The Actuarial Profession

making financial sense of the future

Investment Strategies for Annuity Writers and Pricing Implications

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The views expressed in this presentation are those of the presenter

4th October 2012

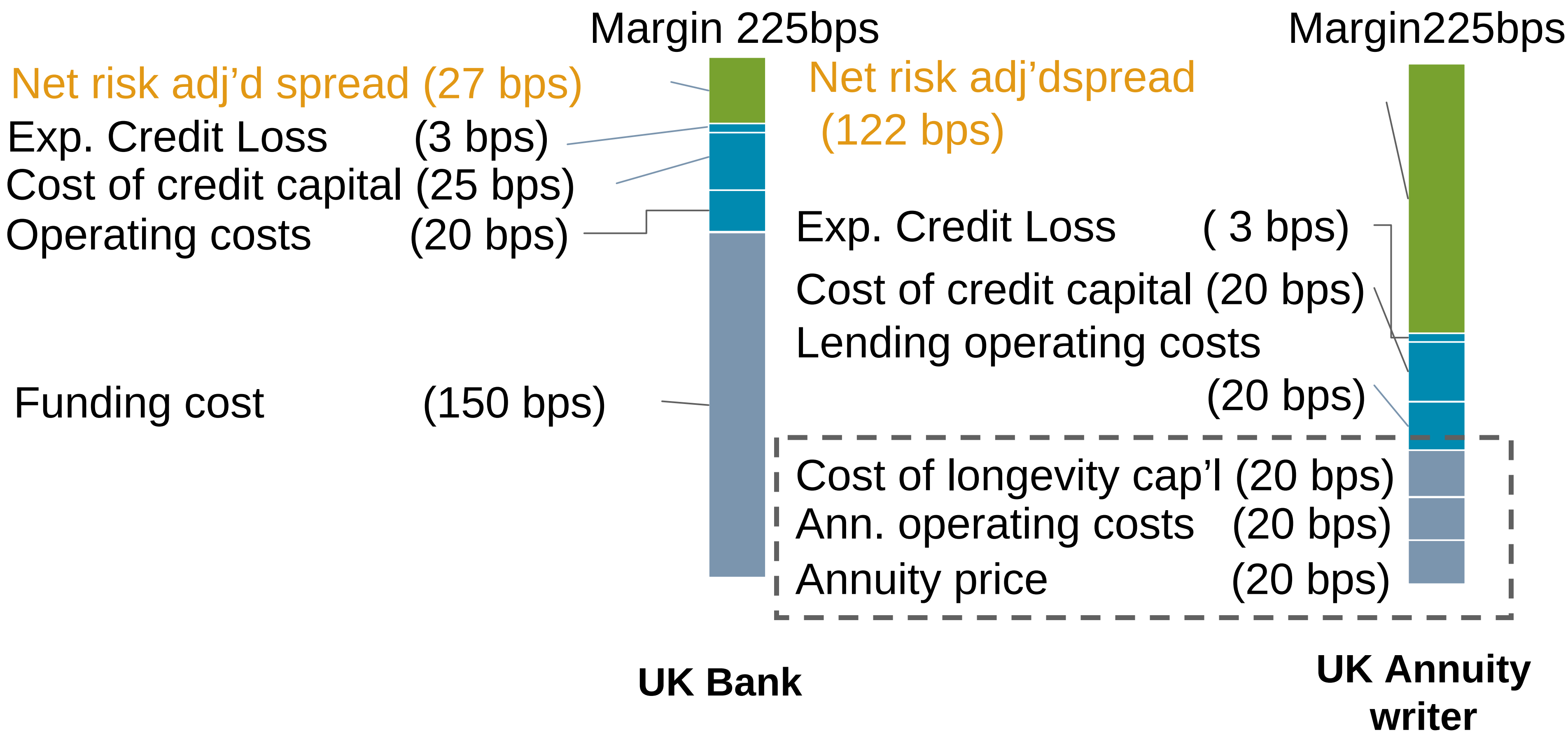
How do I reserve and price for annuity business?

- What is risk free?
- Do I believe in capitalising a liquidity premium?
- Do I believe in 1 year VaR?
- Is liquidity an issue?

- Your answers to these fundamental questions will drive investment strategy

- Do I care if new regulation forces me down one route?
- Do I even want to write annuity business?

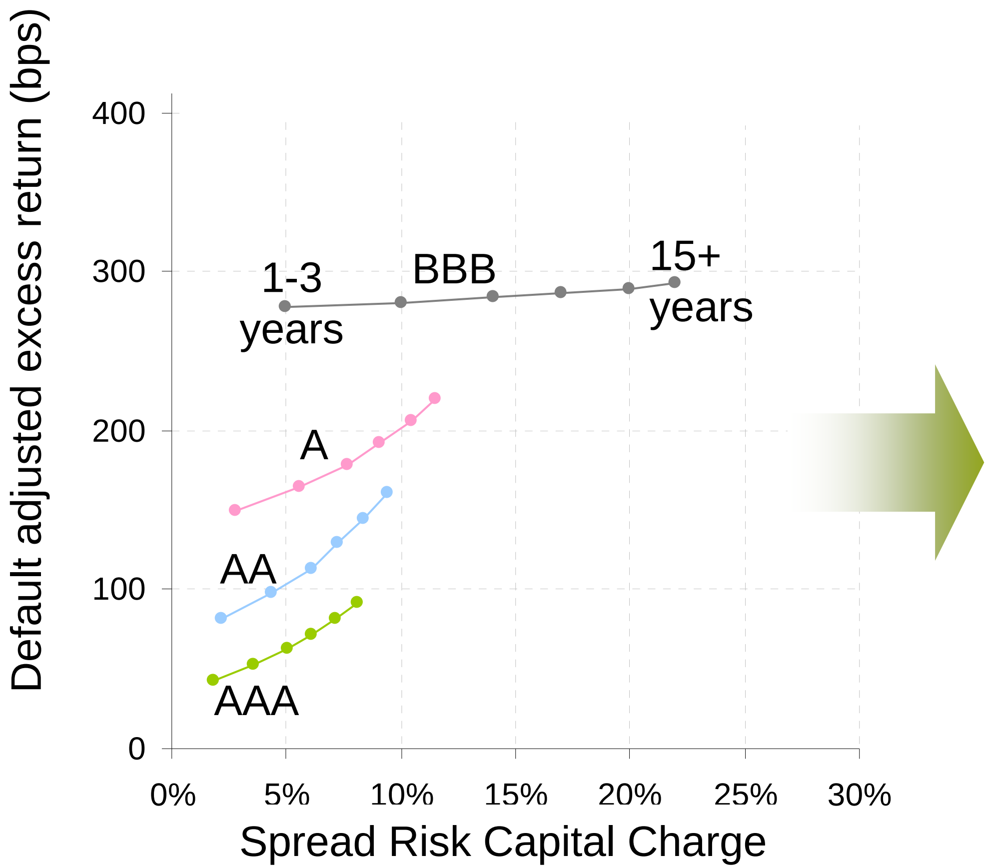
Spread Breakdown between bank funding of a social housing loan and UK annuity funding

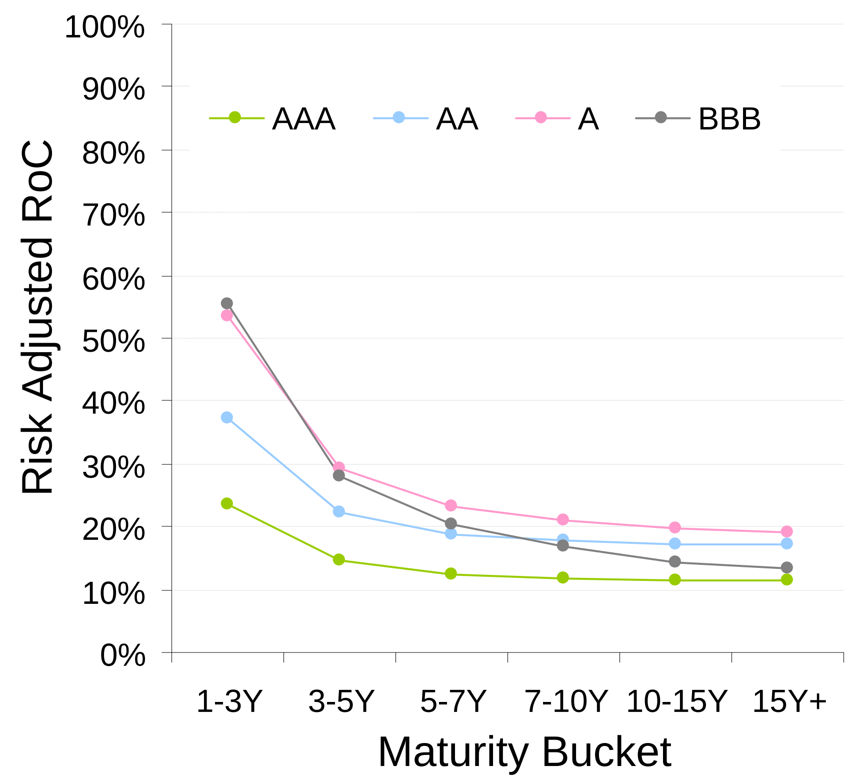


Based on representative 15 year social housing loan

Source: Oliver Wyman analysis

Example of excess return on capital employed





Source: HSBC and Solvency 2 level 2 text for standard formula (25th Sep 2012)

An alternative bond structure

UK IG non-gilts

Gilts and cash

→

High yield bonds

Emerging market debt

Loans

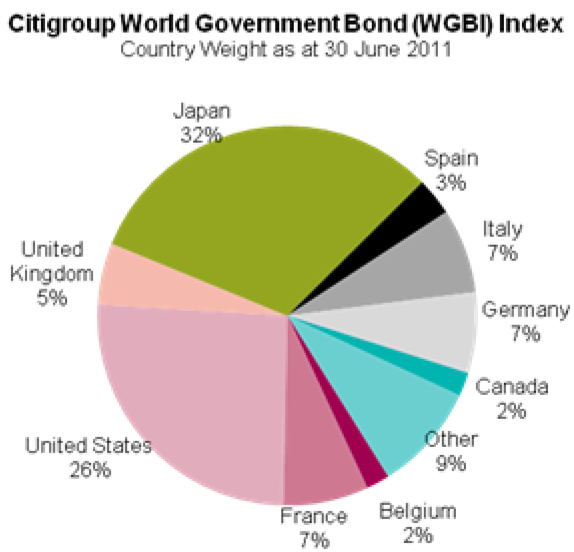
Asset backed

Global corporate bonds

Global sovereign bonds

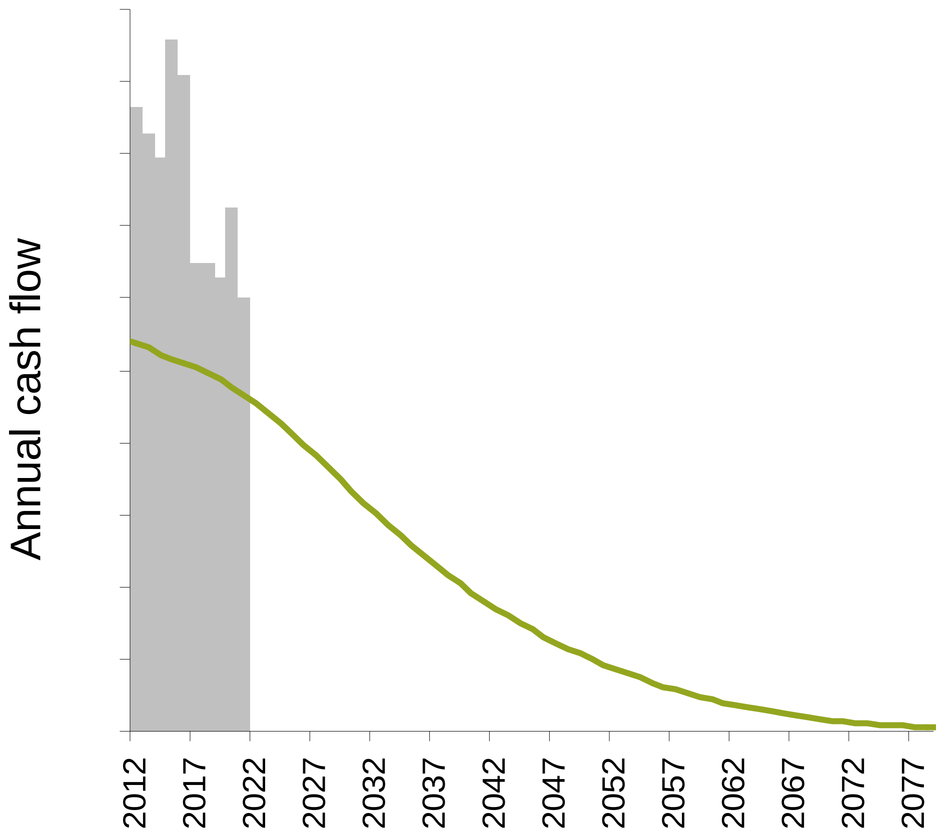
Gilts and cash

"What you might hold if regulatory capital was truly economic and you were running a low risk portfolio?"



Source: Investment risk and opportunities for annuity business in a Solvency II world
Tim Wilkins and Hemal Popat, Risk and Investment Conference 2012

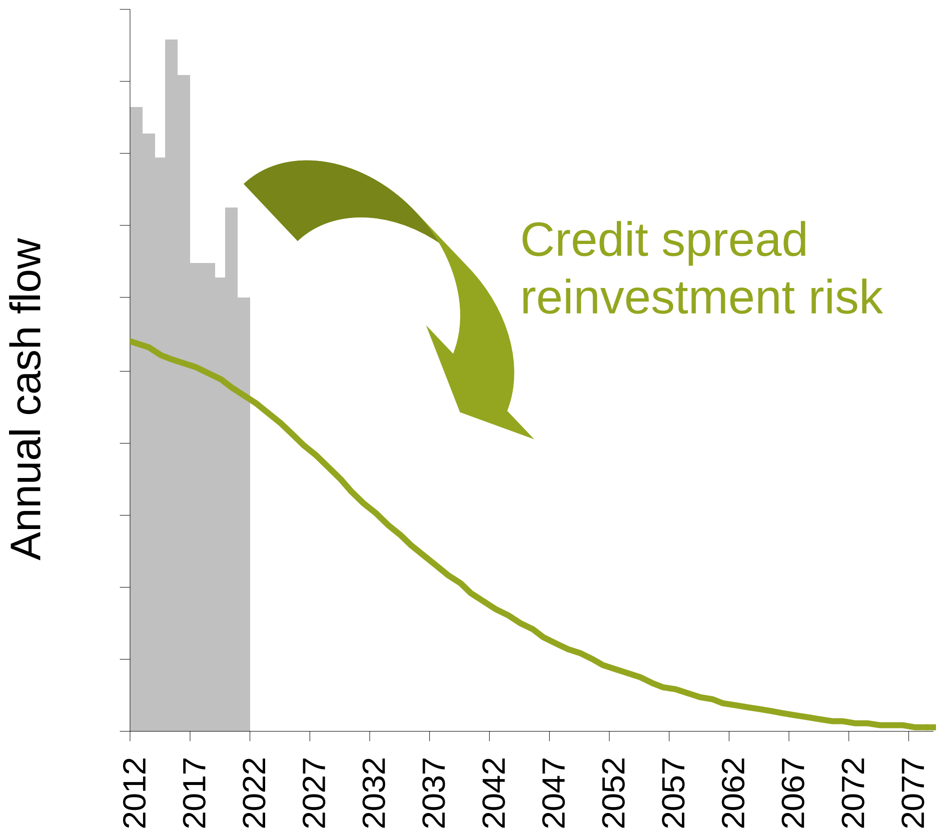
In the “truly economic” VaR based world



- Look for a wider universe of shorter dated credit

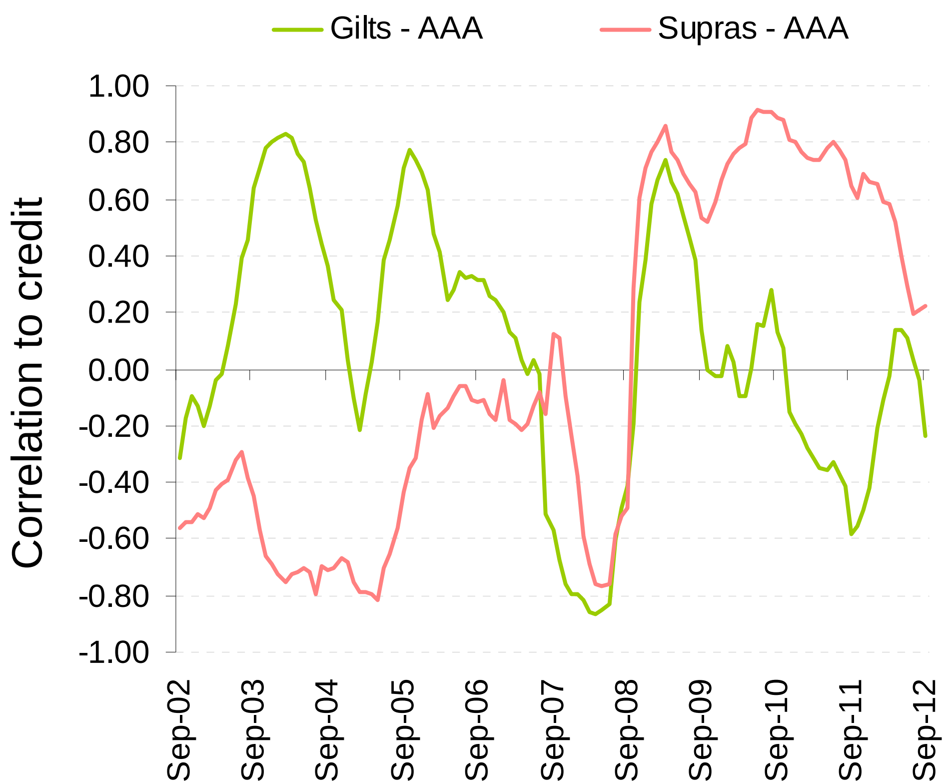
- Look to at new opportunities
  - Commercial mortgages
  - Infrastructure
  - Social housing
  - ECA loans
  - Residential mortgages
  - Liquidity swaps

How do I manage the duration mismatch



- Manage rates risk in this example through
  - Forward starting swaps
  - Forward staring gilts
- Basis risk depending on whether risk free is
  - Swaps based (OIS or LIBOR)
  - Government bond based
- Leaves credit spread reinvestment risk

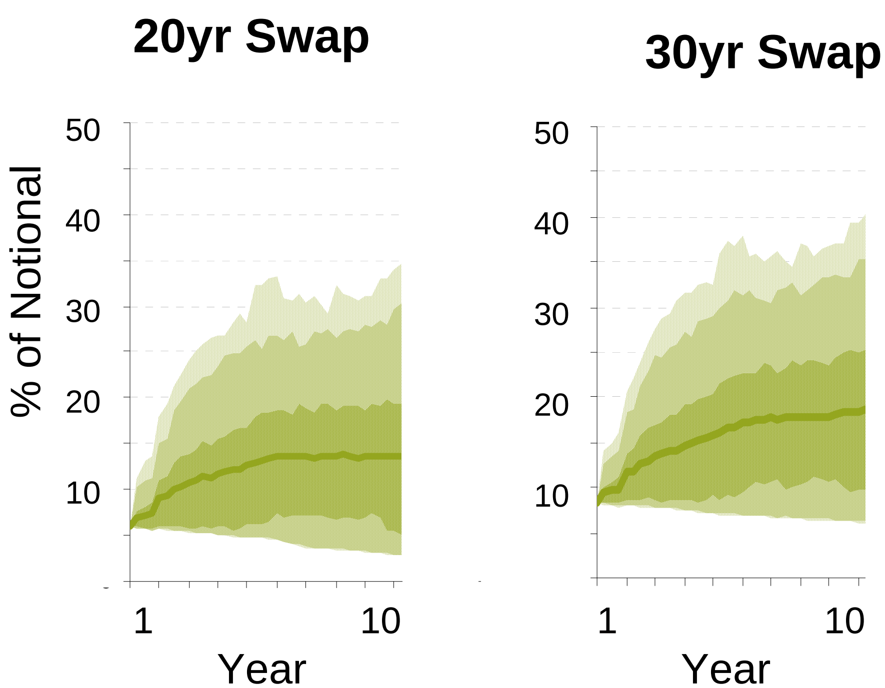
Impact of basis risk on capital allocation
Is swap spread risk correlated to Credit Spreadrisk?



Source : HSBC analysis

Derivative liquidity requirements

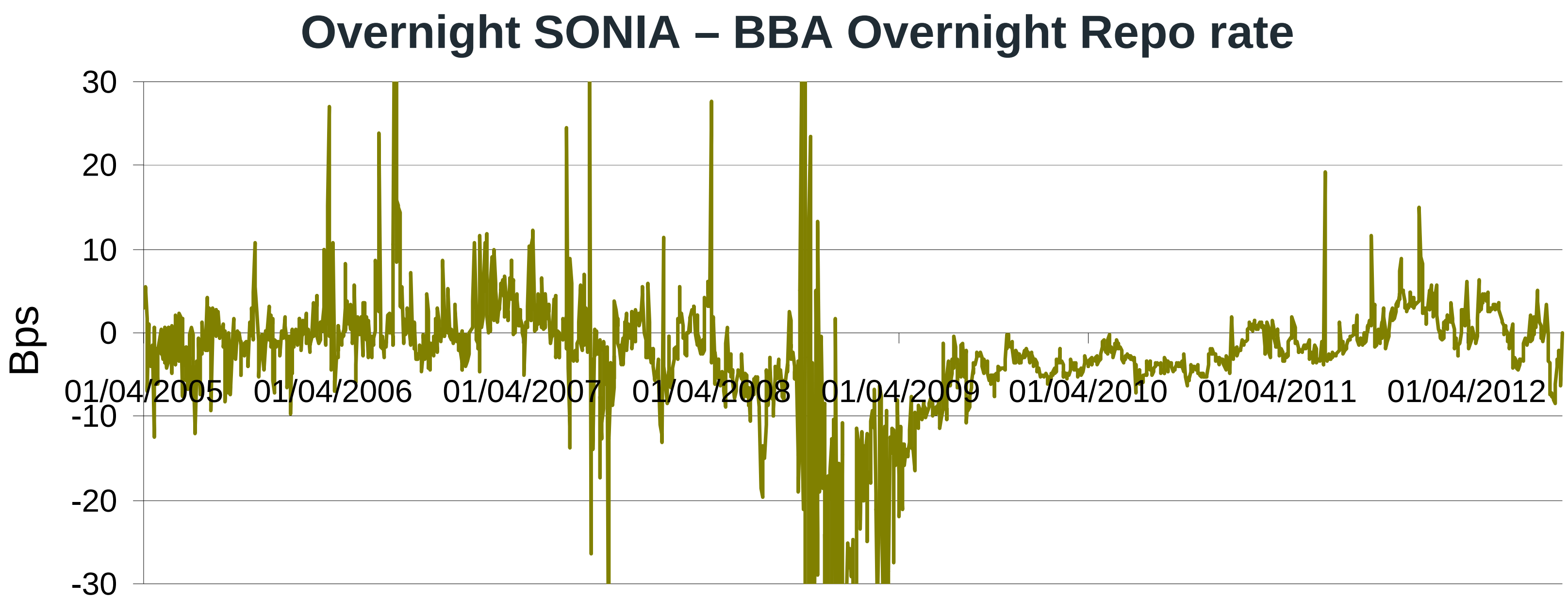
Simulated collateral requirements



Source: HSBC analysis

- Collateral posted during first 10 years of swaps or forward bonds
  - Swaps unwound as bonds mature
- Centrally cleared swaps
  - Initial margin cash & gilts
  - Variation margin cash
- OTC derivatives
  - No initial margin (yet)
  - Variation margin gilts / cash (can be multi currency)

How might collateral costs impact my pricing?

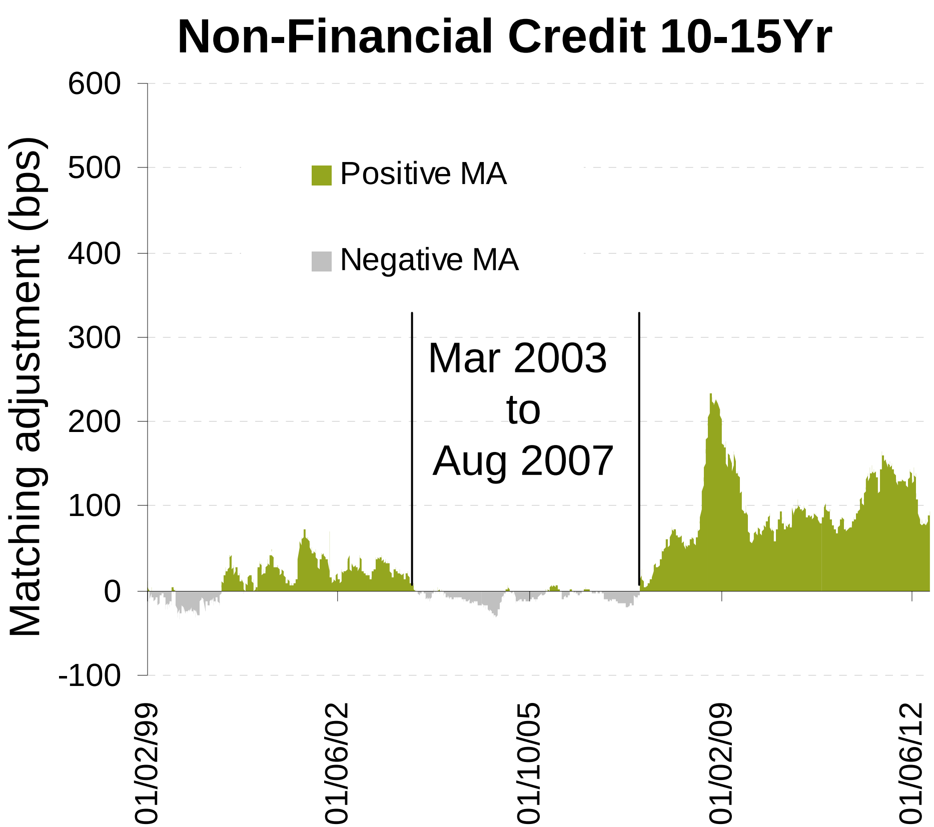


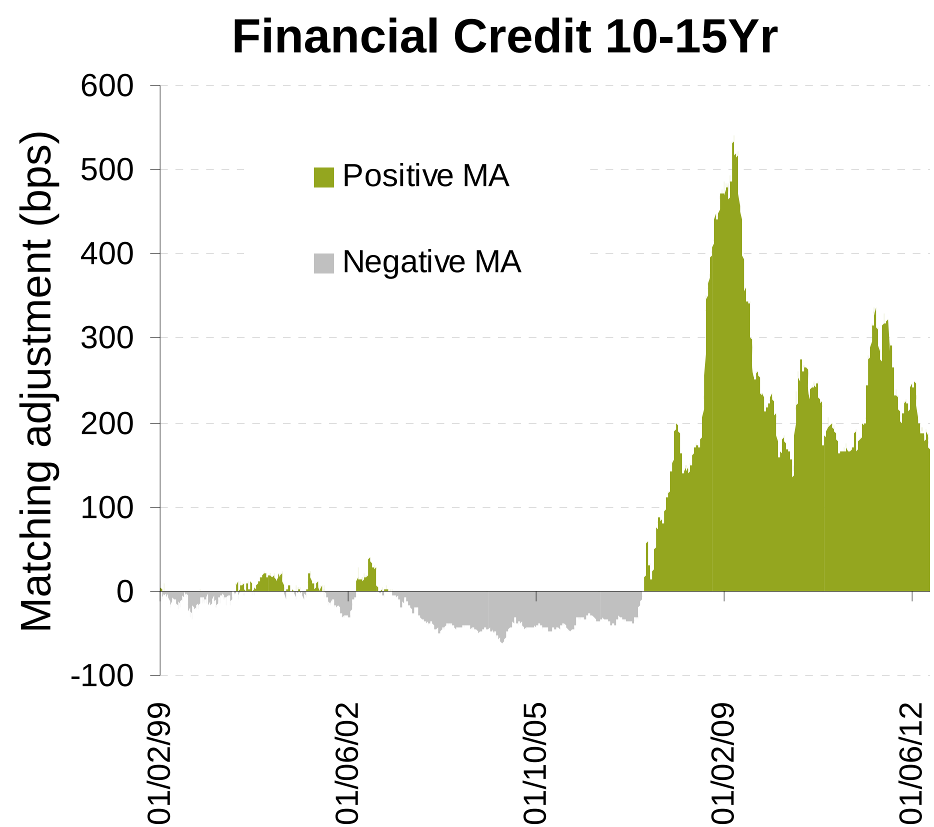
Source: Bloomberg

- This is not a guide to the future
  - The above applies to the largest banks involved in two way flows
  - Insurers are new to the market and all one way i.e.receiving fixed
  - There are central clearing implications to add
- Also - add opportunity cost and capital cost of holding gilts for repo

What might the credit reinvestment risk look like?

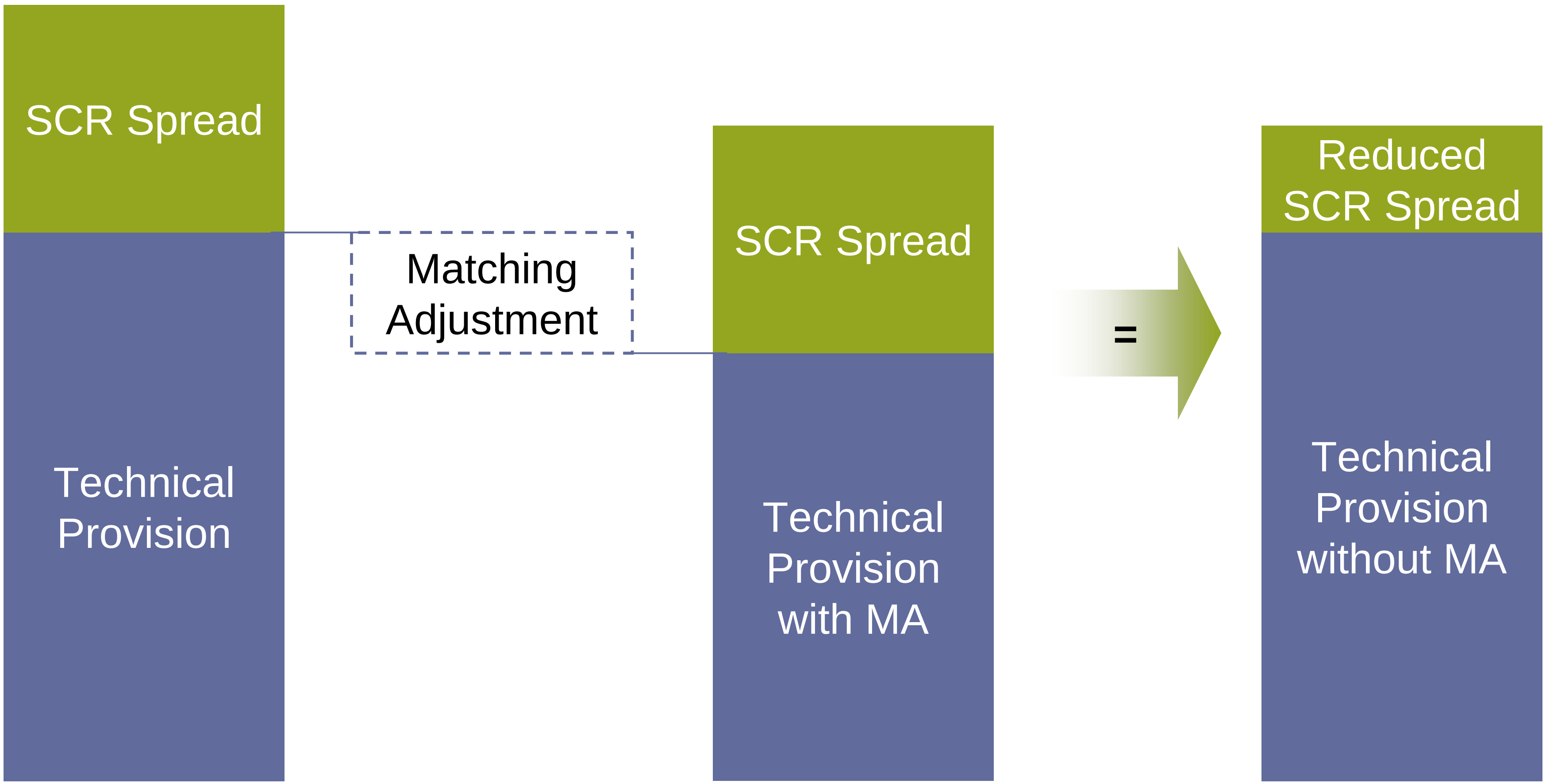
- Using the Matching Adjustment (Solvency 2) as a proxy :



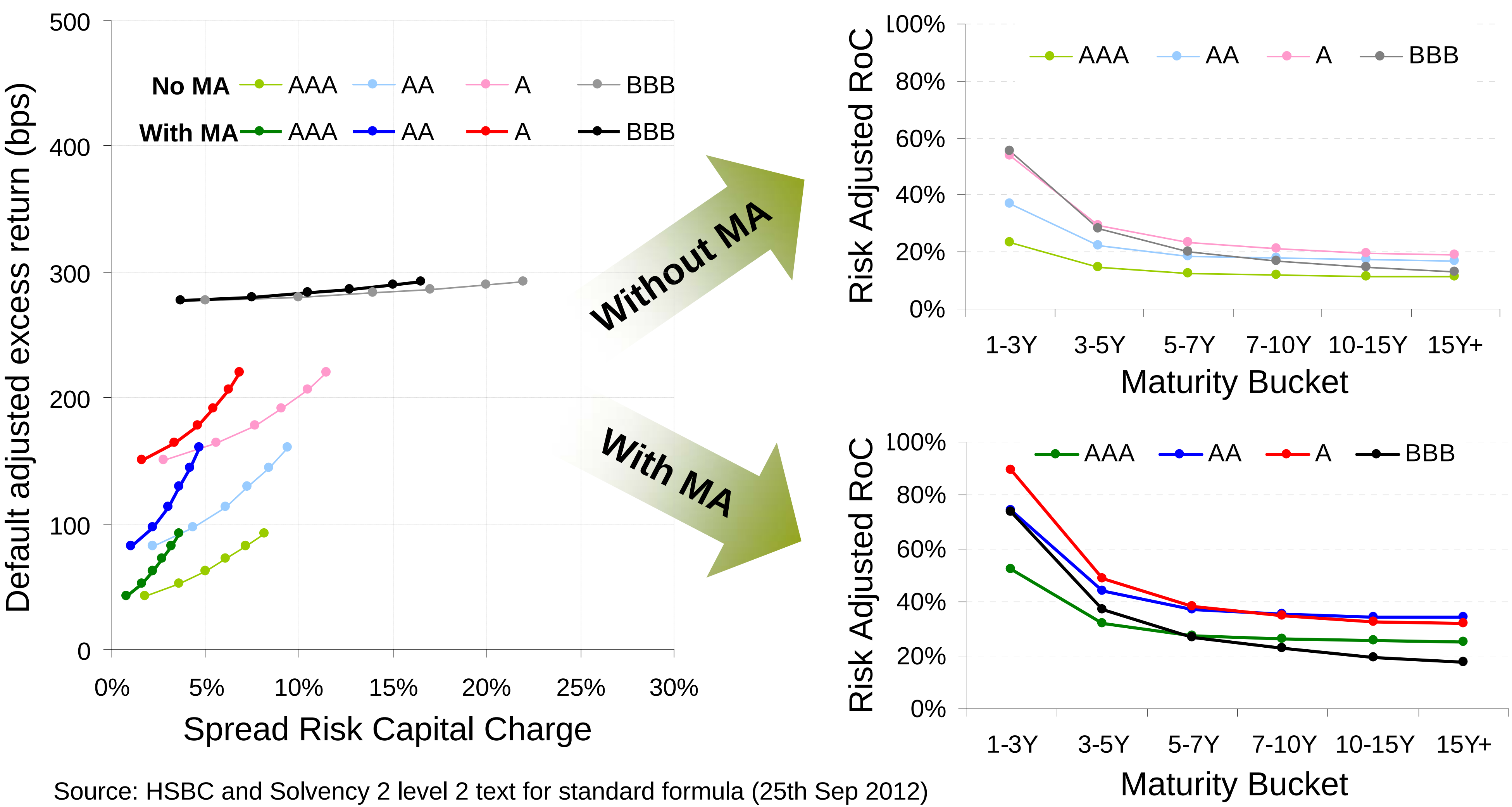


Source: HSBC calculations

But what if I capitalise my liquidity premium?



Comparing Risk/Return Profile With and Without Matching Adjustment (MA)



Source: HSBC and Solvency 2 level 2 text for standard formula (25th Sep 2012)

Comparing Risk/Return Profile With and Without Matching Adjustment (MA)

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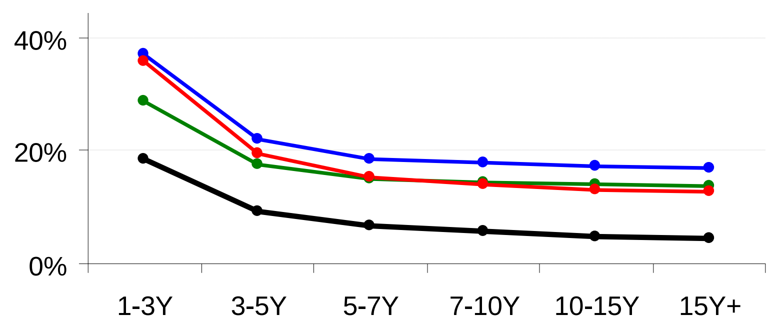
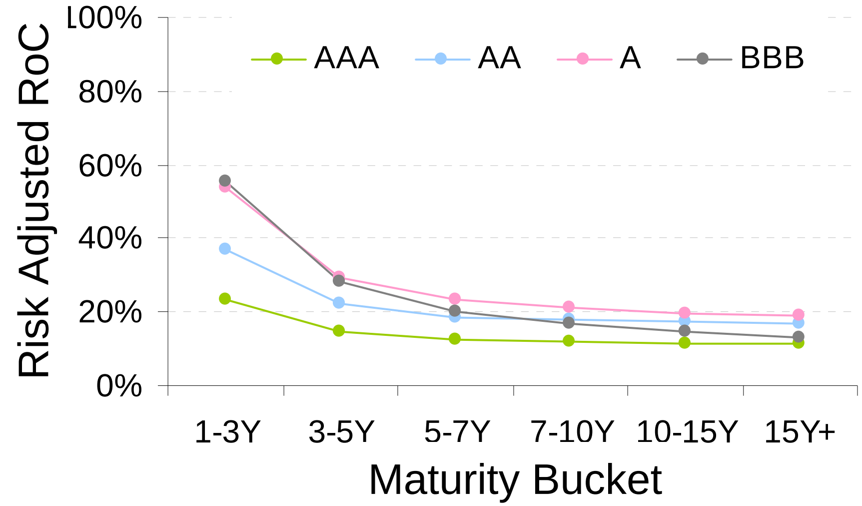
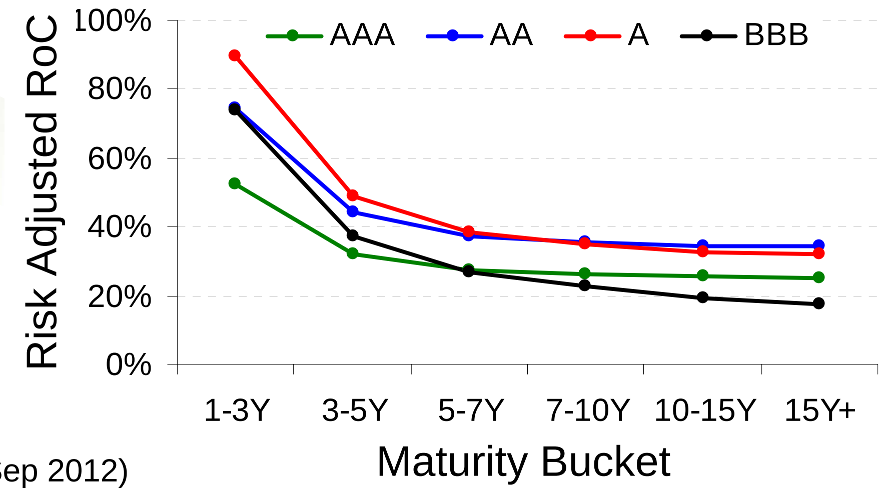
Additional Return on Capital







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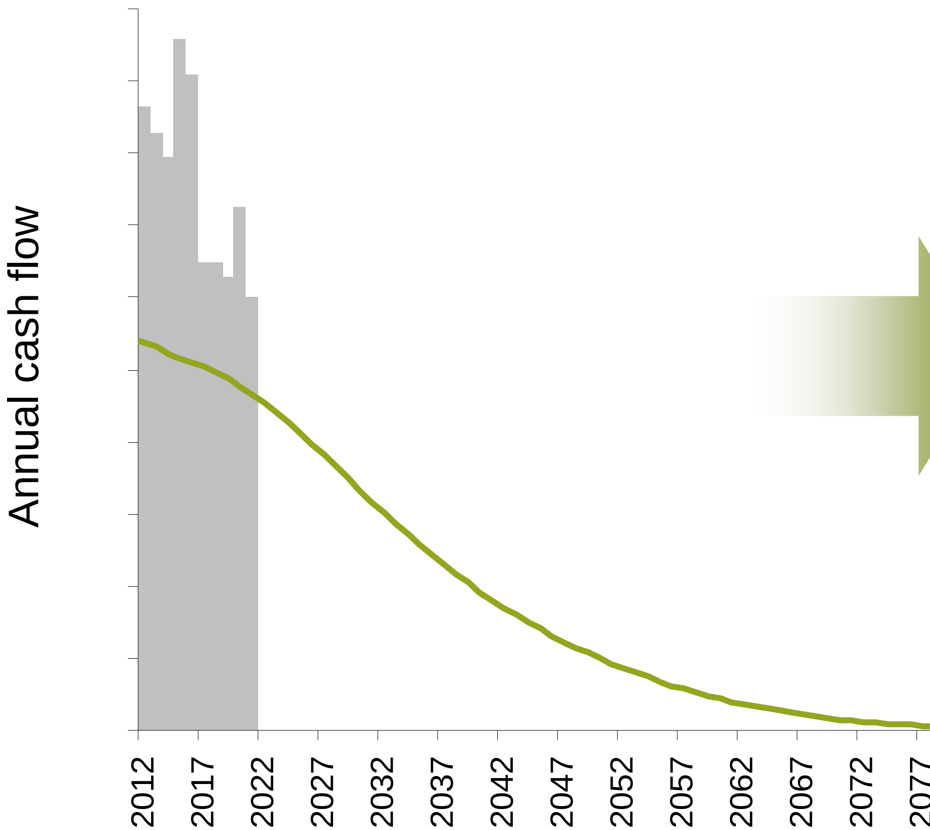
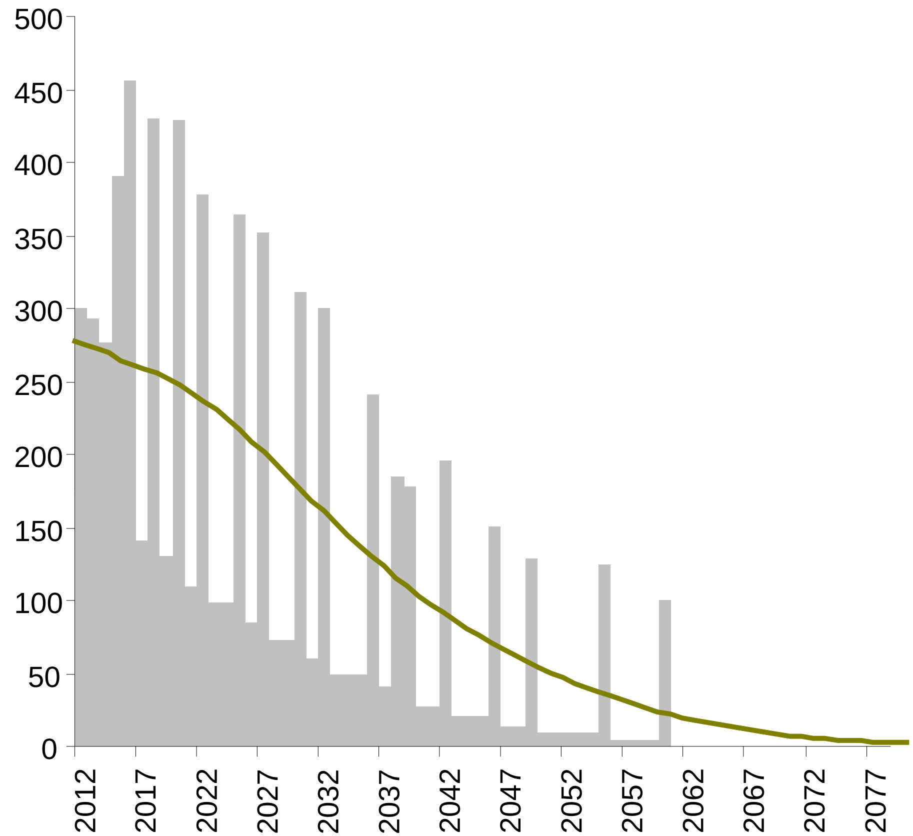
Credit Portfolio Optimisation

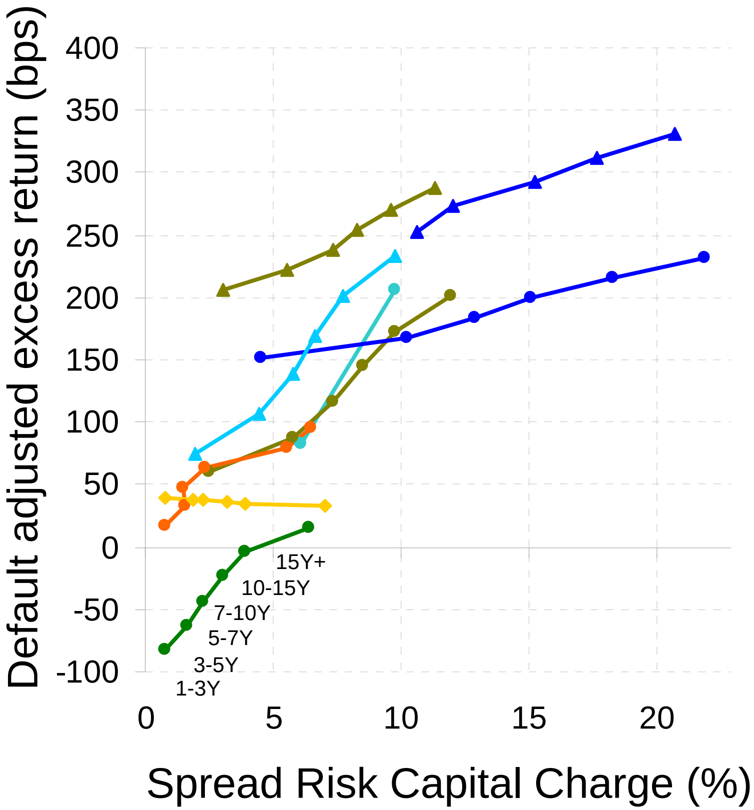


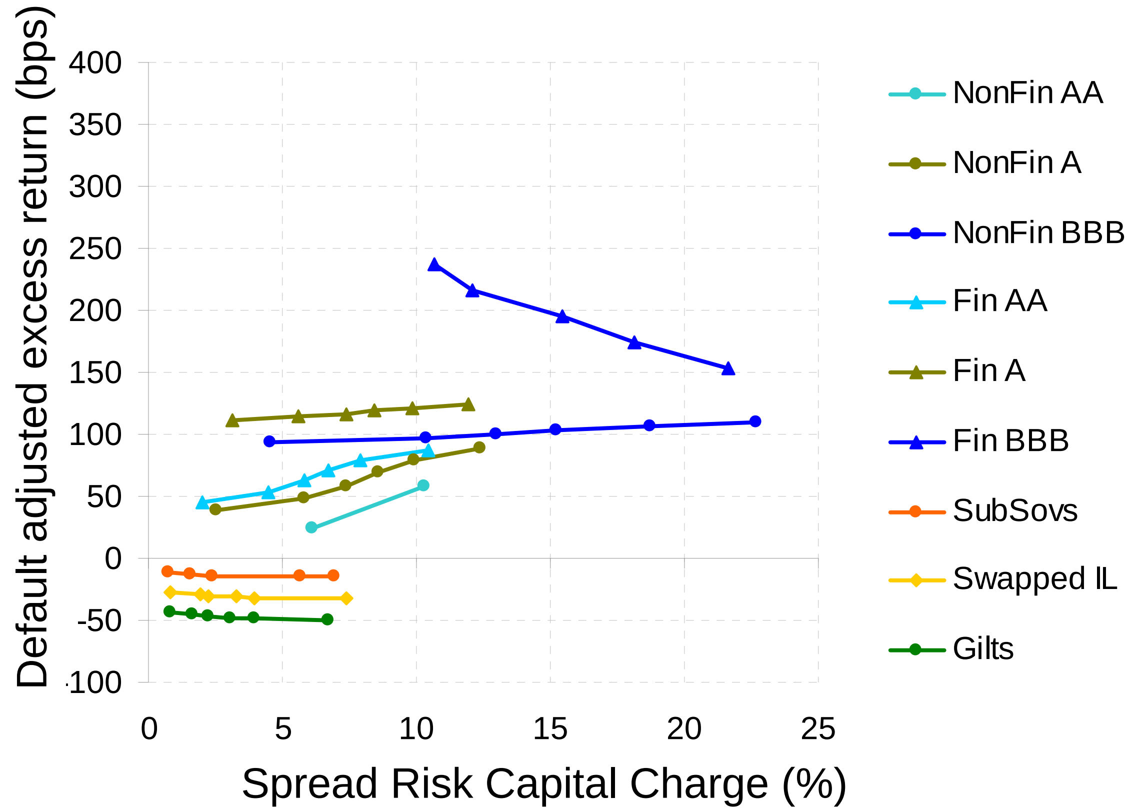
Without Matching Adjustment



With Matching Adjustment

Do I optimise using current spreads?



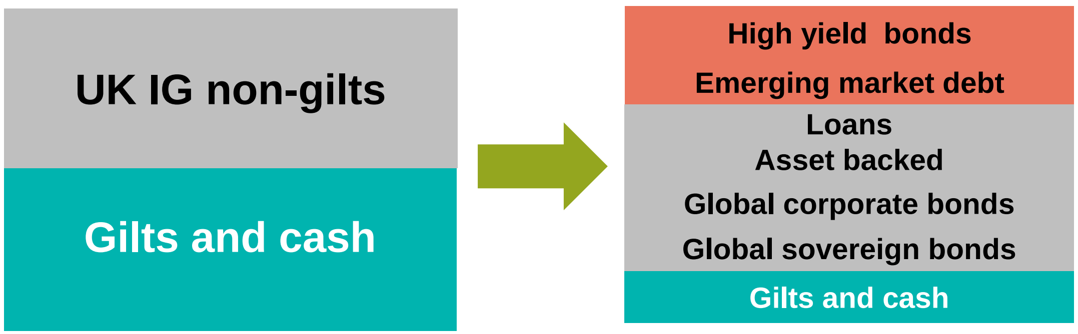


Current spreads

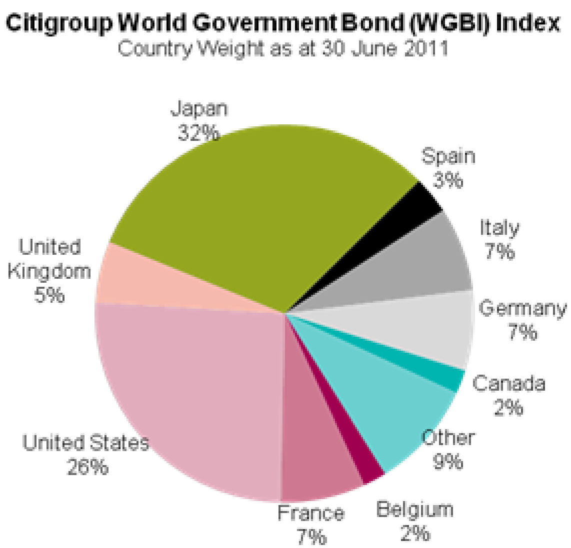
Long term spreads

Source: HSBC and Solvency 2 level 2 text for standard formula (25th Sep 2012)

An alternative bond structure



"What you might hold if regulatory capital was truly economic and you were running a low risk portfolio?"



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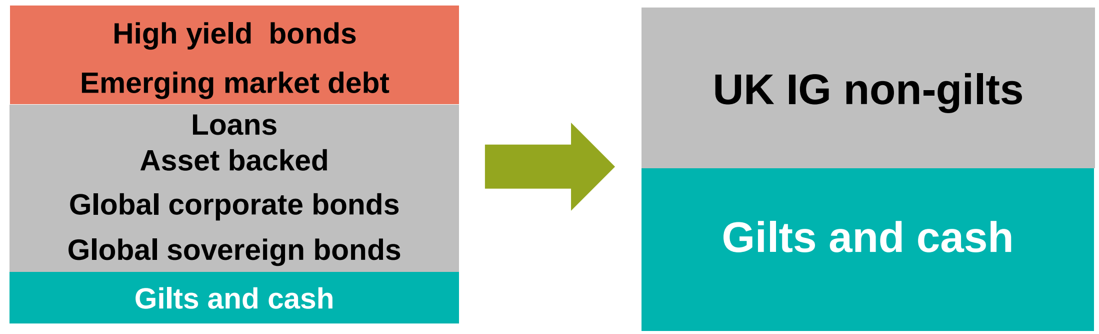
So where will we end up?



- Will a liquidity adjustment bias investment into investment grade corporate bonds along the term structure?
  - Will the capital benefit be too hard to refuse?

- Will internal models let you express your view of the world?
  - Can you compete if they do?