

NAME:

STUDENT ID:

Economics 103 — Spring 2003
International Monetary Relations

Final Exam

June 12, 2003

Time: 120 minutes
Total score: 120 points

1 Law of One Price: 10 minutes

State the Law of One Price. Document that Purchasing Power Parity (PPP) must hold if the Law of One Price is satisfied.

Consider the McDonald's hamburger as a basket of goods. The economist magazine on April 21, 2003 reports that a hamburger costs

- 2.54 USD in the US,
- 10.70 HKD in Hong Kong, and
- 6.30 CHF in Switzerland.

On June 5, 2003, the USD/CHF and USD/HKD exchange rates were such that a hamburger would cost

- 1.37 USD in Hong Kong (at .1282 USD/HKD), and
- 4.84 USD in Switzerland (at .7682 USD/CHF).

Is the USD currently under- or overvalued (appreciated or depreciated) in real terms relative to the HKD and the CHF?

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2 Failure of Uncovered Interest Parity: 10 minutes

State the Covered and the Uncovered Interest Parity conditions and briefly name the variables that you use. Why is Uncovered Interest Parity called uncovered?

Empirical studies show that Uncovered Interest Parity fails.

In an efficient financial market, asset returns should reflect all information that is available to investors and it should not be possible for a trader to earn expected returns with speculation.

Is the foreign exchange spot market efficient in this sense?

3 Permanent Reduction in Money Demand: 10 minutes

The introduction of electronic forms of payment causes a *permanent* reduction in domestic money *demand*. Suppose nothing else but money demand changes in the domestic economy, nothing at all changes abroad, and Absolute PPP holds. What is the *long-term* effect on the nominal exchange rate? Use a diagram showing the nominal exchange rate, expected currency returns and real money holdings to analyze the *short-term* effect under sticky prices.

4 Sterilized Interventions: 10 minutes

Suppose domestic and foreign assets are *perfect substitutes* and exhibit the *same risk*. Can a sterilized intervention succeed in changing the interest rate without affecting the exchange rate? State the key condition for the equilibrium in the foreign exchange market and explain briefly.

5 Export Demand Shock under a Floating Exchange Rate: 10 minutes

An economy with a floating exchange rate suffers a negative demand shock for its export goods. What effect does this have on the current account and aggregate demand in short-term equilibrium? Use a diagram that shows the nominal exchange rate, output and some current account target. [*Hint:* Although you might expect the negative export demand shock to result in a certain short-term current account balance, the exchange rate response in short-term equilibrium may cause a different current account balance.]

Use the diagram to analyze how *temporary* monetary or fiscal interventions can restore the previous current account balance. Do these policies have to be contractionary or expansionary?

Would a *permanent* fiscal policy be effective in changing output? Would it be effective in altering the current account balance? Answer briefly.

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6 Price-Specie-Flow Mechanism and the ‘Rules of the Game’ Revisited: 10 minutes

Consider a country on the Gold Standard. There is a sudden and permanent increase in international demand for domestic goods. Will this shock result in an incipient current account surplus or deficit? [*Hint: Consider only the current account by itself. Do not consider short-term equilibrium yet.*]

If the country’s central bank played by the rules of the game, what monetary policy would it have to pursue? Suppose, as was often the case historically, the country’s central bank does not play by the rules of the game. Instead, it waits for the price-specie-flow mechanism to work. Does real money supply change?

Suppose prices are *flexible*. Use a diagram that shows the nominal exchange rate, output and the current account target to analyze the output and current account response in the *long term*.

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7 Bretton Woods System Revisited: 10 minutes

Consider a periphery country on the Bretton Woods system (a *de facto* gold standard between 1950 and 1970). Suppose new gold is discovered and causes a sudden and permanent fall in the relative price of gold world wide. So, price levels P and P^* of all commodities (in terms of gold) increase to the same extent world wide. All central banks in the periphery maintain fixed exchange rates with the US.

State the Uncovered Interest Parity condition and infer how nominal interest rates are related under the Bretton Woods system.

State the real exchange rate in terms of the nominal exchange rate and price levels. Will the real exchange rate change after the increases in P and P^* ? Will the current account balance change? Will output change?

State the condition for domestic money market equilibrium. Suppose the gold discovery was not transferred to any central bank. Can nominal money supply change? If output does not respond, what variable will change? How does this happen without disturbing the foreign exchange market?

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8 Fixed Exchange Rate Regime and Monetary Shock to Anchor Currency: 10 minutes

Consider a developing country that commits to peg its exchange rate to a foreign anchor currency. The anchor country's monetary conditions change and result in a lower interest rate R^* . Use a diagram showing the nominal exchange rate, expected currency returns and real money holdings to analyze what monetary policy the developing country can conduct to maintain the exchange rate peg.

First, assume that prices are sticky and that domestic and foreign assets are perfect substitutes with the same risk. Show a feasible monetary policy response in the diagram.

Second, assume that prices are sticky and that domestic and foreign assets are *imperfect* substitutes with different risk. Propose a sterilized intervention that would help the country maintain the exchange rate peg and keep the domestic interest rate constant. You need not document your answer in a diagram.

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9 Monetary Shocks and Exchange Rate Regime: 10 minutes

Suppose that an economy with a stable and small government sector has a monetary system that suffers frequent monetary but hardly any fiscal shocks. The country wants to choose an exchange rate regime that stabilizes output and employment. What exchange rate regime would you recommend and why? Make your case briefly.

10 Optimum Currency Areas: 10 minutes

There are N countries and neither labor nor capital can move between them. However, prices and wages are instantaneously adjustable so that all markets clear at all times in all countries. Similarly, exchange rates are fully flexible. Considering gains and losses from a world-wide currency union, does it matter whether there are 1, N , or some intermediate number of currencies?

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11 Fundamentals-driven Currency Attack: 10 minutes

A country's central bank is forced by its government to maintain a fixed exchange rate but to print money for new government debt at a rate π . To satisfy these conflicting requirements, the central bank is committed to sell foreign reserves until they are depleted.

Can an investor infer the timing of an imminent attack from the level of the central bank's foreign reserves alone? Can an investor infer the timing of an imminent attack from the share of foreign reserves in total central bank assets alone?

What criterion should an investor use to determine the timing of the attack? You may answer in words and need not use a diagram.

12 Self-fulfilling Currency Attack: 10 minutes

Consider the following attack game (with foreign and domestic asset holdings such that $W^{\text{CB}} < B^{\text{CB}}$). There is a number J of small investors who all own one unit of currency, and one big investor who owns K units of currency. In the case of a defense, the central bank incurs losses of R per unit of foreign reserves that it has to use for the intervention.

		Central Bank	
Investor i		$Defend\ (\Delta E=0)$	$Devalue\ (\Delta E>0)$
$Attack$	$-c$ $-R(I+K+1)$	$\Delta E - c$ $\Delta E(W^{CB}-B^{CB})$	
$Hold$	0 0	$-\Delta E$ $\Delta E(W^{CB}-B^{CB})$	

Investor i and the central bank anticipate that I other investors will attempt to attack. Show that a successful attack is an equilibrium for every investor i if there is a large number I of other attacking investors.

Also show that a successful attack is an equilibrium strategy for every small investor if the big investor attacks and has sufficiently large funds K . Finally, show that a no-attack-no-devaluation equilibrium exists.

Why is $\Delta E > 0$ in a self-fulfilling crisis but not in a fundamentals-driven crisis?