



Credit risk modelling of low default portfolios
Part II – Fintegral’s overview to probability of default estimation

Low default portfolios

Modelling challenges

Credit risk modelling for low default portfolios (LDPs) attracts different challenges within each step of a regular modelling process, in particular insufficient historical data, target definition and probability of default (PD) calibration.



Challenges with low default portfolios

- **Insufficient internal data:** Data is generally insufficient to draw robust conclusions on behaviour patterns.
- **Inconsistent historical data:** Historical performance of the portfolio is driven by one-off events rather than a consistent pattern.
- **Low match rate with external data:** Difficult to find behaviour variables for clients within Bureau data.
- **Data augmentation:** Borrowed data from similar portfolios may not necessarily be representative of the portfolio.

- **Insufficient defaults:** Most portfolios have historical default experience lower than 20 defaults leading to spikes in the long run default rate.
- **Proxy creation:** Creation of a proxy of the target can lead to representativeness issues within the portfolio.
- **Regulators:** Regulatory compliance can be challenging as there are no clear guidelines on the default definition of LDPs.

- **Data representativeness:** Due to insufficient data, historical performance of the portfolio may not be representative of the current scenario.
- **Modelling:** The use of regression techniques leads to unstable estimates and are often avoided.
- **Expert judgement:** Expert judgement used for ranking clients is not driven by statistics and therefore poses difficulty for acceptance at the regulator level.
- **Testing:** Inconsistent performance metrics observed. Regular testing methodologies may not be sufficient to assess the stability of the model.

- **Conservativeness:** The calibration techniques for LDPs can be quite conservative and lead to high values of RWAs.
- **Margin of Conservatism (MoC):** Multiple MoCs need to be applied for both data insufficiency and model estimation error leading to further increase in the conservatism.
- **Judgmental:** Some approaches can be judgmental and challenging to defend with validation and regulators.

Low default portfolios

Fintegral's overview on target definition and PD calibration

Leveraging on Fintegral's in depth experience, the following tables present a series of possible approaches to mitigate the challenges posed by target definition and PD calibration within LDPs¹.



Options for target definition

Rank ordering	Risk ranking based on expert teams.
Provisions reverse engineering	PD is derived from the coverage ratio for different products.
Pooling data	Pooled default data from across the industry.
Collateral ratio	Loan to value deterioration as a proxy of default.
DPD 60 days	Commonly used arrears proxy when 90 DPD gives a low number of defaults.
DPD 30/45 days	Alternative proxy when 90 DPD gives a low number of defaults.
Internal flags	Leverage internal information (e.g. watchlists or early warning flags).
Financial ratio	Use a ratio from the Financial Statement - when its value is below a threshold, the customer is in default.
External rating	Credit ratings from global rating agencies.



Options for PD calibration

Pluto - Tasche and Van Der Burgt method	Grading of risk segments by confidence interval.
Slotting approach	An expert judgement approach to classify an exposure into one of the five slots according to its credit quality.
Provisions reverse engineering	PD is derived from the coverage ratio for different products.
External rating	PD is derived from the external rating assigned by rating agencies.
Benchmark	Default rate is derived from a benchmark portfolio.
Pure judgemental	Portfolio PD is expert based.

¹ A financial institution may select either a single or a combination of approaches when defining a proxy target of default and calibrating PD.



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