Credit Scoring in the Non-Conforming Mortgage Market

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Contents

- Introduction
- Risk Based Pricing / Product Design
  - Current Method
  - New Approaches
- Building Scorecards for Non-Conforming products
  - Challenges
  - Reject Inference
- Using the Scorecards / Basel II
- Effect on Business

Introduction

- Platform is the “one stop” intermediary lender of Britannia Building Society launched in February 2003.
- 90,000 mortgages originated, worth over £7bn.
- Offer full range of products from Prime Conforming through to Non-Conforming, including Buy-to-Let and Self Certified mortgages.
- Platform Home Loans, the holding company, established in 1989.

Risk Based Pricing / Product Design

- Non-conforming market caters for borrowers who have adverse credit records.
- Includes CCJs, mortgage arrears, discharged bankrupts.
- Lenders typically use ‘arbitrary’ rules to determine price and limits.

Risk Based Pricing / Product Design

- Pricing currently dependent on criteria such as CCJs, arrears, self-cert/status etc.
- Minor Adverse: LIBOR + 2.00%
  - CCJs <= £1,000 (none in last 3 months)
  - Arrears - 1 in last 12 months (0 in last 3)
  - Maximum LTV 90%
- Heavy Adverse: LIBOR + 3.75%
  - CCJs: unlimited
  - Arrears: no reference required
  - Maximum LTV 85%

Risk Based Pricing / Product Design

- We are going to look at two possible approaches

* χ^2 and W.o.E (Weight of Evidence) approach.
* Using Scorecards to Risk-based-price

Risk Based Pricing / Product Design (W.o.E. and χ2 approach)

Choose your product definitions criteria via χ2(CCJ, missed payments, CCJ value etc)

An example:Analysis W.o.E and Δ-scores

Attribute: # of CCJ in the last 12 months	pop %	WoE (Actuals)	WoE (Expected)	Delta Score
0	70%	0.87	0.7	0.17
1	20%	0.3	0.25	0.05
2	5%	-0.24	-0.15	-0.09
more than 2	5%	-0.98	-0.91	-0.07

Define cut-offs and repeat for each predictor

Compare Bad Rates of the defined classes and group them appropriately

Pros and Cons

- PROS
- Easy
- In line with credit scoring processes
- Aids segmentation of portfolio

- CONS
- Interactions are considered only at last stage and hard to allow for overlaps between segments.

Risk Based Pricing / Product Design

- Option 1: Develop a traditional scorecard and use the score (plus policy rules) to price i.e. use Bad Rate to derive expected losses.

- Option 2: Segment population according to criteria and allow price to vary according to score

An example…. Option 2

Applicant

Segment allocation

Light Adverse
(LIBOR + x%)

SCORE

x = 1.25

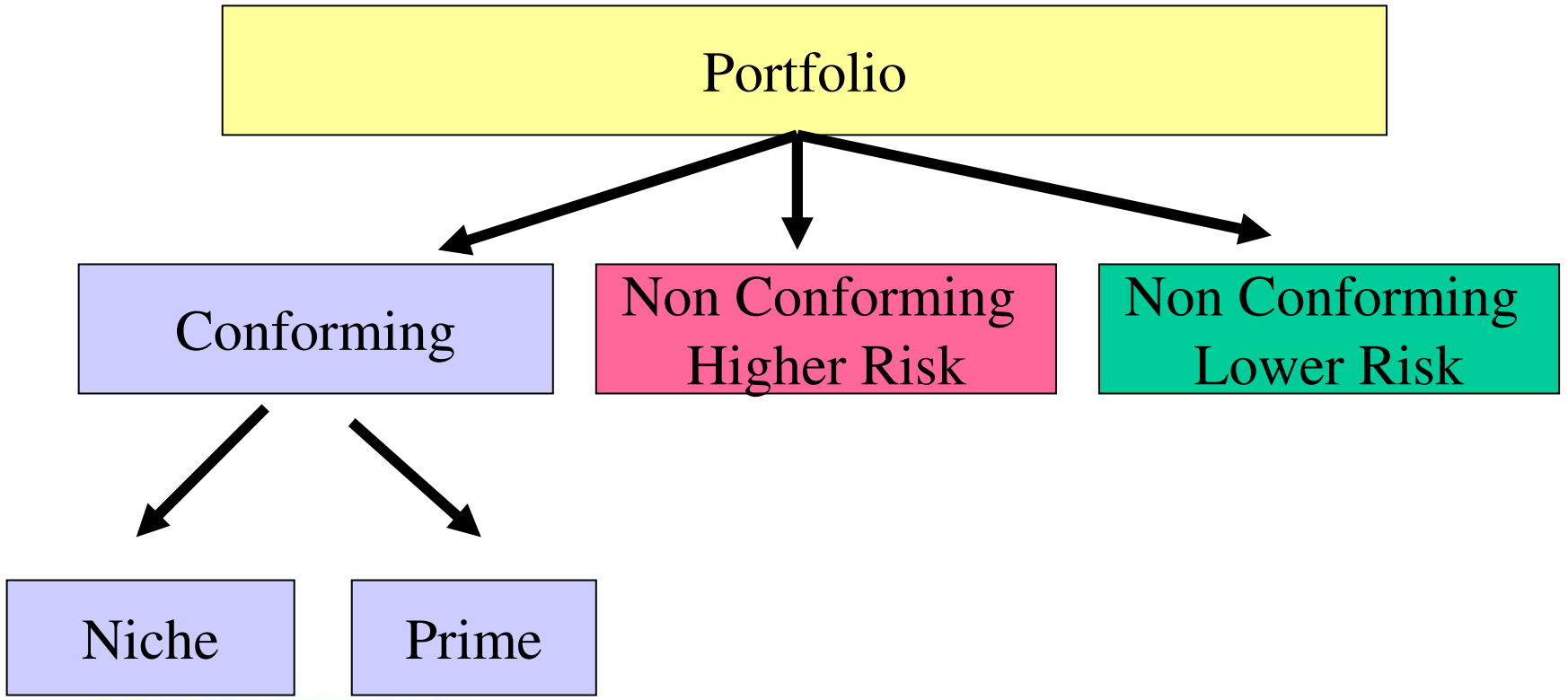
Pros and Cons

- PROS
- Automated
- Risk and profitability driven
- Easy to Monitor

- CONS
- Cultural change
- Hard to sell concept to intermediaries
- Volatility of Market

Building the Scorecard

- We used $\chi 2$, W.o.E and Bad Rates to segment portfolio into three main pools.



Building the Scorecard Challenges

- No real rejects: people are cascaded down the risk spectrum.
- Bias when using super-declines as rejects.
- Low number of defaults

Reject Inference
Two techniques were tested:

- Call “Rejects” the next population down the cascading spectrum and then apply usual reject inference technique.

- Add to Good/Bad model the grey risk area of the next population down the cascading spectrum (e.g. accounts which were cascaded because of policy reasons but that still preserve a similar risk spectrum).

- Results - Gini

Low number of defaults

- Consider other events which could be included in your default definition (e.g. litigation).
- Use W.o.E logistic regression when your number of defaults is above 150 (arguable).
- If you have a low number of defaults for a particular segment due to its immaturity, look for homogeneity with more mature segments.
- Consider more complex techniques (e.g. jack-knifing)

Using the scorecards

- Automation of the assessment process
- Score used to identify the underwriting mandate required for a particular case
- Score used to define the level of reference we need for a particular case
- Basel II scorecards
- Models used together with LGD for capital adequacy valuations.

Capital Requirements

- Models mapped to B2 definition via meta-modelling
- All variables re-tested to identify any incremental power
- “Through the cycle” (odds based) adjustments applied to probabilities to ensure a five year view of risk is achieved.

Effect on Business

- In one month, Platform has doubled its business volumes since the launch of new facilities.
- Automated decisions in over 90% of cases.
- Over 10,000 online decisions made.
- Visits from worldwide, including Qatar and Tanzania.