Discussion of Hall and Reis interest on reserves proposal

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Monetary Standards and the Price Level

- Hall 1997 — mechanisms and problems

  - Gold Standard —- relative price of gold

  - Fixed Exchange Rate —- real exchange rate

  - Quantity Theory —- velocity

  - Interest rate rule —- indeterminacy

  - Chilean experiment with indexed reserves

The Hall-Reis Proposal

- Evaluate in detail in a simple model

- cash in advance

  - constant velocity, constant endowment

- Fiscal policy

  - nominal lump sum taxes/transfers

  - finance constant nominal growth of consolidated Treasury debt and CB liabilities

- Monetary policy

  - Set nominal return on excess reserves relative to Tbill rate

  - Households determine composition of government liabilities

Government Finance

- Treasury auctions Tbills

- CB pays auction rate plus price level adjustment on excess reserves

- Households choose portfolio of

    - currency

    - excess reserves

    - T-bills

- Taxes/transfers to pay for interest on reserves and T-bills

- Asset Market Clearing

    - Household nominal assets equal consolidated nominal liabilities of Treasury and CB

Three cases

- Standard Case:

- CB rate below Treasury rate

  - households hold no excess reserves

  - CB holds Tbills financed by currency

  - additional Tbills held directly by households

Current Case

- CB reserves rate equals Treasury rate

  - households hold excess reserves

  - CB creates reserves by buying Tbills

  - Households hold fewer Tbills directly

  - No need to expand consolidated debt of Treasury and CB

Fed balance sheet
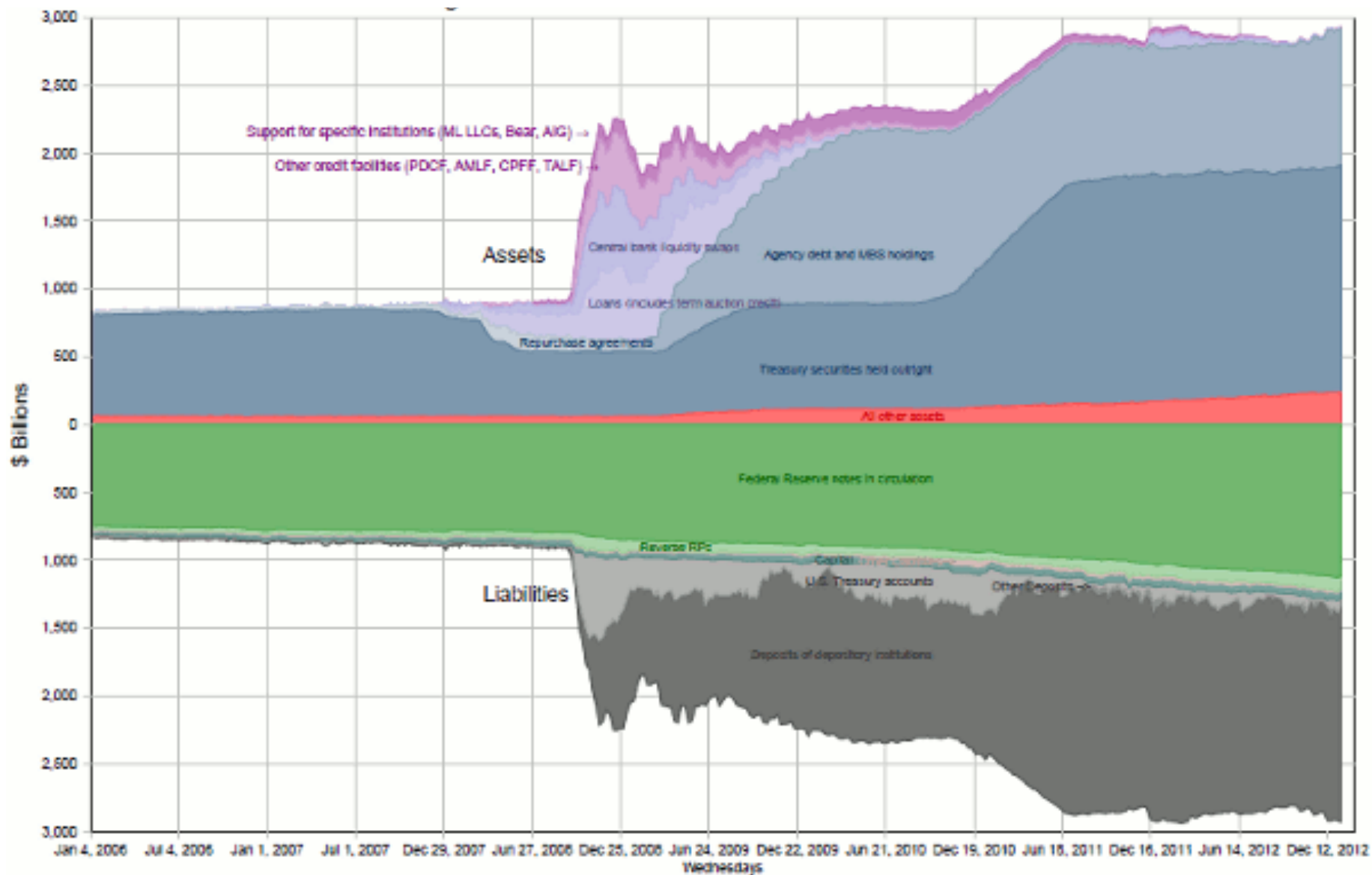
Last updated December 26, 2012.

Non-standard case

- Treasury auctions Tbills

- CB pays auction rate plus price level adjustment on excess reserves

- CB rate above Treasury rate

  - Tbill auction fails

  - CB buys all Tbills to finance Treasury through creation of excess reserves

  - Households hold only currency and excess reserves

Household portfolio and cash in advance constraints

$$W_t(z_0) = m_t(z_0) + A_t(z_0) + q_t(z_0)B_{t+1}(z_0)$$

$$m_t(z_0) \geq P_t(z_0)c_t(z_0)$$

$$W_{t+1}(z_0) = \frac{1}{q_t(z_0)} \frac{P_t(z_0)}{P_t^*} A_t(z_0) + B_{t+1}(z_0) - T_{t+1}(z_0) +$$

$$P_t(z_0)(Y - c_t(z_0)) + m_t(z_0)$$

No short sales

$$A_t(z_0) \geq 0$$

$$B_{t+1}(z_0) \geq 0$$

Fiscal Policy
Consolidated liabilities of gov't

$$\bar{B}_{t+1}(z_0) = m_t(z_0) + \frac{1}{q_t(z_0)} \frac{P_t(z_0)}{P_t^*} A_t(z_0) + B_{t+1}(z_0) - T_{t+1}(z_0)$$

Constant growth of consolidated liabilities
and target price level

$$\bar{B}_t = \left(\frac{\beta}{\bar{q}}\right)^t \bar{B}_0$$

$$P_t^* = \left(\frac{\beta}{\bar{q}}\right)^t P_0^*$$

Equilibrium prices and inflation

$$\frac{P_{t+1}(z_0)}{P_t(z_0)} \geq \frac{\beta}{q_t(z_0)} \max\{\frac{P_t(z_0)}{P_t^*}, 1\}$$

Continuum of equilibria with target inflation and nominal interest rate

$$P_{t+1}(z_0) = \left(\frac{\beta}{\bar{q}}\right)^t P_0(z_0)$$

Only excess reserves or Tbills held in equilibrium

Additional equilibria with interest rate and inflation also indeterminate

Conclusion

- I would be nervous to try the Hall-Reis proposal