LISBON
SCHOOL OF
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UNIVERSIDADE DE LISBOA

Case Studies in Financial Engineering

CASE 2

EUROPE-US PORTFOLIO

Sept. 2019

EUROPE-US FUND

Enhanced Performance is an asset management company. Its board intends to assess the performance of Europe-US investment fund currently under management by the company and comprising European and US shares and bonds, as exhibited in Appendix.

Assume that you were selected by the company's Board to develop a risk assessment system to the fund mentioned, based on the portfolio's VaR. In this analysis, please consider the 2-year period before 31st Dec.2016. In the VaR calculation, 4 different methodologies must be used: Historical Simulation, *Bootstrapping*, Parametric Approach and Monte Carlo simulation.

Please answer to the following questions:

1. Describe the several VaR methodologies and discuss their pros and cons.

2. Compute the VaR and the C-VaR (conditioned VaR) of the portfolio on the 31st Dec.2016, using the different methods mentioned and compare the results obtained.

3. Calculate the diversification benefit from adding the US securities to the portfolio.

4. What would be the information required to estimate the VaR by using the diagonal model? Please also discuss the benefits of this approach.

5. What are the difficulties in the calculation of the VaR brought by inserting bonds in a portfolio?

6. Perform a stress testing exercise for the portfolio's VaR, considering two extreme market events (e.g. the 11th Set.2001 and the Black-Monday - 19/10/87).

7. Analyse the VaR behaviour during the 2 years after the date mentioned in question 2, by performing a backtest. Comment the results obtained.

8. Assuming this fund corresponded to a bank's proprietary trading portfolio and considering the results obtained, could the bank adopt an internal approach to compute capital requirements for market risk?

APPENDIX

Europe-US Fund

	Buy	
	Date	**Quantity / Value (*)**
Shares		
PIRELLI	02-Set-13	400.000
NOKIA	02-Set-13	800.000
THE COCA-COLA COMPANY	02-Set-13	700.000
TELEFONICA	02-Set-13	950.000
DAIMLER	02-Set-13	670.000
ADIDAS	02-Set-13	400.000
NETFLIX	02-Set-13	1.500.000
LVMH	02-Set-13	815.000
APPLE	02-Set-13	1.000.000
BANK OF AMERICA	02-Set-13	280.000
Bonds		
Bund 10 year Benchmark	02-Jun-14	400.000,00
US Treasury Bond 5 year Benchmark	02-Jun-14	500.000,00

(*) denominated in the corresponding currency.