Very low interest rates:

What should pension schemes do?

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Paul Sweeting
European Head, Strategy
(44) 20 7742 0501 paul.j.sweeting@jpmorgan.com

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Asset Management

Agenda

- The problem with low interest rates
- Why do we discount?
- What is the outlook for rates?
- Risk vs uncertainty
- Another way of thinking about funding

The problem with low interest rates

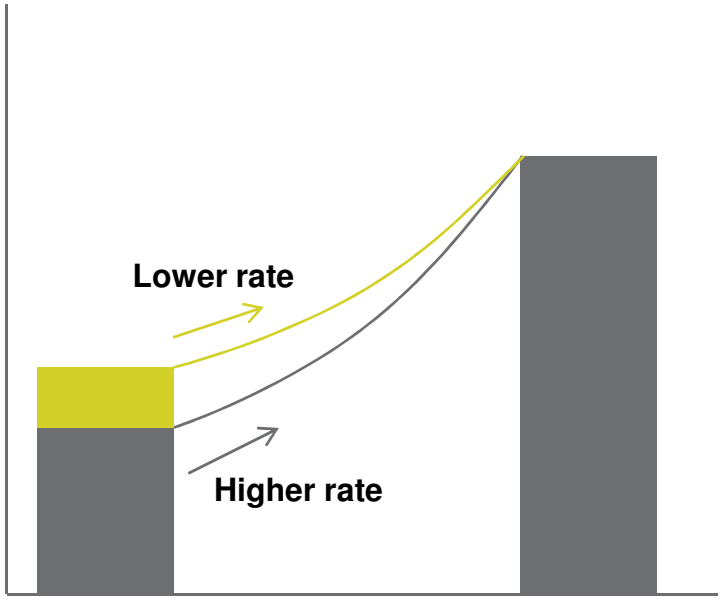
- A past and future service problem
- For past service, an asset and liability problem
- Low interest rates mean (under most models) low returns generally…
- ...which is a problem if liabilities rise…
- …which they do if interest rates fall
- For future service, low interest rates increase the cost of providing benefits

The real and the nominal

- If benefits are inflation-linked, this shouldn't matter…
- …to the extent that real asset returns are resilient to changes in interest rates
- However, real yields have also fallen…
- …which can signify lower growth expectations…
- …or just excess demand for assets

Why do we discount?

- "Actuarial mathematics 101"...
- ...but a useful reminder
- So
  - When interest rates fall, liabilities rise...
  - ...because you need to hold more now...
  - ...to grow to the amount you need to pay...
  - ...*at the interest rate at which you are discounting*

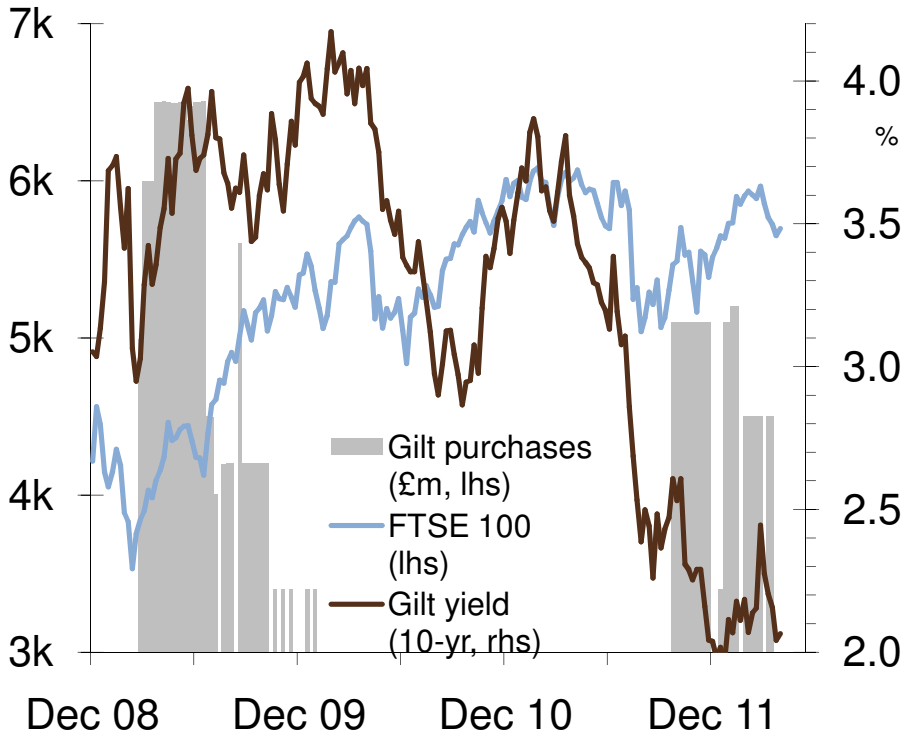


This limits the relevance of discounting

- It implicitly assumes that you have a known liability (in absolute or adjusted terms)...
- ....and an investment that can grow at the appropriate rate...
- ...with complete certainty
- Or it requires an arbitrary allowance for a liquidity premium, expected return on assets etc
- However
  - Pension liabilities have hard-to-hedge links to (e.g.) inflation
  - Longevity risk in pension liabilities is also difficult (i.e. expensive) to hedge
  - Are any assets truly “risk free”?
  - If a risky asset is being used, how much should the expected return be reduced for this risk?
  - Pension liabilities are often very, very long term

Why buy bonds?

- Even if you could invest risk-free, would you want to?
- Everyone is still deleveraging...
- ...in other words, paying off debts...
- ...in other words, forcing the prices down
- Operation twist, QE etc only add to this effect
- There is also a systemic excess
- In other words, fixed income assets are expensive!



Latest data 17 April 2012. Source: Bloomberg, Bank of England, J.P. Morgan Asset Management.

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Risk vs uncertainty

- If the yields used to discount liabilities are low...
- ...which direction are they likely to move in the future?
- There may be *uncertainty* over future interest rates...
- ...but the *risk* of loss from falls in yields must be lower now than previously...
- ...so how much interest rate “risk” is there?

How about discounting at a non-risk-free rate?

- The way to determine the rate depends on the assets used
- Corporate bonds?
  - Start with the yield on the bond...
  - ...then reduce to allow for expected defaults...
  - ...plus an additional risk margin for variation around this
- Risk assets?
  - Expected return on the asset...
  - ...less some arbitrary margin for prudence
- But it is very difficult to judge how reasonable a discount rate is...
- ...since the method of derivation is rarely given

Squaring the circle

- The issue with discounting is that you are trying to compare
  - assets, whose value is known at a point in time, but whose cash flows are often uncertain; and
  - liabilities, whose values are unknown but whose cash flows are often largely (if not completely) predictable
- This suggests an alternative valuation approach, which looks explicitly at the cash flows
- A suggested approach
  - Choose an economic scenario generator (which models returns for asset classes, economic variables and sponsor solvency)
  - Choose a mortality model
  - Project assets forward stochastically
  - Project liability cash flows forward stochastically
  - Decide on an acceptable probability of “failure” (with failure being the assets running out before the last member has died)
  - Determine the contributions required to give this probability (allowing for the probability of sponsor default)
  - (...or calculate the probability of failure given the proposed contribution strategy)

Cash flows – pros and cons

- The uncertainty of asset returns (and liabilities) gets as high a profile as the expected level of returns
- All uncertainties are allowed for
- The sponsor covenant is implicitly recognised
- *There is no need to determine a discount rate*

However

- You do need assumptions over asset returns
- A decision on an acceptable probability of failure is also needed

Implications of a cash flow approach

- The implications depend on
  - the level of confidence required
  - the duration of the liabilities
  - the model used...
- ...so there is more subjectivity
- However, there are some general features
  - As the level of confidence falls, the proportion of equities and other return-producing assets that minimises the required starting amount of assets rises
  - Iliquidity premia are well-rewarded (good news for corporate bonds)