Econ 434   Professor Ickes

                                                                     Fall 2009

Midterm Exam I: Answer Sheet

Instructions

Read the entire exam over carefully before beginning. The value of each question is given. Allocate your time efficiently given the price schedule that is imposed. There are no trick questions. Cheating in this exam will result in failure of the course

Part I: Multiple Choice (36%) circle the correct answer

1. If a nation is a *net creditor* internationally, it means that:

    (a) *residents of the nation have more foreign assets than foreign liabilities.*

    (b) the nation is running low on international assets.

    (c) residents of the national have more foreign liabilities than foreign assets.

    (d) the nation's government has extended credit to other nations' governments.

2. Major global imbalances in the financial and current account exist. Nations with the largest imbalances are:

    (a) Canada, the United States, Mexico.

    (b) *China, Japan, and the United States.*

    (c) Argentina, Chile, Brazil.

    (d) the European Union, Russia, Japan.

3. If a small country is open to international transactions, then the current account balance:

    (a) decreases as world interest rates increase.

    (b) depends on real GDP and the level of imports.

    (c) *increases as world interest rates increase.*

    (d) must equal 0.

4. From 1985, world saving and investment as a share of world GDP have fallen. Over the same period, the world real interest rate also fell. What do these patterns suggest about the rates of growth of world saving and investment?

    (a) World investment demand grew more rapidly than the supply of world saving.

    (b) World investment demand grew at the same rate as the supply of world saving.

(c) *World investment demand grew more slowly than the supply of world saving.*

(d) This information allows no conclusion to be made about the rates of growth of world saving and investment.

5. The economy of Macronesia (which is small despite its name) discovers oil, that will take one period to start producing. In the two-period model, which of the following is true:

   (a) If the economy is closed the autarky interest rate will decrease.

   (b) *If Macronesia is a small open economy the current account balance will deteriorate.*

   (c) If Macronesia is a small open economy current consumption will fall.

   (d) If Macronesia is a large open economy the world interest rate will fall.

6. In the two-country model which of the following statements is *incorrect?*

   (a) If savings in the rest of the world rises, the world interest rate will fall, and the US will experience a deterioration in its current account balance.

   (b) If investment in the US rises, the world interest rate will increase, and the current account surplus in the rest of the world will increase.

   (c) *If investment in the US rises, the world interest rate will decrease, and the current account surplus in the rest of the world will decrease.*

   (d) If war breaks out in the rest of the world, the US current account balance will improve.

7. Which of the following statements is *not* true

   (a) *If output fluctuations in Macrodonia and Microdonia are positively correlated then risk averse investors in Macrodonia should not invest in Microdonia assets if they want to smooth consumption.*

   (b) If the expected return on Macrodonia assets exceed those of Microdonia, and if the returns are equally risky, investors will nonetheless hold Microdonia assets unless they are not risk averse.

   (c) *If investors now have access to investments in Mesodonia, and if those assets have higher expected return and less risk than in Microdonia, then investors will sell all their investments in Microdonia.*

   (d) The more risk averse are agents the more likely they will be to invest in other economies.

8. If a country suffers from too high a level of external debt, we can expect that:

   (a) The country will increase its investment relative to its savings.

   (b) The real interest rate will fall.

   (c) The real exchange rate will rise.

   (d) *The real interest rate will rise.*

9. Consider an economy that currently has a negative net foreign asset position. Which of the following statements is *incorrect?*

  (a) If the rate of growth of the economy exceeds the rate of interest the country's external position will be sustainable.

  (b) *If the economy experiences a trade deficit next period it will violate its long-run budget constraint.*

  (c) If the economy experiences positive valuation effects the sustainability of the current account position will be enhanced.

  (d) If the rate of return on foreign liabilities rises the country's external position will necessarily worsen.

Part II: Short Answer (11% each)

1. Give or take $500 billion, how large are US net foreign assets (or, within 5% what share are NFA of US GDP)? How large is US GDP (give or take 10%)?

brief answer *US $NFA \approx -\$3.2trillion$. US $GDP \approx \$14.2trillion$, so -3.2/14.2 $\approx -22\%$*

2. What is the valuation effect? How can a country that has negative net foreign assets earn positive net interest income? Explain

  brief answer *Valuation effect is the difference between the cumulative sum of past current account balances and the current NFA position, or*

  $$VE_t = NFA_t - \Sigma_{i=1}^{\infty} CA_{t-i}$$

  A country can have positive valuation effects even if it is a net debtor if $r_l < r_a$, as long as liabilities are not too large relative to assets. Thus we need $1 - \frac{r_L}{r_A} > \frac{NFA}{L} = -\frac{A-L}{L}$. The LHS can be thought of as our excess yield, the RHS is our net debt. As the latter gets big the likelihood that we can earn enough excess yield to offset the negative NFA position declines rapidly. Another way would be if capital gains occur due, for example, to an unexpected depreciation of the currency (if the country's debt is denominated in its own currency).

3. Suppose that one euro is equal to 2 dollars. If the law of one price holds, and if a BMW costs 25,000 euros in Germany what will it cost in the US? Now suppose that the price level in the US and in Japan is equal to 100. If the law of one price holds, and if the US price level rises to 200, what will happen to the nominal exchange rate? What will happen to the real exchange rate?

  brief answer *If LOP holds then $P_{US} = SP^*$, where S is the nominal exchange rate. So the BMW must cost $50,000$ in the US. If the US price level rises relative to Japan then the nominal exchange rate will rise from 1 to 2. If the LOP holds then $Q = 1$ and $P_{US} = SP^*$, in this case $200 = 2(100)$. Since $Q = 1$ if the LOP holds, the real exchange rate obviously does not change.*

Part Three: Problem (31%)

Consider a small open economy that experiences a temporary negative shock to output. Output was previously 100 in every period. Now it drops to 79 this period, but will return to 100 for all future periods. Given the interest rate of 5%, if the economy is closed fill in the blanks in the closed economy table.

Closed Economy

	period 0	period 1	period 2	period 3	period 4	period 5	...	Present Value $r = .05$
Output	79	100	100	100	100	100	...	2,079
Consumption	79	100	100	100	100	100	...	2079
Trade Balance	0	0	0	0	0	0	...	0

Now suppose that the economy is open (recall it is small). Suppose that preference are such that agents prefer equal consumption across periods. Fill in the following table for the open economy (Hint: before the shock in period 0 the present value of output was 2100).

Open Economy

	period 0	period 1	period 2	period 3	period 4	period 5	...	Present Value $r = .05$
Output	79	100	100	100	100	100	...	2,079
Consumption	99	99	99	99	99	99		2079
Trade Balance	-20	1	1	1	1	1		0
Current Account	-20	0	0	0	0	0	...	-20
net interest on NFA	0	-1	-1	-1	-1	-1	...	-20

brief explanation *Note that output has fallen by 21 which is 1% of 2100. So if output falls be 1%, and if consumers want smooth consumption, they will reduce consumption each period by 1%, which is why we have 99 in each cell for consumption. So we get the trade balance by subtration: $TB = Q - C$. In period 0 the current account is equal to the trade balance, so we have $-20 = -20$. After that we have to pay interest on the debt we have incurred. At 5%, the interest payment is 1, but this is going out, so net interest $= 0 - 1 = -1$. Now the current account is equal to the trade balance (net exports) plus net interest income, and $1 + -1 = 0$, so the current account balance is 0 in all subsequent periods.*

Suppose the shock was permanent – that is, output fell by 21 units every period. What would happen to consumption and the trade balance if the economy was open?

brief answer *output would be lower every period by 21, as would be consumption. The country would not be able to borrow to smooth consumption.*

In small open economies that experience temporary shocks, if we calculated the volatility of consumption (VC) and the volatility of income (VY), would $\frac{VC}{VY}$ be smaller, greater, or equal to one?

brief answer *If small open economies smooth shocks then by definition consumption would be less volatile than output. So $\frac{VC}{VY} < 1$, the greater the opportunities the more likely this ratio is to go to zero.*