Interview
Case Studies

INSTRUCTIONS

- We ask to complete case 1
- Choose a programming language or tool that you are most comfortable with. R would be preferable; python works as well.
- Feel free to make assumptions about missing information and data. Comments can be kept sparse
- Submit the code along with the results.

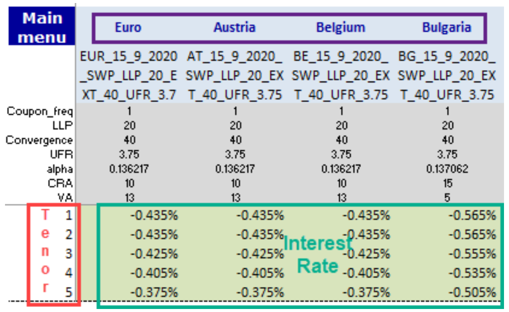
EVALUATION CRITERIA

- Robustness, elegance and efficiency of the code
- Good use of available options in visualisation (use of ggplot2 in R)

Case 1 – Yield Curve analysis

Information:

a. Download all the zip files (*"Monthly Technical Information") since December 2022 from* [Risk-free interest rate term structures - European Union (europa.eu)]



Main menu	Euro	Austria	Belgium	Bulgaria
	EUR_15_9_2020_SWP_LLP_20_EXT_40_UFR_3.7	AT_15_9_2020_SWP_LLP_20_EXT_40_UFR_3.75	BE_15_9_2020_SWP_LLP_20_EXT_40_UFR_3.75	BG_15_9_2020_SWP_LLP_20_EXT_40_UFR_3.75
Coupon_freq	1	1	1	1
LLP	20	20	20	20
Convergence	40	40	40	40
UFR	3.75	3.75	3.75	3.75
alpha	0.136217	0.136217	0.136217	0.137062
CRA	10	10	10	15
VA	13	13	13	5
1	-0.435%	-0.435%	-0.435%	-0.565%
2	-0.435%	-0.435%	-0.435%	-0.565%
3	-0.425%	-0.425%	-0.425%	-0.555%
4	-0.405%	-0.405%	-0.405%	-0.535%
5	-0.375%	-0.375%	-0.375%	-0.505%

Questions:

a. Programmatically unzip and extract country and tenor wise interest rates from the **excel** ("*EIOPA_RFR_YYYYMMDD_Term_Structures*") and **sheet** ("*RFR_spot_no_VA*")

b. Visualise the changes in US and Euro yield curve across tenors since 2022

c. Compute and visualise the correlation between US/Euro/UK/China rates focusing only on 2/5/10/20/30y tenor points

d. Compute and visualise 2 year – 10 year and 2 year – 30 year slope for US and Euro rates

THANK YOU