

Final examination_SOLUTION SHEET

WRITE YOUR ANSWERS TO QUESTION 1 ON PAGES 2-5.

1. [30 points, 5 each] Choose six out of the eight following True, False, Uncertain questions. Explain briefly your answers, and cite the relevant theories, when applicable.
- (a) A current account deficit requires a depreciation of the domestic currency in order to stimulate exports and limit imports.
FALSE. It is not required. There are three equivalent interpretations of a current account deficit: S-I, X-M+NFP and Y-A. Eliminating a current account deficit can be achieved via expenditure reducing policies.
- (b) Countries with high domestic inflation rates over long periods of time experience a high rate of depreciation of their nominal exchange rate relative to the currency of countries with lower inflation rates.
TRUE. Relative PPP: $\pi = \Delta e/e + \pi^*$.
- (c) An increase in domestic nominal interest rates is always associated with a nominal appreciation of the domestic currency.
FALSE: an increase in domestic nominal interest rates can be associated with a nominal appreciation when there is a permanent change in the level of money, or with a nominal depreciation when there is an increase in the rate of growth of money.
- (d) If the price of oil were to temporarily fall to \$15 a barrel, we should expect the U.S. and other oil dependent countries to run a smaller current account deficit.
TRUE: Intertemporal Approach to the Current Account. This is a temporary favorable shock for oil dependent countries. Hence they should save more and run a smaller current account deficit.
- (e) According to the World Bank, GDP per capita in 2002 was close to \$1,000 in China and \$36,000 in the U.S. [This is a fact; do not discuss]. This implies that the typical U.S. person has about 36 times the purchasing power of a typical Chinese person.
FALSE. the purchasing power needs to be computed on a PPP basis. China's PPP income is much larger, relative to the US
- (f) Under the Bretton Wood system, the country at the center (the U.S.) can set its monetary policy at will. Other countries will have to adjust their monetary conditions.
UNCERTAIN/FALSE: It is true that the country at the center is free to set its monetary policy at will and countries at the periphery have to adjust. However, in the BW system, the parity between Gold and US dollar needs to be maintained. If the US runs a monetary policy that is too expansionary (as they did), then, other central banks might run against the dollar and ask for gold (as it happened). So even US monetary policy is not unconstrained. But this constraint is only felt in the longer run (Triffin problem). For thirty years, the US was able to set monetary policy with an eye mostly to internal balance.
- (g) Currency crises arise when financial markets panic and trigger a run on a central bank's international reserves. Therefore, currency crises are fundamentally unpredictable.

FALSE: some crisis (second generation crisis, UK and Italy 1992) are triggered by self-fulfilled expectations and are therefore unpredictable. Others (first generation crisis, Mexico, Russia...) are due to inconsistent monetary and fiscal policy under a fixed exchange rate regime.

- (h) Under a fixed exchange rate regime, a country can generally attain internal and external balance using only fiscal policy.

False: refer to the internal-external balance diagram. In general, internal and external balance require using both expenditure reducing policy (fiscal policy) and expenditure switching policies (devaluation)

WRITE YOUR ANSWERS TO QUESTIONS 2-5 ON BLUEBOOKS

2. **[25 points]** Policymakers around the world often face what Obstfeld and Taylor dubbed a ‘policy trilemma’:
- They want to fix the nominal exchange rate, in order to stabilize the price level;
 - They want capital mobility for efficiency and flexibility purposes;
 - They want to engage in active monetary policy for output stabilization purposes.

Using the concepts you have learned in class, explain in detail why this is a ‘trilemma’, i.e. why only two of the three objectives can be achieved at any point in time. Explain in detail, using diagrams and theory how your answer depends on whether the domestic and foreign economies are hit by real or nominal shocks.

[Note: you may interpret a real shock as a shock to the IS curve, and a nominal shock as a shock to the LM curve]

I am looking for a discussion of Mundell’s prescription: real domestic and foreign nominal shocks are better accommodated with floating regime; domestic nominal and foreign real shocks better accommodated with fixed ER. They should illustrate using IS diagrams. So, if the shocks are mostly domestic nominal or foreign real, having a fixed exchange rate may not be too costly.

3. [30 points] The European Monetary Union.

- (a) [10 points] In May 2003, Gordon Brown, Britain's Chancellor of the Exchequer, announced that the UK would postpone joining the Euro. At the heart of that decision were five tests that the UK should pass before joining. The first three tests are:
- i. Are business cycles and economic structures compatible so that Britain can live permanently with euro interest rates?
 - ii. If problems emerge, is there sufficient flexibility to deal with them?
 - iii. Will joining the euro promote higher growth and stability?

(The other two tests have to do with London as a financial center and whether the UK will keep attracting foreign capital). Discuss the rationale behind the three tests above. Do they make sense? Regarding test iii, would you expect joining the Euro to have a permanent effect on growth and stability?

I am looking for a discussion of the criteria for an optimum currency area: more economic integration makes it easier to give up the exchange rate. This should lead to a discussion of how we measure economic integration (hence the UK 5 tests). Correct answers should discuss some of (a) labor mobility; (b) federal fiscal policy; (c) trade; (d) correlation of shocks, business cycle;

The last part of the question is more open. It is asking them whether they think the UK should join. You should not give the points on the answer, but on the reasoning: if someone argues -convincingly- that the UK is part of an OCA with the rest of the EMU (or vice versa), then you should give credit.

On the permanent effect of joining the Euro, one (correct) answer is to realize that monetary phenomena should not affect long run performance (neutrality) so it should have no effect. Another (also correct) answer is to argue that EMU might promote investment, and so, stimulate growth (temporarily or permanently).

- (b) [10 points] In light of your readings from The Economist, discuss some of the economic problems associated with the European Union's Stability and Growth Pact (SGP).

Keywords: automatic stabilizers; focus on budget deficits instead of debt; lack of enforcement; does not take into considerations initial conditions (Italy versus Netherlands);

- (c) [10 points] Last year, output growth was -0.2% in Germany and 4.5% in Greece; Inflation was 1.2% in Germany and 3.5% in Greece. The three-month nominal money market rate in the eurozone was 2 percent. Based on these numbers, discuss whether a common monetary policy is appropriate and why.

key point here is to compare (ex-post) real interest rates: Germany is $2-1.2=0.8\%$. Greece is $2-3.5=-1.5\%$. So monetary policy is expansionary in high inflation countries. Then, should observe that this leads to more output growth in Greece than Germany. Triggers even more inflation in Greece and deflation in Germany.... a common monetary policy does not necessarily lead to convergence.

4. **[50 points]** Over the years, a number of countries (Mexico, Brazil, Argentina....) have implemented **Exchange Rate Based Stabilization** programs (ERBS). In an ERBS, the government of a country with high inflation pegs the domestic currency to the U.S. dollar or to the currency of some other country with low inflation.
- (a) **[10 points]** Discuss briefly why fixing the exchange rate can be an effective way to fight inflation.
expectations, expectations, expectations.... Credible way to signal that money supply will not increase
- (b) **[10 points]** Explain why the domestic and foreign *nominal* interest rates must be equal during the ERBS program.
uncovered interest rate parity.
- (c) **[10 points]** Infer what happens to the domestic real interest rate in the early stage of the stabilization program. What happens to output in the short run? (Hints: (a) you may assume that the stabilization is not immediate so that domestic inflation π still exceeds U.S. inflation π^* ; (b) recall the Fisher relation: $i = r + \pi^e$)
 $r = i - \pi = i^* - \pi$. so if $\pi > \pi^*$, real interest rates are lower in stabilizing country. Shifts LM curve. Expansion of output.
- (d) **[10 points]** Express the rate of depreciation of the **real** exchange rate in terms of domestic and foreign inflation. Describe what happens to the real exchange rate and the current account following an ERBS. What needs to happen to domestic inflation relative to foreign inflation for the real exchange rate to depreciate?
Since the nominal rate is fixed, $\Delta q/q = \pi^* - \pi$ so the domestic currency appreciates in real terms. Shifts IS left and slows down output growth. Real depreciation can only be achieved if $\pi < \pi^*$
- (e) **[10 points]** ERBS often end with a speculative run against the currency. In light of your answer to the previous question, can you explain why?
 $\pi < \pi^*$ only occurs when output below potential for sufficiently long time: recession, deflation, large current account deficit.... Foreign investors get scared and run away. Second generation crisis.

5. [45 points] The U.S. dollar has declined substantially against the Euro over the past year.
- (a) [10 points] In light of your readings of The Economist, discuss broadly how you interpret this depreciation of the US dollar and some of the associated risks for the US economy.
keywords: current account deficit. The students should realize that the current account has been in deficit for some time while the dollar depreciated only recently. Bonus points if they realize that the dollar did not drop earlier because the CA deficit was financed by capital inflows (private until 2001, public since) . These inflows have dropped sharply recently. Risks: higher interest rates (so that $CA=0$ or $S=I$), drop in asset prices, drop in consumption, investment (expenditure reducing): recession and asset market declines.
- (b) [10 points] The European Central Bank (ECB) is very concerned with the depreciation of the dollar. Suppose it decides to increase permanently its money supply. We are interested in the impact of this policy on the U.S. Using the IS-LM/IEB-RIP diagram, explain how the Euro real interest rate and Euro output change.
Standard analysis. Start with an expansionary monetary policy in the IS-LM diagram. shift EU-LM to the right. expansion in EU output and lower EU real interest rates.
- (c) [10 points] Describe the effect on the current Euro real and nominal exchange rates, on the future Euro real and nominal exchange rates and on Euro area net exports.
IEB shifts up. RIP shifts down. So nominal and real depreciation of the euro today (counteracts the dollar depreciation). EU net exports may increase/decrease (output up and exchange rate up).
- (d) [5 points] Describe how the change in (a) Euro output and (b) the exchange rate affect US's output. What can you conclude about the impact of a Euro monetary expansion on US's output?
(a) increase in EU output stimulates US exports. But (b) depreciation of euro makes US's goods more expensive. So uncertain effect. In general, expect (b) to dominate so that US output might decline (drop in net exports)
- (e) [10 points] Explain why the U.S. might respond to the European monetary expansion with a permanent expansion of its own money supply. Briefly, describe why coordination of monetary policies might yield a better outcome.
if (b) dominates, negative effect stronger so US suffers: IS shifts left (beggar-thy-neighbor). If US decides to expand money supply, lowers US interest rate and stimulate US output. Has countervailing effects on EU. Competitive devaluations. Since both countries expand money supply, expect a resurgence of inflation. In the end, the exchange rate is unlikely to move one way or the other. Each country fails to take into account impact on other country. Excessive devaluations. Coordination avoids this problem.