

Highlights of 2012 Life Conference

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The Risk-Free Rate: Politics, Economics & Investments

20 March 2013

Origins of this presentation

Working party on “How to hedge the risk-free rate under Solvency II”

- Rationale for hedging
- Extrapolation to an “ultimate forward rate”
- QIS5 liquidity premium

Life Conference 2011

Society of Actuaries Ireland

Our Changing Futures

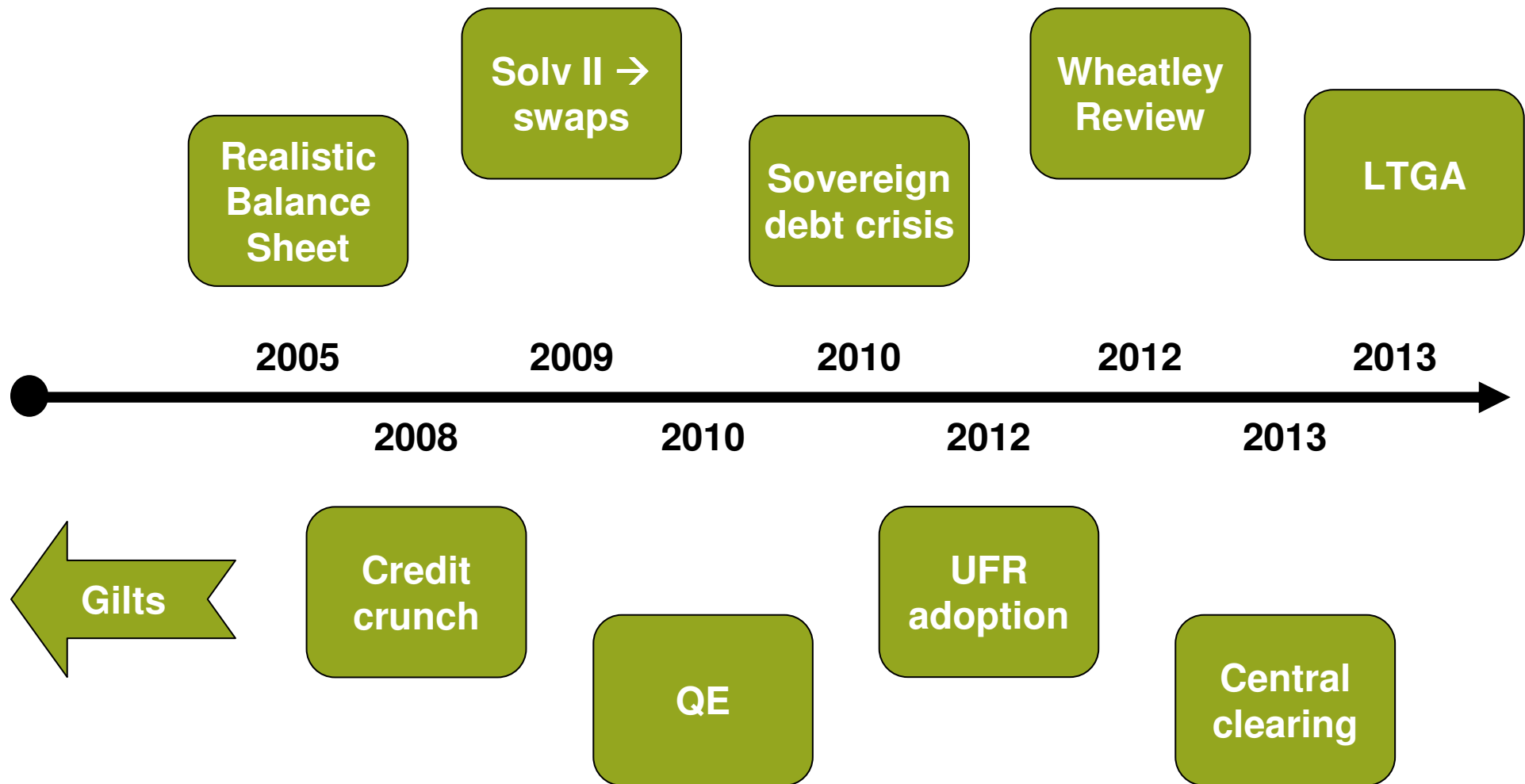
Bristol Actuarial Society

Yorkshire Actuarial Society

Life Conference 2012

Actuary magazine – “Hedging your bets”

The journey so far ...



Drivers of the risk-free rate

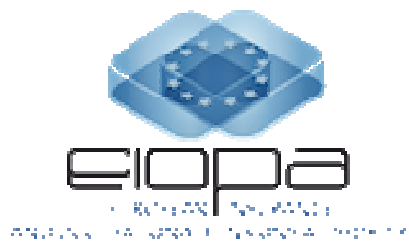


Insurance Regulation

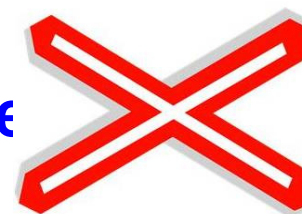
Solvency II



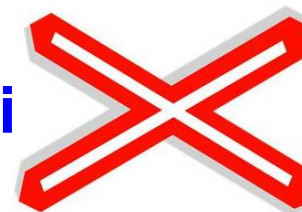
EUROPEAN
COMMISSION



Governments



Overnight swaps



Libor swaps



Breaking down the yield on a Government bond

$$\text{Yield} = \text{Swap Rate} + \text{Credit Spread} + \text{Liquidity Premium}$$

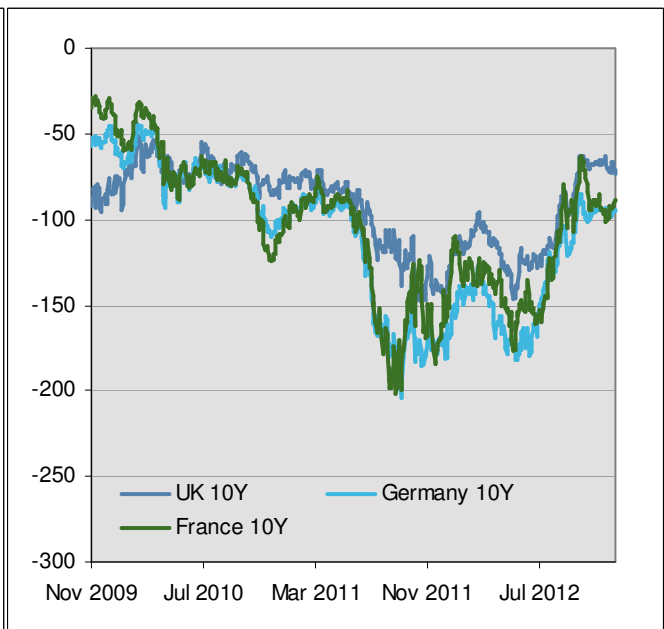
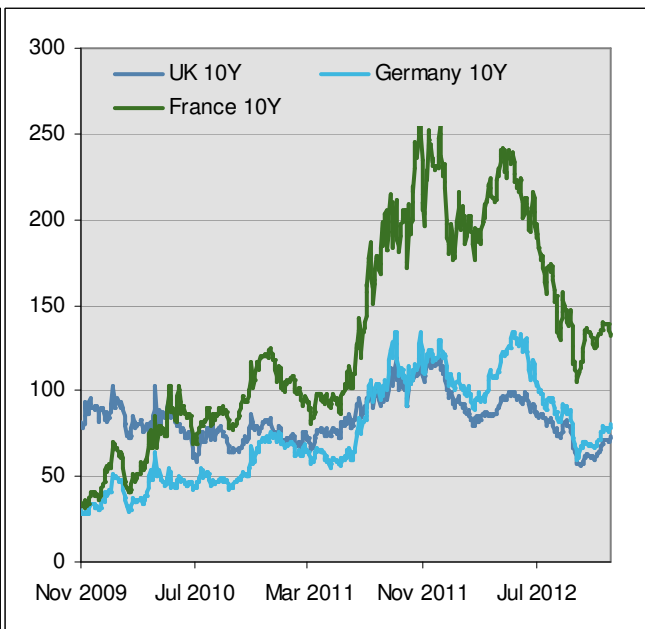
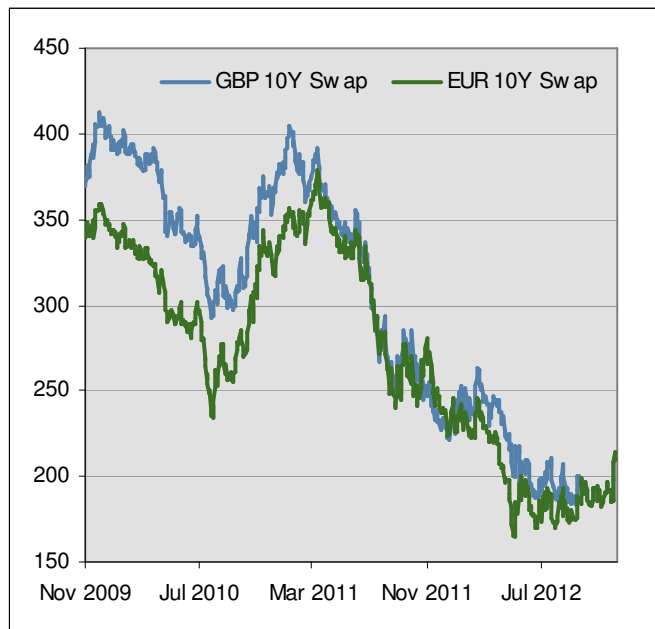
Swap Rate

+

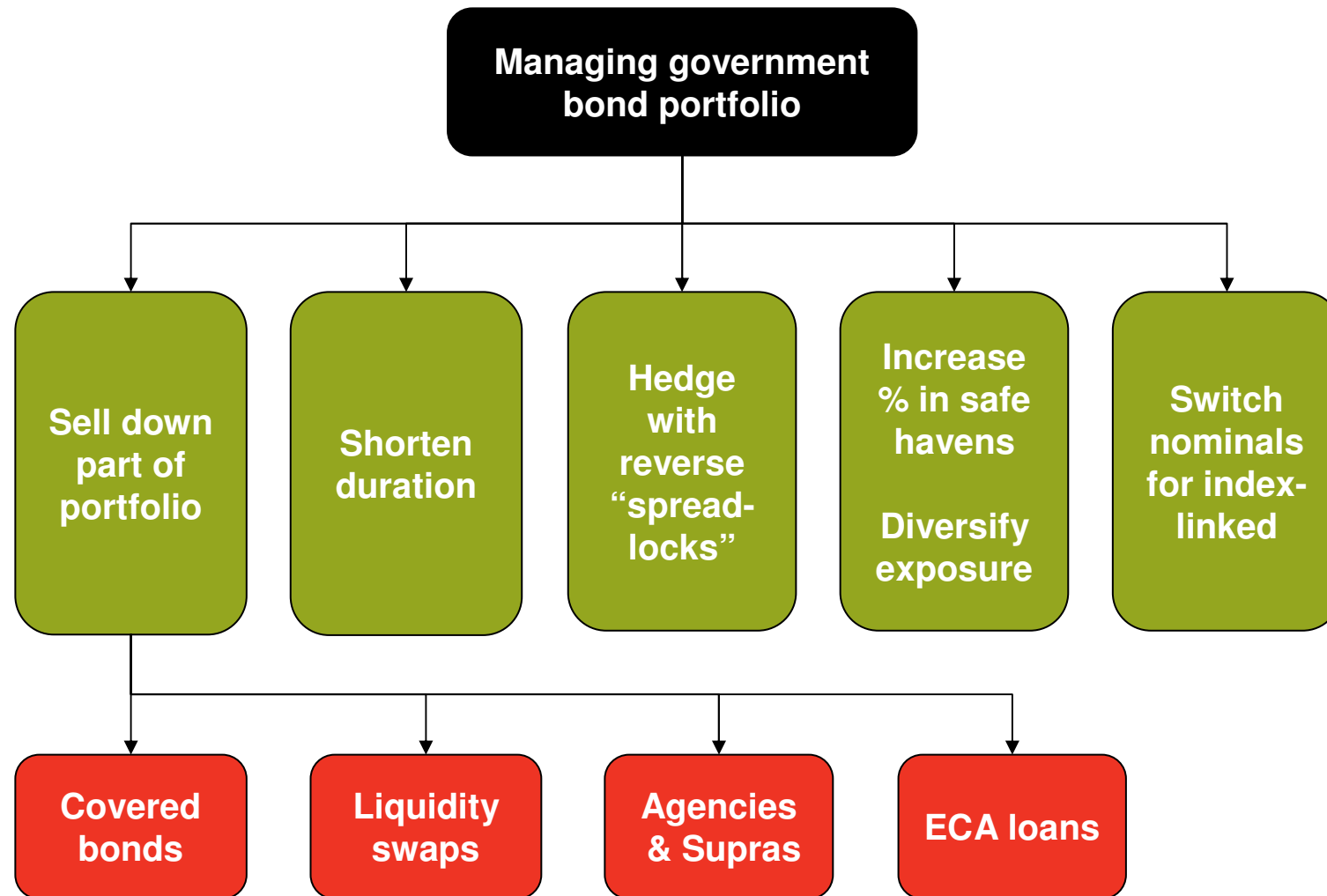
Credit Spread

+

Liquidity Premium



What choices does the insurer have?



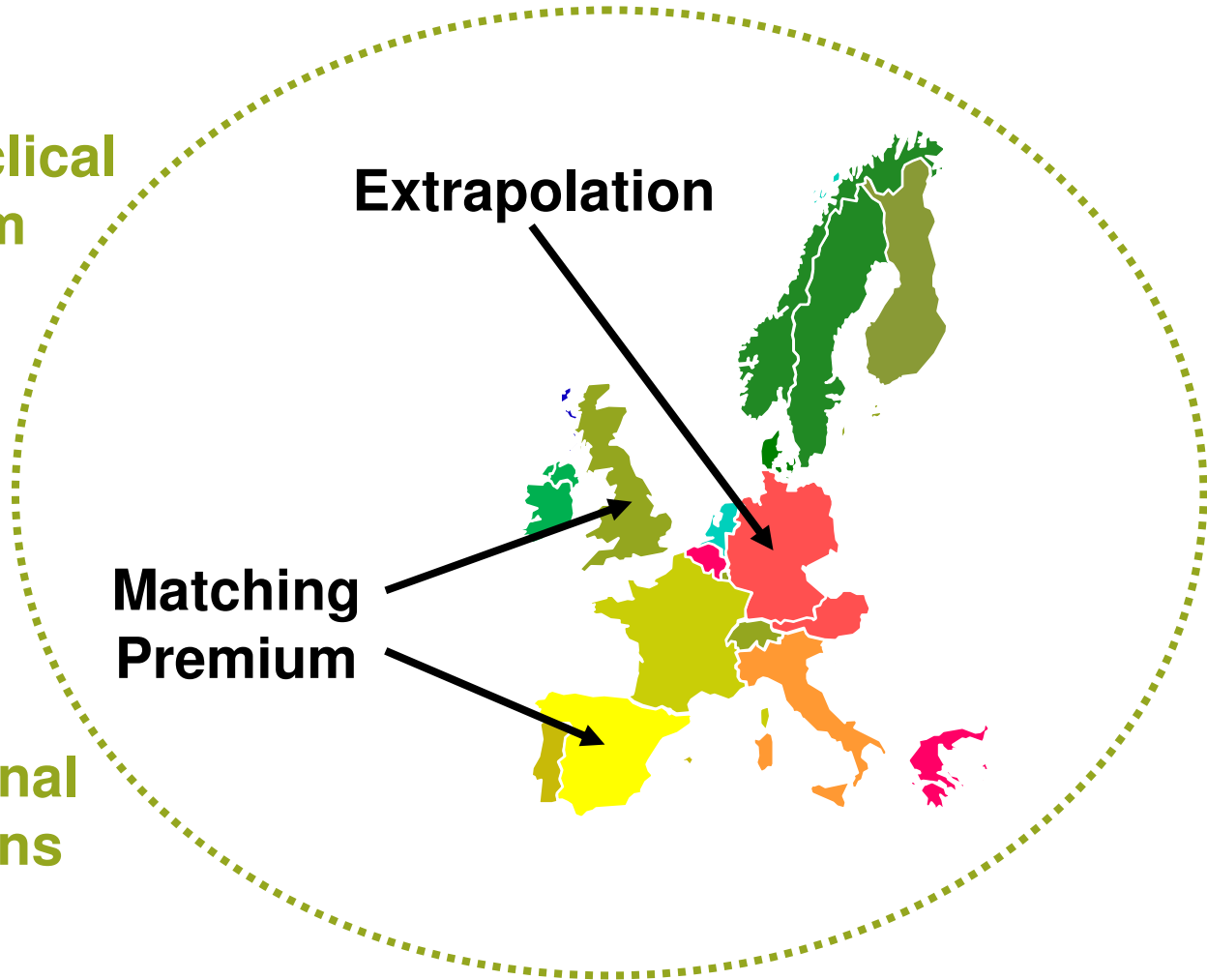
Politics

Countercyclical
Premium

Extrapolation

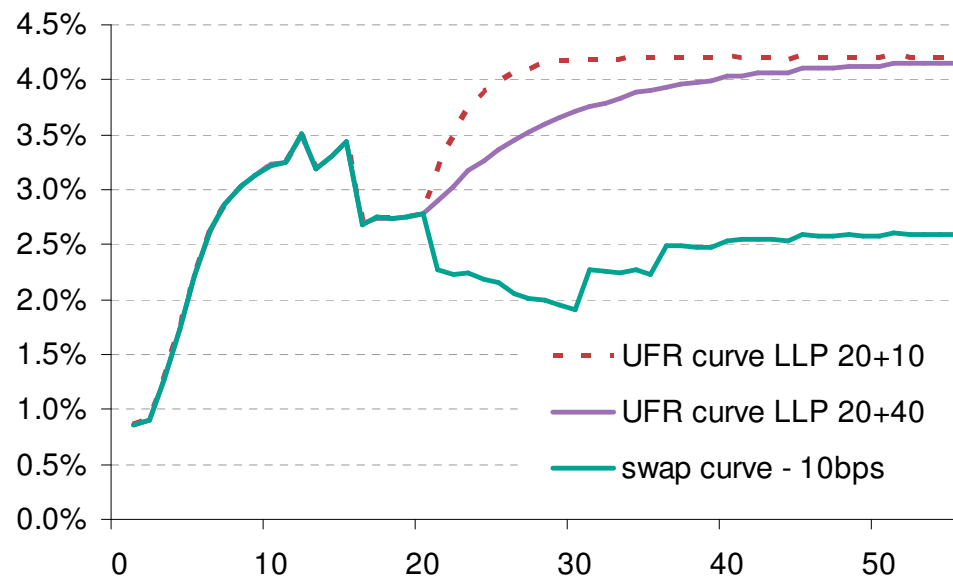
Matching
Premium

Transitional
Provisions



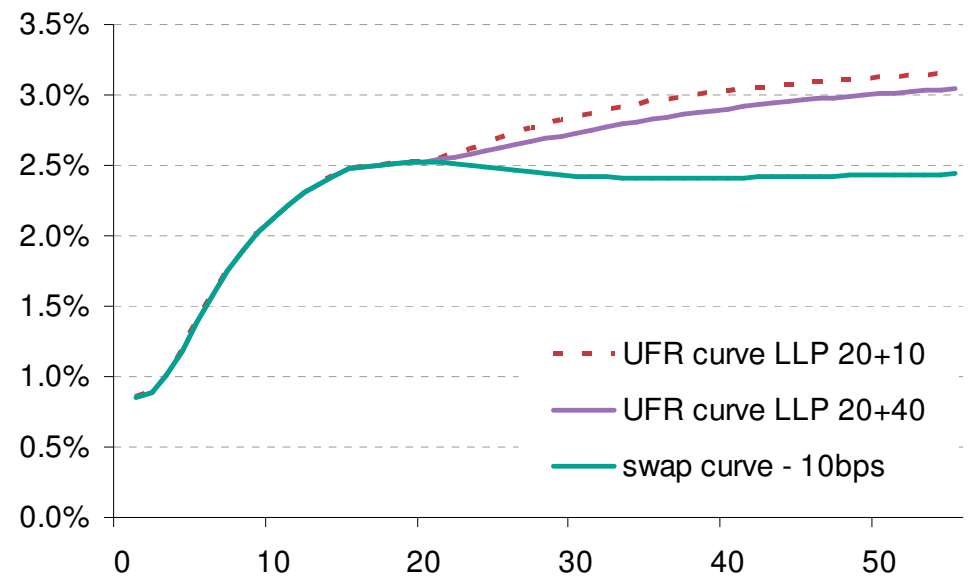
The extrapolation conundrum

1yr fwd rate under different curves



Source: Bloomberg; RBS; 26 April 2012

Resulting liability discount curves

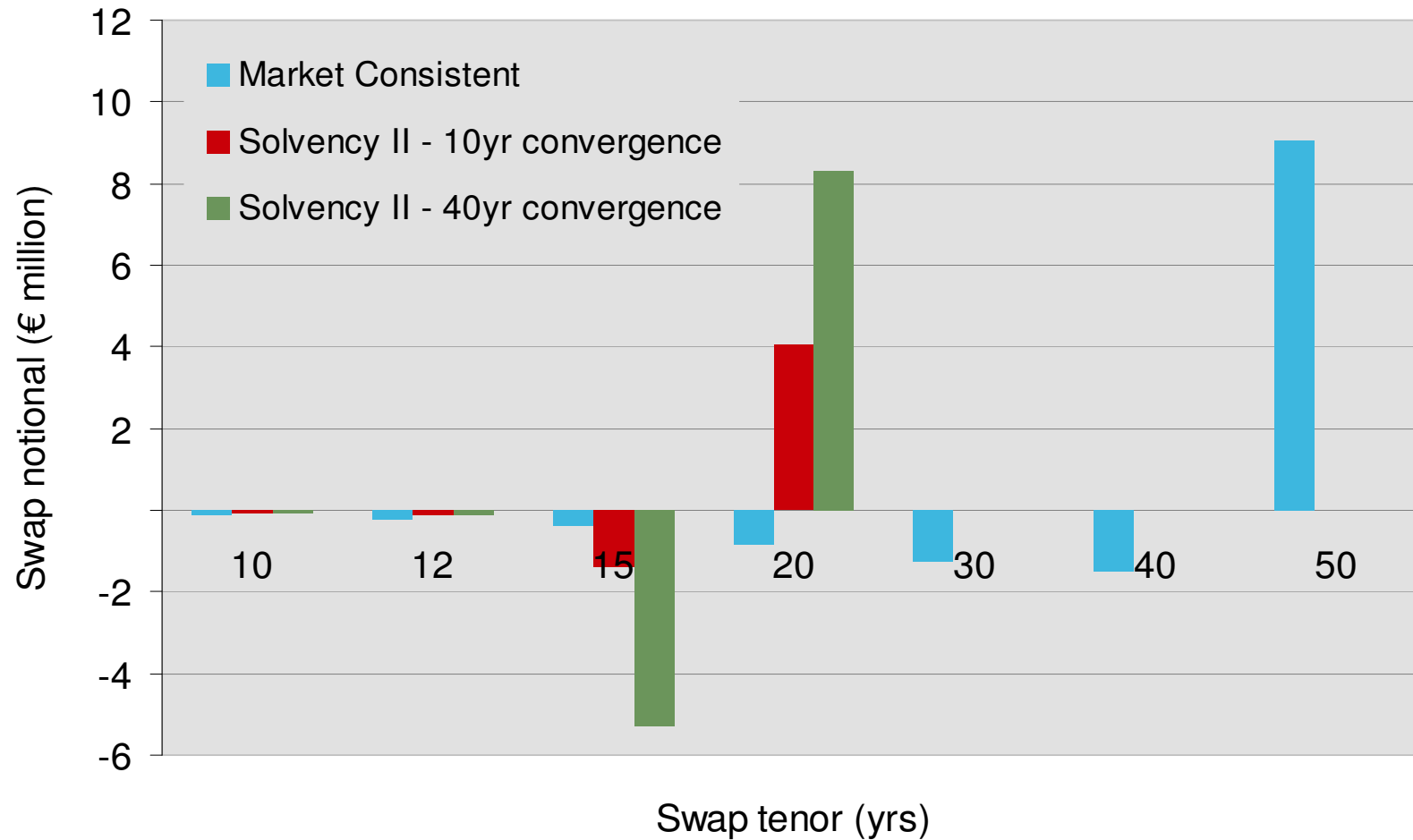


Source: Bloomberg; RBS; 26 April 2012

Solvency II to the rescue

	Market consistent	Solvency II 20yr LLP 10yr convergence	Solvency II 20yr LLP 40yr convergence
Value of 50yr € 10mn liability	€ 3.9 million	€ 2.1 million	€ 2.5 million
PV01 (as % of market consistent)	100%	24%	34%
Modified duration	50	22	27

Delta hedges for 50yr € 10 million liability



Non-Insurance Regulation

- Traditional method of swap valuation was to use the **6mth Libor swap curve**
- Market moving to **CSA discounting**

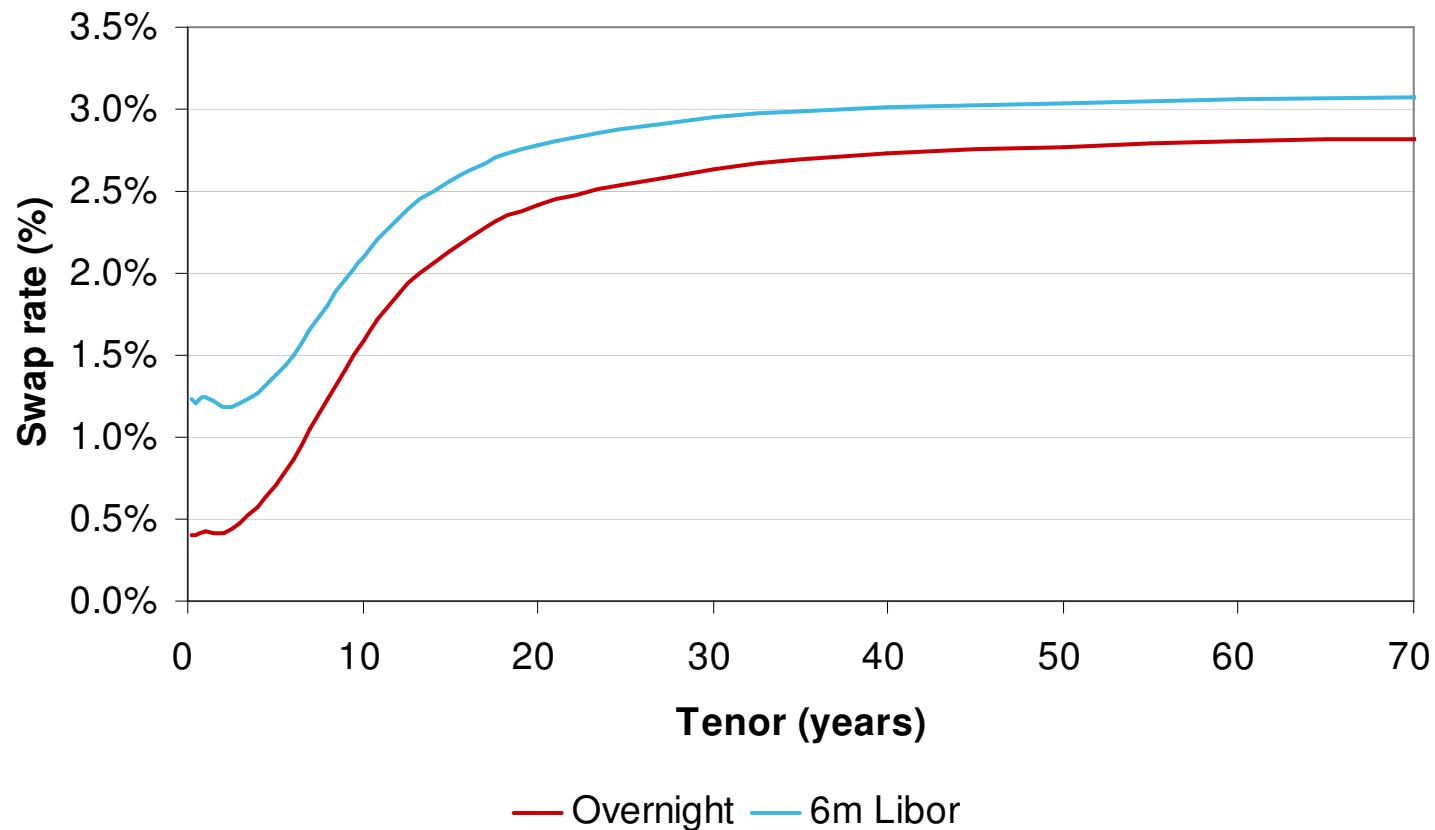
What does this mean?

- Derivatives are valued based on the **cost of posting collateral**
- Normally based on overnight index swaps (OIS)
- Some CSAs allow wider collateral

Why?

- Libor previously regarded as bank funding rate – no longer the case
- Collateral at heart of risk management
- LCH moved to OIS in July 2010

SONIA vs. Libor

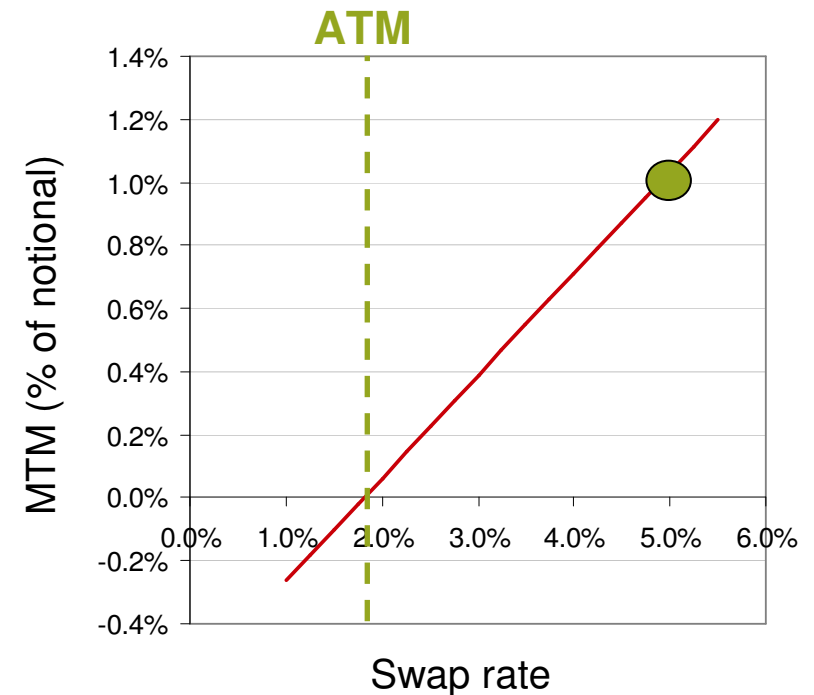


Source: RBS 24th October 2012

Impact on swap contracts held by Insurers

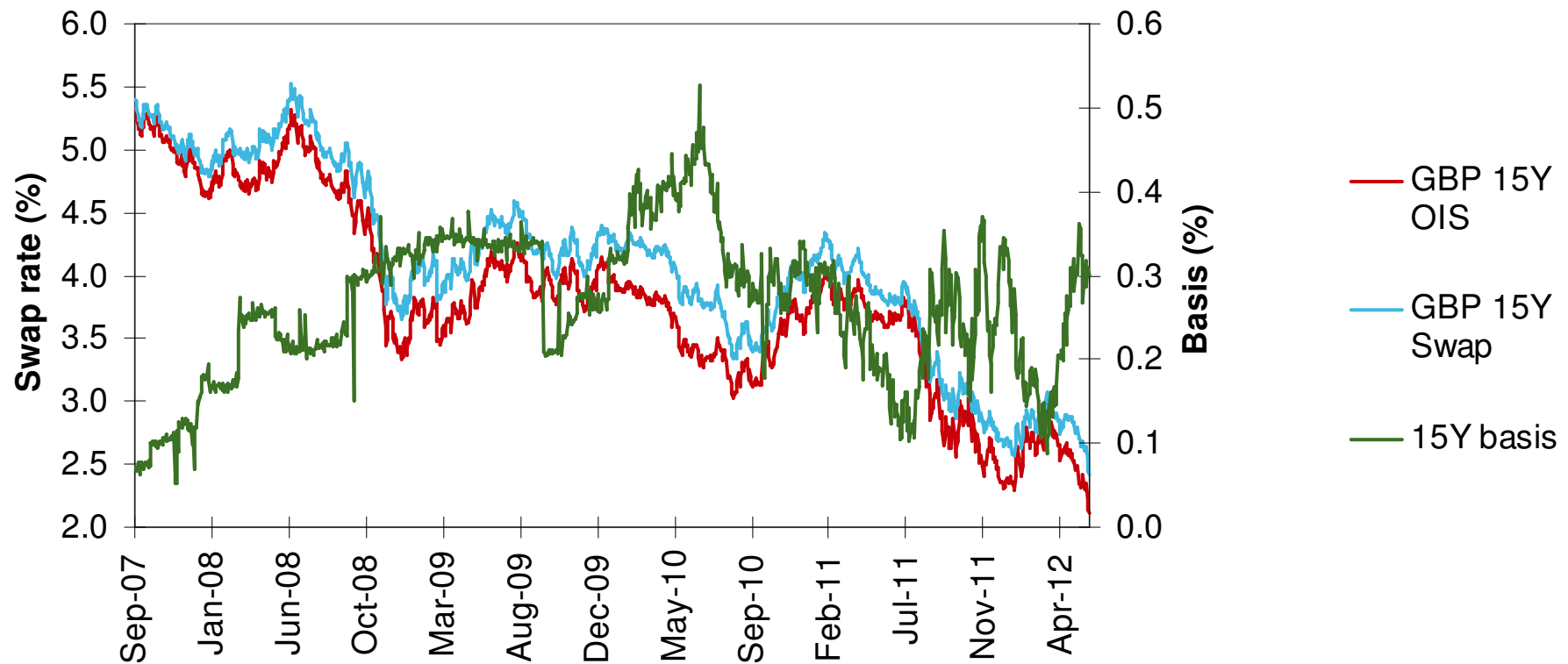
Example:

Tenor	10 year
Notional	£1m
Strike	5%
Value on Libor curve	305,200
Value on OIS curve	315,400
Difference	10,200 (1%)



- Greater impact for ITM/OTM swaps
- Less impact where CSA allows GBP corps / Multi currency cash

Resulting basis risk under Solvency II



Managing exposure

- Re-striking positions
- Hedging exposure

Regulatory developments in banking sector

The Wheatley Review of LIBOR:

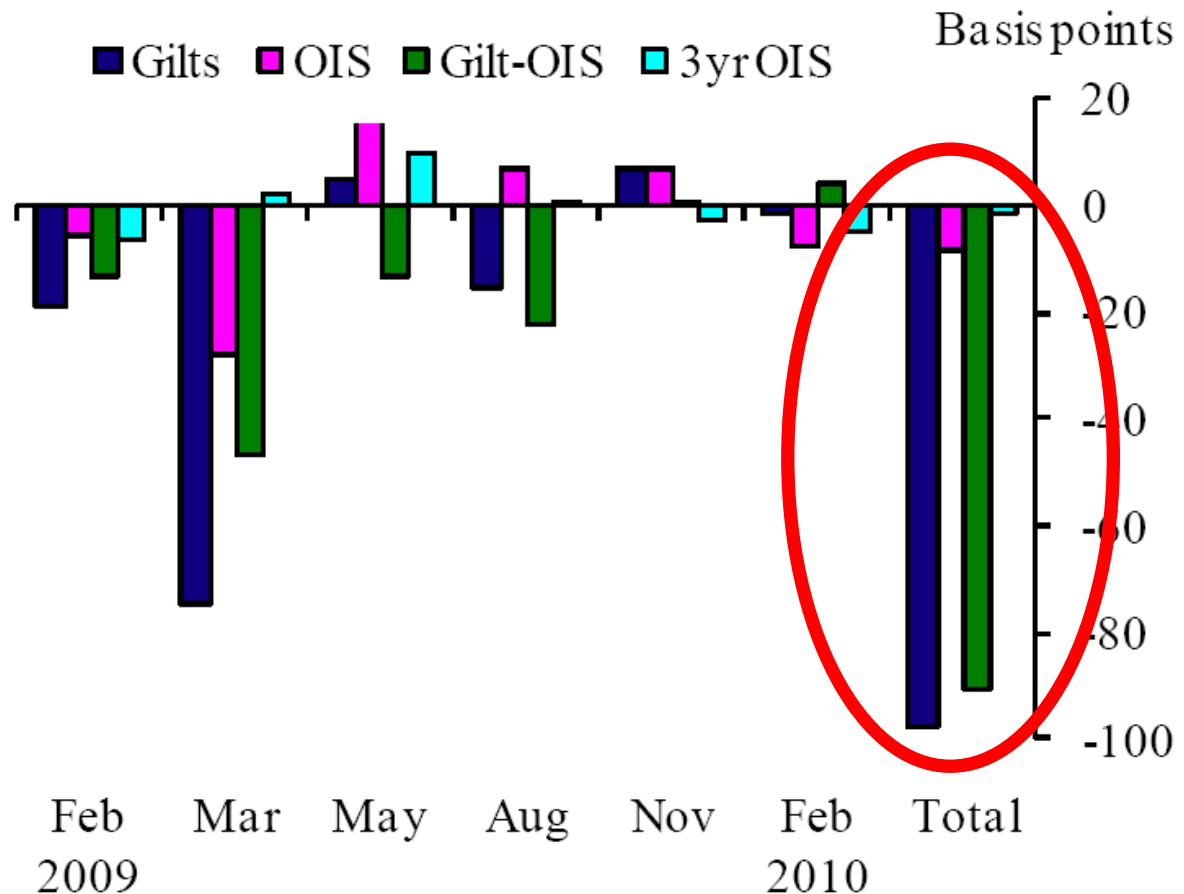
final report

- *“far reaching programme of reform”*
- *Focus on governance*
- *But alternative benchmarks remain under consideration*

- **Basel 3/CRD IV**
 - Capital requirements **UP**
 - Liquidity requirements **UP**
- **More recently**
 - FSA has **relaxed** some of these requirements

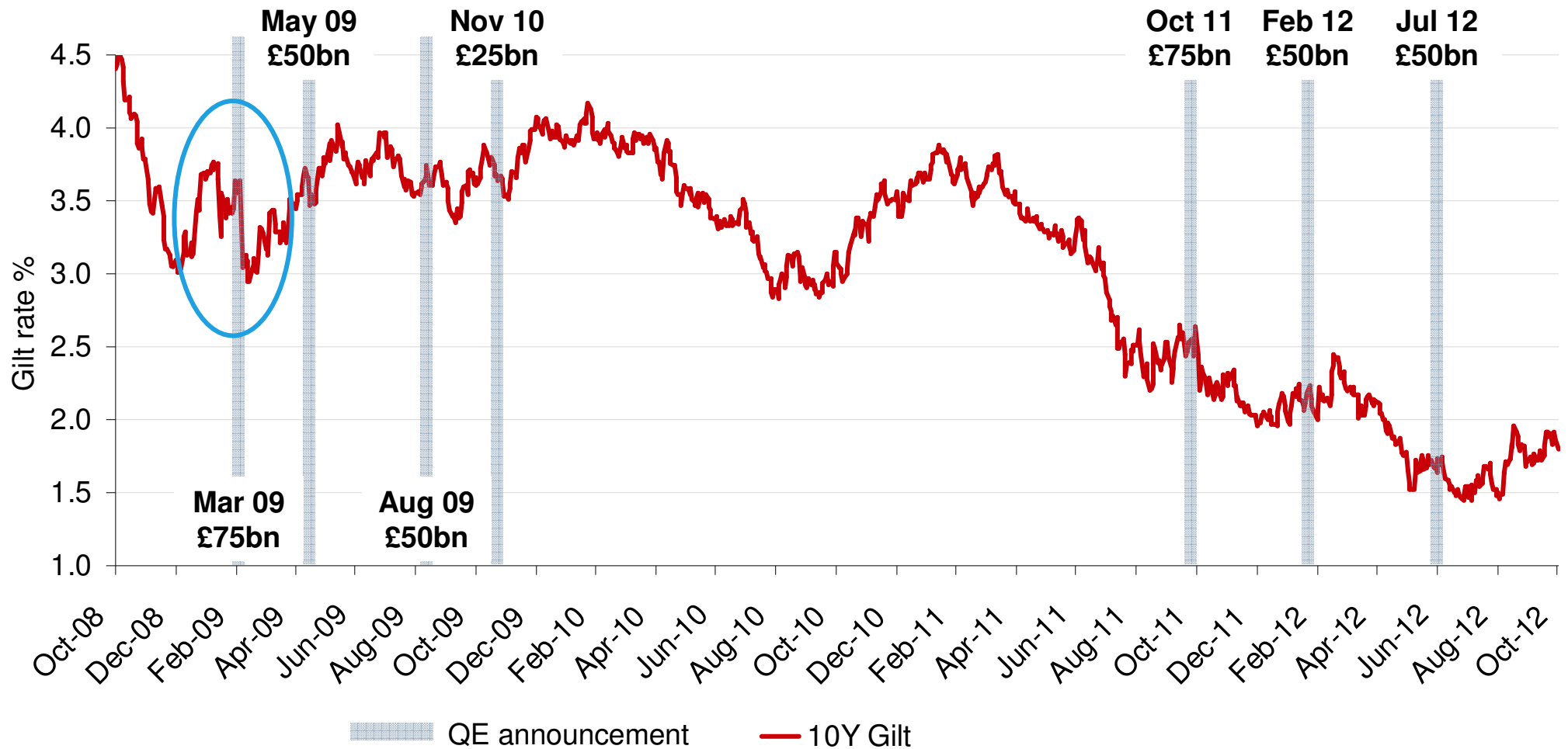
Central Bank Operations

“Summing over the reactions in gilt yields to each of the QE news events gives an overall average fall of just under 100 bps”



Sources: Bloomberg and Bank calculations.

Buy the rumour, sell the fact ...



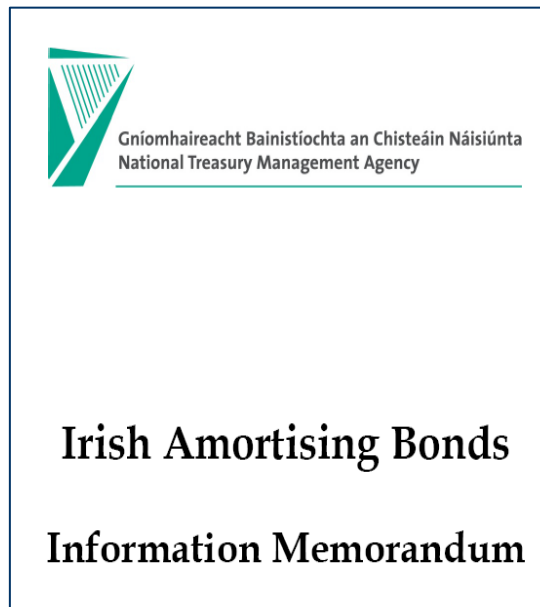
Outright Monetary Transactions (“OMT”)

Repairing distortions in Government bond markets

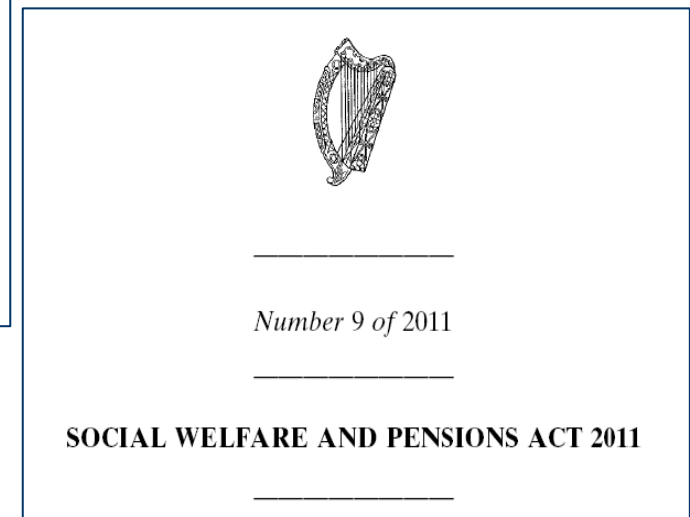


- ECB has power to make unlimited purchases of sovereign bonds
- Focus on 1-3yr maturities
- Bond purchases are conditional

Sovereign annuities

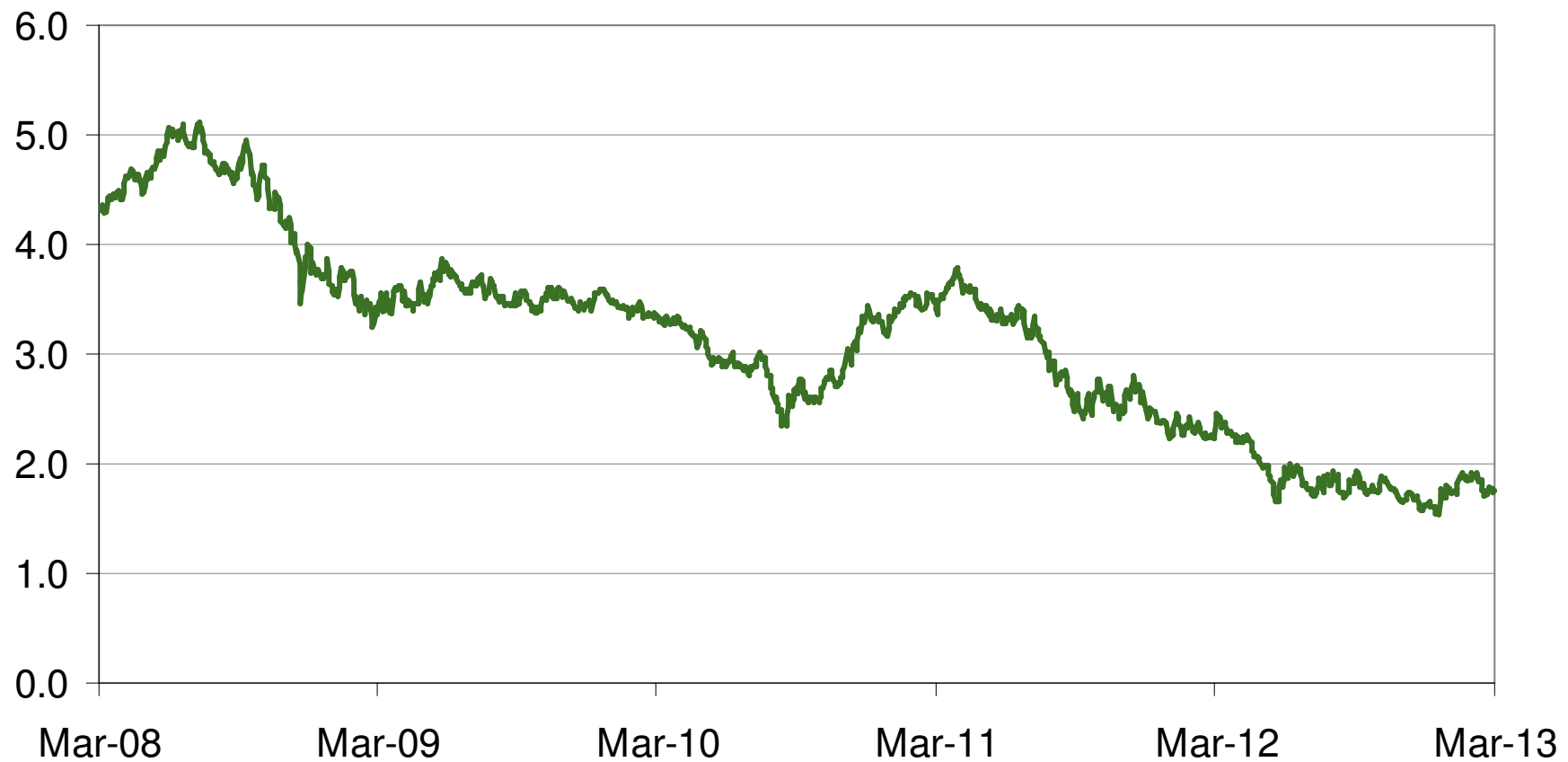


"NTMA sells €1 billion of new Irish Amortising Bonds at 5.91% ..."

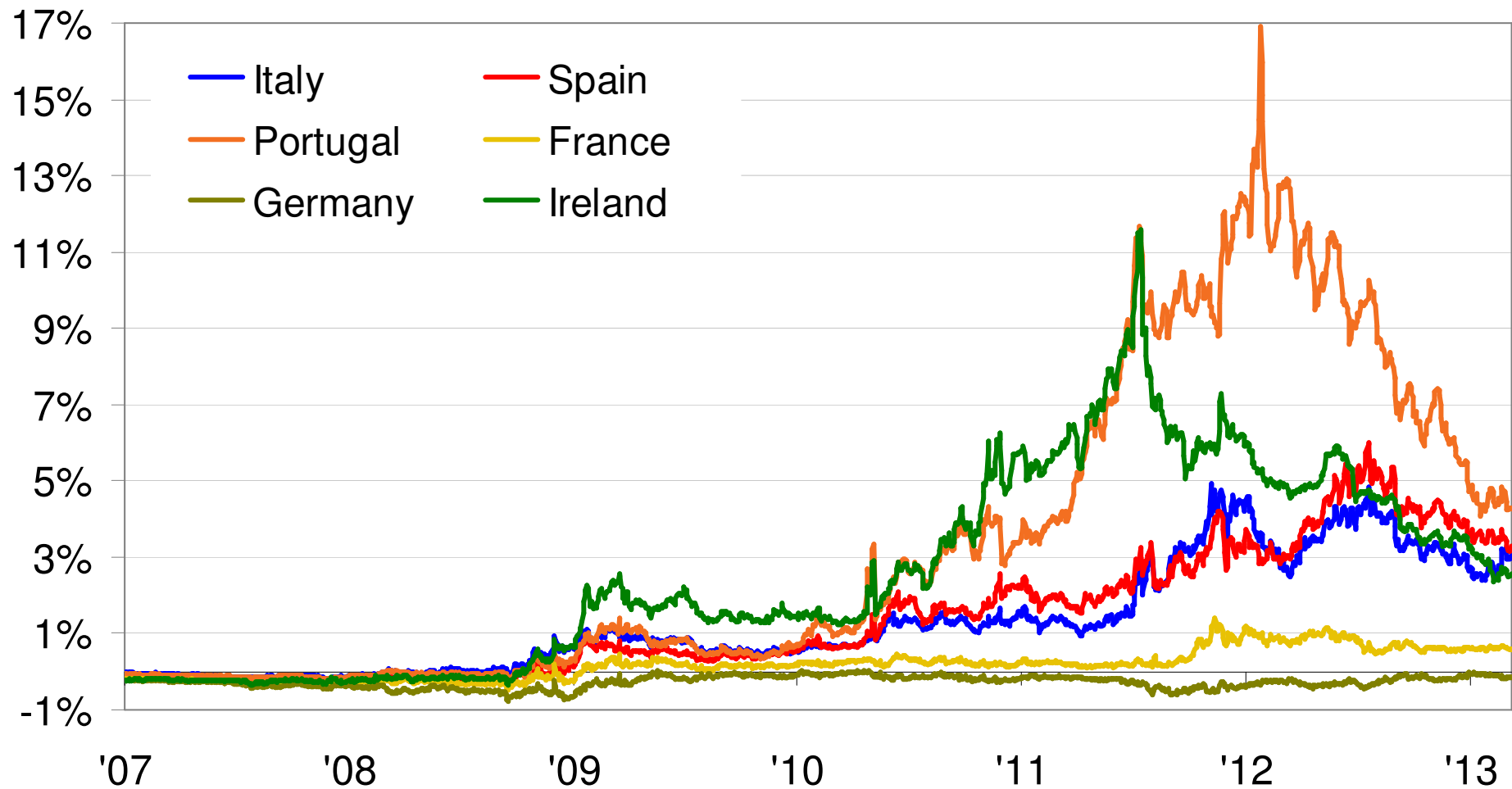


Economic Environment

10yr EUR swap rate



Swap spreads on 10yr Government bonds



Investment Decisions



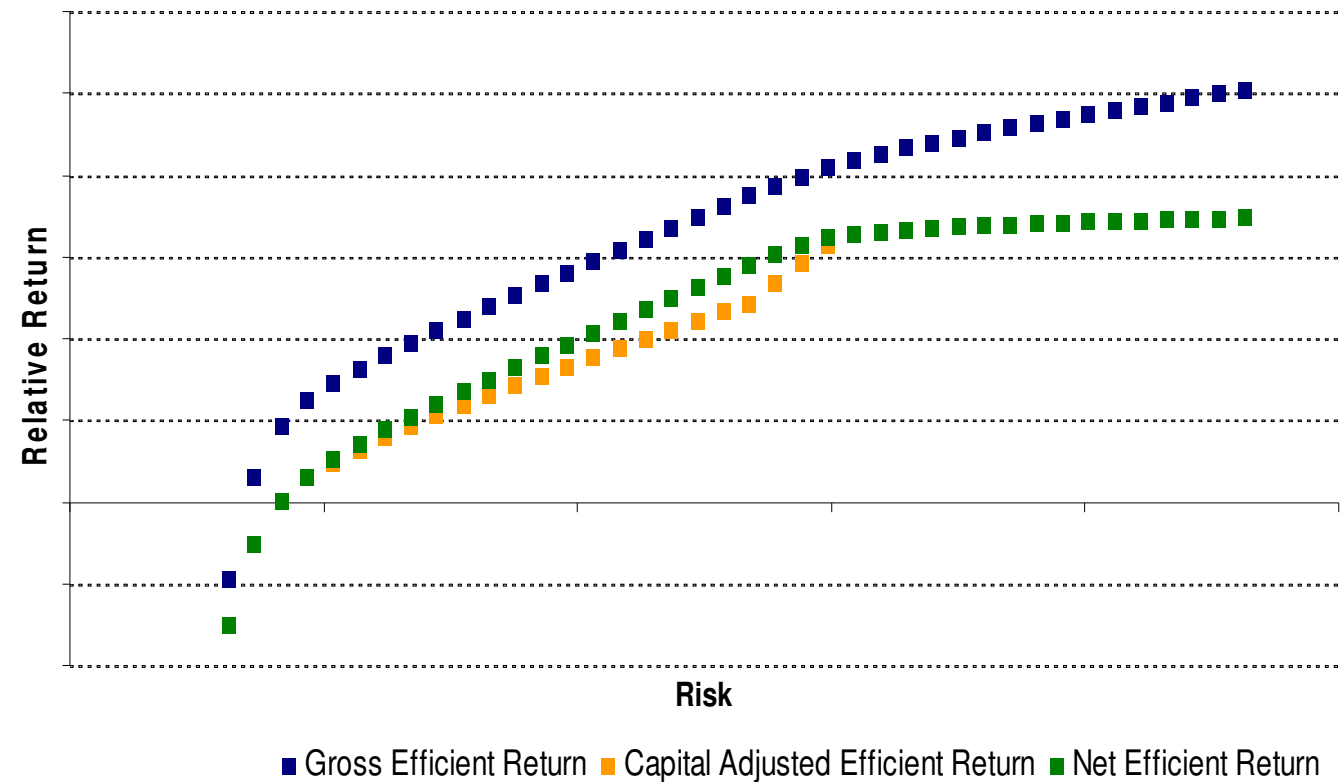
Efficient frontiers

Efficient portfolio returns relative to liabilities

If the cost of capital penalises risk ...

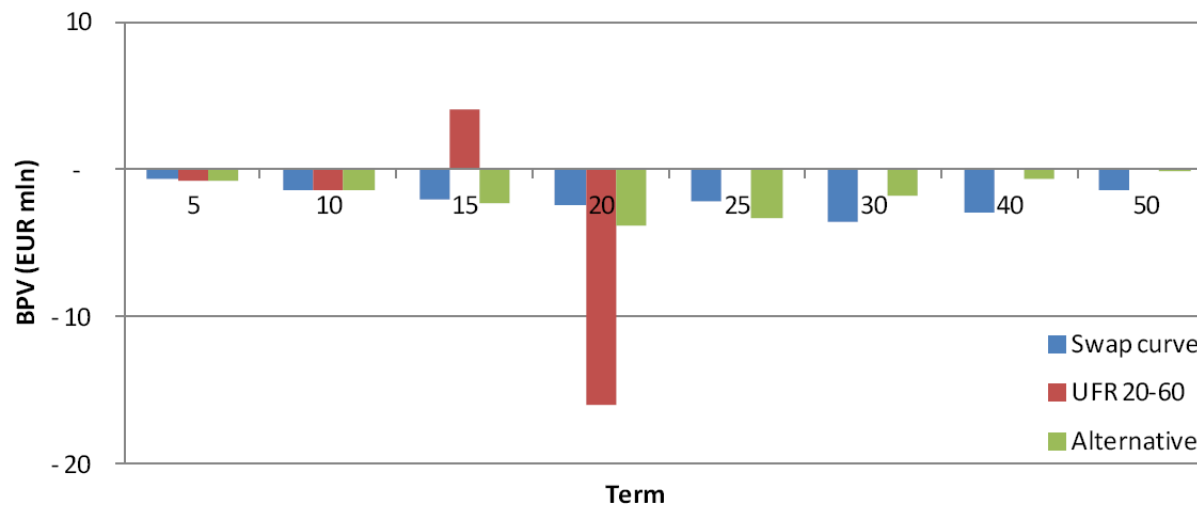
... then Investors may switch to lower risk assets ...

... hence reducing risk-free yields

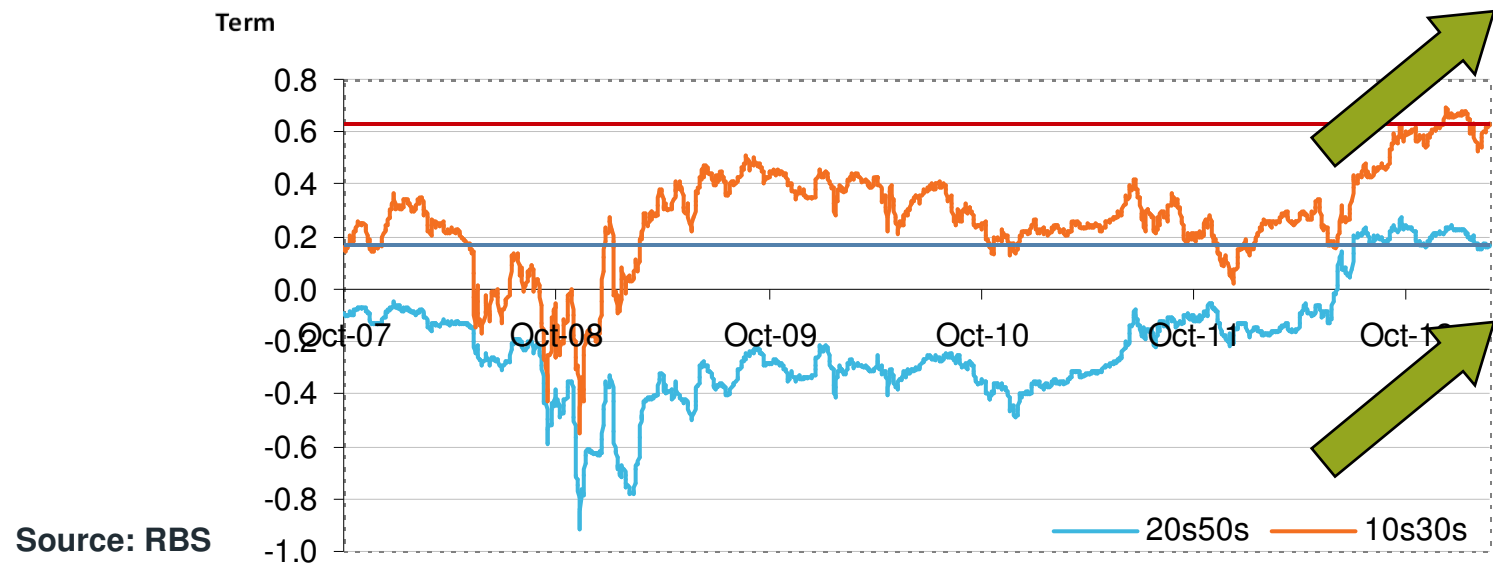


Dutch leading the charge

$$fwd_{t-1,t}^{SW} = (1 - w(t)) fwd_{t-1,t} + w(t) UFR$$



Source:
Academic Community
Comments on CP-12-003
Draft Tech Specs on QIS QIORP II



Any questions?

