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# **Stress testing: A regulators view**

## **Dynamic Consumer Risk Modelling and Economy Conference**

**4<sup>th</sup> April 2008**

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# Stress testing: A regulators view



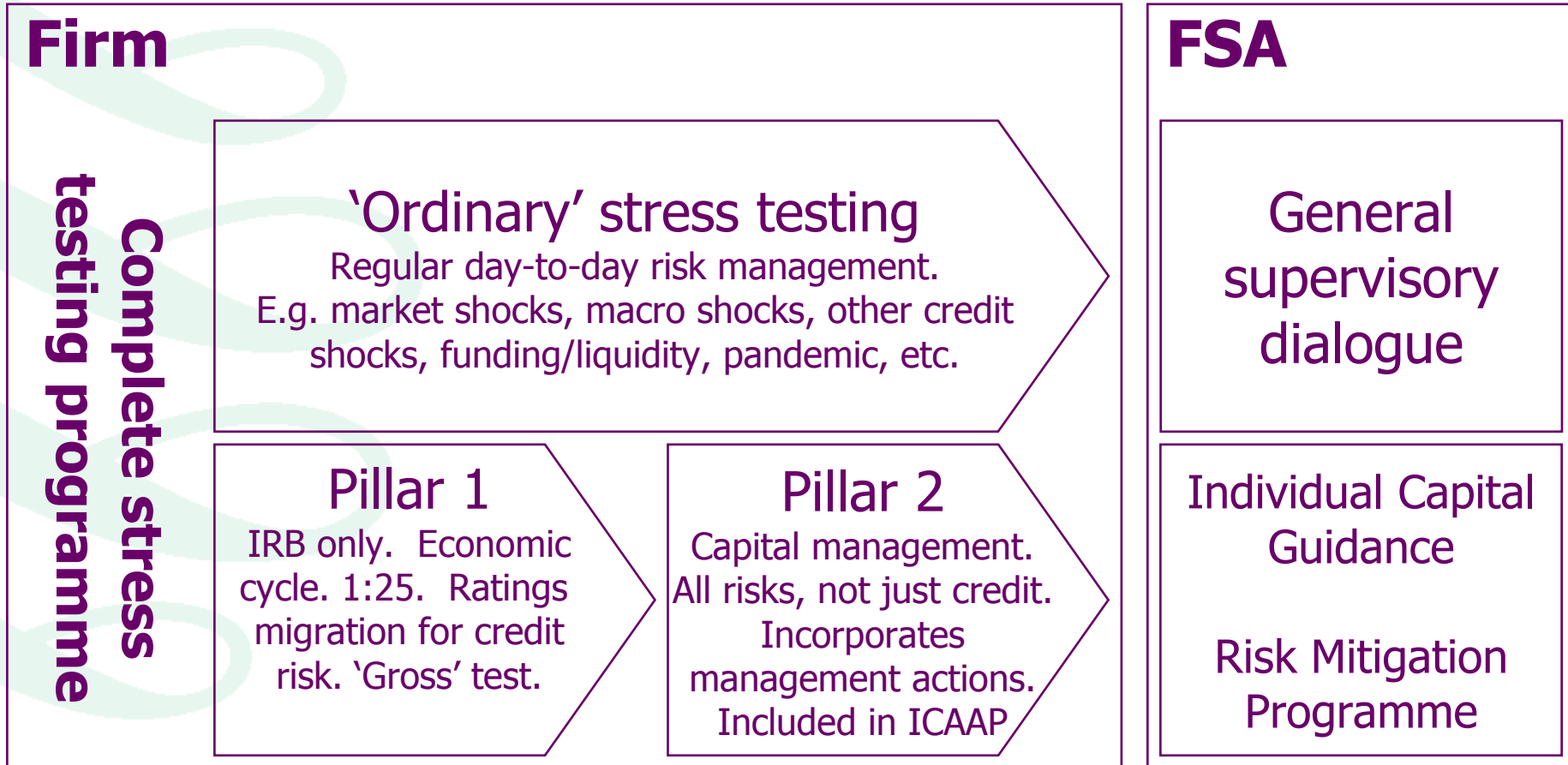
- **Stress testing overview**
  - Why do stress testing
- **General stress testing**
  - Recent non-Basel FSA stress testing work
- **FSA handbook stress testing requirements**
  - Pillar 1
  - Pillar 2
  - Capital Planning

# Stress testing: A regulators view



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# Stress testing summary



# Why do stress testing at all?

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Stress testing is essential component of risk management:

- Prepare management to respond to next stress event
- Forward looking 'what if' analysis of plausible but exceptional events
- Aid to firm planning
- Identify weaknesses in existing processes
- Regulatory requirements

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# Recent non-Basel FSA Stress Testing Work



## **FSA has consistently highlighted the importance of stress testing to good risk management**

- In 2005, two industry workshops, a Discussion Paper and a Feedback statement
- 2006 thematic stress testing project...leading to Dear CEO letter
- BoE / FSA workshops on stress-testing in 2007
- Financial Risk Outlook – identifies key risks to FSA not meeting regulatory objectives

# Recent non-Basel FSA Stress Testing Work



## In the 2005 Stress Testing Discussion Paper we observed that:

- At the time market risk practices were more advanced than for other risk types
- A key challenge for credit risk stress testing was the availability of data from past periods of stress
- It would help if heads of key business units were involved in identifying key risk drivers and assessing risk appetite
- Scenarios should be credible and comprehensible so that senior managers/boards could be more readily engaged.
- Identified three types of stress test:
  - i. *Historical stresses*
  - ii. *Stress of severe, but unlikely, risk to crystallise*
  - iii. *Reverse stress test to understand what stresses would seriously threaten the firm (explore “point of failure”)*

# Recent non-Basel FSA Stress Testing Work



## The 2005 Discussion Paper listed six characteristics of a “Comprehensive stress testing approach”:

- I. *Senior management will be able to identify and articulate a firm's risk appetite and understand the implications of stress events within this context.*
- II. *Senior management will take an active part in identifying potential stress scenarios.*
- III. *Outputs from stress testing will be communicated to senior management in a comprehensible format.*
- IV. *Senior management will have an overview of firm-wide risks and stresses and a concept of total risk even where precise aggregation is not possible.*
- V. *Senior management will consider formally the implications of stress testing for a firm's strategy or business profile.*
- VI. *IT systems, resources and procedures will allow senior management to identify, quantify and manage efficiently the stresses that affect a group.*

# Recent non-Basel FSA Stress Testing Work



- FSA thematic work in 2006 assessed firms against the six “comprehensive approach to stress testing criteria”
- This led to a stress testing Dear CEO letter...the key findings were:
  - *Close engagement by senior management resulted in the most effective stress testing practices*
  - *Good practice was observed where firms conducted firm-wide stress tests of scenarios which were plausible, yet under which profitability was seriously challenged, key business planning assumptions were flexed or scope for mitigating action was constrained*
  - *Communicating results clearly and accessibly was important for many firms*
  - *Good practice entailed using group-wide stress testing and scenario analysis to challenge business planning assumptions*

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# FSA Handbook stress testing requirements



## **Pillar 1 (IRB) [BIPRU 4.3.39R and 4.3.40R]:**

- General stress testing
- Credit Risk Stress Test / Economic cycle stress testing
  - *Assess ability to meet capital requirements at all stages of the economic cycle and during an economic recession such as might be experienced once in 25 years*
  - *Ratings migration*
  - *Static balance sheet*
  - *Plausible time horizon*

## **Pillar 2 [GENPRU 1.2.42R, 1.2.43G, 1.2.63G – 1.2.78G]:**

- Stress and scenario analysis
  - *Range of realistic adverse circumstances*
  - *Estimate financial resources that would be needed*
  - *Take into account Pillar 1 stress tests*
  - *Factor in mitigating actions – projections might typically be between three and five years.*

# Pillar 1 “economic cycle” stress testing



## Key components of Pillar 1 “economic cycle” stress testing:

- I. Scope and coverage across firm is sufficiently broad
- II. Scenario (e.g. base case, narrative, economic shock, macro variables, consistency, 1:25 severity, multiple years)
- III. PD migration (e.g. explicit link? Judgement? how effective? what assumptions are made? PIT vs TTC? what does it say about how well firms understand their rating systems?)
- IV. LGD (e.g. has potential cyclical of model been understood)
- V. EAD (e.g. has potential cyclical of model been understood)
- VI. Results (e.g. presentation, sense check).
- VII. Aggregation (e.g. how aggregated across business lines? is firm assuming downturns do not happen in same place, at same time?)

# Pillar 1 Vs Pillar 2

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## **Pillar 1 “economic cycle” stress test:**

- For IRB firms only
- Only considers impact on credit risk
- Must be an economic recession scenario
- Instantaneous shock
- Consistent with Pillar 2 capital planning scenario
- Gross stress test

## **Pillar 2 ICAAP and “economic cycle” stress test:**

- Consider all risks, not just credit
- Considers impact on capital requirements and capital resources
- Net stress test...Consider management actions

## **Key Features**

- “1 in 25” – severity not frequency test
- Scenario must capture the key drivers of loss
- Transmission from stress scenario to stress capital level should be robust

# Pillar 2 stress testing



## Stress test framework

- ✓ *Description of scenario*
- ✓ *Source of shock*
- ✓ *Assumptions*

## Scenario

*Year 1* *Year 2* *Year 3* etc...

*GDP*  
*Unemployment*  
*Inflation*  
*House prices*  
*etc...*

## Gross impact of scenario

*Year 1* *Year 2* *Year 3* etc...

*Exposure*  
*RWAs*  
*Capital requirement*  
*P&L*  
*etc...*

## Impact of management actions

*Year 1* *Year 2* *Year 3* etc...

*Exposure*  
*RWAs*  
*Capital requirement*  
*P&L*  
*etc...*

## Net impact of scenario

*Year 1* *Year 2* *Year 3* etc...

*Exposure*  
*RWAs*  
*Capital requirement*  
*P&L*  
*etc...*

# Capital planning



## **Objective:**

- That the firm can meet its capital requirements at all times through out a reasonably severe economic recession

## **Key Features:**

- not necessarily an economic recession scenario
- “1 in 25” not required but strongly advised
- Full description of a cycle
- Not limited to regulatory capital
- Regulatory action if CRR breached

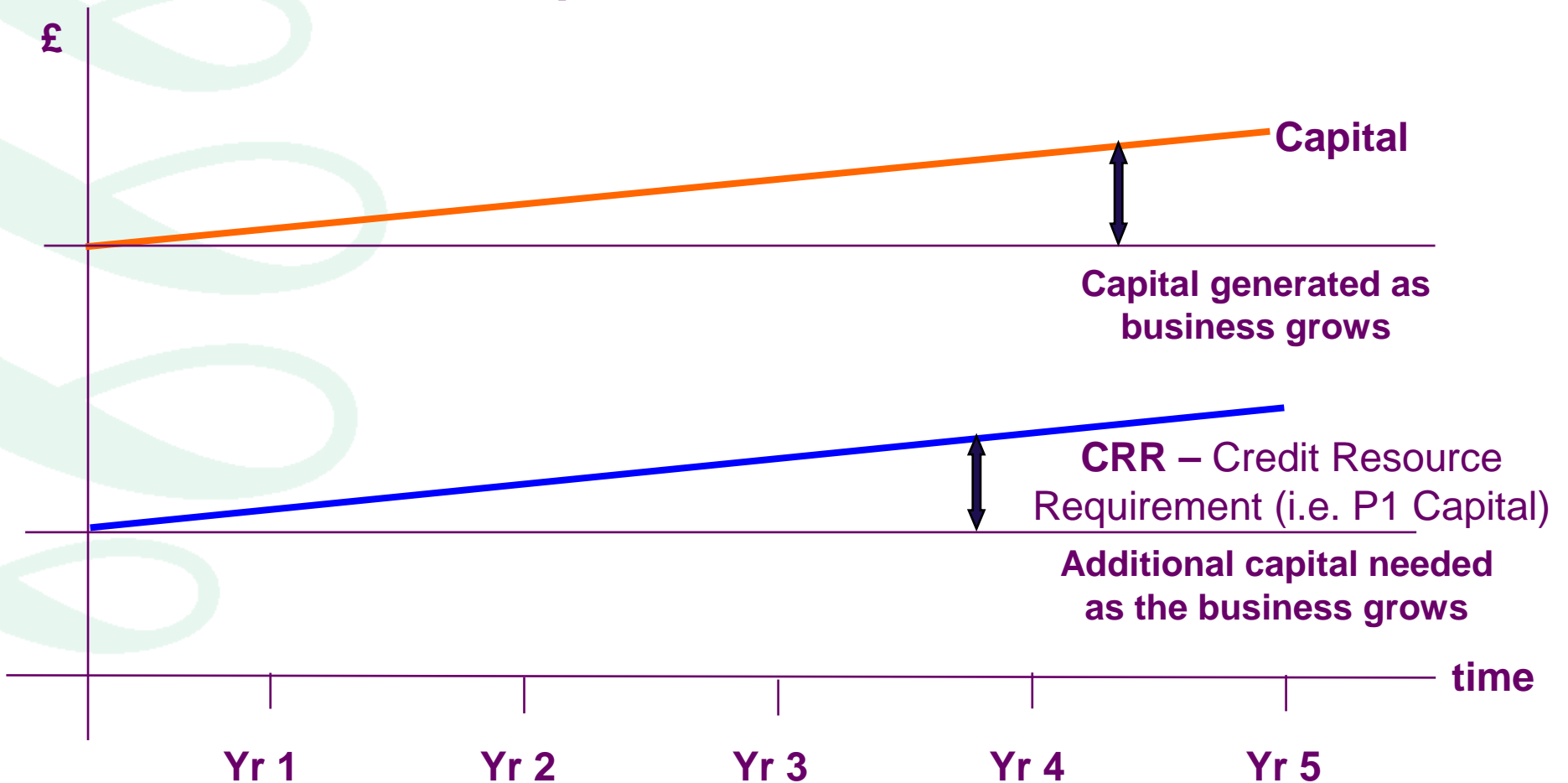
## **Key considerations:**

- Stress test must be “all encompassing”
- Must consider second order impacts

# Capital planning: Base case



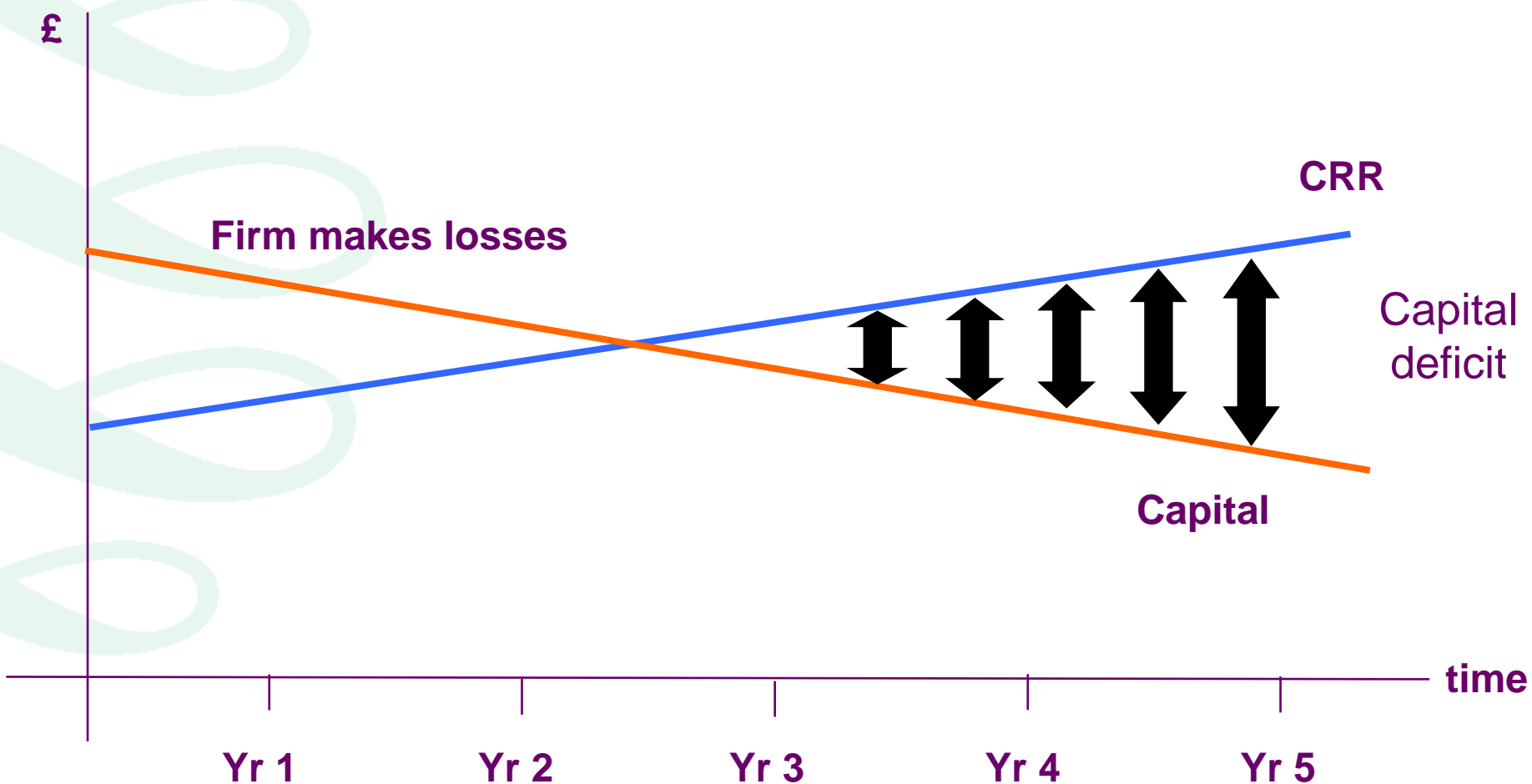
Base case...how do management expect the business to develop



# Capital planning: severe stress



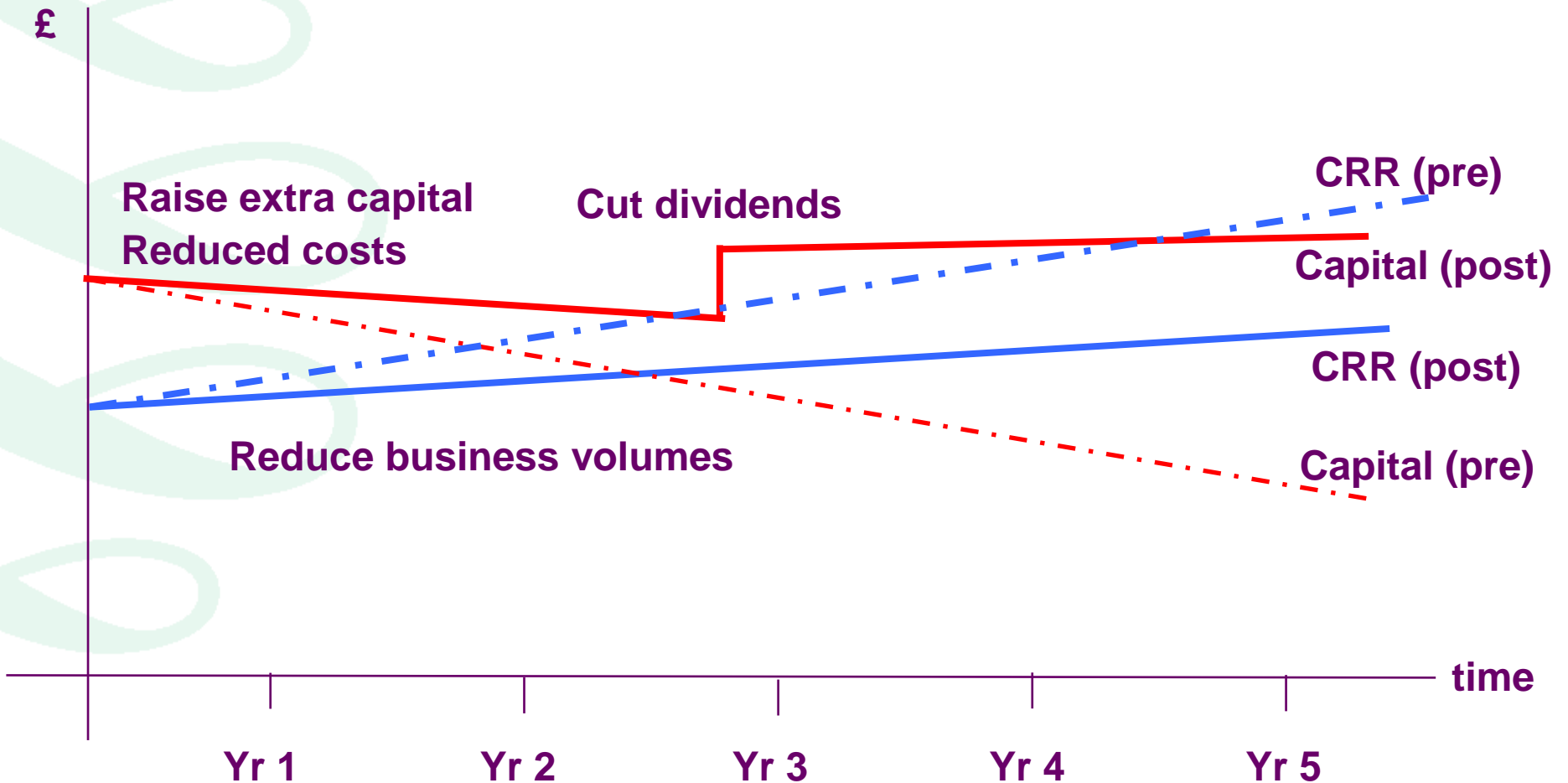
## Severe stressed case...pre management actions



# Capital planning: severe stress



## Severe stressed case...post management actions



# Capital planning

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## Challenges:

- Realistic base case
- An appropriately severe stress test
- Credible management actions

## Assessment:

- Adequacy of the scenario
- Implementation of the scenario
- Impact of scenario on strategic plan
- Comparison of capital needs against resources
- Review of management actions

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