Questions for Review

1. The theory of liquidity preference is Keynes's theory of how the interest rate is determined. According to the theory, the aggregate-demand curve slopes downward because: (1) a higher price level raises money demand; (2) higher money demand leads to a higher interest rate; and (3) a higher interest rate reduces the quantity of goods and services demanded. Thus, the price level has a negative relationship with the quantity of goods and services demanded.

2. A decrease in the money supply shifts the money-supply curve to the left. The equilibrium interest rate will rise. The higher interest rate reduces consumption and investment, so aggregate demand falls. Thus, the aggregate-demand curve shifts to the left.

3. If the government spends $3 billion to buy police cars, aggregate demand might increase by more than $3 billion because of the multiplier effect on aggregate demand. Aggregate demand might increase by less than $3 billion because of the crowding-out effect on aggregate demand.

4. If pessimism sweeps the country, households reduce consumption spending and firms reduce investment, so aggregate demand falls. If the Fed wants to stabilize aggregate demand, it must increase the money supply, reducing the interest rate, which will induce households to save less and spend more and will encourage firms to invest more, both of which will increase aggregate demand. If the Fed does not increase the money supply, Congress could increase government purchases or reduce taxes to increase aggregate demand.

5. Government policies that act as automatic stabilizers include the tax system and government spending through the unemployment-benefit system. The tax system acts as an automatic stabilizer because when incomes are high, people pay more in taxes, so they cannot spend as much. When incomes are low, so are taxes; thus, people can spend more. The result is that spending is partly stabilized. Government spending through the unemployment-benefit system acts as an automatic stabilizer because in recessions the government transfers money to the unemployed so their incomes do not fall as much and thus their spending will not fall as much.
Problems and Applications

1. a. When more ATMs are available, money demand is reduced and the money-demand curve shifts to the left from $MD_1$ to $MD_2$, as shown in Figure 6. If the Fed does not change the money supply, which is at $MS_1$, the interest rate will decline from $r_1$ to $r_2$. The decline in the interest rate shifts the aggregate-demand curve to the right, as consumption and investment increase.

   b. If the Fed wants to stabilize aggregate demand, it should reduce the money supply to $MS_2$, so the interest rate will remain at $r_2$ and aggregate demand will not change.

2. a. When the Fed’s bond traders buy bonds in open-market operations, the money-supply curve shifts to the right from $MS_1$ to $MS_2$, as shown in Figure 1. The result is a decline in the interest rate.

![Figure 1](image1.png)

**Figure 1**

![Figure 2](image2.png)

**Figure 2**
b. When an increase in credit card availability reduces the cash people hold, the money-demand curve shifts to the left from MD\(_1\) to MD\(_2\), as shown in Figure 2. The result is a decline in the interest rate.

c. When the Federal Reserve reduces reserve requirements, the money supply increases, so the money-supply curve shifts to the right from MS\(_1\) to MS\(_2\), as shown in Figure 1. The result is a decline in the interest rate.

d. When households decide to hold more money to use for holiday shopping, the money-demand curve shifts to the right from MD\(_1\) to MD\(_2\), as shown in Figure 3. The result is a rise in the interest rate.

e. When a wave of optimism boosts business investment and expands aggregate demand, money demand increases from MD\(_1\) to MD\(_2\) in Figure 3. The increase in money demand increases the interest rate.
3. a. The increase in the money supply will cause the equilibrium interest rate to decline, as shown in Figure 4. Households will increase spending and will invest in more new housing. Firms too will increase investment spending. This will cause the aggregate demand curve to shift to the right as shown in Figure 5.

![Figure 4](image1)

![Figure 5](image2)

b. As shown in Figure 5, the increase in aggregate demand will cause an increase in both output and the price level in the short run.

c. When the economy makes the transition from its short-run equilibrium to its long-run equilibrium, short-run aggregate supply will decline, causing the price level to rise even further.

d. The increase in the price level will cause an increase in the demand for money, raising the equilibrium interest rate.

e. Yes. While output initially rises because of the increase in aggregate demand, it will fall once short-run aggregate supply declines. Thus, there is no long-run effect of the increase in the money supply on real output.
4. A tax cut that is permanent will have a bigger impact on consumer spending and aggregate demand. If the tax cut is permanent, consumers will view it as adding substantially to their financial resources, and they will increase their spending substantially. If the tax cut is temporary, consumers will view it as adding just a little to their financial resources, so they will not increase spending as much.

5. a. The current situation is shown in Figure 7.

b. The Fed will want to stimulate aggregate demand. Thus, it will need to lower the interest rate by increasing the money supply. This could be achieved if the Fed purchases government bonds from the public.
Chapter 34/The Influence of Monetary and Fiscal Policy on Aggregate Demand

Figure 8

As shown in Figure 8, the Fed's purchase of government bonds shifts the supply of money to the right, lowering the interest rate.

d. The Fed's purchase of government bonds will increase aggregate demand as consumers and firms respond to lower interest rates. Output and the price level will rise as shown in Figure 9.

Figure 9

6. a. Legislation allowing banks to pay interest on checking deposits increases the return to money relative to other financial assets, thus increasing money demand.

b. If the money supply remained constant (at $MS_1$), the increase in the demand for money would have raised the interest rate, as shown in Figure 10. The rise in the interest rate would have reduced consumption and investment, thus reducing aggregate demand and output.
c. To maintain a constant interest rate, the Fed would need to increase the money supply from $MS_1$ to $MS_2$. Then aggregate demand and output would be unaffected.

**Figure 10**

7. a. If there is no crowding out, then the multiplier equals $1/(1 - MPC)$. Because the multiplier is 3, then $MPC = 2/3$.

b. If there is crowding out, then the $MPC$ would be larger than 2/3. An $MPC$ that is larger than 2/3 would lead to a larger multiplier than 3, which is then reduced down to 3 by the crowding-out effect.

8. a. The initial effect of the tax reduction of $20 billion is to increase aggregate demand by $20 billion x 3/4 (the $MPC$) = $15 billion.

b. Additional effects follow this initial effect as the added incomes are spent. The second round leads to increased consumption spending of $15 billion x 3/4 = $11.25 billion. The third round gives an increase in consumption of $11.25 billion x 3/4 = $8.44 billion. The effects continue indefinitely. Adding them all up gives a total effect that depends on the multiplier. With an $MPC$ of 3/4, the multiplier is $1/(1 - 3/4) = 4$. So the total effect is $15 billion x 4 = $60 billion.

c. Government purchases have an initial effect of the full $20 billion, because they increase aggregate demand directly by that amount. The total effect of an increase in government purchases is thus $20 billion x 4 = $80 billion. So government purchases lead to a bigger effect on output than a tax cut does. The difference arises because government purchases affect aggregate demand by the full amount, but a tax cut is partly saved by consumers, and therefore does not lead to as much of an increase in aggregate demand.

d. The government could increase taxes by the same amount it increases its purchases.

9. a. If the marginal propensity to consume is 0.8, the spending multiplier will be $1/(1-0.8) = 5$. Therefore, the government would have to increase spending by $400/5 = $80 billion to close the recessionary gap.
b. With an \( MPC \) of 0.8, the tax multiplier is \((0.8)(1/(1-0.8)) = (0.8)(5) = 4\). Therefore, the government would need to cut taxes by \$400\ billion \(/4 = \$100\ billion\) to close the recessionary gap.

c. If the central bank was to hold the money supply constant, my answer would be larger because crowding out would occur.

d. They would have to raise both government spending and taxes by \$400\ billion. The increase in government purchases would result in a boost of \$2,000\ billion, while the higher taxes would reduce spending by \$1,600\ billion. This leaves a \$400\ billion rise in aggregate spending.

10. If government spending increases, aggregate demand rises, so money demand rises. The increase in money demand leads to a rise in the interest rate and thus a decline in aggregate demand if the Fed does not respond. But if the Fed maintains a fixed interest rate, it will increase money supply, so aggregate demand will not decline. Thus, the effect on aggregate demand from an increase in government spending will be larger if the Fed maintains a fixed interest rate.

11. a. Expansionary fiscal policy is more likely to lead to a short-run increase in investment if the investment accelerator is large. A large investment accelerator means that the increase in output caused by expansionary fiscal policy will induce a large increase in investment. Without a large accelerator, investment might decline because the increase in aggregate demand will raise the interest rate.

b. Expansionary fiscal policy is more likely to lead to a short-run increase in investment if the interest sensitivity of investment is small. Because fiscal policy increases aggregate demand, thus increasing money demand and the interest rate, the greater the sensitivity of investment to the interest rate the greater the decline in investment will be, which will offset the positive accelerator effect.

12. a. Tax revenue declines when the economy goes into a recession because taxes are closely related to economic activity. In a recession, people's incomes and wages fall, as do firms' profits, so taxes on these things decline.

b. Government spending rises when the economy goes into a recession because more people get unemployment-insurance benefits, welfare benefits, and other forms of income support.

c. If the government were to operate under a strict balanced-budget rule, it would have to raise tax rates or cut government spending in a recession. Both would reduce aggregate demand, making the recession more severe.

13. a. If there were a contraction in aggregate demand, the Fed would need to increase the money supply to increase aggregate demand and stabilize the price level, as shown in Figure 11. By increasing the money supply, the Fed is able to shift the aggregate-demand curve back to \( AD_1 \) from \( AD_2 \). This policy stabilizes output and the price level.
b. If there were an adverse shift in short-run aggregate supply, the Fed would need to decrease the money supply to stabilize the price level, shifting the aggregate-demand curve to the left from $AD_1$ to $AD_2$, as shown in Figure 12. This worsens the recession caused by the shift in aggregate supply. To stabilize output, the Fed would need to increase the money supply, shifting the aggregate-demand curve from $AD_1$ to $AD_3$. However, this action would raise the price level.