

EE431 Economics of Financial Markets and Institutions, 2/2016

Problem Sets 6 : Theory of Financial Intermediation

Please submit at the BE office, 5th floor department of Economics building.

Deadline of submission: April 24, 2016 before 15.00 hrs.

Late submission will not be accepted.

1. "... Michael Dell, the founder of the world's third-largest PC-maker, announced that he planned to take his company private. ... Why does Mr. Dell, who took Dell public in a stock market in 1988, want to buy his company back again? ... Mr Dell's optimism is not shared by investors. Dell's share price fell from around \$30 in late 2007 to less than \$10 five years later ... Mr. Dell's calculation is that the shares are now undervalued. He is deciding to buy them back and take Dell private. ... "

The Economist, February 6, 2013

In the context of theory of financial intermediation, explain **possible benefits** Mr. Dell would get by buying shares back and taking Dell private.

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2. Describe the Financial Intermediation as Delegated Monitoring in Diamond (1996) we learnt in class.

- We consider an economy in which n identical firms seek to finance projects. Each entrepreneur owns a firm and each firm requires an investment of $m = 100$ units of capital.

- (a) The assumption is lenders are small or large in terms of capital funds they have, comparing to the capital funds the borrowers want to borrow?

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(b) Suppose each lender owns 1 unit of capital to lend out. Each borrower does not have any initial funds. They have to borrow from lenders. For one borrower, how many lenders a borrower needs to borrow from?

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(c) How many lenders in the economy we need to have so that aggregate loan demand is equal to aggregate loan supply?

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(d) Borrowers have no initial capital but they have the ability to implement identical investment project. Each borrower is an entrepreneur and each entrepreneur owns a firm. The returns of each firm are identically independently distributed. The project's realized value is a random variable with realization denoted by Y . $Y = 140$ with probability 0.8 and 100 with probability 0.2.

i. What is the expected payoff on the project?

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ii. All entrepreneurs and all lenders know the distribution of Y .
The entrepreneur observes the realization of actual Y freely.
The other cannot observe the total output of the project without paying a cost.
Is an entrepreneur willing to speak the truth about the output of his/her project?
Describe the moral hazard problem in this economy.

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iii. If we impose a punishment system such that the entrepreneur will be forced liquidation if he/she pays equal to or lower than a specified amount, f . Assume that liquidating gives no proceeds to the lenders and the entrepreneurs. Calculate the specified amount, which will lead to payments with an expected value of 105 on a loan of 100 ($r = 5\%$). Describe how the punishment system in this question helps solving the moral hazard problem.

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