

ECON 463 - International Monetary Relations
Midterm Exam

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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 5:25 PM. You will be very challenged for time, so manage it well.

1. (15%) According to the BEA's website, in the third quarter of 2005 the United States exported \$225 billion in goods and 96 billion in services, including royalties and transportation, while we imported 423 billion in goods and 80 billion in services. U.S.-owned assets abroad increased by 124 billion, while income receipts (mostly income on roughly 10 trillion in total U.S.-owned assets abroad) totaled 119 billion. Foreign-owned assets in the United States increased by a whopping 397 billion, and income payments (mostly income on roughly 12 trillion in foreign-owned assets in the United States) totaled 118 billion. Finally, the U.S. paid out a net of 14 billion in unilateral current transfers, and the net of all capital account transactions rounded to 0.
 - a) What is the balance on goods (i.e., the merchandise trade balance), the balance on current account, the balance on the financial account, and the statistical discrepancy?
 - b) In the financial account, we find that Federal Reserve System decreased its official foreign currency reserve assets by 5 billion, while foreign central banks increased their official reserves held in dollar-denominated assets by 38 billion. Using this information, what is the official settlements balance and the balance of payments, under the old system of accounts?
 - c) What was the marginal effect on E (the direct foreign exchange rate) of the increase in foreign central bank reserve assets? Does the Federal Reserve System appear to have been acting consistently with this or not?

2. (10%) As of March 10, 2006, the quoted bid/ask spot rates for the Canadian Dollar (CAD) are \$0.8607/\$0.8615 (for large transactions).
 - a) What is the midpoint spot rate, and what is the spread as a percentage of this midpoint?
 - b) The spot rate for the Euro is \$1.1917 (at the midpoint). What is the cross rate ($E_{\text{€CAD}}$) of the CAD, priced in Euros?
 - c) The one-year forward rate for the CAD is \$0.8701 (at the midpoint). What is the forward premium? What is the expected appreciation/depreciation of the CAD?
 - d) What is the interest rate parity condition? Since the one-year yield (i.e., R) on U.S. Treasury Bonds is approximately 4.7%, what is the equivalent rate of return (R^*) for CAD assets?

3. (10%) The standard neoclassical trade model usually ignores money, nominal prices and exchange rates, but these are easy to put in with the quantity equation ($MV=PQ$) and the purchasing power parity equation ($P=EP^*$). Using these equations, explain how the following changes would affect domestic output, the domestic price level, and E?
 - a) an increase in the money supply
 - b) an increase in the capital stock
 - c) an improvement in production technologies
 - d) a transfer of foreign savings into the home country

4. (10%) Assuming velocity is constant, money demand ($L=Q/V$) is a constant proportion of output. So if the U.S. money supply is expected to grow by 7% per year and real output grows by 3%, what is the expected rate of inflation? If the European Central Bank is expected to increase the quantity of Euros by 4% per year and real output in the Euro area is expected to grow by 3%, then what does the purchasing power parity approach predict will be the change in E?

5. (15%) What are the basic equations for the IS and LM curves? Using a diagram of the ISLM model, explain how the following would affect national income Y , the interest rate R , the current account balance, and E . (Ignore the effects of the financial account on E .) In which case(s) might we see an overshooting effect on R ?

- a) an increase in the money supply
- b) an increase in government military purchases
- c) another cut in taxes
- d) an increase in the national income of our major foreign trading partners

6. (10%) Using the E - R diagram:

- a) Show what would happen to E if R rose temporarily as the Fed tightened the money supply. Explain how interest rate parity would be maintained once E adjusted.
- 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.

7. (10%) The one-year forward appreciation on the Euro is currently 2.1%. Suppose that you believe that the market is wrong, and the spot rate will not change over the next year.

- a) Explain how you could use a forward contract to speculate against the market using your belief. Would you go long or short in Euros? Under what condition would you make money, and under what condition would you lose money?
- b) Assume that you decide to speculate with the forward contract, but decide to buy an option in case you are really wrong. Would you buy a call or a put? Would you be the grantor or the holder? Would it be cheaper to buy an option with a higher or a lower strike price?

8. (20%) Use a two-period intertemporal trade model to predict the effect of allowing international flows in savings between two large market economies. In the home economy, the rate of return (R) on investment is significantly higher than in the foreign country. In both countries, current output is already determined, but the society 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 investment in the future (since the model only runs for two periods).

- a) Using the intertemporal PPF for the home country, show the choice for current and future consumption [under autarky]. Show the amount of domestic savings and investment and the rate of return.
- b) If the home country suddenly engages in intertemporal trade in savings, show and explain what would happen to investment, foreign savings, the trade balance, and R ?
- c) In (b), will the home country produce more or less in the future? Will it consume more or less than its production in the future? What will happen to the future trade balance? Why?
- d) Is the home country better off as a result of intertemporal trade? Is the foreign country better off?

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9. (20%) Using the monetary approach with interest rate parity in the short-run, and purchasing power parity in the long-run, show and contrast the short-run and long-run dynamic effects on R , P , and E of: (1) a temporary and immediate increase in the money supply, (2) a permanent, one-time, and immediate increase in the money supply, (3) a permanent, one-time, future increase in the money supply, and (4) an expected permanent increase in the future rate of money growth.
10. (10%) Using the monetary approach with interest rate parity in the short-run, and purchasing power parity in the long-run, show and contrast the short-run and long-run dynamic effects on R , P , and E of: (1) a temporary decrease in real domestic output, and (2) a permanent decrease in the growth of real domestic output.
11. (20%) Following up on problem 8:
- Write out the equations for the intertemporal trade model, and show these amounts on a diagram for both the home and the foreign countries.
 - Assuming utility is a quasiconcave function of current and future consumption (i.e., the indifference curves are normally shaped), show with diagrams that intertemporal trade makes both countries better off.
 - Using income and substitution effects (assuming consumption now and later are both normal goods), show how the flow of savings affects current and future consumption and savings in both countries.
 - Algebraically demonstrate that if domestic output equals consumption plus investment plus net exports, if national income equals consumption plus domestic savings, if investment is financed by either domestic savings or foreign savings, and if income equals output, then net exports plus foreign savings must equal zero.