

**Economics of Banking**  
**12. August 2016**  
**Hints for solution**

**1.** The problem is related to the structure of the loan contract, treated in Chap.5. Borrower's income from the investment project is not observable to lender, and this opens up for opportunistic behavior of the borrower.

To counteract this the lender must have access to additional information. If this information is costly, the optimal contract will be a standard contract, specifying a fixed repayment for outcomes as large as or greater than this repayment, and with full repayment of the reported income of the borrower when it is smaller.

If the lender can obtain perfect information about borrower's outcome without cost, the contract changes character to become one dealing with risk sharing.

Since the contract, even with full information, performs unsatisfactorily, it may be considered (in particular in relation to the type of project involved) to incorporate an incentive for investor in the form of no repayment if the outcome is sufficiently large, against payment of the whole outcome to the lender in other cases. This type of contract is efficient in situations where the effort of the borrower plays an important role.

**2.** We are dealing with liquidity of banks and liquidity risk, treated in Chapter 14. A simple model of the banks' decisions with regard to liquidity is obtained when liquidity is considered as an inventory, using inventory decision principles: the cost of too large inventories are lost interest income, whereas the cost of too small an inventory comes from interests paid in extraordinary short-term loans from other banks. The optimal inventory, or in this case the optimal liquidity, is influenced by these interest rates, and a tax on loans to obtain extra liquidity will matter for the decisions about optimal liquidity for all banks, which tends to be more expensive. As a consequence, the general level of cost has increased, and this may be supposed to make its way to the loan market as well.

**3.** The problem is one, which concerns the risk behavior of banks, treated in Chapter 11. A straightforward theoretical framework for a situation where the choice of riskiness is influenced by future profits is the simple Matutes-Vives model, where current profits are either independent of risk (under full information) or increasing in risk, which on the other hand influences the possibility of a default and through this a loss of future income from banking. If the value of future incomes diminishes, the current profits are correspondingly more important.

The argumentation in the model cannot immediately be transferred to a case where the bank manager decides upon the risk profile, since the value of future income from banking principally concerns the owners of the bank and not necessarily the manager.