Econ 311

Outline

People talk about connection between economy and interest rates. Totally missing from KC model.

1. Before every recession after WWII interest suddenly went very high.

   recession begins.

   "Fed caused all the recessions!"

2. 2001 recession. Fed vigorously drove interest down. Greenspan "saved the world".

   Controversy: European central bank did not cut interest rates much during recession.
Outline

1. Demand for Money.
   "Transactions motive"

2. Supply of Money.
   (a) price of bond, payoff bond.
   (b) open market operations.

3. LM curve ("Liquidity demand")
   (a) Disequilibrium in asset markets
   (b) shift in LM curve.

4. IS curve ("Investment = Saving")
   (a) Investment demand.
   (b) IS curve
   (c) Disequilibrium dynamics
   (d) shift the curve.

5. Putting IS, LM together
   "IS-LM model"
M = no interest.

B = generate payments (equity, bonds, bank loans, ...)

Money demand.

M is convenient for making transactions.

\[ M^d = \text{#transactions} \times L(i) \]

\[ = P \times Y \times L(i) \]

\[ L(i) = \frac{L - q^i}{\theta} \]
\( \frac{M}{P} \) real

\( \frac{\pi}{P} \) real

\[ M_d = \rho \cdot Y \times L(i) \]

\[ \frac{\pi}{P}^d = Y \times L(i) \]

\( Y' > Y \) more economic transactions, so for people to be content to hold \( M^s \), need i higher.
Money Supply

Bonds

\[ B \sim \text{entitles holder to payment, } d. \]

\[ P_B \sim \text{how much you pay for bonds} \]

Rate of return on bond

\[ i = \frac{\text{what you get}}{\text{what you pay}} = \frac{d}{P_B} \]

\( d = \$10 \)

\( P_B = \$100 \)

Buy bonds from the public, \( B \downarrow, M \uparrow \) in "open market operations.

Sell bonds to the public, \( B \uparrow, M \downarrow \)
Fed buys bonds $P_B \uparrow$, $i \downarrow$
\[ \text{increase } M. \]

Fed decrease $M$ sells bonds $P_B \downarrow$, $i \uparrow$

![Graph 1](image1)

$\gamma = L(c, \delta)$

$\frac{M^s}{P}$

$\frac{\Pi}{P}$

3. LM curve

Liquidity demand $= M$

![Graph 2](image2)

$\gamma = L(c)$

$\gamma = L(c)$

$\frac{\Pi}{P}$

$\frac{\Pi}{P}$
Disequilibrium Dynamics.
Shift in LM curve.
4. IS curve. "Plots i in KC model + then graphs model in diagram".

(a) investment demand.

Firm manager.

Ohio: $100 oven expect $4/year increase in sales forever.

IRR 4%

Internal rate of return.

Illinois: $1000 truck $80/year forever.

IRR 8%

Florida: $200 pizza oven $20/year forever.

IRR 10%
\[ r^{(i)} = r_{i} \]

**Graphs:**

1. **Upper Graph:**
   - Labeled axes: \( i, I \).
   - Y-axis: 100, 6, 4.
   - X-axis: 200, 1000, 100.

2. **Lower Graph:**
   - Labeled axes: \( i, I \).
   - **Investment demand function:** \( I(i) = \frac{I}{1 - b*i} \)
   - **Endogenous variable:**
\[ z = c^d + I^d + \delta \overline{e} \]

\[ c_0 + c_1 (y - T) + \overline{e} - b_i \]

\[ z < Y \text{ IS curve} \]

"Investment = Saving"
Shift IS curve

\[ T \downarrow \Rightarrow \text{right shift of } \frac{G + \Delta T}{1 - c_1} \]