

Theory of Free Banking (3/1/2011)

Econ 310-008

Equations

- $R + L = N + D + K$ balance sheet constraint
- $\pi = i_L - i_D - C - Q$ bank profit function
- $C = f(R, L, N, D)$ operating cost function
- $Q = f(R, N, D)$ simplified liquidity cost function
- $Q = p(X - R) \phi(X | N, D) dX$ actual liquidity cost function
- $i_L - C_L$ marginal net benefit from making loans
- $-Q_R - C_R$ marginal net benefit from holding reserves
- $C_N + Q_N$ marginal cost of financing via note issue
- $i_D + C_D + Q_D$ marginal cost of financing via deposits

Equi-marginal conditions (all possible combinations of MB of L, MB of R, MC of N, & MC of D)

1. $i_L - C_L = -Q_R - C_R$ MB of loans = MB of reserves
2. $i_L - C_L = C_N + Q_N$ MB of loans = MC of notes
3. $i_L - C_L = i_D + C_D + Q_D$ MB of loans = MC of deposits
4. $-Q_R - C_R = C_N + Q_N$ MB of reserves = MC of notes
5. $-Q_R - C_R = i_D + C_D + Q_D$ MB of reserves = MC of deposits
6. $C_N + Q_N = i_D + C_D + Q_D$ MC of notes = MC of deposits

Variable definitions

- $R \equiv$ reserves (*non-interest bearing assets*)
- $L \equiv$ loans + securities (*interest bearing assets*)
- $N \equiv$ notes in circulation (*non-interest bearing liabilities*)
- $D \equiv$ deposits (*interest bearing liabilities*)
- $K \equiv$ equity capital
- $\pi \equiv$ expected bank profit
- $i_L \equiv$ interest rate on loans
- $i_D \equiv$ interest rate on deposits
- $C \equiv$ operating cost
- $Q \equiv$ liquidity cost
- MOC \equiv marginal operating cost
- $C_R \equiv$ MOC of holding larger reserves ($C_R > 0$; $\uparrow R \rightarrow \uparrow C$)
- $C_L \equiv$ MOC of holding larger loan portfolio ($C_L > 0$; $\uparrow L \rightarrow \uparrow C$)
- $C_N \equiv$ MOC of having larger note circulation ($C_N > 0$; $\uparrow N \rightarrow \uparrow C$)
- $C_D \equiv$ MOC of having larger total deposits ($C_D > 0$; $\uparrow D \rightarrow \uparrow C$)
- $Q_R \equiv$ MLC of holding larger reserves ($Q_R < 0$; $\uparrow R \rightarrow \downarrow Q$)
- $Q_N \equiv$ MLC of having larger note circulation ($Q_N > 0$; $\uparrow N \rightarrow \uparrow Q$)
- $Q_D \equiv$ MLC of having larger total deposits ($Q_D > 0$; $\uparrow D \rightarrow \uparrow Q$)

Definitions

- **free banking** – a regime in which private banks can competitively issue paper currency notes and transferable deposits without significant legal restrictions
- **over-issue** – quantity of a bank's currency in circulation exceeds the quantity demanded
- **external drain** – specie flows out of a country

Principles

- It is cheap to print up notes and lend them in circulation, but the bank can only expand loan portfolio if the currency *stays* in circulation. Clients must hold its currency, not redeem or deposit.
- A bank faces rising marginal cost of cultivating such a clientele.
- Unlimited expansion of note issue doesn't mean unlimited profits.
- Over/under-issue of banknotes is self-correcting.
- Free banking helps stabilize MV (=Py).

Characteristics of free banking

- competitive redeemable banknotes
- mutual par acceptance of notes
- check clearing through CHAs
- short term credit markets for reserves
- no legal tender laws
- no reserve requirements

Increasing demand for N (non-price competition)

- attract more depositors
- make redemption easier
 - open more branch offices
 - hire more tellers
 - stay open more hours
- advertise
- anti-counterfeiting measures
- make the currency more attractive

What corrects over-issue?

- individual banks
 - direct redemption (reserve loss)
 - adverse clearings (reserve loss)
- country-wide in-concert banks
 - external drain (reserve loss)
 - direct effect:
extra spending on imports
 - indirect effect:
price-specie-flow
- world-wide in-concert banks
 - probability distribution broadens (reserve loss risk)

System N uniquely determined by

- MC functions banks face for expanding N^D
- volume of system reserves R
- stochastic process → adverse clearings
- safety banks desire from reserve depletion

Money supply

- $N^D \uparrow \rightarrow N \uparrow$
- $V \downarrow \rightarrow M \uparrow$
- free banking helps stabilize MV (=Py)

United States

- “decentralization without freedom”
- 1863-1913 national banking era
 - restricted entry
 - no branch banking
 - bond collateral requirement
 - restrictions on small denominations
 - **suspensions: 1873, 1893, 1907**
 - **milder bank panics: 1884, 1890**
 - inelastic currency

Canada

- real free banking
- 41 banks, 1884; 10 banks, 1930 (mergers)
 - freely granted charters
 - branch banking allowed
 - no bond collateral requirement
 - dominion notes of \$5 and less
 - **no bank panics**
 - elastic currency

