The Actuarial Profession
making financial sense of the future

Lessons from Financial Economics
Cliff Speed and Andrew Smith

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Pensions Convention
1 - 3 June 2003
Grand Hotel Brighton

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ed and **Andrew Smith** will examine how typical
economics assumptions relate to points of debate in
ons arena. They will examine what assumptions are
v robust these are and their consequences for financial
ent of pension schemes.

Financial Economics: Exposing the Arguments

Andrew Smith will describe a pragmatic common sense approach to pension funding and investment

Cliff Speed will examine the theoretical assumptions adopted by financial economists and how they relate to pensions

Then you'll get a chance to tell us what you think

Funding a Liability in 2030

- This pension fund holds 80% equities
- Prudent expected return 8% pa
  - Lower than historic
- Returns not guaranteed
  - But neither are the liabilities!
  - High probability of achieving 8% over 27 years

Technology Bubble

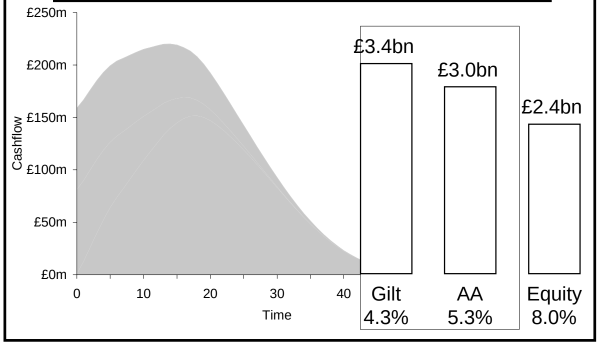
- In 2000, FTSE around 7000
- Now around 4000
- Obviously overvalued in 2000
  - Reflect in lower equity risk premium for 2000 valuation
  - But normal conditions today, hence 8% assumption
- Short term volatility does not change where the stock market will be in 2030
- Cliff Speed will assume markets are efficient and all players are rational – which is patently ridiculous

Our Assumptions

Andrew Smith:
- 8% investment return

Cliff Speed:
- Efficient markets
- No arbitrage
- Risk neutrality
- Utility functions
- Rational investors
- Corporate transparency
- No transaction costs
- Short term views
- Homogeneous investors
- Normal distributions

The liabilities



Pensions are like bonds

- "Pension liabilities are bond-like" Barclays 2003
- "Moody's considers pension liabilities to be debt-like" Moody's
- "…a hedge portfolio that would generally comprise a mixture of nominal and index-linked bonds" UBS Warburg
- "Standard & Poor's views unfunded post-retirement liabilities as debt-like in nature"
  S & P European Corporate Pension Study

But liabilities are not guaranteed

- *There are options to default…*
  - Luckily FE is strong on the evaluation of options…
- Value the full benefit and value the option

Risky benefit = G'teed Benefit – Option to default

- Option prices are driven by volatility, current values and strike price
  - investment strategy and solvency level
- Equity risk premium is irrelevant

…but equities will outperform…

- *Will*??
- Agree equities are *expected* to outperform

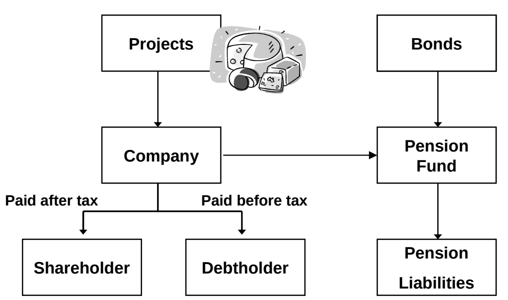
- OK – but over the long run…
  - Bonds have outperformed equities since 1984
  - If markets are inefficient take advantage of it!
  - Proof by anecdote
  - Evidence is mixed, but clear examples of market inefficiency are rare

But equities are cheap now…

"If the sponsor regards bonds as expensive and equities cheap, it should still switch equities into bonds in the pension fund, but simultaneously issue bonds and buy in its own equity in the operating company. … [This] increases security for pension scheme members, increases the ability of companies to control labour costs and balance sheet risk, and saves a bundle of tax into the bargain"

Barclays Equity-Gilt Survey 2003, page 49

Interaction between company and fund



Our Assumptions

Andrew Smith:	Cliff Speed:
8% investment return	
ERP is key	ERP not relevant
no arbitrage	no arbitrage ✓
inefficient markets	efficient markets don't care
risk premium key	option pricing i.e. risk neutrality ✓
corporate opacity	corporate transparency ✓
utility and for who?	utility functions ?
	complete markets ✗
	short term views ✗
	Homogeneous investors ✗
	Normal distributions ✗

Outcome

- Andrew Smith discounts the liability at 8%. As a result, the scheme discloses a small surplus and the company continues to contribute 10% of salaries.

However a different actuary offered 8.5% discount rate.
So Andrew had to put his discount rate up to 9%.

(Shhh! The PI Insurer doesn't know,
and currently charges us the same premiums)

viewed as more practical and the company retained Andrew Smith as advisor to the trustees.

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