Institute and Faculty of Actuaries

Pensions vs Insurance
A collision of actuarial thinking

Tim Penning
Matthew Murphy

01 November 2013

Introduction

"A general observation is that actuaries in banking, insurance and pensions each operate in a different risk space"

Actuaries and Discount Rates,
C. Patel and C. D. Daykin, May 2010

"Pension Funds have an advantage over Life Funds in so far as they are not under a statutory obligation to show each year a state of complete solvency based on market values"

Pension Fund Investments,
George Ross Goobey, October 1954

"There therefore appears to be some inconsistency between the measurement of technical provisions of an insurer's annuity book and the measurement of its own staff pension obligations."

Actuaries and Discount Rates,
C. Patel and C. D. Daykin, May 2010

Institute and Faculty of Actuaries

Agenda

- Context
- Contrasting pensions and insurance
- The differences in practice
- Reserving requirements for insurers
- Managing pension schemes for insurers

Institute and Faculty of Actuaries

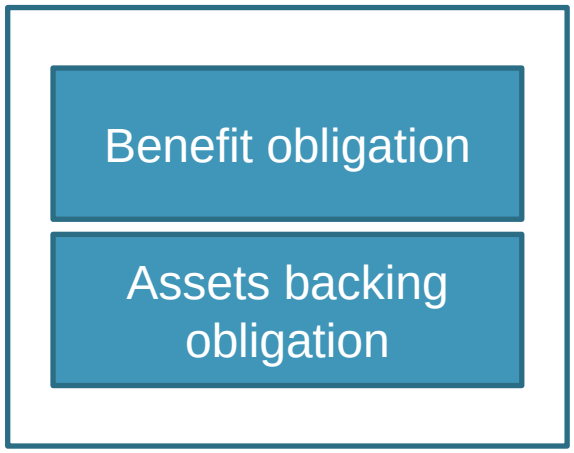
Context

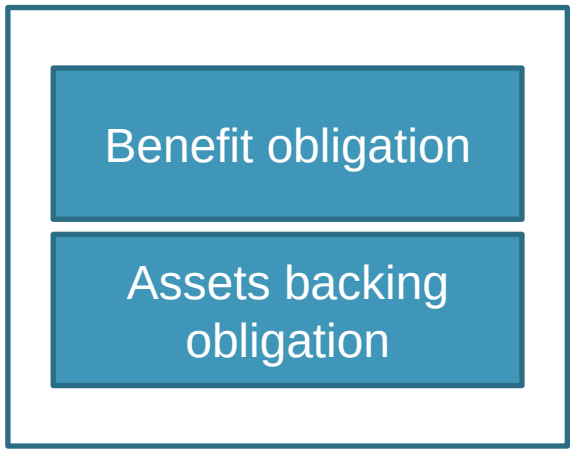
- UK defined benefit pension liabilities are large:
  - Pension liabilities of FTSE 100 are around £0.5TN – roughly the same as the GDP of Norway
- Pension schemes material for many companies:
  - 5 FTSE 100 companies have pension liabilities greater than market capitalisation
  - One financial sector organisation has pension liabilities roughly half as large as those of Ireland
- These schemes impact on business:
  - Unanticipated movements in one insurer's pension liabilities over one year equated to 10% of market capitalisation
  - Many companies pay more to their pension scheme than they do to their shareholders

Institute and Faculty of Actuaries

Contrasting pensions and insurance

PENSION FUND		LIFE INSURER
	Solvency Requirement	
(In)solvency only noted		Continuous
	Additional Funding	
Recourse to sponsor		No additional funding
	Treatment of Risk	
No explicit risk allowance		Explicit risk allowance
	Discount Rate	
Advance credit for future growth		No credit for future growth
	Nature of Benefit Promise	
Some salary linkage		Salary linkage not offered





Institute and Faculty of Actuaries

Contrasting pensions and insurance

What happens to benefits if...	With profits	Pensions
Equity values fall	↓ or =	Scheme rules
Equity values rise	↑	Scheme rules
Interest rates fall	↑	Scheme rules
Interest rates rise	↓ or =	Scheme rules

Institute and Faculty of Actuaries

Contrasting pensions and insurance

	Pension Scheme Cash funding	Insurance Solvency Requirements
Main features	• Market value of assets compared to "Technical Provisions" • Used to determine cash contribution payments from the sponsoring firm • Shortfalls are permissible and can be corrected over a period	• Market value of assets compared to liabilities plus capital requirement • Shortfalls not permissible – instigates regulatory action
Actuarial assumptions	• Technical Provisions set "prudently" - typically 60%-75% confidence level • Discount rate based on prudent asset return assumption • Commonly set as long-term gilt yield + x% risk premium	• Liability cashflows are best estimate with prudence margins under some reporting bases • Move towards basing discount rate on risk free returns with no reference to asset allocation
Key points	• Asset growth credited up front • Higher risk supports lower funding requirement • No capital requirement	• No advance credit for asset growth • Higher risk leads to greater allowances for risk • Explicit capital requirement

Institute and Faculty of Actuaries

Contrasting pensions and insurance

	Pensions 100% gilts
Assets	80
Liabilities	100
Capital requirement	0
Liabilities + CR	100
Surplus/(shortfall)	**(20)**

	Insurance 100% gilts
Assets	100
Liabilities	80
Capital requirement	0
Liabilities + CR	80
Surplus/(shortfall)	**20**

	Pensions 100% equities
Assets	80
Liabilities	80
Capital requirement	0
Liabilities + CR	80
Surplus/(shortfall)	**0**

	Insurance 100% equities
Assets	100
Liabilities	80
Capital requirement	20
Liabilities + CR	100
Surplus/(shortfall)	**0**

Institute and Faculty of Actuaries

Differences in practice – funding

"... The more dependent the valuation becomes on anticipations of the future...the more vulnerable it becomes to possible miscalculation and serious error...."

Benjamin Graham

Average DB pension scheme cash funding ratio: 95%

Average DB pension scheme 'buy-out' ratio: 59%

Source: The Pensions Regulator: Scheme Funding, June 2013

Average UK insurer capital coverage: 170%

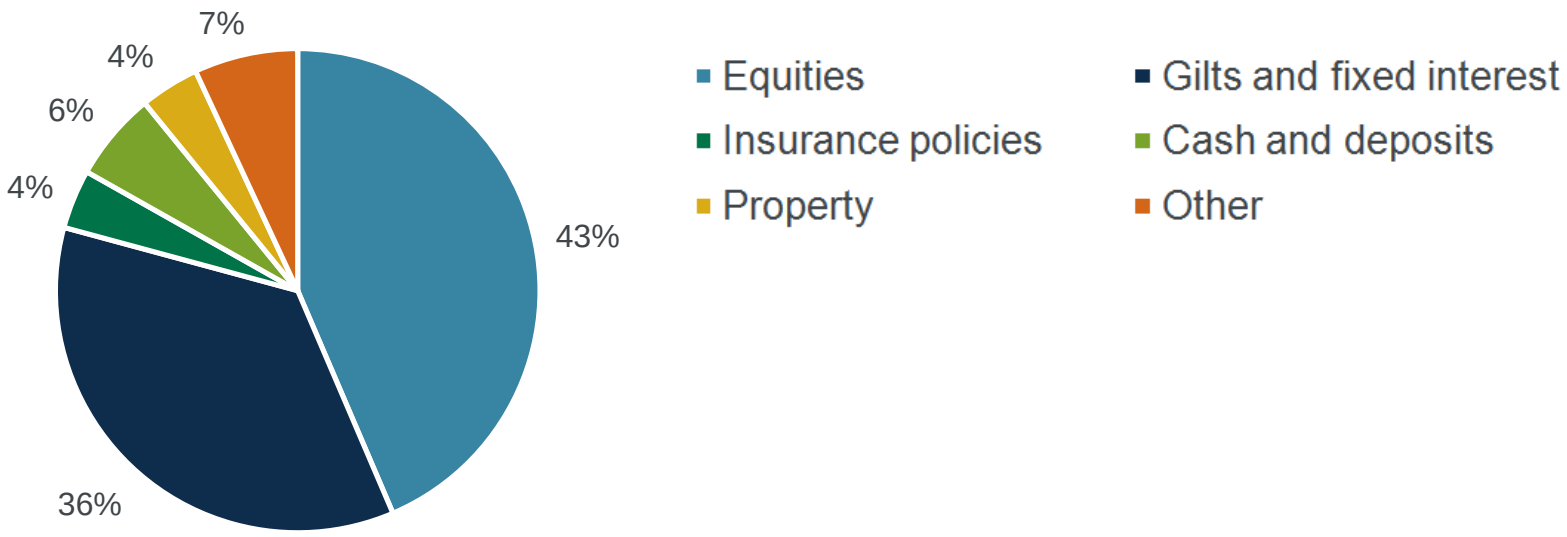
Solvency II for pensions would add £150BN to deficits

Source: KPMG analysis of FSA returns 2012 & EIOPA

Institute and Faculty of Actuaries

Differences in practice – asset allocation

Asset allocation of UK defined benefit pension schemes



Source: Purple Book: DB Pensions Universe Risk Profile 2012

Institute and Faculty of Actuaries

Differences in practice – culture

	Pension Mentality	Insurance Mentality
Time horizon	"This is a long term problem and today's poor funding position can be dealt with over the next 20 years"	"We must prove solvency at all times."
Risk appetite	"We can afford to take risk as we can take account of additional returns today and we can live with volatility."	"We're cautious about risk as volatility causes us a problem."
Risk practices	"We make broad implicit allowances for risk."	"Our risk practices are very mature with a well defined risk appetite and complex risk quantification techniques."
Disclosure	"Volatility caused by mismatching does not impact our P&L and so we aren't too concerned by year on year movements."	"Volatility caused by mismatching has direct implication for the P&L and so should be avoided."

Institute and Faculty of Actuaries

Current reserving requirements

Pillar 1

- Can choose how to allow for pension obligations
- The two options are:

1. The defined benefit liability: deficit measured as per IFRS. Note it is not permissible to include a surplus as an asset.
2. The deficit reduction amount: amount paid over the following five years to reduce pension deficit

- No capital requirements

Pillar 2 (ICA)

- For opening balance sheet, replace IFRS figure with discounted value of all future planned deficit contributions to the scheme
- Capital requirement calculated as the entire contribution schedule when stressed
- The calculations should allow for a 99.5% confidence interval over 1 year
- Both deterministic and stochastic approaches are acceptable
- Variety of approaches actually used by firms

Institute and Faculty of Actuaries

Solvency II reserving requirements

Pillar 1

- Pension risk only a material issue for a few EU countries
- As such, Solvency II guidance to date has been limited
- PRA appears to be adopting a ‘wait and see’ approach – may gold plate UK requirements
- Most likely outcome is that companies will need to continue to allow for pension risk under Solvency II
- Unclear whether guidance for Standard Formula (SF) firms can be translated across for Internal Model (IM) firms

Pillar 2 (ORSA)

- No guidance to date
- ORSA is principles based rather than rules based
- As such, likely to be a range of different approaches adopted
- We expect companies to allow for pension risk where material

Institute and Faculty of Actuaries

Solutions

	Option	P&L (IFRS)	Cash/liquidity	Capital (ICA/S2)	Capital (IGD – 5yr DRA)	Long term risk
Funding	Cash funding negotiation	-	✓	✓	✓	-
	Asset backed funding	-	✓✓	Depends on admissibility of asset	Depends on admissibility of asset	-
Liabilities	Enhanced transfer values	××	?	✓✓	✓	✓✓
	Pension increase exchange	✓	✓	✓	✓	✓
	Flexible retirement options	?	-	✓✓	✓	✓✓
	Close DB scheme	✓	✓	-	-	✓
Assets	Equity options	-	-	✓	-	-
	Leverage gilts or synthesise equities	-	-	✓✓	-	✓✓

Conclusion

- Defined benefit pension risk is material for many insurers
- Contrasting regimes drive different behaviours
- Management of the risks requires careful consideration for insurers
- Input from both the pensions and insurance world required
- Two actuarial worlds colliding...
- ...and perhaps more so with SII for pensions still being considered

Institute and Faculty of Actuaries

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 presenters.

Institute and Faculty of Actuaries