Monetary Economics: The Economics of Banking
Exam 15. december 2008
Outline of solution

1. The situation described is discussed in Freixas & Rochet 4.5 (1st ed. 4.6) and (particularly in) 5.4. It can be assumed that loans of type 1 are more risky than loans of type 2 (other assumptions are acceptable if argumentation is provided). Loan contracts are characterized by the combination of interest and collateral, and the bank can separate the two buyer groups, even when type cannot be observed directly, by offering two loan contracts, a contract with high interest and no collateral for type 1, and for type 2 a contract with lower interest and so much collateral that type 1 is not tempted to take it. A more detailed description of the market will also state that contracts are robust against potential competitors who may try to establish themselves in the market by attracting one or both types of borrowers.

When the value for the lender of collateral is reduced, there is a need for higher collateral at every given level of interest, so that contracts involving collateral must be revised so that either interest rate or collateral increases, making them less attractive for the borrower. For contracts not involving collateral there is no immediate change in the background conditions. Under the assumption that the export industies are type 1 this means that argument (1) is not well-founded.

However, argument (2) may turn out to be correct, since the policy measure reduces the difference between the two costumer types from the point of view of the lender. This may have as consequence that a competitor who could not offer *both* types a (pooling) contract before, can do it now, so that the previous equilbrium is upset without no obvious new candidate for an equilibrium.

2. The case described can be modelled as a monopolistic bank (the Monti-Klein model) with explicit provision for the additional cost of shortterm liquidity probkems (cf. Freixas & Rochet 8.2.2). It may possibly be noticed that even if there is not a monopoly in the strict sense, the results will be similar for an oligopol af Cournot type (quantity adjustment). In the model, the liquidity planning is treated as an inventory problem. The main result of the model is that liquidity cost, measured as penalty interest cost multiplied by probability of getting illiquid at the optimal inventory level, enters the determination of optimal interest rates in the same way as does other marginal cost.

A tax added to the penalty interest rate will change the optimal liquidity reserve in upwards direction, which can be considered as an intentional effect of the tax, but it will also change the marginal cost of the bank and through the adjustment of the market interest rates lead to higher loan rates, in contrast to the intentions behind the tax.

3. We are dealing her with considerations concerning the form of the loan contract, a topic dealt with in Freixas & Rochet chapter 4. It is stated that the project (about which it may be assumed that the bank is unable to monitor it in details) consists of two parts, of which the second is stongly dependent on the effort of investor (borrower). For this part of the contract we have a moral-hazard situation as described in 4.4, where the contract is based on full repayment to the bank of the results of the project if the latter is below a certain threshold, and no repayment if it is above. The important aspect of this type of

contract is that it should contain a premium of effort for the borrower, and even in situations where the project has a certain effort-independent part, having such a premium will still be advantageous for both parties. It is not possible to describe a unique contractual structure, but the contract should contain a sizeable reduction in repayment to the bank in the case where the outcome of the project is particularly high (and the bank must of course be compensated for this by a rather large repayment at less good results of the project).