Sanabel 2016 Annual Conference

Credit Scoring:
Building Viable Credit Scorecards for MFIs
A Hands-On Workshop

Dean Caire, CFA
CapPlus
31 October 2016
Introduction to Credit Scoring
What is scoring?
The future is like the past

Past
Borrower Characteristics

Now
Borrower Characteristics

Future
Loan Repayment Behavior

Loan Repayment Behavior
Key assumptions

• New borrower behaviour will be similar to that of past borrowers with similar characteristics
  – Same segment
  – Same expected application population

• NOT market changes (weather, macro economic indicators, etc.)
Predicts probability a borrower will be ‘bad’ as we define ‘bad’ for the target segment

- All borrowers are either ‘good’ or ‘bad’
- ‘Bad’ should represent a client we would not wish to lend to (assumed to be a loss-making client).
Some benefits of scoring

- Decrease analysis time on small deals
- Provide client with a quick decision
- All loan officers reach same result
- Adjust credit policy through rules related to model
- Estimate costs/benefits of different policies
  - Quantitative
  - Explicit
Example 1: Consumer Portfolio

- Without scoring:
  - 60,000 Loans
  - Average processing time for loan: 5 days
  - Arrears over 90 days rate: 4%
Example 1: Consumer Portfolio

• With scoring:
  – Approve 2/3 of portfolio with scoring model
  – Processing time 1 hour
  – Expected delinquency rate on auto-approvals: 2%
How to get started?

• Type depends on quality/quantity of historic data:
  – Expert model – no data, new segment
  – Hybrid model – some data or similar segment
  – Statistical model – extensive data, same segment
What is most important?

1. Data
2. People
3. Processes
How to build an expert scorecard

• Choose characteristics you know from experience to be related to risk
• For each characteristic, make a one-factor model that ranks borrowers in terms of that characteristic
• Use a simple, consistent point scheme for all factors
• Add up the results of the single factor models to get a total score
• Compare scorecard rankings of new or past clients with subjective rankings by credit analysts
Continue adding factors

- Usually 15-20 factors maximum
- Try to create a ‘comprehensive risk profile’ of a borrower
  - Financial and non-financial factors
  - Willingness and ability to repay
  - Choose characteristics that can be collected consistently and at a reasonable cost
  - Avoid subjective judgment
What types of data work best?

• Behavioral data
  – Credit history
  – Air-time/mobile wallet usage
  – Bill payment (utilities, rent, etc.)
  – Bank account turnover
  – Bank deposit balances
  – Documented information about purchases/sales
What types of data work best?

- Personal or business verified income data
  - Salary
  - Tax returns
  - Business sales/purchases
What other types of data work?

- Demographics
  - Years in residence
  - Marital status
  - Number of dependents
  - Occupation
  - Address, Age, Gender (where allowed by law)
  - Education
Alternative data?

• Psychometrics

• Social media public profile information

• Biometrics

• Data stored on mobile phone (via app permissions)
Scoring Model Development
What is needed?
For the target segment, some combination of:

– Knowledge of clients/market
– Experience lending
– Historic data

And, most importantly
– A team and team leader that wants to use credit scoring!
Where does historic data come from?

In electronic format:
- Core banking system
- Loan memorandum (for example in Excel)
- Credit bureau reports (if available in electronic format)

In paper format
- Hard copy credit files
- Loan application forms

If not currently recorded on paper or electronically
- Can systematically collect on a ‘pilot’ basis
How to build the model?

7-step process

1. Assemble project working group
2. Define scorecard “segment”
3. Define “bad” loan for selected segment
4. Assess quality/quantity of data
5. Build model
6. Pilot test model
7. Validate model

http://www.microfinance.com/English/Papers/Scoring_SMEs_Hybrid.pdf
The scoring process – more than a score

Systemization:
- Lots of data already collected
- Many files and formats
- Can also upload Excel-based information into a central database
- Storing the most relevant data electronically

Automation of business processes:
- Users and roles assigned
- Can track processing times, identify bottlenecks
- Manage by exception.
Annual validation

• Check procedures were followed by sales and risk management staff
• Solicit feedback from end-users (salespeople) on models
• Any shortcomings identified and communicated to risk management
• Documented overrides reviewed to assess effectiveness of case-by-case decision making in relation to systemic model decisions
Interested in the full Credit Scoring Workshop?

Contact: info@capplus.org