# UNIVERSITY OF OSLO
# DEPARTMENT OF ECONOMICS

Exam: ECON4330 – Open economy macroeconomics, spring 2005

Date of exam: Wednesday, May 25, 2005     ***Grades will be announced: Tuesday, June 14***

Time for exam: 2:30 p.m. – 5:30 p.m.

The problem set covers 2 pages

Resources allowed:
- No resources allowed

All problems should be answered. Please be concise.

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

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***Problem 1*** (30 points)
An investor holds an optimal portfolio of foreign and local currency denominated assets. Let $f$ be the foreign currency share of her portfolio. It can be written as the sum of the minimum - variance portfolio and the speculative portfolio: $f = f_M + f_S$.

  (a)    Explain these two components.
  (b)    Do any **three** of the following: What happens to $f$ if there is (i) an increase in the risk premium? (ii) an increase in risk aversion? (iii) a reduction in exchange rate volatility? (iv) an increase in the expected rate of exchange rate depreciation? (v) a reduction in the covariance between the exchange rate depreciation and domestic inflation rates?
  (c)    Suppose the exchange rate is pegged to the dollar as in the case of China's Yuan, but there is speculative pressure that it will be revalued. What measures can you suggest for defusing speculative pressure?

***Problem 2*** (30 points)
  (a) Why does the exchange rate overshoot in Dornbusch's model?
  (b) Explain more generally (i.e. not specifically with respect to the Dornbusch model) (i) how can exchange rate depreciation have limited impact on the domestic price level in a country despite a high import ratio? (ii) What would be the effect of the depreciation on the real exchange rate in such an economy?

***Problem 3*** (40 points)
Consider a floating exchange rate model with perfect capital mobility, nominal wage rigidity, and PPP (the extremely open economy). The following relations describe the model:

**Overleaf…**

(1) $\dot{W}^* = \rho_* W_* + C(Y - \rho_* W_*, -W_*, \rho_*) - Y$

(2) $Y = \phi(N, K), \quad K = \bar{K}$

(3) $N = N(\varpi, K), \quad \varpi = \dfrac{W}{P}$

(4) $\dfrac{\dot{\varpi}}{\varpi} = \gamma(N - \bar{N})$

(5) $\dfrac{M}{EP_*} = m\big(i, Y(\varpi, K)\big)$

(6) $\dfrac{\dot{E}}{E} = i\left(\dfrac{M}{EP_*}, Y(\varpi, K)\right) - i_*$

Where W*=foreign debt, $\rho_*$ = real international interest rate, C (.)=consumption function, Y= domestic output, N=labor, K= exogenously given physical capital, $\phi$(.)=production function, $\varpi$ =real wages, N (.)=demand for labor function, $\bar{N}$ =exogenously given labor supply, W=nominal wages assumed rigid, P=domestic price level, $\gamma$(.)=Phillips relation, E=exchange rate, M=nominal money supply, $P_*$=given foreign price level, $i$= domestic interest rate, Y (.)=output as a function of real wages, m (.)=demand for money function, $i$ (.)-$i_*$=uncovered interest parity condition, $i_*$=exogenous foreign nominal interest rate.

(a) Assume that the system described by eqns. 1-6 is initially in long-run equilibrium. Suppose the aging phenomenon causes the exogenously given labor force $\bar{N}$ to fall. How does the new long-run equilibrium with respect to real wages and the exchange rate compare to the former one? Trace the transitional effects preferably using a phase diagram.

(b) The initial position is one of positive foreign debt. What can you infer about the transitional and long-run effects from the fall in the labor force on (i) foreign debt and (ii) consumption?