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# Numerix Lab Assignment 2

Assignment

Submissions

*Due 4/23/16 11:59 PM*

## Lab Assignment 2

**Course: Fixed Income Derivatives****Instructor: Jeff Greco****Lab Session Date: April 23, 2016**

This is a Numerix Lab Session group assignment.

Please note that the acronym PVBP, referenced below, stands for Present Value of a Basis Point and is the difference in value of a security due to a shift up in forward rates by one basis point. The acronym P&L stands for Profit and Loss and is the net gain in value from a traded portfolio or strategy, a positive number represents a net profit and a negative number a net loss.

## 1 Swap Portfolio Pricing and Evolution

Consider the portfolio holding 1,000,000 EUR notional of each of the following fixed income derivatives:

- Selling FRA with each of the terms: 6x12 and 12x18;
- Receiving LIBOR Swaps with each of the following tenors: 2Y, 3Y, 5Y and 10Y.
- Receiving OIS with each of the following tenors: 6M, 1Y, 2Y, 3Y, 5Y, 10Y.

Each position is traded on the close of 03/11/2016 at the corresponding market breakeven rates.

1. What is the trade date and settlement date for each instrument in the portfolio?
2. Track the present value, OIS PVBP and LIBOR-OIS basis spread PVBP of each instrument and the total portfolio on each business date in the period 03/11/2016-03/24/2016. You will need to supply the proper schedule of floating payment fixing rates in order to obtain the proper values.
3. Calculate the P&L and standard deviation of P&L for each instrument and the total portfolio for the period.
4. Can you see any relationship between PVBP values and P&L values.

## 2 Alternative Swap Portfolio

# Pricing

Construct a portfolio with the same holdings as in the prior question but with a notional amount for each instrument producing an equal 1000 EUR OIS PVBP on 03/12/2016.

1. What is the notional amount of each instrument held?
2. Repeat steps 2 and 3 from the prior question on this portfolio.

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Contact [admin@ilykei.com](mailto:admin@ilykei.com) (<mailto:admin@ilykei.com>) with any questions or problems.