ECON 4335 – Economics of Banking –Problem set #2 – seminar week 40

Question 1 (Group A; Berhardsen et al.)

Consider a profit-maximizing bank, as in 3.1.3 in F&R, taking all interest rates (r_D, r_L, r) as given, where r_D is the rate of deposits, r_L is the one on loans and r the one in the interbank market. Each bank is required to keep a fraction g of its deposits as reserves; i.e. $K = gD$, where D is the volume of deposits. With m as the net position in the interbank market, we have from the balance sheet, without equity, that $R + L + m = D$, where L is the volume of loans. The multi-output cost function is $C(D, L)$, with "standard" properties.

a) Derive the first-order conditions for the profit-maximizing bundle (D, L).
b) Explain why the relevant rate of interest on loans, respectively deposits, for the bank is: $r_L - r$, and $r_D - r(1-g)$.
c) Derive the impact on bank behaviour of a higher rate of interest in the interbank market. What might cause r to go up?

Question 2 (Group B; Hovland et al.))

The competitive equilibrium of the banking sector, as outlined in section 3.1.4 in F&R, can with identical banks, each with constant marginal costs; $\dfrac{\partial C}{\partial L} = a$ and $\dfrac{\partial C}{\partial D} = b$, be characterized by: $r_L = r + a$ and $r_D = r(1-g) - b$, where g is defined in Question 1, and with an equilibrium condition as given by; cf. (3.12) in F&R: $I(r_L) = (1-g)\left[S(r_D) - B\right]$, where B is the net supply of government bonds. Assume that aggregate demand for loans is linear; $I(r_L) = I_0 - jr_L$, with I_0 and j both positive and also with aggregate private savings a linear function; $S(r_D) = S_0 + sr_D$, with $s > 0$.

a) Derive the equilibrium rate of interest in the interbank market.
b) What is the effect of a reduction in government debt?
c) What is impact of "shocks", like a lower value of I_0, or a higher value of S_0? How can "money hoarding" in the banking sector be analyzed within this model?

Question 3 (Both groups)

Banks might be tempted to take too risky positions. Discuss briefly, without any formal model, what actions governments can take to prevent such behaviour.