SIMON FRASER UNIVERSITY
Department of Economics

Econ 305   Prof. Kasa
Intermediate Macroeconomic Theory   Spring 2010

PROBLEM SET 4
(Due April 16)

1. Consider a world with just two countries, a 'large' one (e.g., the USA) and a 'small'
   one (e.g., Canada). The two countries have flexible exchange rates and open capital
   markets. According to the Mundell-Fleming model, what happens in the short-run to
   the small country's output when the large country increases its money supply? What
   about when the government of the large country increases its spending? Illustrate your
   answers with a graph.

2. Consider the following simple version of the Diamond-Dybvig model discussed in Chap-
   ter 15. There are three periods: 0, 1, and 2. The economy consists of a large number,
   N, of consumers, each endowed with one unit of a good in period 0. This good can be
   used as an input in production, but the production process is 'illiquid' in the following
   sense: If one unit is invested in period 0 then $1 + r$ units of the good are produced in
   period 2. However, if the production process is interrupted in period 1, then only one
   1 unit is produced in period 1, and nothing more is produced in period 2.

   Consumers have random needs for cash. In particular, with probability t each consumer
   may need to consume in period 1. With probability $(1 - t)$ a consumer is patient, and
   will only need to consume in period 2. Initially, in period 0, when investment decisions
   are made, consumers do not know which type they will be. They do not discover this
   until period 1.

   (a) Describe the outcome when each individual acts on his own.
   (b) Describe how a bank could be set-up to exploit the 'law of large numbers' to
       produce potentially better outcomes. Under what conditions on utility functions
       would the bank produce a Pareto superior outcome? Describe the bank contract
       that maximizes a typical consumer's expected utility (i.e., before he learns which
       type he is). Illustrate this contract with a graph.
   (c) Explain why the bank is susceptible to a 'bank run'?
   (d) Now suppose the banking contract includes a 'suspension of convertibility' clause,
       which states that only the first tN depositors in line in period 1 can withdraw
       their deposits. Will there still be a bank run equilibrium? Why or why not?

3. Consider the job search model discussed in class and in Chapter 16. In this model,
   suppose the government introduces an unemployment insurance program in which
   benefits are financed by taxes on employed workers. Describe the effects of this program
   on the reservation wage and on the long-run enemployment rate. Use the appropriate
   graphs to illustrate your answer.