

*Use a large blue book to answer the following questions. Always use graphs where they are helpful, especially if they are suggested, but be sure to clearly label them, and also explain your answers clearly. Neatness and organization count! You have until 2:25 PM. You will be very challenged for time, so manage it well.*

1. (15%) Consider a two-period intertemporal trade model for a large economy with a rate of return ( $R$ ) on investment that is significantly lower than in the rest of the world. Assume current output is already determined, but the country must choose the optimal amount of current consumption and savings. Future output is a function of current domestic investment, and for simplicity assume there is no more investment in the future (since this only a two-period model).
  - a) Using the intertemporal PPF, show the choice for current and future consumption under savings autarky. Show the amount of domestic savings and investment and the rate of return.
  - b) If the home country suddenly changes its laws to allow for international flows of savings, show and explain what would happen to investment, foreign saving flows, the trade balance, and  $R$ ? Using income and substitution effects, predict what will happen to current consumption, relative to autarky, and to current domestic savings.
  - c) How will foreign savings affect the country's future output? Will it consume more or less than its production in the future? What will happen to the future trade balance? Is this country better off as a result of the international trade in savings?
  
2. (10%) Assume a country produced two types of goods, industry ( $Y$ ) and agriculture ( $X$ ), with a comparative advantage in  $X$  goods and a standard neoclassical PPF. Using the standard trade model, with  $X$  goods on the horizontal axis and  $Y$  goods on the vertical axis, show a free-trade equilibrium with balanced trade. Then show a free-trade equilibrium together with a net outflow of foreign savings. Assuming the transfer has no effect on the terms of trade, explain how exports and imports have changed so that the international transactions sum still to zero.
  
3. (12%) Using a supply and demand model for foreign currency (Forex):
  - a) How would a transfer of savings from the home country to a foreign country affect the direct exchange rate  $E$  and the trade balance?
  - b) How would a tariff (i.e., a home country tax on imports) affect the direct exchange rate  $E$  and the trade balance?
  - c) How would a recession in the home country affect the direct exchange rate  $E$  and the trade balance?
  
4. (10%) What are the basic equations for the IS and LM curves? Using a diagram of the ISLM model, what would happen to national income  $Y$  and the interest rate  $R$  if the government gave a temporary tax refund at the same time that the central bank increased the money supply? In the basic Keynesian model, how would these two policies affect the trade balance?
  
5. (12%) Using the  $E$ - $R$  diagram:
  - a) Show what would happen to  $E$  if  $R$  fell temporarily as the Fed tries to loosen the money supply. Explain how interest rate parity would be maintained.
  - b) Using the purchasing power parity hypothesis, how would  $E^e$  change if investors received news that led them to believe that the U.S. price level would rise more than expected in the near future? Show what would happen to  $E$  now.
  - c) Show what would happen to  $E$  if  $R$  rose permanently, due to a higher expected inflation rate.

6. (16%) According to the BEA's website, in the year 2006 the United States exported \$1,023 billion in goods and \$423 billion in services, including royalties and transportation, while we imported \$1,861 billion in goods and \$343 billion in services. U.S.-owned assets abroad increased by \$1,055 billion, including a decrease of \$2 billion in foreign-denominated reserve assets held by the Treasury and the Federal Reserve System, while income receipts (mostly interest and profits) from abroad totaled \$650 billion. Foreign-owned assets in the United States increased by \$1,860 billion, including a \$440 billion increase in foreign-owned dollar-denominated official reserve assets, and income payments to foreigners totaled \$604 billion. Finally, the U.S. paid out a net of \$90 billion in unilateral current transfers, the net of all capital account transactions rounded to a debit of \$4 billion, and transactions in foreign exchange derivatives not included elsewhere accounted for a credit of \$29 billion.

- a) What is the amount of the balance on the current account?
- b) What is the amount of the statistical discrepancy? Is it a credit or a debit? Give an example of a transaction that might explain it.
- c) If the U.S. were using the old system of accounts, what would be the amounts of the official settlements balance and the balance of payments, respectively?
- d) What was the marginal effect on E (the direct foreign exchange rate) of the increase in foreign central bank reserve assets?

7. (15%) At midday March 12, 2008, the quoted bid/offer spot rates for the Swiss Franc (CHF) was 1.0337/1.0340 per US Dollar for large transactions. This was quoted in American terms, i.e., the indirect rate.

- a) What is the midpoint spot rate, in both American and European terms, and what is the spread as a percentage of this midpoint?
- b) The direct spot rate (in European terms) for the Euro was \$1.5328 at the midpoint. What is the cross rate of the CHF, priced in Euros?
- c) The six-month forward rate for the CHF is \$0.9808 (at the midpoint). What is the amount and percentage of the forward premium or discount?
- d) What is the equation for the simple interest rate parity condition? What is the more precise equation, when  $n \neq 1$ ?
- e) The annual yield on a six-month Treasury Bill is 1.70%. What is the equivalent rate of return ( $R^*$ ) for CHF assets?

8. (10%) Suppose you have recently signed a contract to import goods from Mexico in December, and the contracted price is 10,000,000 Pesos (MXP), with a spot price of \$0.1064 per Peso. The 9-month forward discount for the Peso (MXP) is 6% (so the December forward contract price is \$0.1000).

- a) Suppose you wait until December to buy Pesos. Are you speculating or hedging?
- b) Suppose you buy your Pesos now. Are you speculating or hedging?
- c) Suppose you buy Pesos with a forward contract? Are you speculating or hedging? How will your return differ from (b)?

**Bonus:** Suppose you think the market is wrong in #8, and you expect the Peso to actually depreciate by 10%. Which of these transactions should you do? Suppose you do this, but want to protect yourself against being really wrong by buying an option. Should you buy a put or a call? Will you be the grantor or the holder? Will a strike price of \$0.12 be cheaper or more expensive than an option for \$0.10? If the strike price is \$0.12 but the spot price in December is \$0.09, will your option be in the money? Will you make money, or will you get fired?