TA Info

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Ch. 14: Multiple deposit creation and money supply

Definitions

Monetary base (MB): Directly controlled by Fed

- Currency in circulation + bank reserves (includes both non-borrowed reserves, and reserves borrowed from Fed.)

Currency ratio (c): ratio of cash in circulation (C) to total deposits (D)

$$c = \frac{C}{D}$$

Required reserve ratio (rr): reserve requirement (set by Fed), required reserves (RR) over total deposits

$$rr = \frac{RR}{D}$$

Excess reserves ratio (ER): excess reserves (ER, total reserves minus required) over total deposits

$$er = \frac{ER}{D}$$

Review: Simple money multiplier

Last section we explored how banks create money in an idealized world where all money is held as bank deposits (no cash in circulation) and banks hold no excess reserves.

We derived the *simple deposit multiplier:*

$$MS = \frac{1}{rr} \times MB$$

The money creation process in practice

In reality, there is leakage from the deposit creation process:

- Banks do hold excess reserves to manage risk
- People do keep some cash for certain transactions

The true money multiplier can be written as

$$MS = \underbrace{\frac{1+c}{c+rr+er}}_{\text{true multiplier}} \times MB$$

Factors that determine money supply

- Changes in non-borrowed monetary base (controlled by Fed through open market purchases/sales)
- Changes in required reserves (controlled by Fed directly)
- Changes in excess reserves (controlled by banks)
- Changes in currency holdings (controlled by individuals)

Exercises

1. Over the long run, the primary determinant of movements in the money supply is the
   (a) Required reserve ratio
   (b) Currency ratio
   (c) Excess reserve ratio
   (d) Non-borrowed monetary base
2. The relationship between borrowed reserves, non-borrowed monetary base, and the monetary base is:
   (a) $BR = MB - MB_n$
   (b) $MB = MB_n - BR$
   (c) $BR = MB_n - MB$
   (d) $MB = BR - MB_n$
3. In the simple deposit expansion model, a decline in checkable deposits of \$1,000 when the required reserve ratio is equal to 10% implies that the Fed
   (a) sold \$1,000 in government bonds
   (b) sold \$100 in government bonds
   (c) purchased \$1,000 in government bonds
   (d) purchased \$100 in government bonds
4. If the required reserve ratio is 15%, currency in circulation is \$400 billion, checkable deposits are \$800 billion, and excess reserves total \$0.8 billion, then the M1 money multiplier is:
   (a) 0.651
   (b) 2.5
   (c) 1.67
   (d) 2.3
5. High-powered money minus currency in circulation equals
   (a) the borrowed monetary base
   (b) reserves
   (c) the non-borrowed base
   (d) discount loans
6. The formula that links checkable deposits to the money supply is
   (a) $D = (1 + c) \times MS$
   (b) $MS = \frac{1}{1+c} \times D$
   (c) $MS = \frac{1+c}{D}$
   (d) $D = \frac{1}{1+c} \times MS$
7. The actual execution of open market operations is conducted by
   (a) the Federal Reserve Bank of New York
   (b) the Federal Reserve Bank of Philadelphia
   (c) the Board of Governors in Washington, D.C.
   (d) the Federal Reserve Bank of Boston
8. There are two ways in which the Fed can provide additional reserves to the banking system: it can _____ government bonds or it can _____ discount loans to commercial banks.
   (a) Purchase; call in
   (b) Sell; extend
   (c) Sell; call in
   (d) Purchase; extend
9. The equation that shows the amount of the monetary base needed to support existing levels of checkable deposits, excess reserves, and currency is
   (a) $MB = (rr \times D) - ER - C$
   (b) $MB = (rr \times D) + ER + C$
   (c) $MB = (rr + D) + ER + C$
   (d) $MB = \frac{rr}{D} + ER + C$