Do we need cut offs?

Pricing for Profit

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## The profit conundrum

### Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of Funds</td>
<td>3.5%</td>
</tr>
<tr>
<td>Cost of Capital</td>
<td>15%</td>
</tr>
<tr>
<td>Set-up Cost</td>
<td>£50</td>
</tr>
<tr>
<td>Admin Cost pa</td>
<td>£25</td>
</tr>
</tbody>
</table>

### Outcomes after 1 year

<table>
<thead>
<tr>
<th>Loan</th>
<th>Gerard</th>
<th>Helen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount</td>
<td>£10,000</td>
<td>£2,000</td>
</tr>
<tr>
<td>Term (mos.)</td>
<td>60</td>
<td>24</td>
</tr>
<tr>
<td>Interest Rate</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>PD</td>
<td>8%</td>
<td>6%</td>
</tr>
<tr>
<td>LGD</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>Instalment</td>
<td>£212</td>
<td>£92</td>
</tr>
<tr>
<td>Contribution</td>
<td>£219</td>
<td>-£12</td>
</tr>
</tbody>
</table>

**Cut-off:** PD <= 7%

**Gerard:** Profitable – but declined  
**Helen:** Loss maker – but accepted
Typical pricing
UK High Street Bank – July 2011

How to explain this policy? Does it make sense?

Source: internet

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Presentation road map

- Strategy evolution
- RORAC based strategies
- Competition based pricing
- Management challenges
Cut off setting - 1980s
Strategy curve: Overall risk vs acceptance

Previous policy result

- Same acceptance, reduce bad rate by 10%
- Same bad rate, increase acceptance by 7%

No financials – No marginal analysis
Cut off setting - 1990s
Focus on breakeven at the margin

Analysis of revenue and costs by score

Based on “average” loan characteristics in score band
Ignores differences in individuals - e.g. loan amount
Cut off setting – 2000 to 2007
Business acquisition and regulation

Pricing up the risk curve vs Return on capital

Ignores impact of price on risk vs “What’s a downturn?”
Presentation road map

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RORAC: Return on Risk Adjusted Capital
## Calculating RORAC

**Net income / average capital**

### Parameters

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<thead>
<tr>
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<th>Helen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount</td>
<td>£10,000</td>
<td>£2,000</td>
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<tr>
<td>Term (mos.)</td>
<td>60</td>
<td>24</td>
</tr>
<tr>
<td>Interest Rate</td>
<td>10.0%</td>
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<tr>
<td>PD</td>
<td>8%</td>
<td>6%</td>
</tr>
<tr>
<td>LGD</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>Instalment</td>
<td>£212</td>
<td>£92</td>
</tr>
<tr>
<td>Interest Income</td>
<td>9.3%</td>
<td>7.9%</td>
</tr>
<tr>
<td>Cost of Funds</td>
<td>3.2%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Operating Cost</td>
<td>0.8%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Expected Loss</td>
<td>3.1%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Contribution %</td>
<td>2.2%</td>
<td>-0.6%</td>
</tr>
<tr>
<td>Contribution</td>
<td>£219</td>
<td>-£12</td>
</tr>
<tr>
<td>Avg. Capital</td>
<td>5.0%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Cost of Capital</td>
<td>0.7%</td>
<td>0.6%</td>
</tr>
<tr>
<td><strong>RORAC</strong></td>
<td><strong>59.2%</strong></td>
<td><strong>0.5%</strong></td>
</tr>
<tr>
<td>Return on AvBal</td>
<td>2.4%</td>
<td>-0.7%</td>
</tr>
</tbody>
</table>

### Outcomes after 1 year

Calculations are % av. balance o/s

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Revised pricing strategy
To achieve consistent RORAC

For candidate PD 8%
RORAC ≈ 35%

Loan amount from
£5,000
£7,500
£12,000
£15,000

Page 3 findings – dashed lines
Presentation road map

- Strategy evolution
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Acceptance policy focus 2010s
Competitive pricing – for threshold RORAC

- Increasing focus on allocation of capital - Basel III
  - competition for capital

- Banks under pressure to increase supply
  - e.g. UK Merlin targets for SME business
  - internet → increased transparency
  - customers more price sensitive

- Impact of differential pricing
  - over price → lower market share
  - under-price → reduced income
  - → improved portfolio shape

→ Model price sensitivity
Previous pricing behaviour
SME Lending

Little risk differentiation
Matching market prices not individual risk
RORAC threshold approach
Calculate minimum price > threshold

Incentivise staff based on margin above minimum

Keep existing margin → Return > Threshold
Sacrifice business if return not acceptable
New pricing behaviour
Positive response to bonus incentive

Negotiators use local information on price sensitivity
Summary and outcomes
SME lending

◆ Evaluation
  ◆ Take up, PD, contribution, RORAC
  ◆ Branch and lender performance

◆ Results
  ◆ Improves portfolio risk
  ◆ Faster policy change

“Rapid, flexible re-pricing was key to remaining profitable through the financial crisis”
- Head of SME Risk Management
Presentation road map

- Strategy evolution
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- Competition based pricing
- Management challenges
Do we need cut offs (1)?

Primary Acceptance Criterion: RORAC > Threshold value

Minimum required APR

Threshold RORAC

Calculate for each loan amount and term

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Do we need cut offs (2)?

Secondary Criterion: Maximum APR (and Risk)

- Breaches reputational threshold
  Max APR $\rightarrow$ decline

- Breaches risk threshold
  Max PD $\rightarrow$ decline

Minimum required APR

Effective risk cut off

Best PD

Worst
Do we need cut offs (3)?

Final decision: function of price sensitivity
Cover cost of incentive and return to shareholders

Target price
Management challenges

- Minimum price: RORAC validation
- Maximum price: test and learn
- Anticipating market shift
- Monitoring and re-calibration
Do we need cut offs?
Yes … but not as we know them

Primary Acceptance Criterion:
RORAC > Threshold value
Threshold value measures risk appetite

Secondary Criterion: Maximum APR
If threshold RORAC APR > Max APR then decline …
→ Reputational risk
→ Effectively an “extreme” PD/EL cut off

Tertiary Criterion: Price sensitivity
Final price $f$(take up probability)
→ Sacrifice unprofitable business