part of which the firm:

- (1) Takes reasonable steps to identify an appropriate range of realistic adverse circumstances and events...
- (2) Estimates the financial resources the firm would need.."

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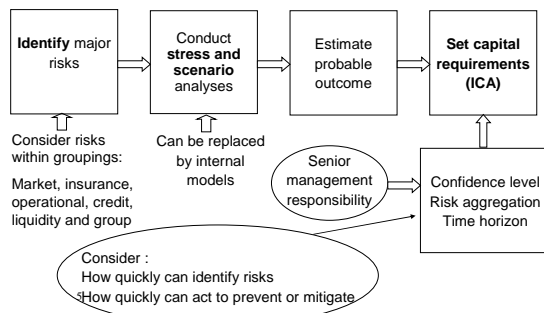
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## Individual Capital Assessment (ICA)



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## Possible approaches

- Real-world stochastic projection of cashflows to run-off
- One year roll forward of the RBS with stress tests aggregated subjectively/"statistically"
- One year market and credit stochastic roll forward of the RBS (other risks stress tested)
- One year stochastic roll forward of the RBS
- Five year roll forward of RBS with stress tests aggregated subjectively/"statistically"
- Five year stochastic roll forward of the RBS
- Real-world stochastic projection of RBS to run-off

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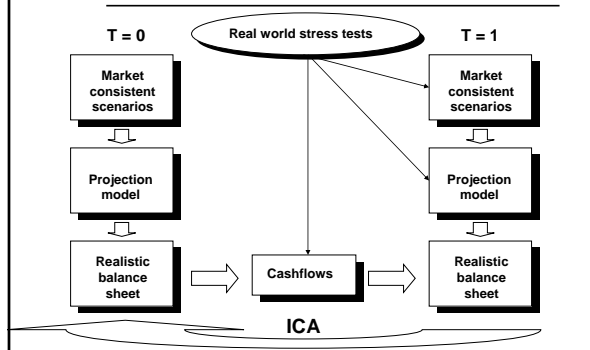
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## Possible approaches

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- One year stochastic roll forward of the RBS
- Five year roll forward of RBS with stress tests aggregated subjectively/"statistically"
- Five year stochastic roll forward of the RBS
- Real-world stochastic projection of RBS to run-off

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## The ICA model



## Case studies



## Assumptions – With Profits

	Realistic basis	Reserving basis
<b>Mortality</b>	EA = 75% DA = 75%/100% UWP = 75%	EA = 100% DA = 100%/100% UWP = 100%
<b>Persistence</b>	Years 1,2 = 90% Year 3+ = 95%	100%
<b>Expenses</b>	EA/DA = £25 pa UWP = AMC	OP - NP margin UWP = AMC

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## ICA stress tests

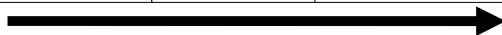
Risk factor	Stress test
Equity prices	-40%
Bond yields	+1%/-1%
Credit spreads	+100 bps
Mortality levels	+40%/+20%
Lapse rates	-40%/-20%
Expense levels	+20%/+10%
Operational risk loss	1% of assets

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## Risk aggregation

- Loss recharges typically have three phases:

Charge to estate	Charge to asset share	Guarantee means recharging to asset share ineffective - Loss falls on estate
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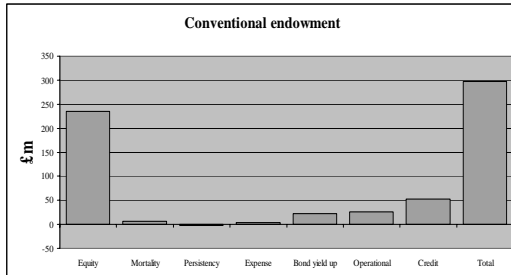
Here losses have a 1 for 1 impact on capital

Here losses have much smaller impact on capital

Here losses have almost a 1 for 1 impact on capital

Care needs to be taken to aggregate separate stress tests

### With-profits stand-alone (1)



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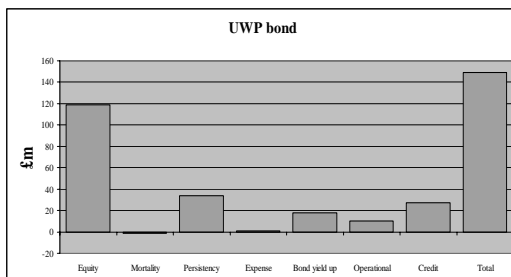
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### With-profits stand-alone (2)



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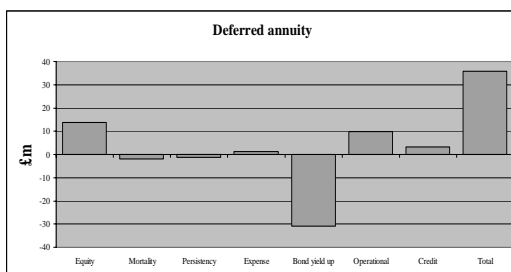
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### With-profits stand-alone (3)



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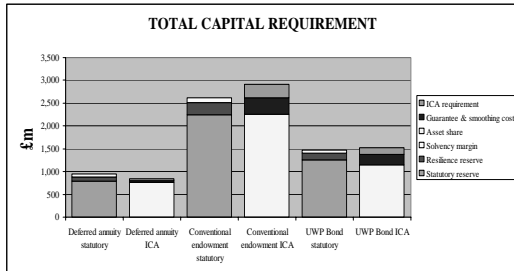
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## With-profits comparison



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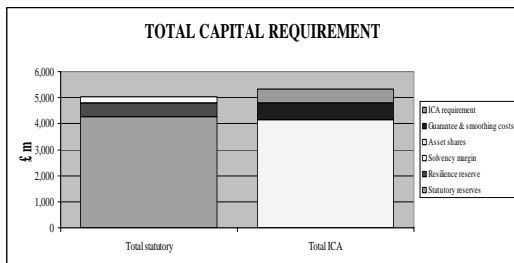
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## With-profits company comparison



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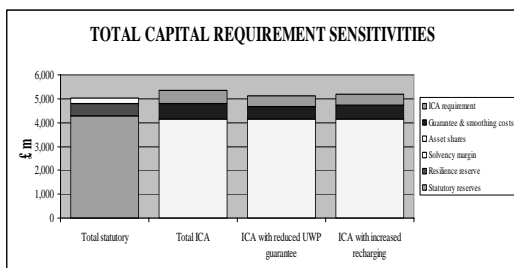
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## With-profits sensitivities



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## Products – non profit

- Level annuity
- Level term assurance
- Unit linked endowment
  - Annual management charge
  - Limited surrender penalties
- No reinsurance

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## Assumptions – Non-profit

	Realistic basis	Reserving basis
<b>Mortality</b>	Ann = 125% Term = 75% UL = 75%	Ann = 100% Term = 100% UL = 100%
<b>Persistency</b>	Ann = 100% Term/UL = 90%	100% or 0%
<b>Expenses</b>	Ann = £25 pa Term = £25 pa UL = £36 pa	Ann = £31.25 pa Term = £31.25 pa UL = £48 pa

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## ICA stress tests

Risk factor	Stress test
Equity prices	-40%
Bond yields	+1%/-1%
Credit spreads	+100 bps
Mortality levels	+40%/+20% or -10%/-20%
Lapse rates	+80%/+40%
Expense levels	+20%/+10%

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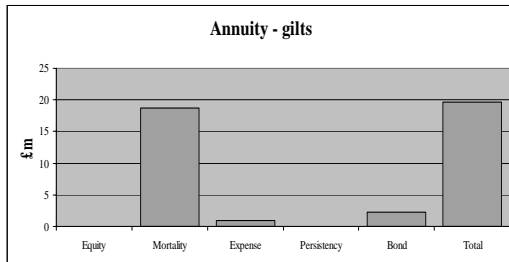
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### Non-profit stand-alone (1)



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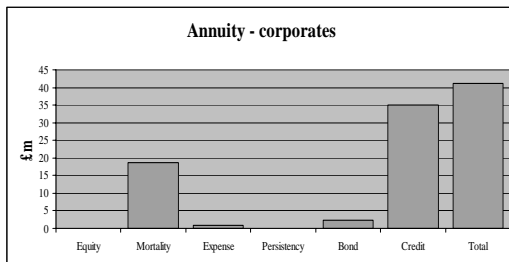
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### Non-profit stand-alone (2)



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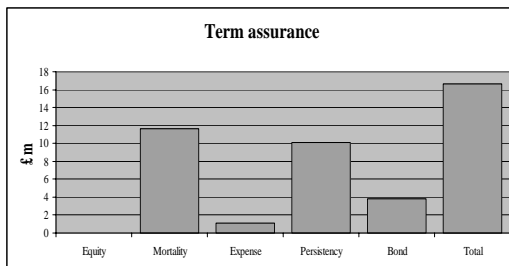
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### Non-profit stand-alone (3)



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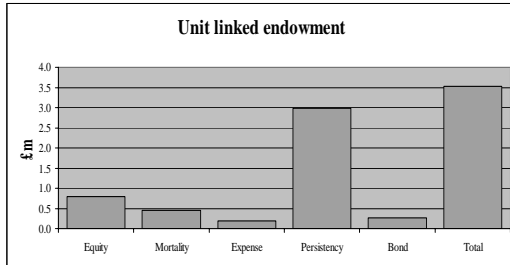
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## Non-profit stand-alone (4)



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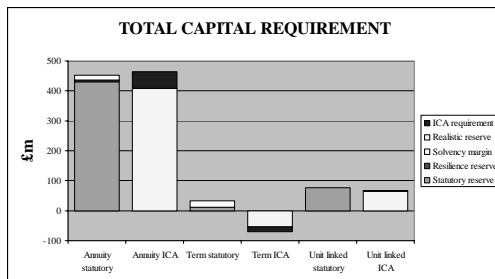
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## Non-profit comparison



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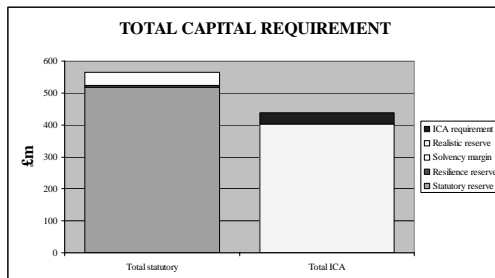
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## Non-profit company



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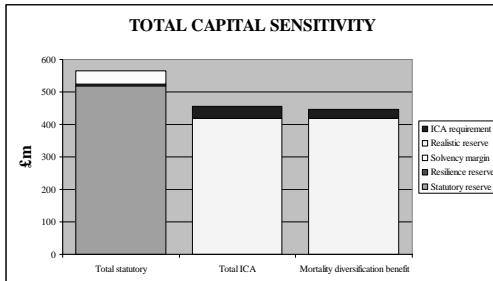
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## Non-profit sensitivity



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## Conclusions (1)

- With profits
  - Market risk most important
  - ICA likely to exceed statutory
  - Sensitive to management actions, including recharging
- Annuities
  - Mortality and credit risk important
  - ICA may be higher than statutory for annuity business backed by corporate bonds, switch round for gilts?

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## Conclusions (2)

- Term assurance
  - Mortality and persistency risk important
  - ICA likely to be lower than statutory
- Linked
  - Persistency risk important (depending on design)
  - ICA likely to be lower than statutory
- Potential mortality diversification benefit (term, bonds & endowments versus annuities)
- Benefit from diversification across risk factors

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## How to improve capital efficiency



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## In-force business capital reduction (1)

- Investment
  - Consider duration and cash flow mismatch on ICA basis and under stresses (incl. persistency)
  - Flexible switching strategy
  - Reduce equity holdings, buy puts/collars
  - Consider vega risk not just price risk
  - Consider the impact of credit spread widening, credit protection, eg credit default swaps
  - Diversification of investments (bonds, equities)

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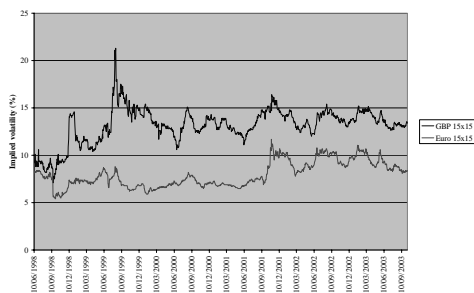
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## Market volatility



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### In-force business capital reduction (2)

- Measurement and management
  - Invest time in understanding correlations
  - Allowance for management actions
  - Recharging guarantee costs
- Risk transfer
  - Transfer synergies
  - Stop-loss reinsurance, securitisation
- Non-profit funds/companies apply for Section 148 waivers to modify the CRR

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### New business capital reduction

- Exploit natural diversification opportunities
- Consider guarantees carefully
  - Investment and demographic
  - Day 1 cost and potential volatility
  - How cost might be managed
    - Recharging
    - Closing out
    - Risk transfer

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### Conclusion

- ICA closely aligned to underlying risks
  - Capital requirements for some lines of business likely to increase
  - Sensitivity of capital requirements will change
  - Offers a deeper understanding of risk and reward for enhanced risk measurement and management
- Potential advantages in acting early

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