

Theory of Banking - Mid-term Exam

April 5th, 2017

You have **90 minutes** to answer all the questions and hand in your exam.

Question 1 (25 pt). Consider a three-period economy á la Diamond and Dybvig (1983), with a unique good. The economy is populated by a continuum of ex-ante identical agents (of mass 1) and each agent is endowed with one unit of the good at $t = 0$. There are two types of agents: patient and impatient agents. Indeed each agent will privately know whether he is a patient or an impatient individual at $t = 1$. Let π_1 be the proportion of impatient agents and $\pi_2 = 1 - \pi_1$ that of patient ones. Agents' preferences are represented by the following utility function

$$U(C) = \log(C)^\gamma$$

with γ being a strictly positive parameter. In this economy, every agent has access to two technologies:

- the storage technology that yields a zero net interest per unit of good stored;
 - the long-term technology that yields $R > 1$ units of the good at $t = 2$ per unit invested in $t = 0$; if the investment is prematurely liquidated at $t = 1$ it yields $L < 1$ per unit invested.
- (a) Consider an asset market opening at $t = 1$, in which consumers can trade at price p the promise to receive consumption good at $t = 2$. Show that in the market equilibrium the price of the second-period good in terms of the first-period good, p , has to be equal to 1, and that first-period consumption, C_1 , is lower than second-period one, C_2 . Explain why.
- (b) Show that, when there is no bank run, the equilibrium with deposit contracts makes consumers better off with respect to the market allocation. Explain what are the implications of the fact that the efficient consumption profile provides consumption levels $C_1^* > 1$ and $C_2^* < R$.
- (c) Explain the mechanism through which the agents holding a deposit contract could cause a bank run. Is this an equilibrium configuration?
- (d) Assume that all consumers decide to withdraw their resources from the financial intermediary at $t = 1$. Under what condition this is feasible? What happens if the previous condition is not satisfied?
- (e) Illustrate one instrument of bank regulation that could prevent a bank run in this framework. Explain how it would work.

Answer the question below within the specified space limit.

Question 2 (5 pt). Describe the balance sheet channel of the monetary policy transmission mechanism. [Max: one page]