LISBON SCHOOL OF ECONOMICS & MANAGEMENT
UNIVERSIDADE DE LISBOA

Case Studies in Financial Engineering

CASE 4

SWAPS+

Sept. 2019

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Solid-Rock is an Insurance Company based in the Euro Area, owning a US Shares portfolio with the following securities:

	Deal	
Company	**Date**	**No. Securities**
RALPH LAUREN CORPORATION	01-Feb-13	2.500.000
FOX CORPORATION	01-Feb-13	1.250.000
APPLE	01-Feb-13	850.000
HOME DEPOT	01-Feb-13	575.000
IBM	01-Feb-13	1.500.000

As the Board perspectives on the future equity market behaviour became pessimistic, it was decided, in an investment committee held in May.16, to trade swap contracts in order to swap the variable return from the US securities by a fixed return or a variable one from an European index.

Assume you are a financial analyst in Solid Rock and were selected to implement this strategy. After contacting several banks, you decided to propose the trade of the following swaps:

a) A 5-year swap in which the company will pay the variable income obtained from Fox Corporation shares and will receive the 6-month EURIBOR -0,5% per annum. The contract starts on the 31 March 2016, corresponding the notional to the market value of Fox Corporation shares on the same date. Payments are biannual (at the end of the semester).

b) A 4-year swap in which the company will pay the variable income obtained from IBM shares and will receive the S&P 500 return. The contract starts on the 30 June 2016 and the notional value corresponds to the market value of those shares on the same day. Payments are biannual (at the end of each semester).

c) A 3-year swap in which the company will pay the variable income obtained from Apple shares and will receive a fixed rate of 2,5%/year. The contract starts on the 30th June 2016 and the notional value corresponds to the market value of those shares on the same day. Payments are made on a yearly basis (at the end of each anniversary).

Please answer to the following questions:

1) Compute the value of the swaps and the aggregate portfolio on the 31st Dec. 2018.

2) Considering historical prices and the variance-covariance matrix, assuming that the correlation between fixed or variable interest rates and the S&P 500 index is nil, determine whether risk mitigation occurred after the swaps were traded.

3) Present an alternative strategy to mitigate risk, considering different financial instruments and the currency risk, also identifying the contribution of the exchange rate USD/EUR to the risk of the original portfolio.

4) A financial institution proposed to Solid Rock and a lower rated company XYZ Corp fixed and floating interest rates to a 3-year loan of 100 million Euros, under the current market conditions, considering that the credit ratings of Solid Rock and XYZ were AA and BBB, respectively.

Solid Rock intended to obtain a floating rate loan, while XYZ Corp intended to obtain a fixed rate loan. The financial institution is expecting to get a profit of 0,5% (per annum) acting as an intermediary.

Present a swap equally advantageous for both companies, compute the interest rates (after swap) to be paid by Solid Rock and XYZ Corp and represent graphically the interest rates paid and received by each company in the swap.