

ECON 10020/20020
Principles of Macroeconomics

Problem Set 6

Solutions

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General Instructions

1. Due: Thursday 9th April 2015 by 4:30 p.m.
2. Read and follow all instructions/directions carefully. An inability to follow instructions/directions will result in points being deducted.
3. All problems sets submitted must be stapled, handwritten, and include the cover page.
4. Only problem sets submitted in person and/or in class will be accepted.
5. Answer all questions in blue or black ink only; i.e., no pencils or colored inks. The only exception: graphs may be drawn in pencil. Note: use a guide of some sort (e.g., a ruler) for all graphs. Do not use white out or similar products, but neatly cross/scratch out any mistakes.
6. Write, mark, and draw your answers neatly and clearly. If your answer is illegible (i.e., difficult to read in the least), then it will not be graded. It is your job to clearly communicate.
7. Label all graphs fully and completely; i.e., axes, intersections, curves, etc.
8. Support your answers as thoroughly as possible; i.e., graphically, conceptually, and mathematically. Note: this may not be feasible or necessary for all questions asked. State and define any concept utilized and list and name any equation used. In other words, show all of your work.
9. Do not copy from another student.
10. Note: only use materials from this class, listed textbooks, and suggested resources to answer questions. The Google can be quite useful and tempting, but very often a question has been constructed in a very specific manner; i.e., using a certain set of assumptions. Another source may have a very similar problem, but with slightly different underlying assumptions that change the answer completely. This is typically not obvious and will likely leave you very confused.
11. For the True/False/Uncertain questions clearly indicate your choice by writing either “True”, “False”, or “Uncertain” underneath the respective question. Unless explicitly instructed otherwise, a justification is required to receive credit.
12. For the multiple choice questions **[2 points each]**, choose the “best” answer and mark the letter in the spaces provided at the bottom of the page. Only clearly written letters in the allocated space will be graded.
13. Assume the nominal wage is fixed in the short-run, all markets begin in long-run equilibrium, and capital stock is fixed in both the short-run and long-run except for negative shocks. For changes in the variables of interest, reference the initial level, unless instructed otherwise, in both the short-run and long-run.
14. Questions pertaining to the problem set will not be answered on the due date. Further, it is strongly recommended that any questions be asked in person.

Original Score (%)	
Adjustment (%)	
Actual Score (%)	

	Production and Consumption Without Trade		Production With Trade	
	Swords	Belts	Swords	Belts
Estonia	100	50	200	0
Morocco	50	40	0	120

- Which country has an absolute advantage in producing swords?
 - Estonia ✓ A
 - Morocco
 - both countries
 - neither country
- Which country has an absolute advantage in producing belts?
 - Estonia ✓ A
 - Morocco
 - both countries
 - neither country
- Which country has a comparative advantage in producing swords?
 - Estonia ✓ A
 - Morocco
 - both countries
 - neither country
- Which country has a comparative advantage in producing belts?
 - Estonia
 - Morocco ✓ B
 - both countries
 - neither country
- Prior to trade, what was the opportunity cost to produce 1 belt in Estonia?
 - 1/2 of a sword
 - 4/5 of a sword
 - 1.25 swords
 - 2 swords ✓ D

1. A

2. A

3. A

4. B

5. D

6. Prior to trade, what was the opportunity cost to produce 1 sword in Morocco?
- (A) 1/2 of a belt
 - (B) 4/5 of a belt ✓ B
 - (C) 1.25 belts
 - (D) 2 belts
7. With trade, what is the total gain in belt production?
- (A) 30 ✓ A
 - (B) 80
 - (C) 120
 - (D) 210
8. All of the following are terms of trade that could possibly benefit both countries except
- (A) 1 belt : 1.33 swords
 - (B) 1 belt : 1.5 swords
 - (C) 1 belt : 1.75 swords
 - (D) 1 belt : 2.25 swords ✓ D
9. If the actual terms of trade are 1 belt for 1.5 swords and 70 belts are traded, how many belts will Estonia consume?
- (A) 50
 - (B) 70 ✓ B
 - (C) 90
 - (D) 120
10. If the actual terms of trade are 1 belt for 1.5 swords and 70 belts are traded, how many swords will Morocco gain compared to the “without trade” numbers?
- (A) 5
 - (B) 55 ✓ B
 - (C) 105
 - (D) 150

6. B

7. A

8. D

9. B

10. B

11. In the real world we don't observe countries completely specializing in the production of goods for which they have a comparative advantage. All of the following are reasons for this except
- (A) not all goods and services are traded internationally.
 - (B) some countries have more resources than other countries. ✓ B
 - (C) tastes for many traded goods are different in many countries because of globalization.
 - (D) production of most goods involves increasing opportunity costs.
12. Textbook examples of trade between two nations are simplified in order to show how two nations both benefit from trade. These examples are misleading because
- (A) in the real world, rich countries can take advantage of poor countries.
 - (B) they do not account for the reduction in wages that occurs in both countries as a result of trade.
 - (C) some individuals in both countries may be made worse off because of trade. ✓ C
 - (D) trade restrictions are likely to be imposed as trade grows over time.
13. Once an industry becomes established in a certain area firms that locate in that area gain advantages over firms located elsewhere, leading to lower costs of production. Economists refer to the lower costs that result from increases in the size of an industry in a certain area as
- (A) external economies. ✓ A
 - (B) positive externalities.
 - (C) strategic advantages.
 - (D) technological change.
14. Trade restrictions are often motivated by a desire to save domestic jobs threatened by competition from imports. Which of the following counter-arguments is made by economists who oppose trade restrictions?
- (A) Statistics show that trade restrictions actually do not save jobs.
 - (B) Consumers pay a high cost for jobs saved through trade restrictions. ✓ B
 - (C) Trade restrictions have a limited impact because most Americans prefer domestic goods over imports.
 - (D) Trade restrictions benefit consumers in the short run but not in the long run.
15. The World Trade Organization (WTO) promotes foreign trade and investment, or globalization. In recent years opposition to globalization has led to violent protests at meetings of the WTO. All of the following are reasons for these anti-globalization protests except
- (A) protestors believe the WTO favors the interests of high-income countries at the expense of lower-income countries.
 - (B) protestors believe that tariffs are needed to protect domestic firms from foreign competition.
 - (C) protestors believe that free trade destroys the distinctive cultures of many countries.
 - (D) protestors object to the loss of intellectual property (such as software programs and movies) that results from foreign trade and investment. ✓ D

11. B

12. C

13. A

14. B

15. D

16. All but one of the following statements is used to justify protectionism. Which statement is not used to justify protectionism?
- (A) Free trade leads to higher prices for imported goods. ✓ A
 - (B) Free trade reduces employment by driving domestic firms out of business.
 - (C) A country should not rely on other countries for goods that are critical to its national defense.
 - (D) Trade restrictions are necessary to protect new firms until they can gain experience and become more productive.
17. Domestic producers require time to gain experience and lower their unit costs; this will allow these producers to compete successfully in international markets. This statement describes the _____ argument for protectionism.
- (A) diseconomies of scale
 - (B) protecting national security
 - (C) anti-dumping
 - (D) infant industry ✓ D
18. Suppose China decides to sell a vast majority of their large holdings of U.S. Treasury bonds. If you are thinking of refinancing your house, how would China's action affect your decision to refinance?
- (A) You would want to refinance as soon as possible as interest rates should rise. ✓ A
 - (B) You would want to wait to refinance as interest rates should rise.
 - (C) You would want to wait to refinance as interest rates should fall.
 - (D) China's actions should not affect your decision to refinance in any way.
19. An HMO hires radiology services from India to cut costs. If all else remains equal, this will
- (A) decrease net exports. ✓ A
 - (B) decrease the balance of trade.
 - (C) increase the current account balance.
 - (D) decrease the financial account.
20. You're traveling in Ireland and are thinking about buying a new digital camera. You've decided you'd be willing to pay \$125 for a new camera, but cameras in Ireland are all priced in euros. If the camera you're looking at costs 115 euros, under which of the following exchange rates would you be willing to purchase the camera? (Assume no taxes or duties are associated with the purchase.)
- (A) 0.56 euros per dollar
 - (B) 0.89 euros per dollar
 - (C) 0.92 euros per dollar ✓ C
 - (D) You would purchase the new camera at any of the above exchange rates.

16. A

17. D

18. A

19. A

20. C

21. If a country has a fixed exchange rate,
- (A) the equilibrium exchange rate in that market does not respond to changes in supply and demand for currency.
 - (B) central banks have more control over real GDP in the economy.
 - (C) central banks must buy and sell their holdings of currencies to maintain a given exchange rate. ✓ C
 - (D) the exchange rate is allowed to fluctuate in response to changes in the supply and demand for currency.
22. If the price level in the United States is 110, the price level is 120 in Mexico, and the nominal exchange rate is 140 pesos per dollar, what is the real exchange rate from the U.S. perspective?
- (A) 94
 - (B) 115
 - (C) 128 ✓ C
 - (D) 153
23. The late Hugo Chavez, Venezuela's former president, proposed that the independence of the Venezuelan central bank be eliminated. Given the research on the relationship between central bank independence and inflation, we should expect this event to cause inflation to _____ and the real exchange rate to _____ between the two countries. (Assume the nominal exchange does not change, and that the United States is the domestic country).
- (A) rise in Venezuela relative to the United States; fall ✓ A
 - (B) fall in Venezuela relative to the United States; fall
 - (C) rise in Venezuela relative to the United States; rise
 - (D) fall in Venezuela relative to the United States; rise
24. How might a budget deficit affect the balance of trade?
- (A) A budget deficit raises interest rates, which raises exchange rates, and increases the balance of trade.
 - (B) A budget deficit raises interest rates, which raises exchange rates, and reduces the balance of trade. ✓ B
 - (C) A budget deficit reduces interest rates, which raises exchange rates, and reduces the balance of trade.
 - (D) A budget deficit reduces interest rates, which reduces exchange rates and reduces the balance of trade.
25. If the Fed does not take into account the additional policy channels available in an open economy, then _____ when conducting contractionary monetary policy,
- (A) it is likely to decrease GDP too much and cause a recession ✓ A
 - (B) it is likely to decrease GDP too little and inflation will persist
 - (C) it is likely to increase GDP too much and inflation will persist
 - (D) it is likely to increase GDP too little and cause a recession

21. C

22. C

23. A

24. B

25. A

26. Why is the multiplier for contractionary fiscal policy smaller in an open economy?
- (A) Contractionary fiscal policy reduces the deficit, which raises the interest rate, which raises the foreign exchange value of the dollar, which increases net exports.
 - (B) Contractionary fiscal policy increases the deficit, which raises the interest rate, which reduces the foreign exchange value of the dollar, which increases net exports.
 - (C) Contractionary fiscal policy reduces the deficit, which reduces the interest rate, which reduces the foreign exchange value of the dollar, which increases net exports. ✓ C
 - (D) Contractionary fiscal policy reduces the deficit, which reduces the interest rate, which reduces the foreign exchange value of the dollar, which decreases net exports.
27. Suppose an economy's exchange rate system is the gold standard and vast tracks of gold are discovered, as is what happened in the United States in 1849. If the economy is at full employment, what should this discovery do?
- (A) It should raise the money supply and cause inflation. ✓ A
 - (B) It should raise the money supply and cause disinflation.
 - (C) It should lower the money supply and cause deflation.
 - (D) it should not change the money supply.
28. If one U.S. dollar could be exchanged for one Canadian dollar in 1970, and one U.S. dollar can now be exchanged for 1.13 Canadian dollars, which of the following is true?
- (A) The U.S. dollar lost value against the Canadian dollar.
 - (B) The Canadian dollar lost value against the U.S. dollar. ✓ B
 - (C) The Canadian dollar gained value against the U.S. dollar.
 - (D) Both A and C are true.
29. Ariel is a Canadian citizen who works in Montreal, Canada and owns a winter home in Palm Beach, Florida. When Ariel spends the winters in Palm Beach, an increase in the value of the Canadian dollar relative to the U.S. dollar should
- (A) help Ariel as each Canadian dollar of her salary is now worth more U.S. dollars. ✓ A
 - (B) hurt Ariel as each Canadian dollar of her salary is now worth less U.S. dollars.
 - (C) hurt Ariel as it is now more expensive to live in Palm Beach since the Canadian dollar appreciation.
 - (D) help Ariel as it is now less expensive to live in Canada since the Canadian dollar appreciation.
30. You decide to work in Japan for the next 10 years, accumulate some savings, then move back to the United States and convert your savings from yen to dollars. At the time of your move, economists predict that consumers in the United States have reignited their love of Japanese products, especially hybrid cars, and expect that this strong preference for Japanese products will continue for the next decade. How should this influence your decision to work and save in Japan?
- (A) You should be discouraged as the growing U.S. preference for Japanese goods should increase the value of the yen to the dollar and decrease the value of your savings when converted to dollars.
 - (B) You should be discouraged as the growing U.S. preference for Japanese goods should decrease the value of the yen to the dollar and decrease the value of your savings when converted to dollars.
 - (C) You should be encouraged as the growing U.S. preference for Japanese goods should decrease the value of the yen to the dollar and raise the value of your savings when converted to dollars.
 - (D) You should be encouraged as the growing U.S. preference for Japanese goods should increase the value of the yen to the dollar and raise the value of your savings when converted to dollars. ✓ D

26. C

27. A

28. B

29. A

30. D

31. What factors are not important in determining exchange rate fluctuations in the long run?
- (A) relative price levels across countries
 - (B) relative rates of productivity growth across countries
 - (C) preferences for domestic and foreign goods across countries
 - (D) speculating in currency markets ✓ D
32. If the exchange rate between the U.S. dollar and the Indian rupee (rupees per dollar) is greater than the relative purchasing power between the two countries, which of the following would be true?
- (A) There are opportunities for profit by purchasing goods in India and then selling them in the United States. ✓ A
 - (B) Purchasing power parity predicts that the value of the dollar will rise as traders take advantage of arbitrage opportunities.
 - (C) Purchasing power parity predicts that the dollar is undervalued as traders take advantage of arbitrage opportunities.
 - (D) There are no arbitrage opportunities for which traders can take advantage.
33. A Big Mac costs \$4.00 in the United States and 9.00 reals in Brazil. If the exchange rate is 2 reals per dollar, purchasing power parity predicts that
- (A) the dollar will appreciate as the demand for dollars falls in the long run.
 - (B) the dollar will appreciate as the supply of dollars falls in the long run. ✓ B
 - (C) the dollar will depreciate as the demand for dollars falls in the long run.
 - (D) the dollar will depreciate as the supply of dollars rises in the long run.
34. If relative purchasing power between the United States and Argentina is 3.22 pesos per dollar, under which circumstances would we say that the dollar is “overvalued”?
- (A) if the actual exchange rate between the dollar and the Argentinean peso is 3.22 pesos per dollar
 - (B) if the actual exchange rate between the dollar and the Argentinean peso is 4 pesos per dollar ✓ B
 - (C) if the actual exchange rate between the dollar and the Argentinean peso is 0.22 pesos per dollar
 - (D) if the actual exchange rate between the dollar and the Argentinean peso is 3 pesos per dollar
35. Which of the following explains why purchasing power parity does not completely explain long-run fluctuations in exchange rates?
- (A) Some goods and services produced in any country are not traded internationally. ✓ A
 - (B) Consumer preferences for goods and services across countries are very similar.
 - (C) Most countries do not impose barriers to trade.
 - (D) Most countries have free markets with little, if any, government regulation.

31. D

32. A

33. B

34. B

35. A

36. Which of the following is a drawback to having a common currency across countries, as in the European Union?
- (A) A common currency increases barriers to trade across countries, reducing opportunities for economic growth.
 - (B) With a common currency, individual countries are no longer able to run independent monetary policies. ✓ B
 - (C) Having a common currency implies that the prices of goods across countries must always be the same, regardless of consumer preferences for goods across countries.
 - (D) None of the above is a drawback to a common currency.
37. Pegging a country's exchange rate to the dollar can be advantageous if
- (A) the country does not trade much with the United States.
 - (B) investors believe the dollar to be more stable than the domestic country's currency. ✓ B
 - (C) a country wishes to conduct independent monetary policy.
 - (D) imports are not a significant fraction of the goods the country's consumers buy.
38. Although the pegged exchange rate between the yuan and the dollar has undervalued the yuan, China has been reluctant to abandon the peg for fear that abandoning the peg would
- (A) increase exports and increase the current account deficit.
 - (B) reduce capital inflows.
 - (C) reduce exports and reduce economic growth. ✓ C
 - (D) increase Chinese holdings of dollars.
39. How will the exchange rate (foreign currency per dollar) respond to an increase in preference for imported goods in the United States in the long run?
- (A) Exchange rates will rise.
 - (B) Exchange rates will fall. ✓ B
 - (C) Exchange rates will be unaffected by changes in the relative rate of productivity growth in the United States, both in the short run and in the long run.
 - (D) The exchange rate will be affected in the short run, but not in the long run.
40. Dumping refers to
- (A) selling inferior products to unsuspecting consumers.
 - (B) selling a product for a price below its cost of production. ✓ B
 - (C) exporting products that do not meet domestic safety standards.
 - (D) illegally avoiding tariffs by selling products on the black market.

36. B

37. B

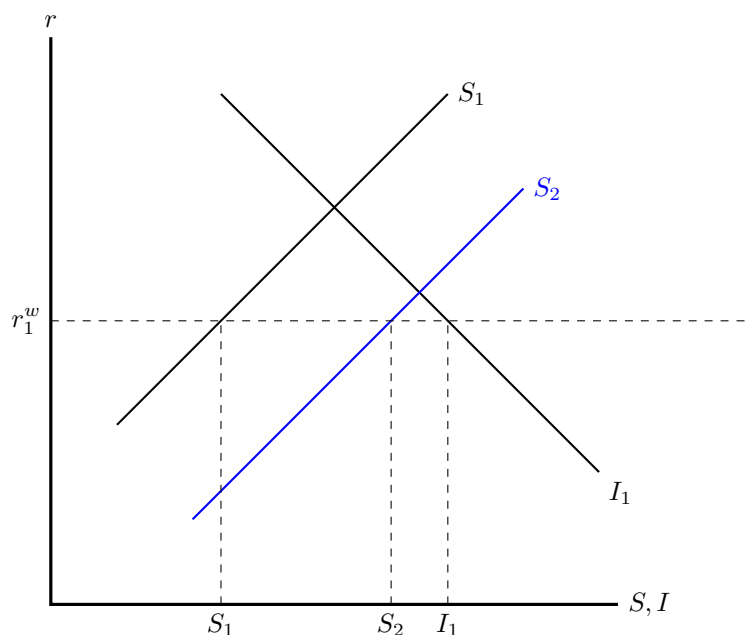
38. C

39. B

40. B

41. *The Wall Street Journal*¹ reports “New Zealand’s agriculture-rich economy has been aided by a surge in demand from Asia’s growing middle classes for dairy products” thereby increasing exports (EX). New Zealand is a small open economy with a floating exchange rate that currently has a trade deficit.

- (a) [10 points] Use the open loanable funds (goods) market to show graphically, *ceteris paribus*, what effects, if any, the change in exports would have on New Zealand’s: (i) net exports; (ii) output/income; (iii) quantity of saving; (iv) quantity of investment; and (v) the real world interest rate in the short-run. State explicitly what happens to each of the variables; i.e., increase, decrease, unchanged, or ambiguous. Carefully explain your (positive economic) reasoning.



- $\uparrow EX \xrightarrow{\text{ceteris paribus}} \uparrow NX \xrightarrow{Y=C+I+G+NX} \uparrow Y \xrightarrow{S=Y-C-G} \text{desired saving curve shifts rightward}$

(i) $\Delta NX > 0$

* This is consistent with $S - I = NX$ with the quantity of saving increasing and quantity of investment unchanged. Graphically the trade deficit has been reduced; i.e., smaller gap.

(ii) $\Delta Y > 0$

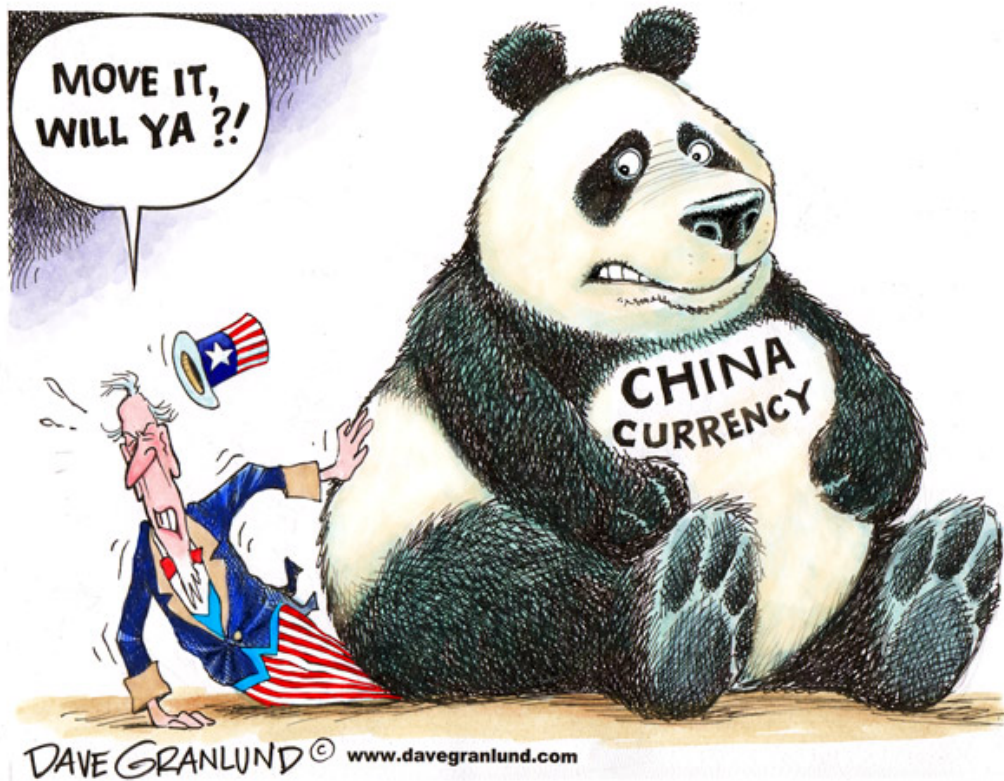
(iii) $\Delta S > 0$

(iv) $\Delta I = 0$

(v) $\Delta r^w = 0$

* “small open economy”; i.e., does not affect the real world interest rate

¹*The Wall Street Journal* “New Zealand Raises Interest Rates as Inflationary Pressure Increases” by Howard 23rd April 2014



42. [10 points] Interpret and explain the above cartoon.

- The U.S.-China trade deficit in 2012 was \$540.4 billion. This means that China has exported approximately \$540.4 billion more than what it has imported from the U.S. The trade imbalance (i.e. deficit) means that the Chinese economy is growing “at the cost” (remember: everything is pro and con) of the U.S. because it is able to produce goods and services at a relatively cheaper rate compared to the U.S. However, apart from the low cost advantage that China has in terms of cost of production, it has also kept its currency deliberately undervalued to give its exporters an advantage. The U.S. believes that the undervalued yuan (renminbi) is a primary reason for the relatively large trade deficit.

It helps to consider how the U.S-China trade imbalance developed. China does not follow a floating currency rate mechanism by setting the value of its currency, the yuan (renminbi), to equal a set amount of a basket of currencies which is mostly comprised of the U.S. dollar. When the value of dollar starts decreasing China starts buying dollars to maintain the value of a dollar at a particular level. This is the reason China is the largest investor in U.S. treasuries. As of 2013 China holds approximately 8% of U.S. debt or \$1.34 trillion. Investment from China in U.S. treasury securities is one of the reasons the U.S. was able to keep interests rates relatively low in the pre-crisis era until late 2007.

Since the trade deficit against China is relatively large, the U.S. is worried about domestic production since this may lead to unemployment in industries relying on exports. Paul Krugman and Fred Bergsten, two noted economists (note: this does not mean they are correct), the undervalued yuan is costing the U.S. economy \$200 billion every year and also depriving the U.S. of 10 million job opportunities every year. Again, these numbers are up for debate depending on time period, assumption used, etc. China has gradually started to hold influence on the U.S. economy by owning more and more U.S. treasury securities. The U.S. wants China to revalue the yuan believing it has an artificially depressed value. If the yuan is revalued, U.S. exports will become more competitive and this may increase production in the U.S. which in turn will positively affect U.S. GDP.

Uncle Sam in the cartoon is the traditional representation for the U.S. in editorials while the panda bear is the typical Chinese figure. The Chinese currency is a big problem (i.e. large panda) weighing down and hurting the U.S. Hence, Uncle Sam is under pressure and in pain. In order to improve his condition he wants the panda to get off of him; i.e. remove the problem – revalue the yuan (renminbi).

For a relatively recent change in China’s yuan policy see: *The Wall Street Journal* “China Allows Wider Currency Fluctuation” by Lingling Wei 15 March 2014.