

EC 201: Principles of Macroeconomics

Worksheet 8

Q1. Consider this *T – Account*

Scenario: Assets and Liabilities of the Banking System			
Assets		Liabilities	
Loans	\$900,000	Deposits	\$1,000,000
Reserves	100,000		

If the reserve ratio is 5% and the banking system does NOT want to hold excess reserves, how much more can be added to the money supply?

Answer :

Required reserves = $1,000,000 \times 0.05 = \$50,000$.

Excess reserves = Actual reserves – required reserves = $100,000 - 50,000 = \$50,000$.

Change in money supply = Δ in excess reserves \times money multiplier = $\$50,000 \times \frac{1}{rr} = \$50,000 \times \frac{1}{0.05} = \$1,000,000$. Based on this *T – Account*, \$1 million more money can be created!

Q2. Suppose the required reserve ratio is 10% and a depositor withdraws \$500 from her checkable deposit. The money supply will..... if the banking system does NOT hold any excess reserves.

- be unchanged
- decrease by \$500
- decrease by \$4,500
- decrease by \$5,000

Answer : The first point to consider is how much excess reserves change due to this withdrawal.

The required reserve for \$500 deposit is $500 \times 0.1\% = \$50$. This means that \$450 is the excess reserve. When you withdraw \$500, you decrease banking system's excess reserves by \$450. Thus money supply will **decrease** by $450 \times \frac{1}{rr} = 450 \times \frac{1}{0.1} = \$4,500$.

Q3. You sell a few shares of stock and put the proceeds into your checking account. Does this transaction affect $M1$ or $M2$?

Answer :

Both. It increases $M1$ and consequently $M2$ because $M2 = M1 + \text{savings account deposits}$.

Q4. You transfer money from your savings account to your checking account. Does this transaction affect $M1$ or $M2$?

Answer :

$M1$ increases, but $M2$ is unchanged because a decrease in savings account deposits is exactly compensated by an increase in $M1$.

Q5. Using the following data, calculate monetary base. $M1$ and $M2$. Explain what do you find.

- Bank reserves with the Fed: \$200 billion
- Currency held by the public: \$100 billion
- Currency held in bank vaults: \$40 billion
- Checkable bank deposits: \$450 billion
- Saving deposits: \$800 billion
- Traveller's checks: \$5 billion

Answer :

Recall that monetary base = Currency in circulation + Bank reserves

Currency in circulation includes currency held by public. Bank reserves includes their reserves with the Fed plus the currency in bank vaults. So monetary base is $200 + 100 + 40 = \$340$ billion.

$M1 = \text{Currency in circulation} + \text{Checkable bank deposits} + \text{traveller's checks} = 100 + 450 + 5 = \555 billion.

$M2 = M1 + \text{Saving deposits} + \text{Time deposits} = 555 + 800 + 0 = \$1,355$ billion.

We find that Money supply ($M2$) is much larger than the monetary base. It happens because a dollar of bank reserves create larger than a dollar worth of deposits in the banking system via the fractional reserve system.