

**Solutions to Exercises in
Economics of Banking
Chapter 13**

1. If the bank wants to reduce its capital charges for operational risk, it may contemplate a change in the approach towards computing these charges. If it currently uses the basic indicator approach, a change to the standardized approach will allow for a differentiation between charges, and even if it already uses the standardized approach, the change in its business may give the desired effect: if it has an increased turnover in retail banking, then the percentage is lower here than for other business lines, and this may be exploited in computing capital charges.

Otherwise, or if the bank already uses the advanced management approach, it must collect data to show that exposure to and probability of losses, and perhaps also size of losses, when they occur, have diminished. This will not be achieved immediately but may be exploited after some time.

2. (Typo in text: ‘standard derivation’ should be ‘standard deviation’.) We have no information about the distribution of losses, and the immediate conjecture when dealing with random losses, namely an exponential distribution, is contradicted by the data for mean and standard deviation, which in the case of an exponential distribution should be identical.

We therefore rely on a normal approximation, reading the text as stating that each of the many costumers give rise to a fee of €100 but causes random losses with mean €20 and standard deviation €10, both per week, or alternatively, with mean €80 and standard deviation €40 per month, and the probability that the loss in a month constitutes more than €100 is therefore

$$1 - \Phi\left(\frac{400 - 80}{40}\right) = 1 - \Phi(8) \sim 0,$$

where Φ is the probability distribution function of a standardized normal variable.

3. In the standardized approach, there are fixed capital charges as percentages of gross income in each of the business lines, and the percentage for asset management is low, whereas it is higher for trading, one of the new business lines of the bank. Given that this new business matters for the bank, it should change its system to the advanced management approach, where the bank can split into both business line and type of event, and given this differentiation, it may substantiate that it has low risk of losses in each of the relevant combinations. This will enable the bank to save on the capital charges for operational risk.