Optimization of collateral value distribution

Company: OTP Bank Serbia

Problem statement for 99th European Study Group with Industry

Aim of optimization is to distribute collateral value to the connected placements, in a way to minimize amount of IFRS provisioning. It can be done, more or less easily, on a one placement level, but creating universal algorithm that is applicable to all placements and all collaterals, on the Bank portfolio level, is challenging.
Starting value is appraised market value of collateral, which is decreased for amount of previous encumbrances (if there is any), and after that decreased with the corrective factor Hair Cut, in order to calculate Bank Accepted value of collateral. Accepted value of collateral, is value that should be distributed to the connected placements in optimal way.

There can be several situation regarding relations between collateral and placement:
  – -1 collateral is securing only 1 placement and that 1 placement have only that 1 collateral
  – -1 collateral is securing only 1 placement and that 1 placement have more than that 1 collateral
  – -1 collateral is securing more than 1 placement and all that placements have only that 1 collateral*
  – -1 collateral is securing more than 1 placement, and some of that placements (or all) have more than that 1 collateral*

*In situation 3 and 4, rank of mortgage can be same (all placements have same mortgage rank -cross collateral) or different (1st, 2nd, 3rd, etc.)

Additionally, rank of mortgage can be 1st rank (first in line for collection from collateral), 2nd rank or even in some cases, lower ranks.

Formula for calculation IFRS provision is: Amount of IFRS Provision=Unsecured part of placement x PD
Unsecured part of the placement is amount (exposure) of the placement decreased with Accepted value of collaterals that are securing it.

PD(Probability of Default) is given value (already calculated).