#### REVIEW

#### **Chapters 10 and 13 – Fiscal Policy**

1. Complete the following table assuming that (a) MPS = 1/5, (b) there is no government and (c) all saving is personal saving.

Level of output and income	Consumption	Saving
\$250	\$260	\$
275		
300		
325		
350		
375		
400		

- 2. Suppose a family's annual disposable income is \$8000 of which it saves \$2000.
  - (a) What is their APC?

(b) If their income rises to 10,000 and they plan to save 2800, what are their MPS and MPC?

(c)Did the family's APC rise or fall with their increase in income?

3. List four factors that could shift the consumption schedule.

4. Suppose that real interest rates increase. What would be the likely effect on household consumption and saving?

5. Explain the difference between a movement along the consumption schedule and a shift in the consumption schedule.

6. Use the graphs below to answer the following questions:

(a) What types of schedules do graphs A and B represent?

(b) If in graph A line  $A_2$  shifts to  $A_3$  because households consume more and this change is not due to changing taxes, then in graph B, what would happen to line  $B_2$ ?

(c) If in graph B, line  $B_2$  shifts to  $B_1$  because households save less, then in graph A, what will happen to line  $A_2$ ?

(d) In graph A, what has caused the movement from point A to point B on line  $A_2$ ?

(e) If there is a lump-sum tax increase causing line  $A_2$  to shift to  $A_1$ , then in graph



B, what will happen to  $B_2$ ?

7. Consider the following investment situations.

(a) A local bookseller is considering expanding store space to increase his capacity for books. The rent for the additional space would cost \$3000 per year. The bookseller predicts that the added space will pull in an additional profit of \$4000 per year. The current interest rate is 12%. Should the bookseller invest in the extra space?

(b) A baker is considering expanding her business by adding an additional oven to her kitchen. The new oven would cost \$700. The baker expects the new oven to bring in additional profits of \$800. The baker can borrow at a nominal interest rate of 15% and the current inflation rate is 4%. Should she make the investment?

(c) A mechanic is considering expanding his garage. After a strong year last year, the mechanic is able to finance the expansion from last year's profits.

The expansion itself is expected to cost \$11,000. The mechanic estimates that the additional garage will bring in revenue totaling \$12,000. The mechanic is currently receiving an interest rate of 8% on his saved profits. Should he make the investment?

8. Use the following data to answer the questions.

Expected rate of return	Cumulative amount of investment (billions)
11%	\$ 55
10	75
8	90
5	105
3	150
1	190

(a) Explain why this table is essentially an investment demand schedule.

(b) If the interest rate was 8%, how much investment would be undertaken?

(c) Why is there an inverse relationship between the rate of interest and the amount of investment?

- 9. List five events that could cause a shift in the investment demand curve.
- 10. Whenever there is change in spending real GDP will change by a multiple of the initial change in spending. Explain this multiplier effect.
- 11. Define the multiplier. How is it related to real GDP and the initial change in spending? How can the multiplier have a negative effect?
- 12. What are two key facts that serve as the rationale for the multiplier effect?
- 13. Calculate the multiplier when the MPC is .5, .75, .90. What is the relationship between MPC and the multiplier?

- 14. Calculate the multiplier when the MPS is .5, .25, .10. What is the relationship between MPS and the multiplier?
- 15. How large is the actual multiplier?
- 16. Explain the effect of a discretionary cut in taxes of \$40 billion on the economy when the economy's marginal propensity to consume is .75. How does this discretionary fiscal policy differ from a discretionary increase in government spending of \$40 billion?
- 17. Explain how the below graph illustrates the built-in stability of a progressive tax structure.



- 18. What is the difference between the actual deficit, the standardized deficit, and the cyclical deficit?
- 19. What does the "standardized budget" measure and of what significance is this concept?
- 20. What is the relationship between Social Security and the budget?

- 21. Explain the five problems, criticisms, or complications that arise in the implementation of fiscal policy.
- 22. Explain the problems giving rise to this statement: "You would think the government would want to do something to improve economic conditions when the economy is in trouble, but the government is slow to act."
- 23. Explain the crowding-out effect.
- 24. Differentiate between the Federal deficit and the Federal debt.
- 25. State three causes of the public debt
- 26. In 2005 the public debt was \$8.0 trillion. Put this number in perspective by relating the debt to GDP, to other countries' debt, to the amount of interest payments on the debt, and to ownership of the debt.
- 27. Can the large public debt cause the nation to go bankrupt? Explain.
- 28. Why is the ownership of the public debt an important issue?
- 29. Is the public debt a burden on future generations? Explain.
- 30. Is it possible to impose a burden on future generations by increasing the public debt?
- 31. What are four real and potential problems with the public debt?
- 32. Crowding out can weaken the effect of an expansionary fiscal deficit. Explain.
- 33. What two factors could reduce the net economic burden that might be shifted to future generations from the public debt?

#### ANSWERS - REVIEW: Chapters 10 and 13 – Fiscal Policy

Level of output and income	Consumption	Saving
\$250	\$260	\$
275		
300		
325		
350		
375		
400		

1. Complete the following table assuming that (a) MPS = 1/5, (b) there is no government, and (c) all saving is personal saving.

Level of output and income	Consumption	Saving
\$250	\$260	-\$10
275	280	-5
300	300	0
325	320	5
350	340	10
375	360	15
400	380	20

2. Suppose a family's annual disposable income is \$8000 of which it saves \$2000.

(a)What is their APC?

(b) If income rises to \$10,000 and they plan to save \$2800, what are MPS and MPC?

(c)Did the family's APC rise or fall with their increase in income?

(a)APC = .75.
(b) MPS = .4; MPC = .6.
(c)APC fell to .72.

3. List four factors that could shift the consumption schedule.

Shifts in the consumption schedule could be caused by any of the nonincome determinants of consumption and saving. This includes changes in any of the following: wealth, expectations, real interest rates, and household debt.

4. Suppose that real interest rates increase. What would be the likely effect on household consumption and saving?

A rise in real interest rates would raise the price of borrowing for households, so consumption would likely decline, especially consumption of products usually bought on credit such as homes and automobiles. A rise in interest rates increases the rate of return earned on savings, making saving more attractive, so savings would likely increase.

5. Explain the difference between a movement along the consumption schedule and a shift in the consumption schedule.

A movement from one point to another on the consumption schedule is a change in the amount consumed. It is caused solely by a change in disposable income. By contrast, a shift in the consumption schedule is the result of a change in one of the nonincome determinates of consumption such as a change in wealth, expectations, taxation, or household debt. If a household decided to consume more at each level of disposable income, the consumption schedule will shift upward.

6. Use the graphs below to answer the following questions:

(a)What types of schedules do graphs A and B represent?

(b) If in graph A line  $A_2$  shifts to  $A_3$  because households consume more and this change is not due to changing taxes, then in graph B, what would happen to line  $B_2$ ?

(c)If in graph B, line  $B_2$  shifts to  $B_1$  because households save less, then in graph A, what will happen to line  $A_2$ ?

(d) In graph A, what has caused the movement from point A to point B on line  $A_2$ ?

(e) If there is a lump-sum tax increase causing line  $A_2$  to shift to  $A_1$ , then in graph



B, what will happen to  $B_2$ ?

(a)Graph A represents the consumption schedule and B represents the saving schedule.

(b) If consumption rises at each level of income, then saving must decline at each level so  $B_2$  will shift down.

(c)The situation is the reverse of part (b). Line  $A_2$  would rise if  $B_2$  falls. Consumption rises when saving falls.

(d) Since it is a movement along the curve rather than a shift in the curve, the level of disposable income must have increased.

(e)A tax increase will lower both consumption and saving schedules because disposable income has been reduced at each level of output.

7. Consider the following investment situations.

(a)A local bookseller is considering expanding store space to increase his capacity for books. The rent for the additional space would cost \$3000 per year. The bookseller predicts that the added space will pull in an additional profit of \$4000 per year. The current interest rate is 12%. Should the bookseller invest in the extra space?

(b) A baker is considering expanding her business by adding an additional oven to her kitchen. The new oven would cost \$700. The baker expects the new oven to bring in additional profits of \$800. The baker can borrow at a nominal interest rate of 15% and the current inflation rate is 4%. Should she make the investment?

(c)A mechanic is considering expanding his garage. After a strong year last year, the mechanic is able to finance the expansion from last year's profits. The expansion itself is expected to cost \$11,000. The mechanic estimates that the additional garage will bring in revenue totaling \$12,000. The mechanic is currently receiving an interest rate of 8% on his saved profits. Should he make the investment?

(a)Yes. The additional space would bring a profit of \$1000 or an expected rate of return of 33.3% compared to the marginal cost of a 12% interest rate. The total rate of return for the project would be 21.3%, a substantial return on his investment.

(b) Yes. The new oven would bring additional profits of \$100 or an expected rate of return of 14.3% the first year of operation. Though the nominal interest rate to borrow is greater than the rate of return at 15%, when adjusted for inflation the real interest rate is only 11%. This would bring a total return of 3.3% and thus the baker should invest in the new oven.

(c)No. Though the expansion would appear to have an expected profit of \$1000 or rate of return of 9.1%, the mechanic needs to account for the opportunity cost of not saving his profits at an interest rate of 8%. This opportunity cost would be lost returns of \$880 (\$11,000  $\times$  8%). This brings the total cost of the expansion to \$11,880. Total profits are then only \$120 or a rate of return of 1.01%. The mechanic should not make the investment.

8.Use the following data to answer the questions.

Expected rate of return	Cumulative amount of investment (billions)
11%	\$ 55
10	75
8	90
5	105
3	150
1	190

(a)Explain why this table is essentially an investment demand schedule.

(b) If the interest rate was 8%, how much investment would be undertaken?(c)Why is there an inverse relationship between the rate of interest and the amount of investment?

(a) The investment demand schedule gives the amount of investment that would be undertaken at various rates of interest. The rate of interest that an investor would be willing to pay for any amount of investment will not exceed its expected rate of net profit. Therefore, the expected rate of profit determines the interest rate (or price) that investors would be willing to pay for various amounts of investment and this is the definition of an investment demand schedule.
(b) \$90 billion

(c)The inverse relationship stems from the equality of the expected rate of profit with the interest rate at each level of investment as explained in part (a). There are fewer types of investment that yield a large expected net profit and more and more investments that will yield a lower rate of return. Therefore, at high rates of interest there is a smaller amount of investment that will be undertaken because fewer investments yield an expected return high enough to cover the high interest rate. As the rate declines, more and more investments will yield enough return to cover the lower rates of interest.

9. List five events that could cause a shift in the investment demand curve.

Five events would result from changes in the determinants of investment demand. For example, changes in the price, cost of operation, or maintenance of particular investment goods could cause the curve to shift; changes in business taxes favoring or penalizing investment could cause it to shift; a technological change favoring new investment could cause a shift; changes in the stock of capital goods on hand will cause the existing demand curve to shift; and changing expectations about future profits from investment would have an effect. 10.Whenever there is change in spending real GDP will change by a multiple of the initial change in spending. Explain this multiplier effect.

The economy is characterized by repetitive, continuous flows of expenditures and income through which dollars spent by one group are received as income by another group. Any change in spending will cause a chain reaction where a group whose income changes because of the spending change will in turn have a new level of spending which reflects their new level of income. When their spending increases or decreases, another group will find its income affected. Their spending will change by a fraction of that amount and so on. The end result of the initial change in spending will be several rounds of changes in income and spending so that the final impact on the economy's GDP is a multiple of the original change in spending

11. Define the multiplier. How is it related to real GDP and the initial change in spending? How can the multiplier have a negative effect?

The multiplier is simply the ratio of the change in real GDP to the initial change in spending. Multiplying the initial change in spending by the multiplier gives you the amount of change in real GDP. The multiplier effect can work in a positive or a negative direction. An initial increase in spending will result in a larger increase in real GDP, and an initial decrease in spending will result in a larger decrease in real GDP.

12. What are two key facts that serve as the rationale for the multiplier effect?

First, the economy has continuous flows of expenditures and income in which income received by one person comes from money spent by another person who in turn receives income from the spending of another person, and so forth. Second, any change in income will cause both consumption and saving to vary in the same direction as the initial change in income, and by a fraction of that change. The fraction of the change in income that is spent is called the marginal propensity to consume (MPC). The fraction of the change in income that is saved is called the marginal propensity to save (MPS). The significance of the multiplier is that a small change in investment plans or consumption-saving plans can trigger a much larger change in the equilibrium level of GDP.

3. Calculate the multiplier when the MPC is .5, .75, .90. What is the relationship between MPC and the multiplier?

When MPC = .5, the multiplier is 2. When MPC = .75, the multiplier is 4. When MPC = .90, the multiplier is 10. The relationship between MPC and the multiplier is direct. As the MPC increases, so does the multiplier [multiplier = 1 / MPC].

14. Calculate the multiplier when the MPS is .5, .25, .10. What is the relationship between MPS and the multiplier?

When MPS = .5, the multiplier is 2. When MPS = .25, the multiplier is 4. When MPS = .10, the multiplier is 10. The relationship between MPS and the multiplier is inverse. As the MPS decreases, so the multiplier increases [multiplier = 1/(1 - MPS)].

15. How large is the actual multiplier?

The basic multiplier (1/MPS) in the text reflects only the leakage of income into saving. There can also be other leakages of income from taxes or imports. It is better to think of the denominator for the multiplier in more general terms as "the fraction of the change in income which leaks or is diverted from the income stream." When all these leakages—saving, taxes, and import spending—are added to the denominator of the multiplier, they reduce the size of the multiplier effect.

16. Explain the effect of a discretionary cut in taxes of \$40 billion on the economy when the economy's marginal propensity to consume is .75. How does this discretionary fiscal policy differ from a discretionary increase in government spending of \$40 billion?

If MPC is .75, the multiplier is 4. A tax cut of \$40 billion will result in initial increase in consumption of \$30 billion (.75 × \$40 billion). This initial increase in spending will ultimately result in an increase in consumption spending of \$120 billion because of the multiplier process. In contrast, an initial increase in government spending of \$40 billion will ultimately increase consumer spending by \$160 billion (4  $\square$  \$40) because none of the initial increase is siphoned off as savings as would be the case with a \$40 billion tax cut.



17.Explain how the below graph illustrates the built-in stability of a progressive tax structure.

The graph illustrates how net taxes are negative as GDP declines which will add to aggregate demand. When GDP expands, tax revenues increase which dampens aggregate demand.

18. What does the "standardized budget" measure and of what significance is this concept?

The standardized budget refers to the budget deficit or surplus that would result with existing tax and spending programs if the economy were operating at fullemployment. In other words, tax revenues and government spending are estimated at the level that would result if full employment existed.

Some economists believe that the standardized budgetary deficit or surplus is what should determine the expansionary or contractionary nature of fiscal policy rather than the actual budgetary deficit or surplus. If the standardized budget is not in deficit, then expansionary fiscal policy is not being followed according to this view even if the actual budget is in deficit.

19. What is the relationship between Social Security and the budget?

Social Security currently generates more revenues than it pays out to retirees. The excess funds are used to purchase government securities and hold them in a Social Security trust fund. The excess funds also are included in the calculation of the government budget. Thus, they have the effect of reducing the size of any budget deficit or increasing the size of a budget surplus. Some economists argue that these funds should be excluded from calculating annual deficits or surpluses because the excess Social Security funds are accumulating to pay for the future spending needs for the program.

20. Explain the five problems, criticisms, or complications that arise in the implementation of fiscal policy.

First there is a timing problem. Three lags are identified under the "timing problem" category. There is a lag in recognizing the phase of the business cycle; there is an administrative lag in deciding which policies to follow; there is an operational lag in terms of the impact of the policy once it is implemented.

Second, there are political considerations in the adoption of fiscal policy. There is some evidence of a political business cycle where particular expansionary policies are followed in election years whether or not economic conditions merit them.

Third, there is an expectations complication. If businesses and households expect that the fiscal policy will be reversed in the future, they may not change

their behavior in the way that would be expected if the fiscal policy was permanent.

Fourth, the taxing and spending decisions of state and local governments may counteract or reduce the effectiveness of fiscal policy decisions at the federal level. The U.S. government may enact an expansionary fiscal policy by increasing its budget deficit, but state and local governments often have to balance a budget and economic conditions may force them to adopt a contractionary policy that partially offset what the federal government is seeking to achieve.

Fifth, there is concern about possible offsetting effects of government borrowing crowding out private spending that would occur in the absence of the government deficit.

21. Explain the problems giving rise to this statement: "You would think the government would want to do something to improve economic conditions when the economy is in trouble, but the government is slow to act."

Fiscal policy is subject to timing problems. There are three timing lags that limit the speed with which fiscal policy can be enacted and effective. First, there is a lag in recognizing the phase of the business cycle to determine when the government might want to provide help. Second, there is an administrative lag in decision-making that involves deciding which specific policies should be adopted. Third, there is an operational lag because the adoption of policies takes time to have an effect on output and employment.

22. Explain the crowding-out effect.

The crowding-out effect is the notion that government borrowing to finance a deficit may crowd out or reduce private borrowing. To the extent that this occurs, the expansionary impact of fiscal policy is reduced because increased demand by the government is partially offset by reduced demand in private investment.

23. Differentiate between the Federal deficit and the Federal debt.

The Federal deficit is an annual concept referring to the shortfall between Federal revenues and expenditures in one year's budget. The Federal debt is the accumulation of borrowing which results from the series of deficits minus any surpluses

24. State three causes of the public debt.

One cause is the financing of wars. National defense and military spending have soared over the years since World War II. A second cause is recession. Recessions cause a decline in revenues. A third cause is a growth in government spending which has not been reversed in prosperous periods.

25. In 2005 the public debt was \$8.0 trillion. Put this number in perspective by relating the debt to GDP, to other countries' debt, to the amount of interest payments on the debt, and to ownership of the debt.

In 2005 debt was a smaller proportion of GDP than it was in 1995; it was about 49% of GDP in 1995 and 38% of GDP in 2005. In 2005 public debt was a greater percentage of GDP in Italy, Japan, and Germany than in the United States. Interest charges as a percentage of GDP are about 1.5% of GDP. The share held by foreigners was about 18% of the total. About 43% was held by the Federal government and the Federal Reserve.

26. Can the large public debt cause the nation to go bankrupt? Explain.

The large Federal debt cannot cause the country to go bankrupt. For one thing the size of the debt relative to the nation's earning power as measured by GDP is not higher today than it has been in the past. The government can refinance bonds when they mature by selling new bonds in the same way that corporations often do. The government has the power to tax which could raise more revenue if necessary.

27. Why is the ownership of the public debt an important issue?

There are two important possibilities here: (1) If the debt is held primarily by the wealthy in our society, then the interest payment on the debt contributes to income inequality as taxpayers pay the interest to those wealthy bondholders; and (2) If the debt is held substantially by those outside the country, then the interest payment on the debt represents a drain of resources from this country to others and there is a dependence on these lenders that may restrict U.S. independence.

28. Is the public debt a burden on future generations? Explain.

The debt does not really impose a burden on future generations as long as it is held primarily by the American people or institutions. The public debt is really a public credit. Your grandmother or your parents' pension fund may hold the government bonds on which taxpayers are now paying interest. Some day you may inherit those bonds which are assets to those who hold them. The true burden is borne by those who pay taxes or loan the government money *today* to finance government spending. If spending is for productive investment purposes, it will enhance future earning power and should make the burden less on future generations rather than more. For example, if we borrow to invest in roads, transportation systems, health, and education, future generations will be better off, more productive, and able to pay taxes to finance the debt. If we don't

borrow for these purposes today, the nation's productivity will fall and our overall standard of living will decline.

29. Is it possible to impose a burden on future generations by increasing the public debt?

While the answer is generally no to this question, it is possible if the interest payment on the public debt is increasing faster than the GDP. This means that the tax burden on individuals must be growing faster than their earning power, and debt that was incurred earlier is being paid for by today's citizens. Projecting the scenario into the future means imposing a burden on future generations unless the GDP keeps pace with the interest payments. Also, large deficits during peacetime, full-employment periods raise concerns about the ability of the economy and government to use expansionary policies if future recessions need government programs to help emerge from these recessions. Finally, if deficit-financed government spending drives up real interest rates and crowds out private investment, future generations are left with a reduced capital stock. Consequently, their productivity and earnings may be less than would otherwise be the case.

30. What are four real and potential problems with the public debt?

Four real and potential problems with public debt are mentioned in the text: (a) Repayment of the debt affects income distribution in that working taxpayers will be paying interest to those who hold the debt. If those who hold the debt are primarily in the upper-income groups, income distribution may be made more unequal; (b) If the tax burden of paying the interest on the debt becomes excessive, it may damage incentives to work, save, and invest; (c) Debt owed to foreign investors could increase the nation's burden since interest payments leave the country. It may also make our financing less stable if dependence on foreign lending increases; (d) Some public borrowing may "crowd out" private borrowing.

31. Crowding out can weaken the effect of an expansionary fiscal deficit. Explain.

If public borrowing to finance the public deficit crowds out private borrowing and spending that would have increased aggregate demand, then the effect of government spending has been lessened. In other words, some of that spending would have taken place anyway as a result of private borrowing which has been crowded out.

## **REVIEW - Monetary Policy**

1. What are the four principal tools of monetary policy? Explain how they can be used.

#### ANSWER:

The Federal Reserve Banks use three principal tools (techniques or instruments) to control the reserves of banks and the size of the money supply.

(1) The Federal Reserve can buy or sell government securities in the open market to change the lending ability of the banking system:

(a) buying government securities in the open market from either banks or the public increases the excess reserves of banks;

(b) selling government securities in the open market to either banks or the public decreases the excess reserves of banks.

(2) The Fed can raise or lower the reserve ratio:

(a) raising the reserve ratio decreases the excess reserves of banks and the size of the monetary (checkable-deposit) multiplier;

(b) lowering the reserve ratio increases the excess reserves of banks and the size of the monetary multiplier.

(3) The Fed can also raise or lower the discount rate:

(a) raising the discount rate discourages banks from borrowing reserves from the Fed;

- (b) lowering the discount rate encourages banks to borrow from the Fed.
- (4) The Federal Reserve uses its term auction facility to make reserves available to banks. The Fed holds two auctions each month since December of 2007. These loans of reserves borrowed by auction-winning banks have the same effect on reserves and the size of the monetary multiplier as the borrowing of reserves at the discount rate:
  - (a) the Fed can increase banks' excess reserves and the size of the monetary multiplier by making more funds available through its term auction facility;
  - (b) The Fed can decrease banks' excess reserves and the size of the monetary multiplier by reducing the amount of reserves auctioned off every two weeks under the term auction facility.

**2.** The following are simplified balance sheets for the commercial banking system and the Federal Reserve system. All figures are in billions of dollars.

	Consolidated balance Sheet: Commercial balking System					
ASSETS		LIABILITIES				
Reserves	\$45	Deposits	\$200			
Securities	80	Loans from FRB	5			
Loans	80					

### **Consolidated Balance Sheet: Commercial Banking System**

#### **Consolidated Balance Sheet: Federal Reserve Banks**

ASSETS		LIABILITIES				
		Column 1				Column 1
Securities	80			<b>Reserves of CBs</b>	\$45	
Loans to CBs	5			Treasury Deposits	5	
				Federal Reserve Notes	35	

Suppose a drop in the discount rate causes commercial banks to borrow an additional \$2 billion from the Fed. Show the new sheet figures in column 1.

Also, answer these three questions for each part:

(a) What change, if any, took place in the money supply as a direct result of this transaction?

(b) What change, if any, occurred in commercial bank reserves?

(c) What change occurred in the money-creating potential of the commercial banking system if the reserve ratio is 20%?

**3.** The following are simplified balance sheets for the commercial banking system and the Federal Reserve system. All figures are in billions of dollars.

ASSETS	LIABILITIES		
Reserves \$45	Deposits	\$200	
Securities 80	Loans from FRB	5	
Loans 80			

**Consolidated Balance Sheet: Commercial Banking System** 

#### **Consolidated Balance Sheet: Federal Reserve Banks**

Α	SSI	ETS	LIABIL	ITIE	S
		Column 1			Column 1
Securities	80		 Reserves of CBs	\$45	
Loans to CBs	5		 Treasury Deposits	5	
			 Federal Reserve Notes	35	

The Fed buys \$3 billion of government bonds from the public. Show the new sheet figures in column 1.

Also, answer these three questions for each part:

(a) What change, if any, took place in the money supply as a direct result of this transaction?

(b) What change, if any, occurred in commercial bank reserves?

(c) What change occurred in the money-creating potential of the commercial banking system if the reserve ratio is 20%?

4. The following are simplified balance sheets for the commercial banking system and the Federal Reserve system. All figures are in billions of dollars.

	Consolidated balance Sheet: Commercial banking System					
	ASSETS	LIAI	BILITIES			
Reserves	\$45	Deposits	\$200			
Securities	80	Loans from FRB	5			
Loans	80					

## Consolidated Balance Sheet: Commercial Banking System

#### **Consolidated Balance Sheet: Federal Reserve Banks**

Α	ASSETS LIABILITIES		S	
	Column 1			Column 1
Securities	80	Reserves of CBs	\$45	
Loans to CBs	5	Treasury Deposits	5	
		Federal Reserve Notes	35	

The Treasury spends \$1 billion on research on new farm products. Show the new sheet figures in column 1.

Also, answer these three questions for each part:

(a) What change, if any, took place in the money supply as a direct result of this transaction?

(b) What change, if any, occurred in commercial bank reserves?

(c) What change occurred in the money-creating potential of the commercial banking system if the reserve ratio is 20%?

#### ANSWERS to questions 2, 3, and 4 :

#### **Consolidated Balance Sheet: Commercial Banking System**

Assets: (1) (2) (3)

Reserves \$45 (\$47) (\$48) (\$46)

Securities 80 80 80 80

Loans 80 80 80 80

Liabilities:

Checkable Deposits 200 200 (203) (201)

Loans from FRBs 5 (7) 5 5

#### **Consolidated Balance Sheet: Federal Reserve Banks**

Assets: (1) (2) (3)

Securities \$80 80 (83) 80

Loans to CBs 5 (7) 5 5

Liabilities:

Reserves of CBs 45 (47) (48) (46)

Treasury deposits 5 5 5 (4)

Federal Reserve notes 35 35 35 35

(a) No direct change in the money supply; bank reserves up by \$2 billion; moneycreating potential up by \$10 billion (5 times \$2 billion).

(b) Money supply up by \$3 billion; bank reserves up by \$3 billion; money-creating potential up by 5 times \$2.4 (excess reserves) = \$12 billion.

(c) Money supply up by \$1 billion; bank reserves up by \$1 billion; money creating potential up by 5 times \$.8 = \$4 billion. (Assumes \$1 billion comes from account in Fed.)

## **5.** What is the difference between the Federal Reserve Banks' purchases of securities from the commercial banking system and those from the public? Give an example.

#### ANSWER:

Assume that the commercial banks are "loaned up." Purchases of bonds by the Fed from commercial banks increase actual reserves and excess reserves of the commercial banks by the full amount of the bond purchase. Purchases of bonds by the Fed from the public increase actual reserves, but also increase checkable deposits. Some of the checkable deposits must be kept as legal reserves, so the commercial banking system has fewer excess reserves to lend out. Despite this difference the end result is the same amount of increase in the money supply.

For example, if the Fed buys a \$1,000 bond from commercial banks, the banks have \$1,000 in excess reserves to lend. If the reserve ratio is 20 percent, then the commercial banks can increase the money supply by \$5,000. If the Fed buys a \$1,000 bond from the public, then \$1,000 in checkable deposits is created. The bank can lend the excess reserves, which in this case will be \$800 because 20 percent of \$1,000 must be kept as legal reserves. The \$800 in excess reserves increases the money supply by \$4,000. Adding this \$4,000 in bank lending to the \$1,000 in new checkable deposits results in a total increase in the money supply of \$5,000.

## 6. Both Federal Reserve Banks and commercial banks buy and sell government securities, but for substantially different reasons. Explain.

#### ANSWER:

The Federal Reserve Banks buy and sell securities with the macroeconomy in mind. They are pursuing either an easy or tight money policy when they buy or sell securities. However, commercial banks buy and sell securities in order to improve their individual bank's profitability.

Securities are liquid assets which pay interest, and therefore are attractive investments for banks to obtain with their idle reserves. If their cash reserves fall, they can easily sell securities to obtain the needed reserves.

#### 7. Explain how a change in the reserve ratio affects the money supply.

#### ANSWER:

An increase in the reserve ratio will decrease the size of the monetary multiplier and decrease the excess reserves held by commercial banks, thus causing the money supply to decrease. A decrease in the reserve ratio will increase the size of the monetary multiplier and increase the excess reserves held by commercial banks, thus causing the money supply to increase.

# **8.** Differentiate between easy (expansionary) and tight (contractionary) monetary policies.

#### ANSWER:

An easy monetary policy is where the Federal Reserve attempts to expand the money supply to stimulate aggregate expenditures in order to increase employment and output. Buying securities, reducing the reserve ratio, and lowering the discount rate are the appropriate directional changes that lead to an expanded money supply. A tight monetary policy is the opposite. It is where the Federal Reserve attempts to reduce the money supply to dampen spending and inflation. Selling securities, raising the reserve ratio, and raising the discount rate are the appropriate changes leading to a reduced supply of money.

#### 9. Which tool of monetary policy is most important? Why?

#### ANSWER:

Open-market operations are the most important tool of monetary policy. Changes in the discount rate are less effective because bank reserves are relatively small and require action by commercial banks. Reserve requirements are rarely changed. Reserves do not earn interest so an increase in reserve requirements would be costly to banks, making this policy move less attractive. Open-market operations are used most often because they are very flexible and have an immediate effect on bank reserves.

## **10.**Trace the mainstream view of the cause-effect chain that results from an easy money policy.

#### ANSWER:

According to the mainstream perspective an easy money policy will cause bank reserves to grow and the money supply to expand. Interest rates will fall and this encourages investment spending. Real GDP will rise by a multiple of the increase in investment.

## **11.** Trace the cause-effect chain that results from a tight (contractionary) money policy.

#### ANSWER:

A tight money policy will cause bank reserves to decline and the money supply to decrease. Interest rates will rise and this discourages investment spending. Real GDP will fall by a multiple of the decline in investment.

# 12. Suppose the economy is experiencing a recession and high unemployment. What would be the interpretation of how an easy money policy would address this problem?

#### ANSWER:

With an easy money policy, the Federal Reserve buys bonds, lowers the reserve ratio, or lowers the discount rate. As a consequence of these actions, excess reserves increase, which in turn increases the money supply. When this happens, interest rates fall, investment spending increases and aggregate demand increases. The end result is a rise in real GDP by a multiple of the increase in investment.



## 13. Suppose the economy is experiencing inflation. What would be the interpretation of how a tight money policy would address this problem?

#### ANSWER:

With a tight money policy, the Federal Reserve sells bonds, raises the reserve ratio, or raises the discount rate. As a consequence of these actions, excess reserves decrease, which in turn decreases the money supply. When this happens, interest rates rise, investment spending decreases and aggregate demand decreases. The end result is a fall in real GDP by a multiple of the decrease in investment.



#### 14. Explain two strengths of monetary policy for achieving economic stability.

#### ANSWER:

Monetary policy is relatively speedy and flexible relative to fiscal policy because the decision-making body is smaller and the decisions to change monetary policy can be implemented immediately. A second strength is that monetary policy is largely removed from political pressure since the members of the Board of Governors are appointed to 14-year terms. Unpopular, but necessary, changes can thus be made which might not be possible with fiscal policy where the decision makers are elected officials who may be reluctant to make unpopular decisions.

# **15.** How is the Federal funds rate established? What role does the Federal Reserve play?

#### ANSWER:

The Federal funds rate is established in the market for overnight excess reserves held by banks. It is based on the supply and demand for excess reserves. The Federal funds rate has been the recent target of monetary policy. The Federal Reserve can influence the Federal funds rate by buying or selling government bonds. When the Federal Reserve buys bonds, this action increases the supply of excess reserves of banks. The Federal funds rate falls so it becomes cheaper for banks to borrow excess reserves overnight. Conversely, when the Federal Reserve seeks to increase the Federal funds rate, it sells bonds and this action reduces the excess reserves of banks. As a consequence, the Federal funds rate rises so it becomes more expensive for banks to borrow excess reserves overnight.

## 16. Explain what is meant by cyclical asymmetry with regard to monetary policy effects.

#### ANSWER:

Cyclical asymmetry refers to the observation that a tight monetary policy seems to achieve its objective of reducing aggregate demand much more effectively and consistently than an easy monetary policy is able to achieve its objective of increasing aggregate demand. During recession an expanded money supply and low interest rates may not be enough to encourage more borrowing and spending if investors are pessimistic about the future and lenders are cautious about lending.