Money + Credit

1. Motives for high \( \frac{m^1}{m} \), \( \eta \):
   - Inflationary Finance
   - Reduce \( \eta \)
   - Low \( \delta \) and/or \( \gamma \) \( \left( \delta = \gamma + \eta \right) \)

Can Monetary policy permanently reduce \( \delta, \gamma \)?

2. M Policy Instruments
   - \( M \) via \( B \), \( M = kB \)

   - \( i \)
     - Fed Funds rate via loans ("L")
     - Bond Yields via OMO's ("S")

Can Fed control \( T \) via \( i \)?
Senators put heat on Fed to push down interest rates

Greenspan’s panel will meet Tuesday to discuss the issue

WASHINGTON — Democratic and Republican lawmakers ratcheted up the pressure on the Federal Reserve to lower interest rates to stimulate the lagging economy.

"People's confidence is shaken. Their ability to plan housing and automobiles, their savings, their retirements, are altered," Sen. Robert Torricelli, D-N.J., said yesterday, after a week in which the Dow Jones industrial average declined 821.21 points.

"It would be inconceivable to me if the Federal Reserve did not respond this week by lowering interest rates," he said on Fox News Sunday. "It would be outrageous. And I trust the Fed has that message."

The Fed's policy-making Open Market Committee meets Tuesday. Analysts are suggesting a reduction of at least one-half of a percentage point.

Torricelli said he expects a half point cut. Sen. Don Nickles, R-Okla., told Fox he wanted a minimum three-quarters of a percentage point cut, the same

By Ron Kampeas
Associated Press

A falling stock market has put pressure on Chairman Alan Greenspan to cut interest rates when the Federal Reserve's Open Market Committee meets Tuesday, with analysts predicting a half-point reduction in the federal funds rate.
3 Building Blocks

* Leavable Funds Model
  * Non-Monetary D, S for Credit
  * Equilibrium \( r_0 \)

* Demand for Money
  * \( m^d(i) \) (y constant)
  * Additional D for Credit

* Banking System
  * Fed, banks change B, M by making loans.
  * Additional S of Credit.
Loanable Funds Model

Credit Market Equilibrium

(Non-M. Economy)

$V_0 = \text{Non-Monetary Equilibrium}

\text{real interest rate}

= \text{Wicksell's "Natural rate of interest"}
Loanable Funds Model Simplified

\[ D_{\text{Net}}(r) = D_{\text{NM}}(r) - S_{\text{NM}}(r) \]
Loanable Funds Model Simplified

Net Non-Monetary D for Credit Schedule:

\[ \text{D}_{\text{NNM}}(r) = \text{D}_{\text{NNM}}(r) - \text{S}_{\text{NNM}}(r) \]
Loanable Funds Model Simplified to

Net Non-Monetary D for Credit Schedule:

\[ D_{\text{Net}}(r) = D_{\text{NM}}(r) - S_{\text{NM}}(r) \]
Total D for Credit

- Learnable Funds Model
  \( \Delta_{LM} (r) \)

- Non-M Net D for Credit

- D for M Schedule

\[ m^0 (i) \text{ (y given)} \]

\( m^0 \) is additional D for Credit.
Total D for Credit

Leverage Funds Model

\[ D_f(r) = D_{MM}(r) + m^0(r) \]

Net S

Non-M Net D for Credit

D for M Schedule

\[ m^0(i) \text{ (y given)} \]

\[ m^0 \text{ is additional D for Credit.} \]
Banking System = Banks + Fed

- can permanently supply real credit,
- to extent public holds m, M/P,
- and it does not have to hold commodity reserves.

Fiat M

⇒ Equilibrium Bank Supply of Credit

\[ \sum_B (R) = m^0 (i) \]

(taking y = const.)

- May be compared to \( D_T (r) \)
  - if \( \pi^a = 0 \) so \( i_1 = r \)

\[ \sum_B (r) = m^0 (r) \]
Credit Market Equilibrium with M.

- Commodity M, 100% reserved
  \[ S_B(r) = 0, \quad r = r_f \]

- Fix M, \( \Pi^0 = 0 \) so \( r = i \),
  \[ S_B(r) = m^D(r), \]
  \[ r = r_0 \]

\[ \frac{M}{P_0} = \text{Q for Credit} \]
Banks would like to expand loans, \( D \), \( M \to M^* \), but \( C / D \) would then be \( < c \). Cont-Flows would force banks to contract loans to obtain reserves.

\[ \Rightarrow M = M_0 = K B \]
- \( B \) set by Fed.
- \( K \) mostly set by \( c, \) fr

\[ \Rightarrow M = M_0, \quad P = P_0 = M_0 / m^O(v_0) \]

\[ \frac{v}{P} \]

\[ S_{13}^O(v) = m^D(v) \]

\[ \frac{P}{P_0} \begin{array}{c} M_0 \hspace{1cm} 0 \text{ for Credit} \\
\frac{M_0}{P_0} \end{array} \]
Money expansion by Fear

\[ B^f \text{ (or } f \text{ to } b) \text{, so } M^f \]

From \( M_0 \) to \( M^f \rightarrow M_0 \)

\[ \Rightarrow r \downarrow \text{ to } r' \]

until \( P \uparrow \) to \( M^f \cdot P_0 \)

\[ M/P \downarrow \text{ to } m_0 \]

\[ \frac{r}{i} \]

\[ S_B (r) = m^O (r) \]

\[ \Rightarrow \text{ } \rightarrow \text{ } \]

\[ m^O \downarrow \text{ to } m^O (r'), \text{ but } \frac{M^f}{P_0} > m_0 \]

\[ \Rightarrow P \uparrow \text{ by Walras' Law} \]

\[ D_T (r) = \frac{M_0}{P_0} \]

\[ \text{Def. Credit} \rightarrow \]

**Liquidity Effect of } M^f \text{ is move down } D_T (r), \text{ not } m^O (r)!
1. Time increase in $M$ \( \left( \tau > 0 \right) \)

$$\tau = c_0 - \tau$$

\begin{align*}
M \\
M' \\
M_0
\end{align*}

\begin{align*}
t_0 & \quad \text{to} \\
\text{time}
\end{align*}

\begin{align*}
p \\
p' = \frac{M'}{M_0} \\
p_0 = 1
\end{align*}

\begin{align*}
t_0 & \quad \text{to} \\
\text{time}
\end{align*}

\begin{align*}
r, i \\
r_0 \\
r'
\end{align*}

\begin{align*}
t_0 & \quad \text{to} \\
\text{time}
\end{align*}

**SR:** \( \sqrt{r} \) to \( r' \)

**LR:** \( P \) to \( \frac{M'}{M_0} \), \( \frac{M}{P} \) to \( M_0 \), \( r \) to \( r_0 \)
Vice-Versa for \( \downarrow \) time \( \downarrow \) in \( M \)

- \( M \downarrow \rightarrow P \downarrow \) eventually

- but \( r \uparrow \) in S.R.

- In LR, \( r \) back \( \downarrow \) to \( r_0 \).

\[ m^0 \uparrow \text{ similar to } M^3 \uparrow \text{ (holding } M_{\text{const}}) \]

- \( P \uparrow \) eventually

- \( r \downarrow \) in S.R

- \( r \uparrow \) to \( r_0 \) in LR.

Vice-Versa for \( m^0 \uparrow \)
What if Fed tries to permanently reduce \( r \)?

\[
\text{Repeated } \frac{\Delta M}{\text{yr}} \quad \Rightarrow \text{repeated } \Pi
\]

\[
\Rightarrow \Pi^e \text{ sets in } \quad \frac{\text{not } i}{i = r}
\]

\[
\text{Demand (r)} \quad \text{depends on } r
\]

\[
m^0(i) \quad \text{depends on } i = r + \pi^e
\]

\[
D_T(r, i) = \text{Demand (r)} + m^0(i)
\]

\[
\text{depends on both}
\]

But excess supply of Money:

\[
\frac{M^p}{P} - m^0 = m^x(r) = D_T(r, i) + S_8m \\text{by bank sys.}
\]

\[
-m^0(i) = 0 \text{ for } m \text{ by public}
\]

\[
\text{depends only on } r
\]
Excess $S$ of $M$

\[ m^x(r) = M/P - m^0(i) = D_{nm}^{\text{net}}(r) \]

\[ (\text{Excess } D \text{ for } M) \]

Excess $S$ of $M$

- $r < r_0 \Rightarrow m^x(r) > 0$
  \[ \Rightarrow D_{\text{good}} > S_{\text{good}} \]
  \[ \Rightarrow \pi > \pi^a, \ P \uparrow \]

- $r > r_0 \Rightarrow m^x(r) < 0$
  \[ \Rightarrow S_{\text{good}} > D_{\text{good}} \]
  \[ \Rightarrow \pi < \pi^a, \ P \downarrow \]
Permanent increase
\[ m = \frac{AM}{M} \]

\[ \Pi = \Pi^a = 0 \]

\[ m^x(r) = \frac{M}{P} - m^0 \]

\[ \Pi, \Pi^a \]

\[ \Pi = \Pi^a \]

\[ i_o = \frac{v_o}{\mu} \]

\[ L.R.: r \rightarrow r_o, \quad i \uparrow \text{ to } r_o + \mu \]

\[ S.R.: r \downarrow, \quad i \uparrow \]
Credit Crunch (23 1979-84 Volcker Crunch)

\[ M_0 = IT^a = T_0 > 0. \] Then \( \mu \downarrow \)

\[ M, P \] (log)

\[ m^x(r) = \frac{M}{P} - m^0 \]

\[ v, i \]

\[ i_0 = v_0 + T_0 \]

\[ v_0 \]

SR: \( v, P, i \uparrow \)

LR: \( v \rightarrow v_0, i \downarrow \) below \( v_0 + T_0 = i_0 \)
\[ r < r_0 \text{ permanently} \]

\[ \Rightarrow \frac{M}{r^2} > M_0 \text{ permanently, } m^x(r) > 0 \]

\[ \Rightarrow \Pi > \Pi^a \text{ permanently} \]

\[ \Rightarrow \text{unbounded } \Pi \]

\[ i < r_0 \text{ permanently: (inside } \Pi^a = 0) \]

\[ \Rightarrow r \downarrow \text{ as } \Pi^a \uparrow, m^x(r) \uparrow \uparrow \uparrow \]

\[ \Rightarrow \text{even faster runaway } \Pi. \]
New vs Old Monetarism

* "Old Monetarism" (M+I)
  - m₀ predictable
    - varies with i = \pi + \pi^e, but
      - only weakly
  - Use \Delta m to control \pi

* "New Monetarism" (M+B 19, 21)
  - If Fed knows more about
    - \Delta m₀ and \pi^e than m₀, it can
    - use i to control \pi in place of \Delta m

  - i > r_0 + \pi^e \Rightarrow r > r_0,
    - \mu^x (r) < 0, \pi < \pi^e \Rightarrow \pi^e, \pi^f

  - i < r_0 + \pi^e \Rightarrow r < r_0,
    - \mu^x (r) > 0, \pi > \pi^e \Rightarrow \pi^e, \pi^f