LGD Risk Parameters Development
Advanced Approach for Basel II Internal Rating

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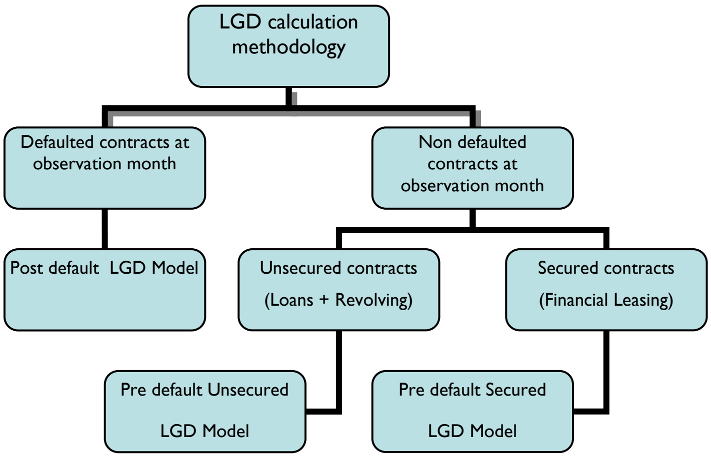
Project aim

The focus of this project is the estimation of one of the three key Basel II risk parameters, the Loss Given Default (LGD).

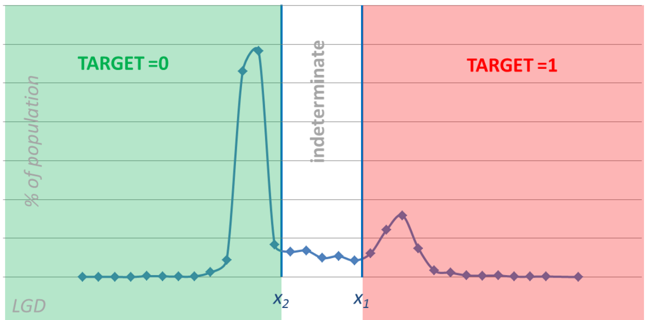
The estimation of LGD is related to the Volkswagen Bank Retail Portfolio, splitting the segment in defaulted and non-defaulted contracts:

- a Behavioural LGD Model for post default contracts was developed considering all products.
- two Behavioural LGD Models for Pre Default Contracts were developed considering separately the exposures secured by real collateral



Approach and methodology

LGD Distribution



A linear regression model is not suitable to estimate the LGD because it has highly non-normal and bimodal distribution. A logistic regression model was developed transforming the LGD to a binary dependent variable using the method of manual cut-off:

- Target=1: if LGD>=x_1% (bad)
- Target=0: if LGD<=x_2% (good)
- Indeterminate: if x_2%<LGD<x_1%

The model is capable of ranking the population by the probability of having an high LGD.

It is common banking practice to use a Master Scale, that is, a uniform rating scale which all rating systems are mapped into. On the basis of the score distribution of the development sample, each contract can be assigned to one LGD class. Rating band definition is related to observed LGD evaluation - average and percentiles - associated to each score range.

For each LGD class of Master Scale the following parameters were calculated:

- the Reference Value: the average of the LGD of all contracts falling in that given class.
- the Best Estimate of expected loss for defaulted exposures: the reference value multiplied by a factor which is the weighted average of the ratios between the 75th percentile and mean for each score range.
- the Downturn LGD for non-defaulted exposures: the upper limit of confidence interval (95%), based on the current distribution. In order to fulfil the Basel II requirement, a downturn factor has to be considered to reflect economic downturn condition.

Score Distribution

Score	Nr. of contracts	Average LGD
<=200	200	80%
<=350	204	73%
...	...	...
<=510	200	50%
<=530	204	45%
...	...	...
<=600	250	5%
...	...	...

LGD Classes
high value
medium-high value
medium-low value
low value

Loss Given Default (LGD)			
Master Scale	Reference Value	Best Estimate	Downturn