Written Exam at the Department of Economics summer 2022

Economics of Banking

Exam, May 30, 2022

Outline of solution

1. The textbook background for this problem is Chapter 6 on credit rationing. The situation described in the text can be given several different theoretical explanations, the most appropriate being that borrowers have common technique and expected outcome but may differ in the underlying riskiness of their business. We then have a case of adverse selection as treated in the Stiglitz-Weiss model, where high repayment rates force the less risky borrowers out of the loan market, making this market more risky. The results of the model thus vindicate the claims that credits are scarce and repayment rates high. Other theoretical interpretations (possibly giving other results) are also acceptable if they are argumented in a satisfactory way.

The availability of easy accessible data on borrowers' activities means that the problem of asymmetric information and the resulting effects on availability of credit can be done away with. Loan contracts may then be designed so that they concentrate on the problem of risk sharing between borrower and lender.

If lenders are not given access to data, the problems of asymmetric information must be dealt with in other ways. These alternatives may include occasional monitoring, denial of renewed credits or use of collateral in setting up the contracts.

2. The first part of this problem deals with deposit insurance, treated in Chapter 15. The basic principle in pricing deposit insurance is that of fair pricing, according to which the bank should pay the expected loss of its deposit liabilities. This principle has subsequently been modified by the application of ideas from option pricing, since the bank may consider its deposit insurance can be seen as a put option on the assets of the bank. A further modification is follows when the liquidation value of a defaulting bank is taken into account, since this value may be larger if the bank can be taken over by another bank rather than sold to the general public. In the current situation the banks are of equal size, but since the owners of the first bank are generally more wealthy than those of the second bank, it may be assumed that they might facilitate the purchase of the second bank in the case that it failed. As a consequence, the deposit insurance premium of the second bank might be smaller than that of the first bank.

The second part of the problem deals with relationship banking, treated in Chapter 2. The relationship as described does not take the form of a contract over several years with specified loans and repayment rates, and consequently the bank does not commit itself to treat old costumers in a way different from the new costumers. An advantage to be gained from the relationship must therefore be obtained at the moment of entering it, so the argument in the text cannot be sustained.

3. The theoretical background is spread over several chapters, notably Chapter 11 on bank competition and Chapters 2,8 and 14 on shadow banking. The description of the banking sector points to the Allen-Gale model of oligopolistic banks, with the extension given by Boyd-deNicoló, as a frame for the reasoning. The introduction of an effective lower bound on the loan rate means that a new equilibrium must be established, and the optimal amount of loans will decrease. This means that also the total amount of deposits will be smaller than before, and therefore it cannot be expected that deposit interests should increase, rather they would become even smaller than they are already. In addition, the increased loan rate may force the entrepreneurs into more risky projects, thereby increasing overall riskiness of the financial sector.

Turning to shadow banking, banks may avoid the rules prescribing a minimal loan rates, since the assets are sold off as securities in the market. This may keep the effective loan rate down, at least at its previous level, but the effects on the deposit rate, now implicit in the form of repurchase prices in the repo trade agreements, is less clear and probably small. Shadow banking may increase overall riskiness of the financial sector but may also be more robust against smaller disturbances since confidence is directed towards securities rather than towards the bank as such.