Student Number........................
Student ID.................................

EE431 Economics of Financial Markets and Institutions, 1/2016

Problem Sets 8 : Convexity, Excessive Risk and Bank Regulation

Please submit at the BE office, 5th floor department of Economics building.
Deadline of submission : December 1, 2016, before 15.00 hrs.
Late submission will not be accepted.

1. Suppose that there are two investment projects, A and B. Each requires initial investment of 1,000.

   Project A returns 2,000 with probability 0.5 and 200 with probability 0.5.

   Project B returns 1,400 with probability 0.5 and 800 with probability 0.5.

   Answer all parts of this question.

   (a) Suppose that the project is financed by 100% equity. If the owner is risk neutral, which project the owner of the project will prefer? Why? Explain.

   ....
   ....
   ....
   ....
   ....

   (b) Now suppose that the owner (shareholder) of the investment project does not have any initial capital. Therefore, it has to borrow from a lender (bondholder) and repay 1100. Limited liability is assumed. Suppose that the lenders and the owner are risk-neutral. Which project the owner would prefer? Which project the lender would prefer?

   ....
   ....
   ....
   ....
   ....
   ....
   ....
   ....
   ....
   ....

   (c) Discuss moral hazard and asset substitution problem in the model.

   ....
   ....
   ....
   ....
   ....

(d) Suggest one way to design a loan contract that reduces asset substitution problem.

....
....
....
....
....