Voluntary assignment 2

Hints for answers

This is *not* a standard version of answers to the assignment. Actually, no standard exists, since the assignment – just as the exam – is formulated in such a way that there can be many different ways of answering it, all of which are equally good provided that an argumentation is given. Therefore, the following gives only a few hints as to what an answer *could be.*

Problem 1

The problem described is one of interest rate risk – the bank has to manage the portfolio of bonds so that its value will not be diminished by the interest rate changes. A standard tool for this is duration matching where the net present value of assets, weighted by one minus their duration, should correspond to the similar expression for the liabilities.

Duration matching is a simple tool with some shortcomings: It measures the dependence of present value on interest rates only as a linear approximation and assumes a flat interest rate structure. If the interest rate changes have a considerable size, it must be a supplemented by something else, either higher-order approximations as convexity or scenario analyses.

Problem 2

The basic question is whether an intervention in the market for deposits will influence the market for loans. If the market structure is as outlined in the text, that is either oligopoly or perhaps monopolistic competition, then the two markets are typically independent, and intervention in one market will have no direct effect in the other one. In particular, the loan rate will remain largely unaffected, and the riskiness of bank investments will similarly remain unchanged.

If the number of banks is increased, the result will be clearly be an increased competition for deposits with some effect on the deposit rate. The effect on overall risks will depend on the structure of the banking sector, as desribed in either the Allen-Gale or the Boyd-deNicolo model.

Problem 3

The problems arising from the use of a lender of last resort are described in chapter 16 and in chapter 17, apart from the general side effect in form of higher risk-taking there may also be problems connected with the decisions of the central bank as to whether to close down a bank or keep it floating (the Repullo and Mailath-Mester models).

The system of deposit insurance will be also be subject to moral hazard in the form of increased risk-taking, and the decisions of the deposit insurer may be biased in the direction of too much intervention. On the other side, the way in which the insurance premium is collected can have reduce possible losses in the banking sector, in particular if they are designed so as to prevent the banks from selecting investments with correlated risks.