EC377.01

The World Economy:
From the Gold Standard to Globalization

Midterm Exam

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Wait for my signal before starting to read the exam.

This is a closed-books, closed-notes exam.
You have 75 minutes to work on it.
You should answer three questions for a total of 100 points.
The exam consists of three parts. You should answer a question from each part.
Read the entire exam and think about the questions before starting to work.
Do not panic if you do not make it to complete all three answers.
Any form of cheating will result in a zero score for the exam.

1 Part I: 30 Points

Answer one of the following two questions:

1. Using the logic of arbitrage between metals, explain how Sir Isaac Newton's pricing mistake (setting too high a silver price for the gold guinea at the British mint, or too low a price of silver relative to its international market price) caused silver to flow out of Britain after 1717, leading Britain to adopt a Gold Standard regime in 1819.

2. Explain David Hume's (1752) price-specie flow model of the Gold Standard (without and with international capital flows).

2 Part II: 30 Points

Answer one of the following two questions:

1. Explain the countercyclicality of international capital flows in the pre-war Gold Standard and the procyclicality after World War I. Explain how countercyclical capital flows contributed to the stability of the system before 1913, and how procyclical flows instead contributed to instability in the 1920s.

2. Based on Ben Bernanke's *Journal of Money, Credit, and Banking* article, explain the role of monetary factors and exchange rate policy in the Great Depression. In explaining the role of monetary factors, it may help you to refer to the following identity that relates the money stock (say, $M1$) of a country on the Gold Standard to its reserves of monetary gold:

$$M1 = \left(\frac{M1}{BASE}\right) \bullet \left(\frac{BASE}{RES}\right) \bullet \left(\frac{RES}{GOLD}\right) \bullet PGOLD \bullet QGOLD,$$

   where:

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  - $M1 = M1$ money supply (money and notes in circulation plus commercial bank deposits),
  - $BASE$ = monetary base (money and notes in circulation plus reserves of commercial banks),

– RES = international reserves of the central bank (foreign assets plus gold reserves), valued in domestic currency,

– $GOLD$ = gold reserves of the central bank, valued in domestic currency = $PGOLD \bullet QGOLD$,

– $PGOLD$ = the official domestic-currency price of gold, and

– $QGOLD$ = the physical quantity of gold reserves.

3 Part III: 40 Points

Answer one of the following two questions:

1. Suppose that the exchange rate is determined by the following equation:

$$\varepsilon(t) = m(t) + v(t) + \gamma E\left[d\varepsilon(t)/dt\right],$$

where all variables are in logs, $\varepsilon(t)$ is the current exchange rate, $m(t)$ is money supply, $v(t)$ is exogenous money velocity, $E\left[d\varepsilon(t)/dt\right]$ is the expected change in the exchange rate between now and the next instant, and γ is a parameter such that $\gamma > 1$. Assume that money velocity $v(t)$ follows a random walk process, such that its expected movements are zero, and upward and downward changes are equally probable (in other words, the current level of velocity is the best predictor of its level in the next instant). Suppose that money supply is such that $m(t) = 0$ whenever the exchange rate is inside a symmetric, perfectly credible target zone with upper bound $\overline{\varepsilon}$ and lower bound $\underline{\varepsilon}$ such that $\underline{\varepsilon} = -\overline{\varepsilon}$. The central bank changes its money supply every time random changes in money velocity cause the exchange rate to reach the upper or lower bound of the target zone to prevent it from straying outside. Use these assumptions to plot the exchange rate as a function of $v(t)$ as we did in class. Make sure you explain how the presence of the target zone has a stabilizing effect on exchange rate dynamics inside the target zone, i.e., explain why the path of the exchange rate inside the target zone does not coincide with the 45-degree line $\varepsilon(t) = v(t)$. Why do we say that we can view the functioning of the pre-World War I Gold Standard as the operation of a credible target zone? Why do we say that reduced credibility of the target zone was central to the collapse of the interwar Gold Standard?

2. We used the figure in the next page, where R denotes the home central bank's discount rate and R^* denotes the foreign central bank's discount rate, to analyze policy interactions in the interwar Gold Standard. Briefly explain the figure and its underlying assumptions (in particular, explain the assumptions we are making on central bank objectives and behavior in our model of policy interactions). Then use the figure to explain how non-cooperative central bank behavior under the Gold Standard leads to the Nash equilibrium starting from any initial interest rate choice by the home central bank. Make sure you explain the successive rounds of best responses by the central banks to their counterpart's behavior leading to this point. Based on the same figure, explain the differences between non-cooperative central bank behavior, a leadership regime, and cooperation. Use your analysis of the figure to explain the statement that a competitive "scramble for gold" imparted a contractionary bias to monetary policy under the interwar Gold Standard, and briefly explain the role that this had in the Great Depression.

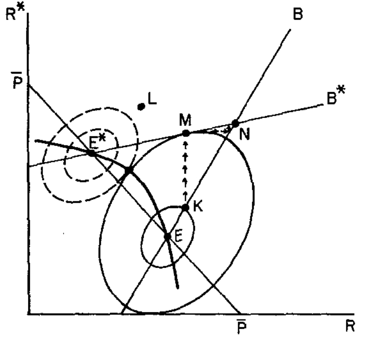

FIGURE 2