

DB vs DC

Good or Bad

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Discount Rates and Valuation Standards

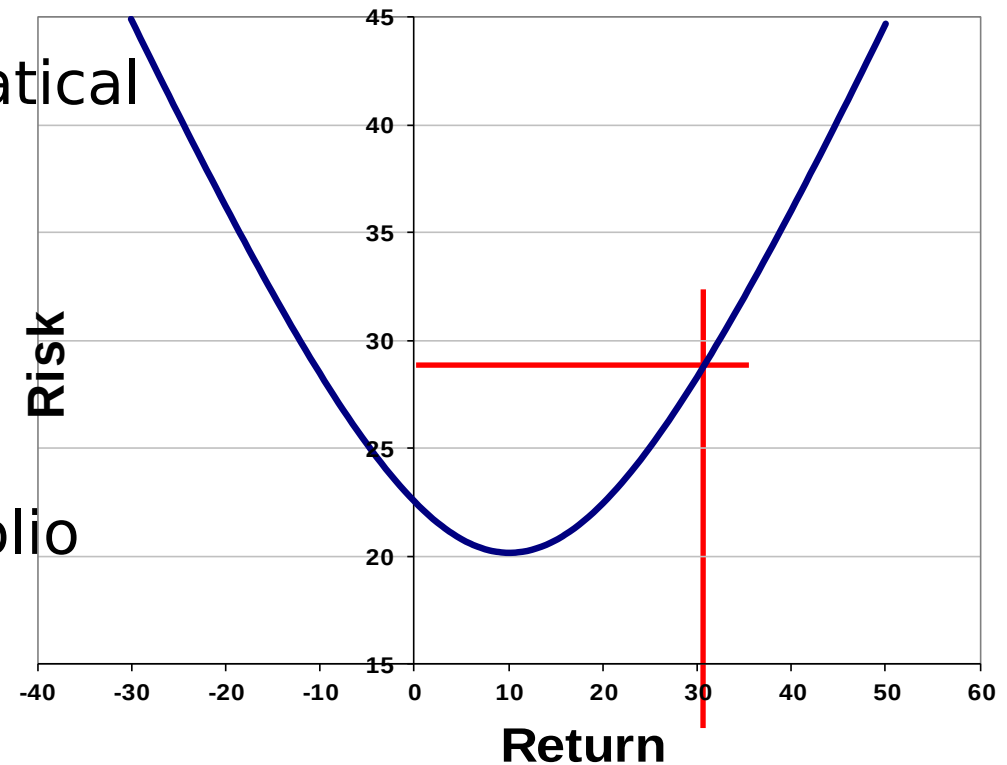
- The liabilities of DC and CDC schemes are limited to the value of the total asset portfolio.
- The only issue is the distribution among members of this total “pot”; the amount of the member’s individual equitable interest.
 - For DC this is achieved by unitised investment in the fund
 - For CDC it is more complex. It is the total of accrued awarded targets
- For DB there are different accounting and regulatory standards
- These rely upon discounting pension payment projections.
- Ordinarily, we should be indifferent to the choice of discount rate; they merely define a trajectory of values from today to the projected future payments. These projected amounts are independent of the discount rate.
- But if we base actions upon these intermediate values we add costs to the scheme.
- This is also a significant criticism of liability driven investment
- The discount rate is not a risk factor

The Standards - Regulatory

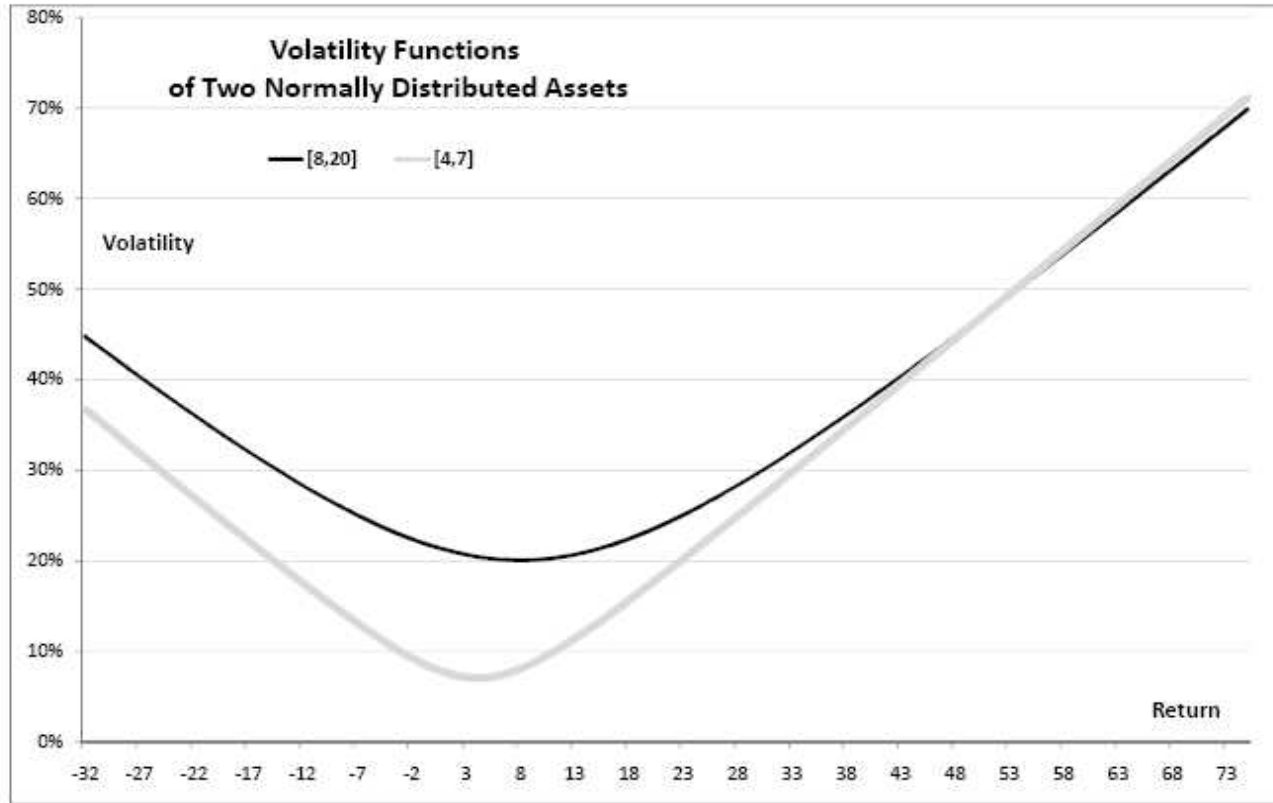
- *(4) The principles to be followed under paragraph (3) are-*
- ***(a) the economic and actuarial assumptions must be chosen prudently, taking account, if applicable, of an appropriate margin for adverse deviation;***
- ***(b) the rates of interest used to discount future payments of benefits must be chosen prudently, taking into account either or both—***
- ***(i) the yield on assets held by the scheme to fund future benefits and the anticipated future investment returns, and***
- ***(ii) the market redemption yields on government or other high-quality bonds;***
- *(c) the mortality tables used and the demographic assumptions made must be based on prudent principles, having regard to the main characteristics of the members as a group and expected changes in the risks to the scheme, and*
- *(d) any change from the method or assumptions used on the last occasion on which the scheme's technical provisions were calculated must be justified by a change of legal, demographic or economic circumstances.*

Some Comments

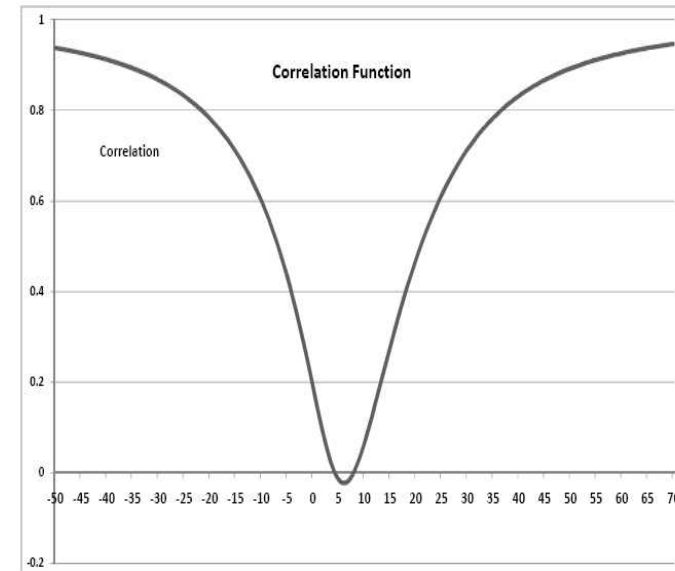
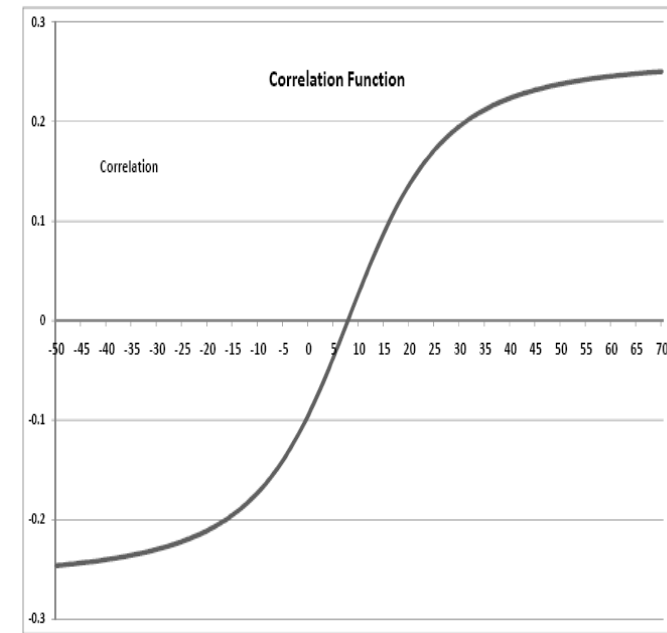
- Here the discount rate is a matter of choice
- Prudence is in both projections and the discount rate - this is bias.
- The discount rate is a measure
- This brings with it some mathematical issues
- For a $N(10,20)$ distribution
- If we project a 30% return
- We have risk of 28.3%
- And further complexities at portfolio level



Forecasts and Stresses



Forecasts are ensembles

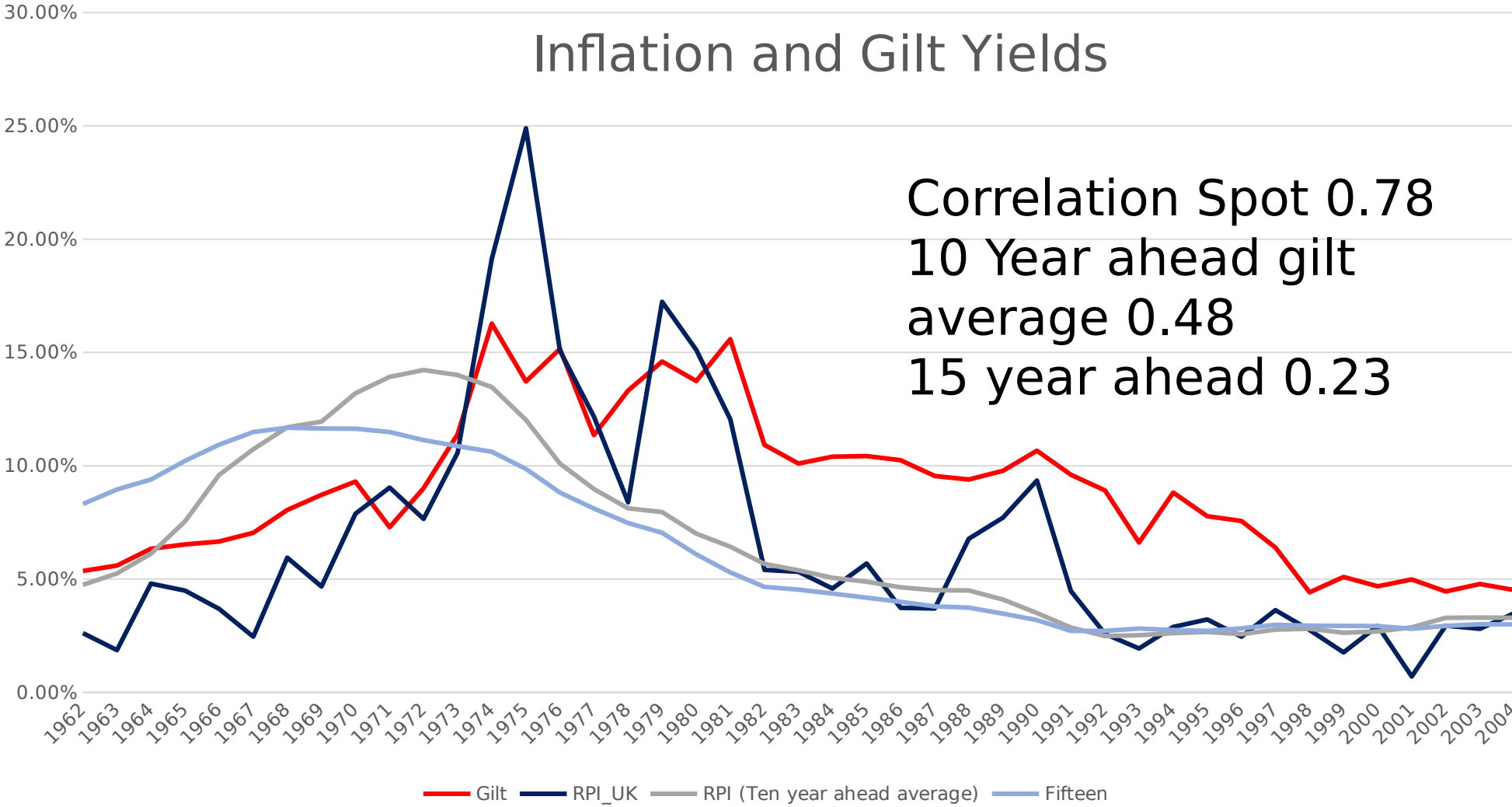


IASC decided that the discount rate should be determined by reference to market yields at the balance sheet date, because:

- (a) there is no rational basis for expecting efficient market prices to drift towards any assumed long-term average, because prices in a market of sufficient liquidity and depth incorporate all publicly available information and are more relevant and reliable than an estimate of long-term trends by any individual market participant.
- (b) the cost of benefits attributed to service during the current period should reflect prices of that period.
- (c) if expected future benefits are defined in terms of projected future salaries that reflect current estimates of future inflation rates, the discount rate should be based on current market interest rates (in nominal terms), because these also reflect current market expectations of inflation rates.
- (d) if plan assets are measured at a current value (i.e. fair value) the related obligation should be discounted at a current discount rate in order to avoid introducing irrelevant volatility through a difference in the measurement basis.

Inflation and Gilt Yields

Correlation Spot 0.78
10 Year ahead gilt
average 0.48
15 year ahead 0.23

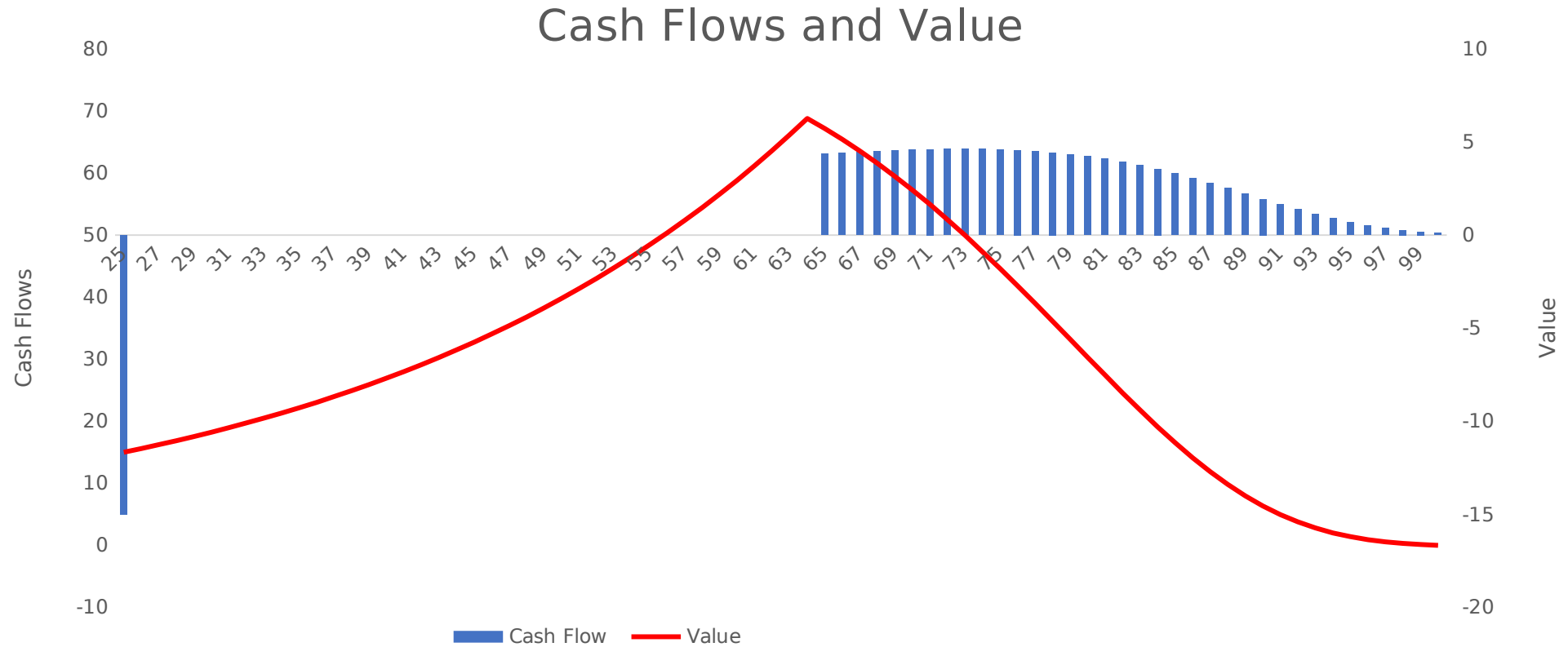


- Some believe that, for funded benefits, the discount rate should be the expected rate of return on the plan assets actually held by a plan, because the return on plan assets represents faithfully the expected ultimate cash outflow (ie future contributions).
- **IASC rejected this approach because the fact that a fund has chosen to invest in particular kinds of asset does not affect the nature or amount of the obligation.**
- In particular, assets with a higher expected return carry more risk and an entity should not recognise a smaller liability merely because the plan has chosen to invest in riskier assets with a higher expected return.
- **Consequently, the measurement of the obligation should be independent of the measurement of any plan assets actually held by a plan.**

- However, the Board believes that a measure should be volatile if it faithfully represents transactions and other events that are themselves volatile, and that financial statements should not omit such information.
- For example, they were concerned that entities might try to eliminate short-term volatility by making long-term economically inefficient decisions about the allocation of plan assets, or by making socially undesirable amendments to plan terms. **However, in the Board's view, it is not the responsibility of accounting standard-setters to encourage or discourage particular behaviour.**
- **However, the standard, market values for assets and discounted present value for liabilities is mixed attribute and introduces both volatility and bias.**

The Contractual Accrual Rate

- One of the things not discussed is that there should be a continuity property to the discount rate
- Value by accrual should equal the value derived from discounting
- The CAR possesses this property
- When an award is made, the contribution and the projected benefits payable defined an implicit investment or accrual rate for that award.
- This is the CAR for that award.



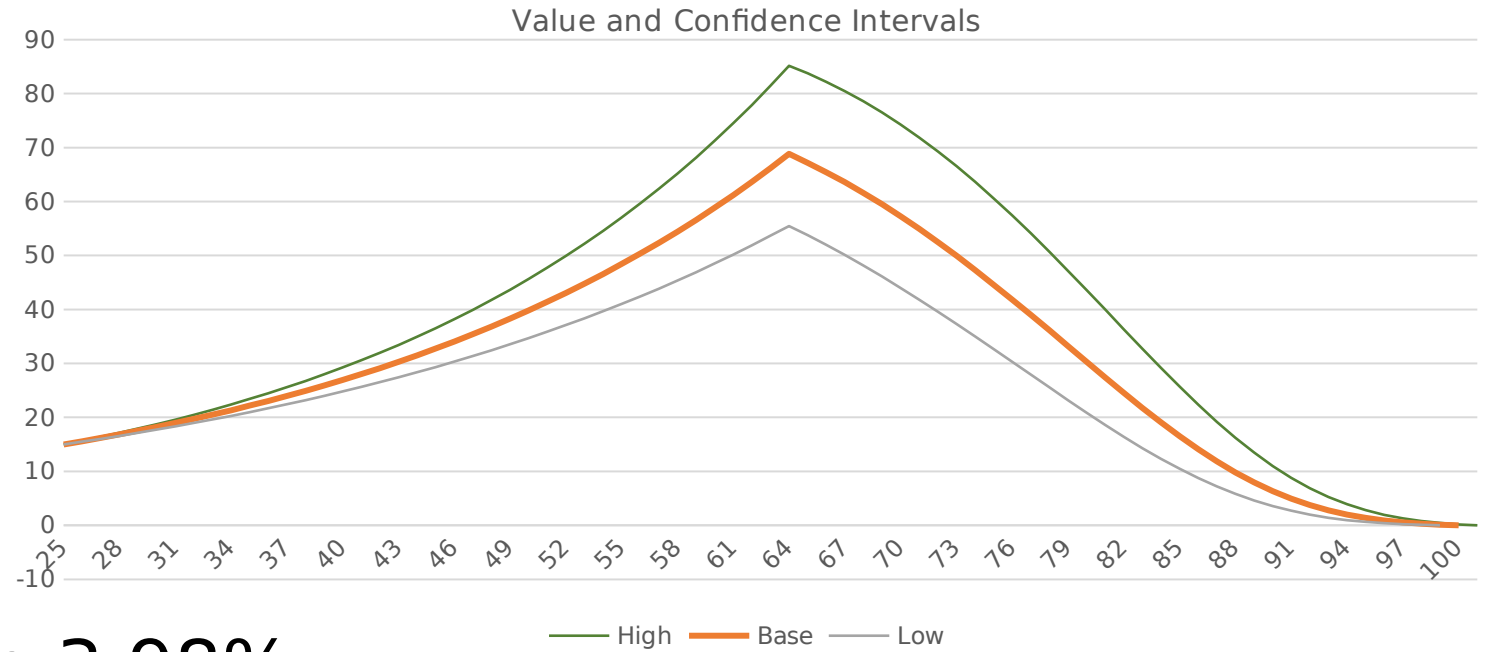
The CAR for the total scheme awards in any year is the weighted average of those awards

The cumulative CAR over time is the weighted average of these awards

The resultant CAR is very smooth. It is an average of awards made in many different years and many different circumstances

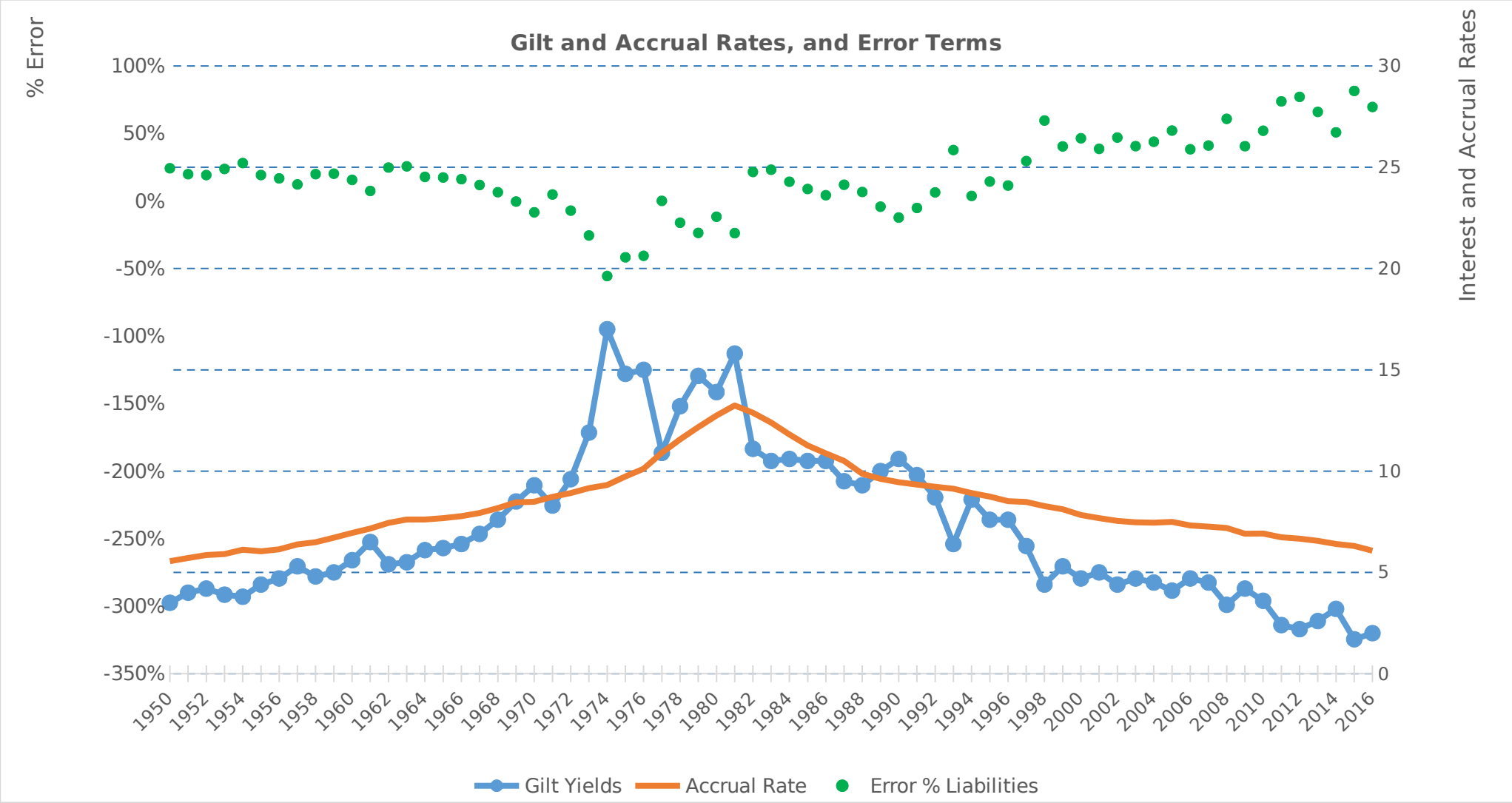
Uncertainty and CAR

- The CAR will vary with experience and changing assumptions



- CAR
- Central assumption 3.98%
- Upper 4.55%
- Lower 3.41%

A real world example



Solvency Ratios

- Comparison of market prices of assets with discounted present value of liabilities - Mixed attribute
- Problematic if we are looking to the fund to service pensions
- Not a problem if we consider the fund as collateral security
- *“By full funding we mean funding at a level sufficient to ensure that if at any time a scheme were to be discontinued the value of the assets would be not less than the **accrued** liabilities.”*
- *“...the employer’s statutory duty on wind up of a scheme is not to ensure that pensions are able to be paid when due but to pay the cash equivalent of the accrued rights.”*
- This is the fund as collateral security for the accrued promises
- It is not funding to ensure all pensions will be paid as and when due

Secured Corporate Bonds

- Two zero coupon issues maturing five years from now
- Both would have the same value when discounted at say 6% - 74.72%
- One was issued five years ago at a yield of 10% - its accrued value is 38.55%. The other is new and issued at 5% - its accrued value is 78.35%
- The amount of security is 38.55% and 78.35%
- The weighted average cost / yield is 6.65% and the average collateral is 58.35%
- We cannot call for more because discount rates have moved
- If the company's credit standing weakens we cannot call for more - but this is just what TPR would have us do.
- This security process is fundamentally deterministic - the uncertainty is in benefits projections and they unwind with experience

- ## Funding levels, and prudent discount rate choice
- Currently the statutory funding objective specifies both prudent projection assumptions and a prudent discount rate choice
 - This ensures a high biased value for liabilities
 - The latest addition is the long-term funding target
 - Guidance and code expected in early summer
 - The direction of travel is clear
 - Self-sufficiency, buy out values, and higher levels of funding.
 - “The inevitable pressure for a regulator to pursue its own interests rather than those of scheme members is having an increasingly malign impact.”
 - “The many thousands of pages of rules, codes and guidance, the additional reporting requirements, the populist pressure to grandstand rather than actually protect members, the lack of proper checks and balances on the powers of TPR, the rising costs and the on-costs, and the lack of evidence-based rulemaking and review, all indicate that it may be time for an external review of the purpose and cost-effectiveness of TPR, bearing in mind that members would almost certainly continue to be better protected simply by the already well-established system of trustees and their advisers and the normal criminal, tort, contractual and fiduciary legal protections. In regulation, less might well be more.”

Incentives

- The DB member is unconcerned with investment performance
- The DB member is concerned with wage growth and will favour the labour share of income over the capital share
- The DC member is concerned with investment performance and will favour the capital share over labour
- But there is a problem with unitised investment funds.
- While saving we should prefer low prices and high potential investment returns but while consuming our savings we should prefer high prices
- However the manager of a unitised fund will seek to maximise the asset value of the units at all times
- The result can only be mediocre performance
- There is an acute point in time dependency – on the value at retirement and the annuity/drawdown decision
- PPI study for TUC – 10.7% fund volatility (to retirement) and 17.7% retirement income volatility – extremely risky.

Incentives

- The CDC member is concerned with both labour income and investment performance.
- The fund is all there is – and it **is** there to service the pension liabilities
- CDC can be thought of as DB without the guarantees and their costs
- With risk-sharing among members the investment performance horizon can be many years.
- The absence of solvency or funding volatility removes the motivation for bond based hedging and its associated costs
- Risk sharing can be equitably organised

Buffers and Safety Margins

- The question does not arise with DC
- With DB, the fund is collateral for discontinuance
- Any question of buffers or extra provisions are within the realm of the sponsor company and rightly should be within the company, not scheme or fund.
- But beware, on insolvency any overfunding if within the fund can be claimed by the administrator and distributed among all creditors
- It is notable that the only reference to the Insolvency Acts in any pension legislation is to S 423 Insolvency Act 1986, and that deals with transactions defrauding creditors
- With funding to self sufficiency and buy-out, i.e. overfunding, it is matter of time before other creditors use this section in the opposite direction

Buffers and CDC

- The effect of introducing buffers is, unless a way can be found to distribute these in retirement, to lower the pension.
- If it can be found, then there is a cosmetic problem, pensioners appear to be receiving more than is promised to non-pensioner members.
- Buffers for CDC are an arbitrary partition of the asset fund which can lead to intergenerational issues – with the young subsidising the old.
- Risk sharing can obviate these problems
- If the scheme is in deficit, in the absence of risk sharing, pensions in payment and the pensions of non-pensioner members need to be cut
- This applies only to the current payment. There is no adjustment to indexation.
- If we introduce risk sharing – say 10% of scheme assets – we can pay pensions in full and increase the entitlements of non-pensioner members
- This has the effect of increasing the scheme CAR going forward

The confusion

- The DB confusion arises in large part from taking the viewpoint of the scheme member, not the obligation of the sponsor employer
- This obligation is the member's asset, their property
- With DC, the fund is all there is and it is the property of the member
- With CDC, the fund is all there is, but member's property interest in that may vary with investment market performance.