

# Financial Risk Management

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## Tutorial exercices #5

### Computation of the McDonough ratio

Let us consider the simplified balance sheet of a bank.

1. From the Excel file with the evolution of asset prices  $A$  and  $B$ , calculate the VaR of daily historical market portfolio of 10 000 shares  $A$  and 25 000 shares  $B$ . We assume that the VaR has not fundamentally changed during the last 3 months. Deduce the capital requirement to market risk knowing that the complementary coefficient  $\xi$  is equal to 50%.
2. We can consider that the liabilities of the bank in terms of loans are comparable by 4 meta-loans whose characteristics are the following:

	CA	EAD	PD	LGD	M
Corporate	100 ME	80 ME	3%	50%	1
Corporate	500 ME	200 ME	5%	60%	2.5
Corporate	30 ME	50 ME	1%	40%	5
Retail		100 ME	4%	20%	

Calculate the IRB capital requirement for the credit risk.

3. We assume that the bank is exposed to a single operational risk whose severity distribution is  $\mathcal{LN}(8, 2)$  and whose frequency distribution is:

$$\begin{aligned}\Pr\{N = 5\} &= 60\% \\ \Pr\{N = 10\} &= 40\%\end{aligned}$$

Calculate the capital requirement for the operational risk using the LDA model.

4. Calculate the total capital requirement of the bank. Deduce the McDonough ratio knowing that bank capital is equal to 65 millions of euros.