Pension fund investing – Meeting the liabilities

Modern Investment Approaches

Structured solutions

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Pension fund problems

- Traditional investment approaches not working
- Over-reliance on equities for superior returns
- Assumed rewards for taking equity risk would be high enough to meet pension liabilities
- No explicit economic rationale for this assumption!
- No explicit consideration of liabilities
- No protection against sharp falls

Pension fund realities

- Trustees have had dreadful constellation of events
- Deficits resulted from falling inflation and interest rates, rising longevity and increased annuity costs
- Liabilities grown faster than assets, even as equities up
- Accounting and actuarial valuation changes require more focus on liabilities now
- Investment knowledge and skill requirements rising
- Pension fund liabilities are often more sensitive to interest rate changes than its assets – mismatch risk

Traditional thinking

- Traditional attitude to investment was:
  - Manage returns and
  - **TAKE** risk (passive acceptance of risk – equity risk)
  - Almost *welcome* risk, in expectation of high returns

- Modern investment approach would be:
  - Manage returns AND
  - **Manage** risk (active risk control)
  - Try to reduce the risk of *not* meeting liabilities

Problems of traditional investment approach

- Focuses on returns, not enough attention to risk
- 'Expected' returns, not same as *achieved* returns
- Not enough consideration of different scenarios
  - Protecting against falling assets **or** rising liabilities
- Relies on equity risk premium to outperform liabilities
- Ignores main sources of risk in liabilities
  - inflation, duration, longevity
- Ignores modern methods of money management

Relying on equities too ‘risky’

Equity returns carry two kinds of risk

1. volatility associated with equity risk premium – trustees can hope to be rewarded for this
2. risk of not keeping up with liabilities, as interest rates, inflation and mortality change – this is unrewarded risk

Pension investors only likely to benefit from one risk

Other risks caused damage because not been controlled

Controlling risks in ‘risky’ assets

- Equities are only one source of risk premium
  - There are many different sources of investment risk premium in inefficient global markets
- Trustees should aim to benefit from the risks for which they expect to be rewarded
- Try to minimise or eliminate the liability-related risks they cannot expect to be rewarded for
- Modern investment approaches can deliver returns in a risk-controlled way, aimed at outperforming liabilities
- While still preserving upside potential of riskier assets

Trustees face a new environment

- Changing legislation and valuation practices
- Pensions Act 2004 – trustee knowledge requirements
  - Trustees must understand investments
- FRS17 focused finance directors onto pension liabilities
- Can't 'take credit' for future returns so easily
- Investment strategy should explicitly target meeting pension liabilities – not implicitly hope to do so

Investment reality-check

- Liabilities are rising 5% a year (bond discount rate)
- Need much more than this to reduce a big deficit
- Asymmetric risk - rising liabilities may hurt more than falling assets if scheme already in deficit
- Must have a plan to address risks and meet liabilities
- More focused investment strategies can produce better results for members – paying pensions in the long-term

Immediate challenges

- Repair deficits
- Match liabilities over time
- Modernise investment techniques to *manage* risk
- Investment strategy more focused on liabilities
- Control returns, but still allow upside potential
- More reliable return profile, minimise downside

Need for downside protection

- Large deficit and weak employer implies downside tolerance minimal
- Essential for most schemes
  - i.e. avoiding losses valued higher than foregone *potential* returns
  - PPF entry more likely and higher risk-based levy
  - Members lose some of their pensions

Avoiding big losses important

- Falling markets are very damaging
- If market halves then doubles, only back where started
- If can protect from severe falls, required returns lower

	£100 invested	£100 invested	£100 invested
Yr. 1	-30%	-30%	- 3%
Yr. 2	+30%	+43%	+ 5%
End value	**£91**	**£100**	**£101.85**

- Is switching to bonds right way to dampen volatility?

Just switching to bonds won't do

- Reason to switch to bonds is to reduce 'risk' – is this the answer?
- Bonds reduce risk in exchange for huge reduction in expected return – takes away upside potential
- Switching to bonds will still entail underperformance of liabilities and can't address a deficit
- Bond investments still contain 'unrewarded' risk
  - Salary inflation, lpi, longevity, duration, capital loss
- Bonds are imperfect 'match' for liabilities, and reducing deficit requires *outperformance* of liabilities

New Approach

- Focus on liabilities and search for strong added value
- Don’t just rely on equity risk premium – other potential sources of investment return can add value
- Global capital market inefficiencies can deliver rewards for skill, currency, illiquidity, volatility...
- Many ways to aim for high investment returns
- But should be combined with more sophisticated risk management – control risk v. hope it will be OK!
- Holding bonds still risky – perhaps swaps better

Alternative thinking

- Equities outperforming bonds is not same as outperforming liabilities
  - Equities could rise, but liabilities could rise more
- Required returns usually greater than bonds
- Therefore need non-bond diversification
- High-return-seeking assets and risk control
  - Hedge funds, private equity, real estate
  - Currency overlay, small cap, emerging markets?

Structured solutions

- Can use more targeted asset-liability driven approaches
- Investment banks offering passive liability driven investments (LDI)
- Swaps very useful despite cost – liquidity better than bonds – essential for trustees to understand them
- Experienced management of derivatives essential – administration of swaps can be very complex
- Protect against interest rates or inflation changes to ensure assets grow more in line with liabilities
- Still need good upside potential to *outperform* liabilities

Ideas for pension fund trustees

Pension protection structures

Could be designed along the following model...

lpi inflation and capital protected structure + more

- Can be specially designed for pension funds
- Help meet liabilities
- Offer extra return potential above lpi matching to fund deficit and/or mortality changes
- Capital and inflation guaranteed
- No administrative hassle with derivative agreements

Features

- Return of initial investment plus lpi
- Designed to deliver additional returns on top from portfolio of high-return-seeking assets
- Can also pay out gains during life of product
- Can structure rolling series of products with different maturities to deliver long term inflation-matching
- Product will manage derivatives, saving trustees the problems involved in administration of swaps etc.

Say a pension fund invests £100m

- 3 parts to the investment – all done within the structure to minimise admin hassles for trustees

1. Buy lpi swap to ensure receipt of £100m plus lpi on maturity
2. Buy bond to deliver sufficient assets to pay for this lpi swap at maturity – will cost £82m
3. Invest £18m balance into high-expected return assets to deliver additional return potential on top of lpi

On maturity, the WORST outcome is the return of all capital plus accumulated limited price inflation

The real yield on index-linked gilts is given up in exchange for significant potential extra returns from high alpha investments

STEP 1: lpi swap

- Purchase lpi swap to ensure receipt of £100m adjusted for limited price inflation on maturity (e.g. 15 years)
- Market rates imply fixed 3% pa interest rate exchanged for lpi
- THIS IS THE **SWAP**:
  - 3% FIXED INTEREST RATE IS 'SWAPPED' FOR LPI
- 3% interest pa on £100m gives £155m on maturity
- Must commit to pay £155m in 15 years, in exchange for the £100m adjusted for lpi
- Eliminates inflation risk on the £100m invested

STEP 1
NO MONEY TRANSFERRED YET - ARRANGE SWAP AGREEMENT TO ENSURE £100M + LPI ON MATURITY

2006

ENTER SWAP AGREEMENT

BANK WILLING TO SWAP 3% FIXED FOR LPI ON MATURITY

NO FUNDS PAID OVER TILL 2021

2021 MATURITY

FUND HAS TO PAY BANK £155m

BANK PAYS FUND £100m ADJUSTED FOR LPI

TRUSTEES CAN MEET LPI INCREASE ON £100m

What happens in the swap?

- Swap price depends on market interest rates and inflation expectations to maturity
- Bank acts as intermediary between buyers and sellers of inflation
- Bank sets price at which it will ‘swap’ lpi. Current rates suggest lpi swapped for fixed 3% interest over 15 years
- Other investors or investment banks may want to receive fixed income, not inflation
- Trustees don’t want to try and guess what inflation will be, they want to know they can match it, whatever

Why do trustees benefit?

- Trustees must pay lpi increases on their liabilities
- They should be trying to ensure they have enough money to pay the required lpi increases
- If inflation is above 3% they will still get lpi
- If inflation is below 3% they still have the lpi they need
- Worst case scenario is that trustees will have their £100m plus limited price inflation

Balance of interests for lpi swap

TRUSTEES

- WANT TO PAY THE PENSIONS
- NEED TO MEET LPI INCREASES
- DO NOT WANT TO TAKE THE RISK OF NOT HAVING SUFFICIENT ASSETS TO PAY INFLATION INCREASES
- NOT EXPERTS IN FINANCIAL FORECASTING!

BANKS

- WANT TO FACILITATE MARKET FOR BUYERS AND SELLERS OF INFLATION
- WILL PRICE LPI SWAP ACCORDING TO MARKET INFLATION EXPECTATION
- WILL TAKE A SPREAD AS AN INTERMEDIARY
- THIS IS THEIR BUSINESS!

STEP 2: Buy a bond

- Need to ensure receipt of £155m in 15 years
- Buy zero coupon bond today with 15 yr maturity value of £155m
- This will cost around £82m which must be paid today, using 4.3% discount rate
- In 15 years, receive the £155m
- Then can pay this £155m and receive the Ipi adjusted value of the original £100m investment
- Will ensure sufficient assets to pay Ipi increase for the £100m invested in this product

STEP 2:

INVEST £82m of the original £100m

2006

BUY 15-YEAR ZERO COUPON BOND

BANK USES 4.3% LONG YIELD DISCOUNT RATE TO PRICE £155m IN 15 YEARS

BANK REQUIRES £82m NOW TO PAY THE £155m ON MATURITY

2021 MATURITY

FUND RECEIVES £155m FROM MATURING ZERO COUPON BOND

FUND PAYS THE £155m TO SWAP COUNTERPARTY

SWAP COUNTERPARTY PAYS FUND £100m +LPI

TRUSTEES CAN PAY INFLATION INCREASE ON £100m

STEP 3. High performance assets

- Paid £82m for zero coupon bond - leaves £18m of original £100m investment
- This £18m can be invested to generate even more than inflation-adjusted value of original investment
- This can be used to generate high expected returns
- Can be leveraged for very high returns, but within limited liability structure to limit downside, so can't lose > £18m
- Any extra return on this portion can fund deficit reduction or mortality increases

STEP 3:

INVEST £18m of the original £100m

2006

INVEST £18m IN HIGH EXPECTED RETURN PORTFOLIO

2021 MATURITY

FUND RECEIVES THE ADJUSTED VALUE OF THE ORIGINAL £18m INVESTED

PLUS THE VALUE OF THE LPI SWAP I.E. £100m + LPI

TRUSTEES CAN PAY INFLATION RISE ON £100m

ANY GROWTH OF HIGH RETURN PORTFOLIO CAN REDUCE DEFICIT OR FUND MORTALITY INCREASES

Expected performance

- Most likely scenario:

1. Initial £100m
2. Plus Ipi increase
3. Plus £18m high return investments
4. Plus increase in value of high return portfolio

Other scenarios

- If high-return seeking portfolio achieves zero return:

On maturity, original £100m investment would be worth

1. Initial £100m
2. Plus Ipi
3. Plus £18m from high absolute return investments

Worst case scenario

- If high-return asset portfolio becomes worthless

On maturity, trustees would receive capital and inflation protection i.e. would get back:

1. Initial £100m
2. Plus Ipi

Options possible

- It would be possible to lock in the gains from this structure over time, before final maturity
  - e.g. if high return asset portfolio delivers 10%, this money can be paid out to the trustees to reduce a deficit, or locked into the capital and inflation guarantee periodically
- Maturity can be different periods, up to 50 years or so, as required or a combination of maturities
- Structure can pay out rpi or lpi, whichever needed

Fees

- Indicative fee for this structure would be a 1% flat fee
- Cost of the swaps would be imbedded in the pricing, so just one flat fee

Possible disadvantages of this product

- Potentially give up real yield on index-linked gilts (currently under 1%, so not much given up!) Effectively giving up a low real yield in exchange for high expected return – good deal for trustees?
- Interest sensitivity declines over time (this can be addressed by series of bonds with different maturities)
- Risk of bank defaulting on swaps/zero coupon bonds (this risk is mitigated by collateral posting and choosing AA banks)

Advantages of this structure

- **Full capital and inflation protection**
- **Better than trying to buy index-linked gilts or bonds**
- **Can help reduce a pension deficit over time**
- **Can help meet mortality changes over time**
- **Modern investment approach to target liabilities explicitly**
- **Extra upside potential to meet deficit / mortality**
- **Allows trustees to eliminate 'unrewarded' inflation risk**
- **So trustees take risks they expect to be rewarded for**
- **Should outperform swaps and bonds, due to upside potential**
- **No need for trustees to struggle with complex derivative administration – all in product**

Helping the trustees

Issues for trustees	Can this approach help?
Liabilities must increase by lpi	Yes
Liabilities will change with interest rates	Yes
Require extra returns above liabilities to meet mortality or deficit	Yes
Inexperienced with swaps and derivatives	Yes

Conclusion

- Traditional approaches unlikely to deliver enough
- New investment approach to help trustees pay pension
- Protection of downside risk
- Risk control that still allows good upside potential
- Administratively easy for trustees
- Better chance of paying the pensions than relying on gilts or bonds – an alternative way forward?

Meeting the liabilities

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