ECO 302: INTERMEDIATE MACROECONOMICS

Lecturer:

Benedict Afful Jr.

Dept. of Economics

UCC, Cape Coast

Contacts

E-mail:

skiyuk@yahoo.com

benedictaffuljr@gmail.com

TIME: 8:00PM – 11:00 AM VENUE: Felt 2

Presentation outline

- *Money, inflation and unemployment*
- *Keynesian theory of demand for money*
- *The adjustment mechanism*
- *Modern quantity theory*
- *The relationship between the money mk't and bond mk't*
- The supply of money
- Two views are held about money supply
- The determinants of money supply
- Composition of total reserves

The relationship between the money and the bond market

- In the asset mkt, we have the demand side and the supply side.
- On the demand side: $$\frac{NW}{P} = L + DB \qquad (1)$$
- Where NW=Nominal wealth; P = price; L=demand for money; and DB = demand for bonds
- On the supply side: $$\frac{NW}{P} = \frac{M}{P} + SB \qquad (2)$$
- Where M= Nominal money supply; and SB = Supply of bonds.

The relationship between the money and the bond market cont'

- At equilibrium:
- Demand = Supply
- Thus; $$L + DB = \frac{M}{P} + SB \qquad (3)$$
- Rearranging (3) to separate money mkt from bonds mkt.
- Gives: $$L - \frac{M}{P} = SB - DB \qquad (4)$$
- Similarly; $$\left[L - \frac{M}{P} \right] + \left[DB - SB \right] = 0 \qquad (5)$$
- Implications:

1. $L = \frac{M}{P}$ then $DB = SB$
2. $L > \frac{M}{P}$ then $DB < SB$
3. $L < \frac{M}{P}$ then $DB > SB$

NB:
It is obvious that one can settle on the money mkt to determine the equilibrium position of the bond mkt.

The theory of money supply

- By far we have assumed that Ms is exogenously determined.
- In modern sense Ms is endogenously determined not only by monetary policy but also by the behaviour of individuals and banks.
- How Ms by the Central bank multiples itself in the process of monetary transaction forms *the theory of money supply.*
- The theory of Ms makes a distinction between the two concepts of Ms. Thus;

1. Ordinary money or stock money (M)
2. Monetary base or high-powered money (B)

The theory of money supply cont'

- The ordinary money (M) is defined as:

$$M = C + D$$

- Divide through by D
- $$\frac{M}{D} = \frac{C}{D} + \frac{D}{D} \quad \text{but} \quad cr = \frac{C}{D}$$
- Where cr is the currency deposit ratio
- So, $\frac{M}{D} = cr + 1$
- Therefore, $M = (cr + 1)D$
- Finally, $D = \frac{M}{(cr + 1)}$ ..... (1)
- This shows that the quantity of the demand deposits is proportional to the Ms.

The theory of money supply cont'

- Monetary base or high-powered money (B) is defined as: $B = C + R$
- Divide through by D
- $$\frac{B}{D} = \frac{C}{D} + \frac{R}{D} \quad \text{but} \quad cr = \frac{C}{D} \quad \text{and} \quad rr = \frac{R}{D}$$
- Where cr is the currency deposit ratio and rr = reserves deposit ratio
- So, $\frac{B}{D} = cr + rr$
- Therefore, $B = (cr + rr)D$
- Finally, $$D = \frac{B}{(cr + rr)} \quad \text{..... (2)}$$
- This shows that the quantity of the demand deposits is proportional to the Monetary base.

The theory of money supply cont'

- Equating (1) and (2) to solve for the Ms gives:

$$\frac{M}{(cr+1)} = \frac{B}{(cr+rr)}$$

- Therefore,

$$M = \frac{(cr+1)}{(cr+rr)} B \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

- This shows that the Ms depends on the currency-deposit ratio, the reserve-deposit ratio and the monetary base.

$$m = \frac{cr+1}{cr+rr} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

- This is called the money multiplier. The model of the Ms shows that: $M = mB$ ..... (5)
- Thus, the Ms depends on the money multiplier and the monetary base. Public control (cr), com. Banks control (rr) and central bank control (B) ***Summary: cr and rr are both negatively related to Ms but B&Ms are positively related***

The theory of money supply cont' NB

- The monetary base is backed by domestic and foreign assets. Thus, $B = F + Dc$ ..... (6)
- Domestic assets (domestic credit):
  - Public sector borrowing requirements (PSBR) – gov't stocks
  - Cocoa financing requirement (CFR) – cocoa bills
- Foreign assets (foreign exchange reserves):
  - Balance of payment (BOP)
- The specification of the Ms is therefore:

$$M = mB = f(\overset{-}{cr}, \overset{-}{rr}, \overset{+}{PSBR}, \overset{+}{CFR}, \overset{+}{BOP}) \text{ ..... (7)}$$

- Hence Ms is endogenously determined.

Solve this right now

- Consider the following:
- Money supply = GHC 40 billion
- Monetary base (B) = GHC 10 billion
- Reserve –deposit ratio = 0.14
- Currency – deposit ratio = 0.17

1. Determine the money multiplier
2. Assume that the currency – deposit ratio rise to 0.32 but the reserve – deposit ratio remains the same and the monetary base increased to GHC 12 billion, determine what would happen to the Ms.
3. Assume further that the foreign exchange reserves of this country grew to -Ghc30billion but the domestic assets amounted to Ghc 70 billion. Find the new Money supply.

Composition of total reserves

- Total reserves (TR) = Sources and uses
- Sources:
- TR = Unborrowed Reserves (from security mkt) + Borrowed reserves (to Com. banks
- Uses or allocation:
- TR = Required Reserves (RR) + Excess Reserves (ER) + Currency in circulation (CC)
- For simplification:
- Source: $TR = UR + BR$ ..... (1)
- Allocation: $TR = RR + ER + CC$ ..... (2)

Composition of total reserves

- The identity approach states that the sources of reserves are equal to the uses of reserves as equilibrium.
- Therefore: $$UR + BR = RR + ER + CC$$

$$UR = RR + ER - BR + CC$$

$$UR = RR + FR + CC$$

- But free reserves: $$FR = ER - BR$$
- Therefore: $$UR = RR + FR + CC \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$