UNIVERSITY OF OSLO
DEPARTMENT OF ECONOMICS

Postponed exam: **ECON4325 – Monetary Policy**

Date of exam: Thursday, June 9, 2011

Time for exam: 09:00 a.m. – 12:00 noon

The problem set covers 3 pages

Resources allowed:
- No resources allowed

The grades given: A-F, with A as the best and E as the weakest passing grade. F is fail.

The exam consists of two parts, 1 and 2. In the grading, problem 1 is given 60 percent weight, and problem 2 is given 40 percent weight.

Problem 1 consists of six separate problems. They should be answered briefly, intuitively and precisely. Problem 2 should be answered in depth and detail.

Problem 1

a) Explain the relevance and importance of different forms of transparency for the efficiency of monetary policy. How transparent are central banks? Your written answer should exceed one page, but be no more than three pages long.

b) Explain with words and a figure what is meant by Calvo-pricing in the setting used in this course.

c) There is a link between the central bank policy rate (i.e. the interest rate that the central bank targets for short term borrowing and lending in the interbank market) and the central bank balance sheet. Describe the item on the balance sheet that the central bank cares most about, in order to make sure that the desired policy rate is implemented.

d) Describe the two-pillar strategy used by the ECB and explain why such a strategy can be beneficial.

e) What is meant by the term "classical dichotomy" in the classical monetary model? Explain.

f) There is considerable evidence suggesting that wages are rigid in nominal terms. Explain the main implications of wage rigidity for the monetary policy.

Problem 2 - The New Keynesian Model

In this economy the representative infinitely-lived household seeks to maximize utility when consumption in period t is a consumption index given by:

$$C_t \equiv \left(\int_0^1 C_t\,(i)^{1-\frac{1}{\varepsilon}} di\right)^{\frac{\varepsilon}{\varepsilon-1}}, \qquad (1)$$

with $C_t(i)$ representing the quantity of good i consumed by the household in period t and where it is assumed the existence of a continuum of goods represented by the interval [0,1]. ε is the demand elasticity.
Next, assume that the household has S_t to spend on consumption in period t, so that the expenditure level is defined as:

$$S_t \equiv \int_0^1 P_t(i)\, C_t(i) di, \qquad (2)$$

a) Explain in words what monopolistic competition means and how it affects optimal behavior of households.

b) Show that the household's optimal consumption of good i relative to good j equals:

$$C_t(i) = C_t(j)\left[\frac{P_t(i)}{P_t(j)}\right]^{-\varepsilon}, \quad \text{for } \forall\, i,j \in [0,1] \text{ and } i \neq j.$$

c) Interpret the optimality condition found in 2b. (Hint: In order to gain full score, all parts of the condition must be interpreted).

The period utility function for the household is:

$$U(C_t, N_t) = \frac{C_t^{1-\sigma}}{1-\sigma} - \frac{N_t^{1+\varphi}}{1+\varphi}, \qquad (3)$$

where N_t represents hours worked in period t. When the household behaves optimally in its choice of consumption it can be shown that $P_t C_t = \int_0^1 P_t(i)\, C_t(i) di$ and the household flow budget constraint can therefore be written in the follwing way:

$$P_t C_t + Q_t B_t \leq B_{t-1} + W_t N_t - T_t, \quad (4)$$

where Q_t is the price of one-period risk free nominal bond and $B_t$is the one-period risk free nominal bond that pays one nominal unit of money on maturity. W_t and T_t represent nominal wages and lump sum taxes respectively.

d) Derive the household's two remaining optimality conditions and interpret the solutions.

e) Log linearize the two conditions found in 3d around steady state.