

QF609 (AY2025-2026): Group Project #1

January 30, 2026

Problem

You are provided with a historical dataset that contains the aggregated daily account balance/inflow/outflow of an NMD account cohort of SMU Bank over the time period 31-Dec-2016 to 30-Dec-2023. The dataset can be downloaded from the course webpage. Your task is to build a modelling framework to implement the Basel approach for measuring IRRBB for the NMD (taking 31-Dec-2023 as the calculation date). The model should allow you to:

- (a) estimate the deposit decay profile for the NMD, and
- (b) perform separation of the NMD deposit and cash flow slotting following the Basel framework.

For this exercise, you may assume a 5Y regulatory cap on the maximum behavioural maturity for this NMD in addition to other regulatory constraints presented in class.

Taking the repricing profile of the NMD obtained from the above, compute the EVE and NII sensitivities under 4 rate shock scenarios:

- (a) +200bps parallel shift
- (b) -200bps parallel shift
- (c) up rate shock for short rates (+200bps at the shortest rate tenor and taper off toward longer tenors)
- (d) flattener (short rates up (max: +200bps) and long rates down (min:-100bps))

where the worst case outcomes are taken as the IRRBB measures for reporting. Scenarios (c) and (d) above are not fully explicit on how the shocks are distributed across tenors. You can specify your own specifications of distributing the rate shocks. The base interest rate curve is provided and available for download from the course website.

Assessment and Due-Date

The project should be completed in groups. Each group should consist of a maximum of 9 students. The assessment is based on your group presentation in class (about 10-15 minutes per group). The presentation date is **Feb 23** for **Group 1** and **Feb 24** for **Group 2**.