

## Chapter 9

### XVAs

#### Practice Questions

##### 9.1

Financial economists argue that the cost of funding margin should be related to its risk (which is fairly low). Most practitioners consider that the cost should be the bank's average funding cost.

##### 9.2

Many practitioners calculate KVA by arguing that there is a cost if a bank does something that requires additional regulatory capital and that the incremental return on the regulatory capital should be at least the return required by shareholders. A financial economist would argue against this if the project is less risky than the average project undertaken by the bank because the project will lower the average risk of the bank and therefore lower the return required by equity holders.

##### 9.3

FVA is concerned with variation margin. The variation margin for a portfolio is the sum of the variation margins for the transactions in the portfolio. (As indicated in footnote 13 of Chapter 9, this is only approximately true when the impact of defaults on funding is considered.) MVA is concerned with initial margin which (at least in the case of CCPs) is calculated at the portfolio level. (Note: The standard regulatory approach to setting initial margin for bilaterally cleared derivatives does not permit netting. However, the industry has come up with SIMM, Standard Initial Margin Model, which does allow netting.)

##### 9.4

$$CVA = 0.03 \times 6 + 0.03 \times 5 + 0.03 \times 4 = 0.45$$

The DVA is zero because the value of the transaction to the counterparty is negative.

##### 9.5

The DVA for a bank depends on a single credit spread (its own) whereas CVA depends on the credit spread of all the bank's counterparties. On any given day, some counterparty spreads can be expected to go up while others go down so that there are some offsets. DVA can therefore be expected to be more volatile.

##### 9.6.

If it chooses debt, the equity becomes more risky and the expected return of equity holders increases. If it chooses equity, the equity becomes less risky and the expected return required by equity holders goes down.

##### 9.7.

A netting agreement states that all transactions are considered to be a single transaction in the event of a default. Transactions with a positive value are netted against transactions with a negative value. This usually reduces exposure because a company cannot cherry pick which

transactions it will default on. Credit risk is not affected by netting when all transactions will have a positive value at all times or when all transactions have a negative value at all times.

**9.8.**

The average funding cost should come down. The company will become less risky. Its average funding cost should be a weighted average of 5% for the old projects and 3% for the new ones. This is  $0.9 \times 5\% + 0.1 \times 3\%$  or 4.8%.