



**Pillar 2 &
Interest Rate Risk in the Banking Book
(IRRBB)**

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Basel 2 Capital Accord (2007)

Pillar 2 - Supervisory Review

- **Guiding principles** (Principles for the Management and Supervision of Interest Rate Risk)
- **Banks to have comprehensive risk management process that identify, measure, monitor and control IRRBB**
- **Stress Testing over a range of economic conditions**
- **Hold capital commensurate with the level of interest rate risk**
- **Judgment of risk and capital based on more than compliance with a minimum capital requirement**
- **Increasingly these elements are seen as necessary for effective management**
- **Supervisors to review and take appropriate action, reduce risks / increase capital**

Gap analysis

- 2001 RBS's initial gap analysis highlighted two areas:-
 - (i) modelling capability for stress test and economic value of equity (EVE)
 - (ii) strengthening internal controls
- 2002 project to implement a comprehensive A&LM modelling tool
- 2003 joint venture with Internal Audit to improve treasury/A&LM functions
- 2006 new gap analysis identified remaining gaps

Developing a stress test capability

- RBS Group (large & complex) opted to buy external A&LM software
- Then the hard work began :-
 - establishing data feeds
 - building cash flow models for each product group
 - tweaking re-pricing assumptions
 - building up a specialist modelling team
- RBS adopted an incremental approach:-
 - (i) NII sensitivity analysis to parallel shocks (2005)
 - (ii) NII sensitivity to macro economic stress scenarios – combined with portfolio credit (2006)
 - (iii) EVE sensitivity – Monte Carlo simulation
- FSA Stress Testing Thematic Review (Oct 06)
 - Over-arching Pillar 2 requirement for firms to stress test overall risk under a severe economic downturn over 3 to 5 yr capital planning horizon

ICAAP

- IRRBB (Interest Rate Risk Banking Book) is a major Pillar 2 risk ICAAP
- FSA have stated that must form a specific element of all firms' ICAAP, but have not been prescriptive about methodology
- Significant debate over e.g. earnings volatility approach verses economic value approach
- To calculate this we have developed our Monte Carlo simulation capability to calculate a distribution of NII & Economic Value
- key parameters, time period & confidence level
- Initial answers perhaps 3 years and 97% confidence level (1 in 100 year event)

Methodology Options - Earnings v Economic Value

Two fundamentally different approaches to measure IRRBB.

- sensitivity of earnings
- sensitivity of economic value (EV)
 - In a world where banks will try to decrease ICAAP capital requirements the earnings approach will tend to drive the investment of capital longer (reduce earnings sensitivity) and EV will drive it shorter (reduce value sensitivity)
 - Need to consider the Pros and Cons of these methods

EU 'standard shock' test

- EU banks must calculate their economic value sensitivity to a standard shock
- Denominator of this calculation is regulatory capital. Thus dividing sensitivity of future net interest income by current capital resources – apples and pears
- Outliers will be identified as having greater than 20% sensitivity
- Care will be needed when short term interest rates are low as -200bp shock will throw up lots of outliers due to deposit floor issue
- Will need to reduce standard downwards shock in such a scenario

Summary – Modelling Requirements

- Model
 - Shocks
 - Stress Tests
 - » Constant B/S
 - » Budgeted B/S
 - » Stressed B/S, Stressed Margins
 - » Mitigating Factors
 - Monte Carlo (97th / 99th percentile)
- Report
 - Net Interest Income Volatility over (3 to 5 yrs)
 - Economic Value (Spot and 1 Yr hence)
 - Economic Capital