**TCHE 303 – MONEY AND BANKING**

**TUTORIAL 9**

1. Compute the impact on the money multiplier of an increase in the currency-to-deposit ratio from 10 percent to 15 percent when the reserve requirement is 10 percent of deposits, and banks’ desired excess reserves are 3 percent of deposits.
2. Does the Federal Reserve frequently purchase or sell gold or foreign exchange as part of its efforts to change the money supply? ***No. Fed transactions in foreign exchange and gold are infrequent, and are not used to alter the money supply. FE ~ exchange rates, gold ~ historical and symbolic purposes.***
3. Consider an open market purchase by the Fed of $3 billion of Treasury bonds. What is the impact of the purchase on the bank from which the Fed bought the securities. ***The bank’s securities fall by $3b and reserves rise by $3b.*** Compute the impact on M1 assuming that: (1) the required reserve ratio is 10 percent, (2) the bank does not wish to hold extra reserves, and (3) the public does not wish to hold currency.

* ***Required reserves: $3b \* 10% = $300m***
* ***Excess reserves: 3b-300m=2.7b***
* ***No extra reserve => excess reserves used to create new checkable deposits = 2.7 \* 1/10%=27b increase in M1***

1. When you withdraw cash from your bank’s ATM, what happens to the size of the Fed’s balance sheet? Is there any reason for the Fed to react to your action? **Do not change the size but the components. Currency + 100, Reserve -100. *Your action has raised the currency-to-deposit ratio and can lead to a change in the money supply. The Fed may choose to alter policy to offset the impact on the money supply if the withdrawal is large enough***
2. Why is currency circulating in the hands of the nonbank public considered a liability of the central bank? ***Currency issued by the central bank is effectively an IOU (I owe you) to the holder of the currency. The central bank is obliged to pay back the holder of the currency.***
3. How did the financial crisis of 2007–2009 affect the size and composition of the balance sheet of the Federal Reserve?

* ­***Increase in size: Fed used quantitative easing by purchasing assets (bonds, securities, MBS) to bail out the economy;***
* ***Components: Assets ++, Liabilities (deposit) --***

1. Suppose the currency-to-deposit ratio is 0.25, the excess reserve-to-deposit ratio is 0.05, and the required reserve ratio is 0.10. *(m=****3.125)*** Which will have a larger impact on the money multiplier: a rise of 0.05 in the currency ratio *(m=2.89)* or in the excess reserves ratio(m=2.78)?
2. Is the money multiplier model still useful for policymakers? If not, why not? ***(Complexity of banking systems, innovation of financial instruments)***
3. The U.S. Treasury maintains accounts at commercial banks. What would be the consequences for the money supply if the Treasury shifted funds from one of those banks to the Fed? ***Government deposit increases, so reserves decline in the Fed’s balance sheet, so does the MS.***
4. Explain how an incomplete understanding at the Federal Reserve of the relationship between the central bank’s balance sheet and the money supply contributed to the Great Depression. ***During the GD, the central bank was increasing the MB, but with the recent economic position at that time, excess reserves-to-deposit ratio was high due to the quantitative easing method applied, so the MS fell. This contributed to the contraction of the economy.***  How did the Fed’s behavior during the financial crisis of 2007–2009 illustrate that it had learned a valuable lesson from the Great Depression? ***In contrast, when the similar situation happened, Fed rapidly expanded the supply of reserves to encourage the money multiplier, preventing a collapse of money supply.***
5. Suppose you examine the central bank’s balance sheet and observe that since the previous day, reserves had fallen by $100 million. In addition, on the asset side of the central bank’s balance sheet, securities had fallen by $100 million. What activity did the central bank carry out earlier in the day to lead to these changes in the balance sheet? ***The central bank did sell the securities (open market sale)***
6. Do you think the central bank was aiming to increase, decrease, or maintain the size of the money supply by carrying out the changes described to its balance sheet in Problem 11? Explain your answer. **Open market sales -> reduce reserves -> reduce the monetary base -> reduce money supply**
7. Looking again at the situation described in Problem 11, do you think the size of the banking system’s balance sheet would be affected immediately by these changes to the central bank’s balance sheet? Explain your answer. ***No. Reserves and securities both appear in the asset side and liabilities of the balance sheet, so the changes would affect the components not the size.***
8. Do you think the Federal Reserve successfully carried out its role as lender of last resort in the wake of the terrorist attacks on September 11, 2001? Why or why not?
9. In carrying out open market operations, the Federal Reserve usually buys and sells U.S. Treasury securities. Suppose the U.S. government paid off all its debt. Could the Federal Reserve continue to carry out open market operations? ***If the US government paid off all its debt, there would be no treasury securities available for the fed to buy or sell. But this is highly unlikely to happen, as the government borrowing as a means to finance its operation.***
10. In which of the following cases will the size of the central bank’s balance sheet change?
    1. The Federal Reserve conducts an open market purchase of $100 million U.S. Treasury securities. **R+100, Sec+100 – change components not size**
    2. A commercial bank borrows $100 million from the Federal Reserve. **Loans +100, R+100**
    3. The amount of cash in the vaults of commercial banks falls by $100 million due to withdrawals by the public. **C+100, R-100**
11. You pick up the morning newspaper and note a headline reporting a major scandal about the Federal Deposit Insurance Corporation that is likely to undermine the public’s confidence in the banking system. What impact, if any, do you think this scandal might have on the relationship between the monetary base and the money supply? ***Scandal -> people hold more currency – c ratio rises, banks hold more excess reserves – e ratio rises -> reduce the money multiplier, thus lower money supply for a given monetary base.***
12. The central bank buys €100 million of bonds from the public and also lowers r. What will happen to the money supply? ***Buying bonds from the public leads to increase R, but with lower r, so the bank has more excess reserve, e ratio rises, money multiplier falls -> money supply falls***
13. Did central banks’ response to the global financial crisis of 2007–9 prove that they learned from the lessons of the Great Depression? ***when the similar situation happened, Fed rapidly expanded the supply of reserves to encourage the money multiplier, preventing a collapse of money supply.***
14. “The Fed can perfectly control the amount of the monetary base, but has less control over the composition of the monetary base.” Is this statement true, false, or uncertain? Explain. ***Fed can't handle how many markdowns loaning to monetary foundations, it doesn't have perfect command over the number of reserves, and hereafter doesn't have great command over the monetary base.***
15. “The money multiplier is necessarily greater than 1.” Is this statement true, false, or uncertain? Explain your answer. ***m>1 when r+e<1, e is so small //// m<1 when r+e>1***
16. What effect might a financial panic have on the money multiplier and the money supply? Why? ***A financial crisis can decrease the money multiplier and thus the money supply. Banks have more liquidity on hand, which would increase the excess reserve ratio and decrease the money multiplier. In addition, people tend to hold more currency, c ratio rises, m.m decreases.***
17. During the Great Depression years from 1930–1933, both the currency ratio c and the excess reserves ratio e rose dramatically. What effect did these factors have on the money multiplier?
18. In October 2008, the Federal Reserve began paying interest on the amount of excess reserves held by banks. How, if at all, might this affect the multiplier process and the money supply? ***Pay more interest on reserves makes it more appealing to banks to hold more reserves than lend them out. This raise e ratio, reduce the m, money supply for a given monetary base.***
19. The money multiplier declined significantly during the period 1930–1933 and also during the recent financial crisis of 2008–2010. Yet the M1 money supply decreased by 25% in the Depression period but increased by more than 20% during the recent financial crisis. What explains the difference in outcomes? ***The core difference is about monetary base. In FC, MB increased significantly enough to offset the fall in m. In contrast, the MB in GD rose moderately.***

* The factors effecting monetary base are - Reserve of central bank, bank deposit and treasury currency or securities such as bond.