

Homework 2: Solutions
Principles of Macroeconomics: ECO 212

Question 1.

a. We have:

$$\text{multiplier} = \frac{k + 1}{k + rrr} = \frac{\frac{2}{3} + 1}{\frac{2}{3} + \frac{1}{3}} = \frac{5}{3} \quad (1)$$

So \$5 in money supply is created for each \$3 of the monetary base.

b. We have:

$$M = \text{multiplier} \cdot MB = \frac{5}{3} \cdot \$300 = \$500 \quad (2)$$

c. For checking deposits, we can use:

$$M = (k + 1) D \quad (3)$$

$$\$500 = \frac{5}{3} D \rightarrow D = \$300 \quad (4)$$

Thus currency held by the public is:

$$CU = kD = \frac{2}{3} \$300 = \$200 \quad (5)$$

Bank reserves are:

$$BR = rrrD = \frac{1}{3} \$300 = \$100 \quad (6)$$

d. The FED is buying tbills and selling dollars. The dollars are high powered money that enters the economy. Hence:

$$\Delta M = \text{multiplier} \cdot \Delta MB = \frac{5}{3} \$600 = \$1,000 \quad (7)$$

So M rises by \$1,000.

e. Bank reserves must go up as some of the deposits end up as reserves. This puts downward pressure on the Fed Funds rate as banks seek to loan out the reserves/deposits.

f. We have:

$$M = \frac{k + 1}{k + rrr} MB = \frac{\frac{2}{3} + 1}{\frac{2}{3} + \frac{1}{6}} \$300 = \$600 \quad (8)$$

g. We have:

$$\text{multiplier} = \frac{\frac{1}{3} + 1}{\frac{1}{3} + \frac{1}{3}} = 2 \quad (9)$$

$$M = \text{multiplier} \cdot MB = 2 \cdot \$300 = \$600 \quad (10)$$

Question 2.

- a. Barter is the alternative to using money as a medium of exchange. Money is better than barter as a medium of exchange because money requires only a single coincidence of wants whereas barter requires a double coincidence of wants.
- b. An asset (including stocks, bonds, real estate, etc.) is an alternative store of value. All of these alternatives are better than money as a store of value because money loses value over time due to inflation whereas alternative investments tend to gain value over time or pay interest.
- c. Most M2 assets (including CDs and money market accounts) are alternative providers of liquidity, although again any asset provides at least some liquidity. Money is a better store of value than M2 assets because these other assets typically have a penalty if they are spent quickly. For example, CDs charge a 10% penalty for early withdraw. Money can be spent quickly with no penalty.

Question 3.

The FED can reduce the money supply by:

- a. INCREASING the required reserve ratio, forcing banks to remove high powered money from the economy and hold more reserves.
- b. INCREASING the discount rate, reducing the number of banks that borrow printed money from the FED.
- c. SELLING tbills, in exchange for currency, which the FED then removes from the economy.

Selling tbills is the most commonly used method. Transaction costs are small and small or large changes can be made easily.

Question 4.

As noted in class, the supply of money are the cash and checking accounts, the pool of money which may be spent. Not all money is spent, however, so money is not the same as spending which is equal to the total value of all finished goods and services (some dollars are also spent more than once).

Question 5.

- a. At the end of the day, bank depositors paid for the deficit.
- b. Depositors should withdraw their cash before the government takes it. In fact many Argentinians did withdraw cash. Many government officials and families were tipped off about the plan and began withdrawing cash before the government froze the accounts and took the remainder.
- c.
 - The currency to deposit ratio increases significantly, as households hold cash in their wallets and not in checking, where it is vulnerable to confiscation.
 - As can be calculated from our formula, when the currency to deposit ratio rises, the money supply falls (in fact, much cash was moved out of the country, especially to the US and Uruguay, but the effect is the same). When \$10 is switched from checking to cash there is no initial change in M since both cash and checking are part of M . However, with less deposits, the bank has less money to loan out, which in turn means less money is created through the banking system. So checking account balances and M fall.
 - The decrease in M causes a fall in prices (deflation), as can be seen from the quantity theory.

The move was a disaster for Argentina. With no confidence in the banking system, households refused to deposit cash back into the banks after the government withdrew cash. Without a banking system, no loans could be made for spending or new businesses, and so the economy collapsed.