

Seminar II

Problem 1.

Discuss reasons why a collateralized asset may be of higher value to the entrepreneur than to an outside investor.

Problem 2. (Exam, spring 2009)

Jenny has a business idea she wants to develop. Her project is risky: with probability p , it is successful while with probability $(1 - p)$ it fails. Success means that investing an amount I returns RI , where $R > 1$ is the return per unit of investment. Failure means a zero return on the project: $R^FI = 0$. The probability p of success depends on Jenny's own efforts: if she works hard, then $p = p_H$, while if she does not work hard, then $p = p_L$, where

$$0 < p_L < \frac{1}{R} < p_H < 1.$$

By not working hard, she will gain a benefit BI , where B is the benefit per unit of investment, satisfying

$$(p_H - p_L)\left(R - \frac{1}{p_H}\right) < B < 1 - p_LR.$$

Jenny has available own funds of size $A \geq 0$. If she wants to invest more than A , she will need funding from outside investors. Assume that the capital market is competitive, that Jenny is risk neutral, that limited liability prevails, and that efforts are not observable.

- a) How much will Jenny invest in the project?
- b) Find an expression for her borrowing capacity (or debt capacity), and discuss how this borrowing capacity is affected by the extent of the moral-hazard problem.

- c) Suppose now that even failure of the project has a positive return, but lower than the return following success: $0 < R^F < R$. Explain the difference between debt and equity as ways of funding a firm. Explain in particular why, in this situation, it is not optimal for Jenny to fund her investment by issuing equity only.

Problem 3.

Exercise 4.10 in Tirole, pp. 191-192.

Problem 4.

Discuss how and why renegotiation may occur in a loan agreement and the role played by the lenders' (borrowers') bargaining power in the renegotiation stage.