ECON4335 Questions for seminar 4, week 43

1 Question 1

1. A bank faces a group of potential borrowers. Each of them has an investment project that they want to finance with a loan. The projects cost the same and have the same expected return, but some are more risky than the others. The borrowers have no other bank to go to. The bank is unable to distinguish between borrowers according to the risk they face. Discuss how the interest rate charged by the bank affects which and how many investors want to go ahead with the project.

2. Let R be the gross interest rate on loans and let $V(R)$ be the bank's expected average return on the loans when the possibility of default is taken account of. What do you expect $V(R)$ to look like? Illustrate with a graph and explain.

3. Let L be the number of investors who want to go ahead with their projects. We can write the inverse demand curve for loans as R=G(L). Assume that the bank's marginal cost of funds is a constant $\bar{r}$ (measured as a gross interest rate).

   (a) Write down an expression for the bank's profits.

   (b) Derive the first-order condition for a local profit maximum and interpret it. Explain why $V'(R)$ has to be strictly positive at any maximum point. Show that the first-order condition can be written:
   $$V(R) = \frac{e}{e - V'(R)R/V(R)}\bar{r}$$
   where e is the absolute value of the demand elasticity for loans ($e = -G(L)/LG'(L)$. Compare this to the standard formula for monopolistic price setting. What is the effect of adverse selection here?

   (c) Discuss the location of the global profit maximum in relation to the graph you drew in question 3. Is credit rationing a possible outcome?

   (d) Discuss the effect of an increase in $\bar{r}$ on $V(R)$ and R.

4. Suppose now that the maximum amount of funds that the bank can acquire for lending is $\bar{L}$. For $L < \bar{L}$ the marginal cost of funds is still $\bar{r}$. Is credit rationing a possible outcome in this case?

5. Suppose now that there are many competing banks that the borrowers can go to and that all banks can acquire additional funds at the cost $\bar{r}$ in unlimited amounts. How is the equilibrium interest rate determined in this case and how does it relate to the outcome in the monopoly case?

2 Question 2

Discuss why an increase in the central bank's policy rate does not always have a one to one effect on the lending rates of banks. (No formal model expected).