

ECONOMICS OF BANKING

Ordinary Exam 28.05.2024

Outline of solution

1. The theoretical background is credit rationing and loan contracts, chapters 5 and 6. In the situation described, the firms asking for credits have a technology where a fixed outcome is obtained in case of success but very little is obtained in case of failure. The probability of success can however vary among firms. This is the basic framework in the deMeza-Webb model of oversupply of credits: The banks competing for the credit market will be offering credits also to firms for which expected net outcome is less than what it costs to society to fund the investment. Since the credit market already offers credits abundantly, as also indicated in the text, a subsidy lowering the interest payment of borrowers will only increase the inherent inefficiency, and it is therefore not an appropriate way of achieving the desired goals.

After the changes that have occurred in the technology as well as in the market as a whole, the basic conditions in the market, with investment outcome being subject to considerable variation, may be seen as having moved in the direction of what is assumed in the Stiglitz-Weiss model of undersupply of credits. Here a high rate of interest will have as a consequence that the less risky firms leave the market, leaving it the more risky firms and possibly leading to a lower all expected loan repayment and net investment outcome, and in this case subsidies may play of positive role in reducing credit market inefficiency.

2. The basic theoretical background is the Diamond-Dybvig model as described in chapter 1 and again in chapter 14. The standard deposit contract of this model is based on the condition that the depositors want to participate in an investment yielding a certain outcome, but they may be exposed to a random event of liquidity need in which case they withdraw their deposits. The model shows how this can be achieved by a bank using that only a small fraction of the depositors actually experiences this need, so that the bank needs only to hold the corresponding small reserve of liquidity.

The crucial assumption of the model is that the liquidity needs occur independently for each of the many depositors, so that the law of large numbers applies. In the case considered, the liquidity need arises when the business conditions in the AI industry become suitable for the investors, in which case all withdraw their deposits. This means that the independence condition is violated and standard deposit contracts cannot be used.

Since the bank wants to obtain a profit from the use of these funds, it cannot invest them in fully liquid securities, but it can propose to the investors to reformulate the deposits as repo trades, so that the bank sells securities to the depositors under the obligation of buying them back at a given price at very short notice but subject to renewal. This arrangement will give the investors a protection corresponding to that of a deposit insurance which they usually cannot obtain given the size of the deposits, and if the securities used are selected properly, it will make it possible for the bank to obtain a net profit on the arrangement.

3. Banks which have liquidity problems of a size which cannot be solved by usual methods of obtaining short-term funding will have to apply for outside funding. In the country considered, it is decided that government should not be involved even indirectly through a lender of last resort, so either it must be saved by another bank or it will default on its obligations.

Assuming that several takeovers may take place, the bank sector will become more concentrated, and this may have an effect upon the overall riskiness of the financial sector. The theoretical background here is given by the Allen-Gale and Boyd-deNicoló models, discussed in chapter 11. If investment risk and outcome are related negatively, then in a model of oligopolistic banking, where banks choose the size of deposits and the desired investment outcome, one will get that fewer banks result in lower deposit rates and reduces the optimal risk level on the investment side. However, if banks are choosing investments directly but rather extends credits to entrepreneurs choosing investment, then fewer banks will result in increased loan rates and entrepreneurs choosing more risky investments. What will apply in the country considered will depend on the structure of the banking sector, but the argument that concentration may increase riskiness has some theoretical foundation.

If the banks must rely in themselves to avoid getting into serious liquidity problems, they must not only keep a liquid reserve large enough to deal with ordinary liquidity problems but they should be able to deal with situations where sudden distrust or unudually large losses on assets result in unexpected large withdrawals. Here the capital reserves matter, and the banks may want be asked not only to hold a sufficiently large percentage of equity but also to arrange that a certain percentage of the outside funding is willing to accept losses or being converted to equity on certain specified conditions, thereby avoiding a default of the bank.