

**Solutions to Exercises in
Economics of Banking
Chapter 2**

1. Since usury is defined through a comparison of interest rates and other conditions of the loan contract, it must depend on current or normal level of interest rates, something which is not easily determined. In order to prevent usury, loan contracts should include an option for the borrower to exit the contract and switch to another lender. Society can sustain the competitiveness of lenders by insisting that all loan contracts should have such a (suitably formulated) exit option.

2. The P2P lending does not fit immediately with any of the models of financial intermediation presented in the two chapters, it comes closest to the moral hazard model of 1.3.2, where the intermediary performs the monitoring necessary to assure that the G -project is chosen. The resulting situation is a mixture between a classical bank and a bond market, where the securities issued pertain to a particular project and the issuer has this as its only source of income, meaning that reputation matters so that there will be a careful screening of new borrowers.

Since the borrowers have been small innovative firms, mostly with a history of being rejected by established banks, the P2P market has so far been a supplement rather than a competitor, and it may remain so in the near future unless larger firms get tempted to use these markets.

3. The value added in financial intermediation is found as the difference between revenues and cost when cost of capital has been subtracted, and it therefore includes not only the productive services of intermediation but also the gains from risk-taking, something which should not have been included since risk-taking by individuals is not considered as value added. Reducing earnings by a risk-adjusted rate of interest does not capture all of this, since such a risk-adjusted rate of interest typically pertains to the security market rather than to the sector of financial intermediation.

Is value-added is overvalued as compared with other industries, then subtracting wage payments will give a capital share in value added which is inflated relative to other sectors, and the rate of return will consequently be lower.

4. In the case that A does not buy the CDS, there will be an expected loss of size

$$\sum_{j=1}^{10} (1-p)^{j-1} p \left[1000\beta^{10} + \sum_{i=j}^{10} 100\beta^i \right]$$

where $p = 0.1$ is the probability of default in each year, and β is the discount factor. Here $(1-p)^{j-1} p$ is the probability that default happens in the j th year, in which case the final

payment of 1000 at year 10 and the current payment of 100 each year from j to 10 will be lost. Changing the order of summation, this can also be written as

$$1000\beta^{10} \sum_{i=1}^{10} (1-p)^{i-1} p + \sum_{i=1}^{10} \left(\sum_{j=1}^i (1-p)^{j-1} p \right) 100\beta^i.$$

If A chooses the CDS, then the loss in terms of additional payments will be

$$1000 + \sum_{i=1}^{10} 20\beta^i.$$

Inserting values for β it can be seen that the CDS is not attractive for A , even if $\beta = 1$ since the upfront payment of 1000 cannot be counterweighted by subsequent payments.

5. The implicit interest rate on this transaction is found as

$$\frac{10,161,819 - 10,157,671}{10,157,671} = 0.0004\%$$

on a 2 week basis or 0,0107% yearly. Since there is no information given on whether the seller actually was paid the whole sum of 10,157,671, we cannot say anything about a possible haircut.

6. The increased haircut means that the bank either pay back \$ 10,000 to the buyer, which puts a strain on the liquidity of the bank, or it must hand over additional securities to the buyer so that \$ 80,000 constitutes 70% of the value of securities, that is to amount of \$ 14,300. Since these securities can hardly be expected to be readily available for this purpose, the bank is once again experiencing a liquidity problem, which it must solve in some way reducing other engagements, so that the liquidity problems may spread from the bank to other institutions or firms in society.