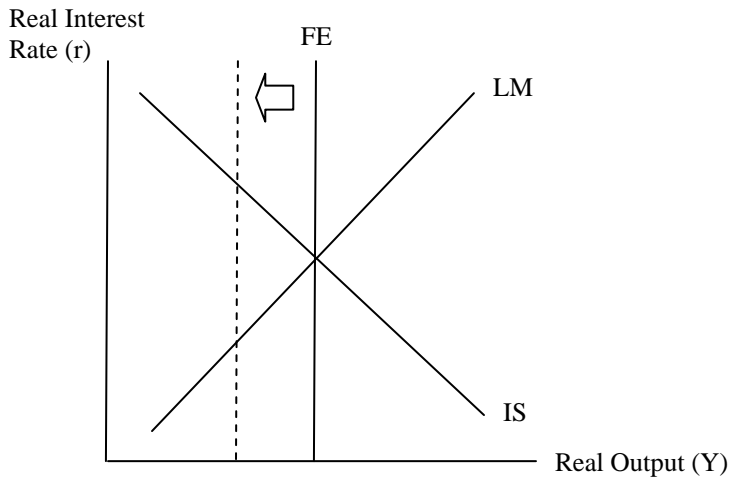


**Finance 30220**  
**Solutions to Problem Set #9**

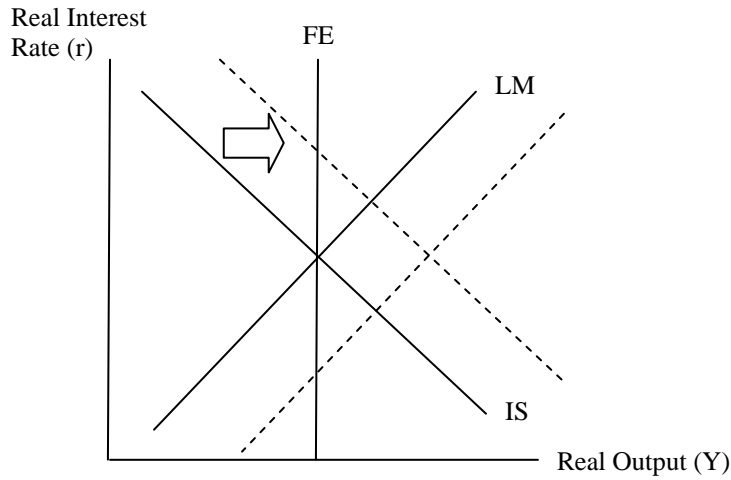
1) Recall that the formula for the money multiplier is:

$$mm = \frac{C/D + 1}{C/D + rr}$$

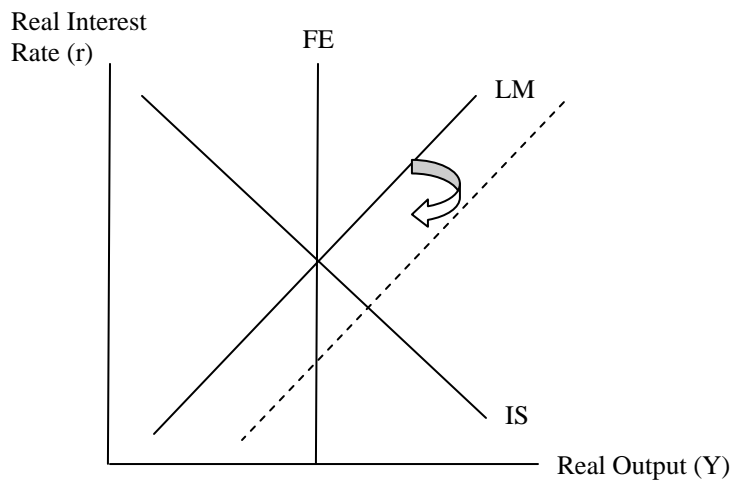
- a) The multiplier will be 4. The purchase of securities represents a \$100 million increase in the monetary base, so M1 increase by \$400 million.
  - b) If C/D falls to .05, the multiplier rises to 7. Therefore, the change in M1 would be \$700 million.
- 2) Two things happened during the great depression. First of all, remember that when a bank creates loans, they are not creating money – only “electronic” money. The only real money is the cash on reserve in the vaults. During the great depression, many banks went out of business, taking their “electronic” money with them. The second issue was a by-product of consumer behavior. With the banking industry in shambles, consumers lost their faith in banks and demanded their wealth in cash rather than deposits. This drastically increases the C/D ratio, which greatly lowered the money multiplier.
- 3)
- a) The Fed should do nothing in the short run, but would have to reduce the money supply in the long run if the negative shock persisted.



- b) The increase in consumer confidence would shift IS to the right. To maintain a constant interest rate, the fed would need to increase the money supply.



- c) A decrease in the C/D ratio would increase the money supply (not M0, but all other measures). This would shift the LM curve right and decrease interest rates and increasing output. The Fed would need to decrease the money supply through an open market purchase or an increase in the discount rate.



4)

- a) This is like 3c. If the Fed targets the real interest rate, then money demand shocks are offset by changes in money supply. The interest rate target keeps the LM curve stationary and, hence, keeps the economy at full employment.
- b) This is like 3b. When there are preference shocks (that shift the IS curve), the rule does not work very well. Suppose, for example, that a rise in consumer confidence shifts the IS curve to the right. The appropriate monetary response would be to increase the money supply (to shift LM to the right). While this maintains a constant interest rate, it amplifies the increase real output. Note that this policy is not sustainable in the long run. Output will eventually return to the full employment level at the higher interest rate. If the fed were to try to maintain the lower interest rate, the result would be higher inflation.
- c) This is like 3a. When there are supply shocks, this rule also doesn't work very well. Suppose a technology shock shifts the FE curve to the right. There is no effect on output and the interest rate in the short run (short run equilibrium is the intersection of IS and LM.). However, in the long run, prices and interest rates will fall. If the fed tries to target the interest rate at its initial level, it would have to reduce the money supply. As in part (b), this is not a sustainable long run policy.

5)

- a) Suppose that initially a shock shifts IS to the left. As the unemployment rate approaches 5%, consumers expect the Fed's policy to kick in and start to expect higher inflation rates. As this happens, money demand falls. The drop in money demand pushes interest rates down and increases output (i.e. LM shifts right).

b) Now the Fed is faced with a problem. Given the drop in money demand, if it raises money growth, it could push the economy past full employment and create the inflation that people are expecting. However, if it doesn't increase money growth, once consumers realize that the inflationary expectations are unwarranted, money demand will rise again (LM curve shifts left) and the unemployment returns.

