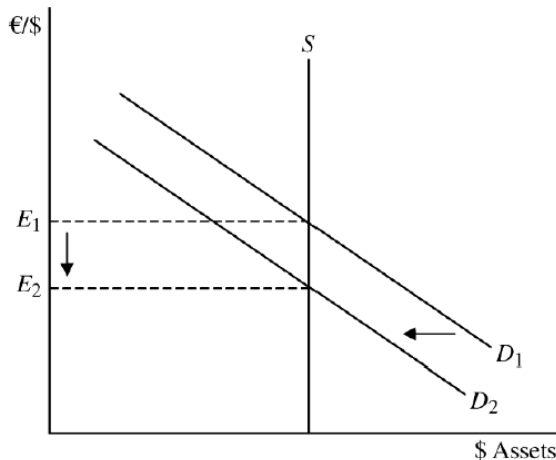


Problem Set 4 Solution

Chapter 18

2. False. Although a weak currency has the negative effect of making it more expensive to buy foreign goods or to travel abroad, it may help domestic industry. Domestic goods become cheaper relative to foreign goods, and the demand for domestically produced goods increases. The resulting higher sales of domestic products may lead to higher employment, a beneficial effect on the economy.
3. U.S. dollar depreciation makes U.S. domestic goods cheaper, thus both domestic and foreign consumers buy more U.S.-produced goods. At the same time, imported goods become more expensive since they require more dollars per foreign currency to purchase. Thus, U.S. exports will increase and imports into the United States will decrease.
4. It predicts that the value of the yen will fall 5% in terms of dollars.
7. This would reduce the demand for euro-denominated assets, resulting in a depreciation of the euro and an appreciation of the Swiss franc and Australian dollar.
10. The pound depreciates, declining in both the short run and the long run. Consider Britain to be the domestic country. The lower domestic interest rate on pound assets lowers the expected return on them at any given exchange rate, shifting the demand curve to the left in the short run. The outcome is a lower value of the pound. In the long run, the domestic interest rate returns to its previous value, and the demand curve shifts back to the right somewhat. The exchange rate rises to some extent, but still remains below its initial level due to the permanently higher relative price level.
12. The dollar will depreciate. A rise in nominal interest rates but a decline in the real rate implies a rise in expected inflation that produces an expected depreciation of the dollar that is larger than the increase in the domestic interest rate. As a result, the expected return on dollar assets falls at any exchange rate, shifting the demand curve to the left and leading to a fall in the exchange rate.
13. The dollar will appreciate. The increase in U.S. productivity raises the expected future exchange rate and thus raises the expected return on dollar assets at any exchange rate. The resulting rightward shift of the demand curve leads to a rise in the equilibrium exchange rate.
16. The quantitative easing program should reduce the demand for U.S. dollar-denominated assets, and lead to an appreciation of the euro (a depreciation of the dollar). In fact, after the policy announcement on March 18, 2009 the dollar depreciated more than 4% against the euro.
18. Spot exchange rate = $1.28 \text{ CAD}/\$ \times (\$1/\text{£}0.62) = 2.0645 \text{ Canadian dollars/pound}$
19. Complete the following transactions simultaneously:
 - i. Exchange \$1.00 into 1.36 New Zealand dollars.
 - ii. Exchange the 1.36 New Zealand dollars into 0.6664 British pounds.
 - iii. Exchange the 0.6664 British pounds into \$1.0748.This yields a riskless \$0.0748 per U.S. dollar invested.

22. If prices rise relative to the United States by $(20 + 5)\% = 25\%$, then 25% more pounds will be required to buy the same U.S. goods. Thus, this will require the exchange rate to be $1.25 \times £0.55/\$ = £0.6875/\$$.
23. The dollar will depreciate. The drop of expected inflation in Europe, which leads to a decline in the foreign interest rate (which is smaller than the drop in expected inflation), leads to a decline in the relative expected return on dollar assets, because the expected euro appreciation is greater than the decline in the foreign interest rate. The result of the decline in the relative expected return on dollar assets is a leftward shift of the demand curve, and the equilibrium U.S. dollar exchange rate falls. The graph is shown below.

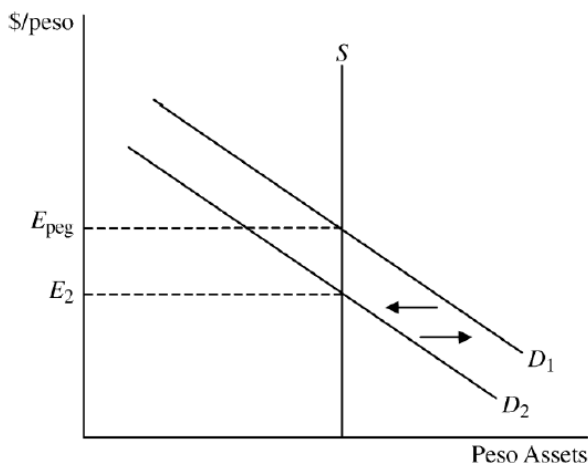


Chapter 19

1. The purchase of dollars involves a sale of foreign assets, which means that international reserves fall. However, the offsetting open market purchase means that the monetary base and the money supply will remain unchanged. There is thus no change in the expected return on dollar assets, so the demand curve does not shift, and the exchange rate also remains unchanged.
2. The purchase of dollars involves a sale of foreign assets, which means that international reserves fall and the monetary base decreases. The resulting fall in the money supply causes interest rates to rise and lowers the future price level, thereby raising the future expected exchange rate. Both of these effects raise the expected return on dollar assets at any given exchange rate, shifting the demand curve to the right and raising the equilibrium exchange rate.
3. (a) A receipt in the capital account; (b) a payment in the current account; (c) a negative change in net international reserves; (d) a receipt in the current account; (e) a payment in the current account; (f) a payment in the capital account; and (g) a receipt in the capital account.
9. False. Inflation occurred when the world was under the gold standard before World War I. The gold discoveries in the Klondike and South Africa before World War I led to a continuing increase in the quantity of gold, which caused a more rapid growth in money supplies throughout the world. The result was worldwide inflation.

10. There are several disadvantages to China's exchange rate strategy. First, diversification is a problem in that the Chinese own a very large amount of U.S. assets, including low-yielding U.S. treasuries. Secondly, it has created a backlash among trading countries who have threatened trade sanctions due to the cheap prices of Chinese exports due to the low yuan peg. Finally, having the undervalued yuan has resulted in the central bank selling large amounts of yuan currency and raising the domestic Chinese monetary base and money supply, which has the potential to create high inflation in the future.
11. The situation would be as depicted in Figure 2, Panel (b). The central bank would need to sell domestic currency and buy foreign assets, thus increasing its international reserves and the monetary base. The resulting rise in the money supply would then lead to a decline in the domestic interest rate, which would shift demand for domestic assets to the left so that the equilibrium exchange rate would be at par.
13. True, because when the exchange rate is falling, the central bank must buy its currency, which lowers its holdings of international reserves and its monetary base. Similarly, when the exchange rate is rising, it must sell its currency, which raises its holdings of international reserves and its monetary base. The necessary central bank intervention to keep its exchange rate fixed thus affects the monetary base and hence the money supply. [Note: Question 13 could also be answered "false," in terms of the policy trilemma, because a country could opt for fixed exchange rates and independent monetary policy if it imposes restrictions on capital mobility.]
16. With a pegged exchange rate, speculators are sometimes presented with a one-way bet in which the only direction for a currency to go is down in value when a country's central bank is unable or unwilling to defend the currency's value. In this case, selling the currency before the likely depreciation gives speculators an attractive profit opportunity with potentially high expected returns. As a result, they jump on board and attack the currency.
19. False. As seen in the chapter, a reserve currency country, such as the United States, can have its balance of payments deficits financed by foreign central banks, leaving its international reserves unchanged.
22. Exchange rate targeting is likely to be a sensible strategy for industrialized countries when domestic monetary and political institutions are not conducive to good monetary policymaking, and when there are other important benefits of an exchange rate target that have nothing to do with monetary policy. Exchange rate targeting is likely to be sensible for emerging market countries whose political and monetary institutions are weak so that it is the only way to break inflationary psychology and stabilize the economy.

25. An increase in U.S. interest rates as a result of the contractionary monetary policy will increase the demand for dollar assets and reduce the demand for peso assets from D_1 to D_2 , which will appreciate the dollar and depreciate the peso. This results in the peso being valued below the peg; in order to maintain the peg, the Mexican central bank must increase domestic interest rates by selling foreign assets, and buying domestic peso currency. This results in the demand for peso assets to increase back up to D_1 as shown in the graph below. This demonstrates one of the main disadvantages to pegging the domestic currency in that domestic monetary policy in the pegging country is dependent on foreign business cycles, meaning that there is no scope for domestic monetary policy stabilization. In this case, Mexico was forced to import a contractionary policy, which could create unexpected and undesirable contraction in the domestic economy.



Chapter 20

4. False. Velocity is equal to nominal GDP divided by the money supply. If nominal GDP increases but the money supply increases by an even greater amount, velocity will decline.
5. Persistent long-term budget deficits can lead to the perception or worry that policymakers will satisfy the government budget constraint by monetizing the debt in the future, leading to large increases in the monetary base that would be highly inflationary. Even if the central bank has no intention of monetizing the debt, the belief or appearance that the central bank may do this will increase inflation expectations, making it harder for monetary policymakers to keep inflation anchored at a low, stable level.
8. The need for costly infrastructure to support new payment technologies would mean that cash would be used more in developing countries relative to rich countries. As a result, the transactions demand for money would be greater in developing countries relative to rich countries.
12. Because it indicates that money demand and hence velocity is affected by interest rates, and since interest rates fluctuate a lot, velocity will as well. Furthermore, as the answer to problem 11 suggests, changes in people's expectations about what the normal level of interest rates are will cause money

14. (a) Since risk of alternative assets increases, liquidity of alternative assets likely decreases, and interest rates likely will fall, this will lead to an increase in money demand. Note that even though wealth decreases, this will have a modest negative effect on money demand. (b) Cheaper bond transactions make the bond market more liquid, leading to an increase in demand for bond holdings, and hence a decrease in the demand for money. (c) The stock market crash would lead to higher volatility, and hence risk in stocks, which would increase demand for money. The stock market crash would reduce wealth, but this would likely have a modest negative effect on money demand, leaving money demand overall higher.
16. The demand for money would decrease, similar to problem 15 above, but much more sharply. Compared to other assets, money would be more risky so people would rather hold more stable assets and less money. In addition, hyperinflation will result in very high interest rates, which would further reduce money demand.
21. Velocity is approximately 10 in 2010, 10.9 in 2011, and 11.9 in 2012. The rate of velocity growth is approximately 9% per year.
24. The price level declines from 2 ($= 2,000/1,000$) to 1.5 ($= 1,500/1,000$).
- 25.

	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Period 7
Y (in billions)	12,000	12,500	12,250	12,500	12,800	13,000	13,200
Interest Rate	0.05	0.07	0.03	0.05	0.07	0.04	0.06
$L(i, Y)$	1450	1492.5	1501.25	1512.5	1530	1585	1590
$V = Y/L(i, Y)$	8.28	8.38	8.16	8.26	8.37	8.20	8.30