Fiscal/Monetary Coordination When the Anchor Cable Has Snapped

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Outline

Explanation of the Title

- In what have been conventional macroeconomic models there are two policy "anchors".
- Most widely understood: Monetary policy has to control the level of some nominal variable: E.g. the money stock, inflation, the price level itself.
- The other is that fiscal policy has to refrain from interference with this "nominal anchoring" by itself in effect targeting a *real* value for interest-bearing nominal public debt — a real-valued "fiscal anchor".

What has snapped

- Ordinarily, there is a tight link between reserve deposits at the Federal Reserve and monetary aggregates, because banks strive to keep reserves down to the minimal required level.
- This is not true now. Reserves are many times the required level. The "money multiplier" no longer works, so the quantity of reserves is not a nominal anchor in the usual sense.
- Drastic innovations in fiscal policy are being undertaken whose future consequences could follow a variety of trajectories. So the "real anchor" is in question.

Outline

An eerie new landscape

- Size of the balance sheet. US has doubled. UK has doubled. Sweden has tripled.
- Assets no longer mainly Treasuries.
- Large "special" Treasury deposit.
- Swaps with foreign central banks.
- "Excess" reserves now far bigger than required reserves.
- Deposits bear interest, at rates for now above Treasuries.

How did we get here?

- To stabilize markets, the Fed acquired non-Treasury assets.
- It could to some extent do so without expanding its balance sheet, by selling Treasuries in corresponding amounts.
- But it began to run out of Treasuries to sell: Two ways to get around this.
  - The special Treasury deposit. Provided T-bills, with a corresponding deposit liability to the Treasury.
  - Interest on reserves. Allowed raising funds directly from deposit inflows to the Fed.

Alternatives

- The special treasury deposits and the abililty to pay interest on deposits can both serve the same purpose.
- While interest rates are positive and there is no interest on reserves, expansion of the Fed balance sheet results in approximately proportionate expansion of the money stock and commercial bank balance sheets (the money multiplier).
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- However in fact it seems to have been used as a reserve — maintaining a stock of liquid assets that could be sold in open market operations to contract, if necessary.
- Because, when the power to pay interest on reserves was enacted, this provided an alternative way to contract quickly,
- The special Treasury deposit has been declining and may no longer be necessary.

Alternatives, II

- Like the Treasury deposit, interest on reserves allows expansion of the balance sheet without expansionary effects on bank behavior.
- Interest-bearing deposits at the Fed do not (yet) count against the Federal debt ceiling.
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Alternatives, II

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- Interest-bearing deposits at the Fed do not (yet) count against the Federal debt ceiling.
- If substantial interest is paid on reserves, they could constitute a major leak in the US system for legislative control of debt creation.
- Or, they are not backed by the "full faith and credit" of the US government — which has implications for inflation control.

Outline

Why interest on reserves?

- Traditional argument: paying no interest and requiring reserves is a tax on banking and presumably therefore distorting.
- Interest at close to market rates can achieve the effect of the "Friedman rule" (satiating the public in money balances) without requiring deflation — at least if we ignore currency. (Now 1/3, instead of over half, of Fed liabilities.)
- In the current circumstances, the main appeal may be that raising the rate on reserves can create a strong contractionary effect without requiring sale of (illiquid) assets.

The money multiplier, the Fed Funds rate

- "High powered money" no longer has high power, if interest on reserves is at or above the rate on T-bills and the perceived return on private sector loans.
- The Fed still sets a Fed Funds target, but there is little trading now on this market and the actual rate remains below the announced target and below the rate paid on deposits.
- In effect, the policy rate is now the rate on deposits, and commercial banks are not using the Fed Funds market.

Outline

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- Central bank balance sheets sometimes go into the red. The Treasury may then recapitalize it by creating, and giving to the central bank, new government debt.

The old working definition of Fed independence

- Balance sheet risk was negligible, as assets were interest earning, dollar-denominated, US debt and liabilities were also dollar-denominated government paper.
- Seignorage was therefore always positive, though varying.
- Interest rates were low and debt not very high, so the interest expense item in the budget was modest. (Though it rose to 20% of the budget for a few years in the early 80's.)
- Independence meant that the legislature and the Treasury did not complain (much) about seignorage fluctuations or about the effects of interest rate changes on the Treasury's interest expense.

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- Nonetheless it has taken on risk, most notably in its recent issuance of guarantees in the CitiBank rescue and in the "Maiden Lane LLC" invention that supported Bear Stearns, but also in some of the other new types of assets it is acquiring.
- With interest being paid on reserves, the flow of seignorage will be smaller, and could become negative.

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- Fed can always "print money" to pay its bills.
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- A commitment to a path for inflation or the price level makes the balance sheet matter.
- Without Treasury backing, the Fed must rely on seigniorage to raise revenues, and that can conflict with inflation-control goals.

Outline

The Fiscal Theory of the Price Level

- This is not really a new theory — its basic insight is that of Neil Wallace's "Modigliani-Miller theorem for open market operations", in the *AER* in 1981.
- If what we usually think of monetary policy instruments are to provide a nominal anchor, they can do so only if they are systematically "backed up" by fiscal policy adjustments.
- In particular, when monetary policy raises interest rates on government debt, fiscal policy must reliably respond with increased taxes or reduced expenditure to provide resources to cover the increased interest expense.
- If it does not do so, then monetary policy alone cannot control inflation. The "nominal anchor" role shifts over to fiscal policy, which controls inflation by controlling the total volume of nominal government liabilities.

The basic idea

- The price level is the rate at which *all* mature paper liabilities of the government trade for goods.
- Nominal debt issue promises only a stream of returns in the form of government-issued paper.
- Its real value is determined by the future primary surpluses, plus seigniorage, that generate real payments to the debt holders.
- This is the same algebra that determines the price of a firm's equity.
- Neither private equity nor public nominal debt promises any specific real return. Their value depends on expectations of what real resources and commitments back them up.

Gaps in existing policy models

- Existing policy models in central banks have nonexistent, thin (e.g. with no distinction between long and short term debt), or internally contradictory treatments of intertemporal aspects of fiscal policy.
- My view is that this is their most important shortcoming as frameworks for thinking about the current crisis — even more important than their lack of explicit treatment of credit risk in the private sector.

The fiscal multiplier

- A formula for FTPL price level determination

$$\frac{B_t}{P_t} = E_t \sum_{s=1}^{\infty} \Phi_s \tau_{t+s} \, .$$

- A deficit backed by expected future increases in primary surpluses has no impact on prices.
- A deficit unbacked by any expected future increases in primary surpluses has an impact on prices — until prices increase, it makes individuals' wealth, and hence their desired spending, rise.
- This is the right way to think of Keynesian multipliers (if we introduce sticky prices).
- They can be very large or non existent, depending on how deficits affect expectations of future fiscal policy.

Unhealthy demand for government debt from a drop in expected real growth

Representative agents solve

$$\max_{C,B,K} E\left[\sum_{t=0}^{\infty} \beta^t \log C_t\right] \qquad \text{subject to}$$

$$C_t + \frac{B_t}{P_t} + K_t = AK_{t-1} + \frac{R_{t-1}B_{t-1}}{P_t} - \tau_t$$

Suppose government fixes $\tau_t = \bar{\tau}$, and, from an equilibrium with a given A in place forever and expected to persist forever, we shift to a new equilibrium with lower A, and hence lower equilibirum growth rate $A\beta$.

Result of the growth rate shift

- In this model consumption grows by the factor A each period, so the lower value of A lowers the real rate of time discount.
- This raises the real value of the debt with a given stream of future primary surpluses.

$$\frac{B_t}{P_t} = \frac{\bar{\tau}}{A-1}\,.$$

- If nominal deficits are held constant so B does not increase, P_t must drop to achieve portfolio equilibrium.
- If sudden deflation has bad consequences because of incompletely contingent nominal contracts or price and wage viscosity, the policy options are to run current deficits and/or to reduce expected future primary surpluses.

Qualifications about this model

- It's obviously over simple.
- Its conclusions would hold up or strengthen with diminishing returns technology, or introduction of labor.
- They could come out quite differently if real growth has systematic impacts on expected future primary surpluses.
- The recent crisis at least in part probably involves increased demand for liquidity services of government debt, rather than simply reduced expectations of real growth.

Why "expand" FTPL?

- The existing formal FTPL models mostly assume all government liabilities to be domestic-currency denominated. (One or two also introduce "dollar" denominated debt to discuss developing countries.)
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- The asset returns may not rise in proportion to a rise in the interest rate on government liabilities — indeed may well move in the opposite direction.
- With interest paid on reserves, the central bank has to set (at least) two interest rates — that on reserve deposits, and that on government debt held for its yield alone.

Outline

Some fallacies

- The Fed needs to be allowed to issue debt on its own account
- The Fed could have trouble "unwinding" its balance sheet as fast as necessary to control inflation
- The vast expansion of reserves in itself poses an inflationary threat
- Fiscal stimulus can get us out of recession; then a resolute Fed can prevent inflationary consequences
- The administration should be setting targets now for when it will have the budget back in primary surplus

Outline

A precedent

Sargent and Wallace showed long ago that a policy of setting the interest rate on reserves equal to the rate on private investment leads to indeterminacy of the price level.
The model we are about to look at generalizes this result, concluding that setting any fixed interest differential (not just zero) between reserves and ordinary debt makes price level indeterminacy likely.

Private agents

Agents maximize $E[\sum \beta^t \log C_t]$ subject to

$$C_t(1+\gamma f(v_t)) + \frac{B_t + M_t}{P_t} + \tau_t = Y_t + \frac{R_{t-1}B_{t-1} + R^*_{t-1}M_{t-1}}{P_t}$$

$$v_t = \frac{P_t C_t}{M_t}\,.$$

Government

$$GBC: \quad \frac{B_t + M_t}{P_t} + \tau_t = \frac{R_{t-1}B_{t-1} + R^*_{t-1}M_{t-1}}{P_t}$$

$$MPolicy1: \quad \frac{R^*_t}{R_t} = \psi < 1$$

$$MPolicy2: \quad R_t = \beta^{-1}\left(\frac{P_t C_t}{P_{t-1}C_{t-1}}\right)^{\theta}, \qquad \theta \geq 0$$

$$FPolicy: \quad \tau_t \equiv \bar{\tau}$$

How the model works

Bond and money first order conditions lead to

$$1 - \gamma f'(v_t) v_t^2 = \frac{R^*}{R} \, .$$

- With $R^* \equiv 1$, changes in the nominal rate change velocity.
- With the differential, R^*/R, fixed, changes in the level of nominal rates no longer affect velocity.
- The "Taylor principle", that R should respond more than proportionatelyl to P_t/P_{t-1}, delivers uniqueness by implying that deviating from the stable price path must "explode". But with a pegged R^*/R, all that explodes is the price level. No real variables are affected.

Solution

- This framework leads to a determinate price level.
- But it requires active fiscal policy to allow this result. With passive fiscal policy, the price level is indeterminate.
- The result does not depend on $\theta > 1$ (the Taylor principle).
- The price level is determinate with any $\theta > 0$, but with $\theta > 1$ inflation and the growth rate of money and debt is likely to be explosive. With $\theta = 0$, so both rates are pegged, there is sure to be an equilibrium with stable inflation.
- I think, but am not yet completely sure, that pegging R, while setting

$$R^* = \kappa \left(\frac{P_t C_t}{P_{t-1} C_{t-1}} \right)^{\theta}, \qquad \theta > 1$$

leads to a unique price level in the presence of passive fiscal policy.

Conclusion

- We need more thinking, and more discussion, about how inflation can be controlled in the new policy environment.
- This will require planning for the possibility of substantial fiscal impacts from monetary policy and for the possibility of substantial fiscal pressures on monetary policy.
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- This will require planning for the possibility of substantial fiscal impacts from monetary policy and for the possibility of substantial fiscal pressures on monetary policy.
- It should be clear and explicit that the central bank cannot control inflation if fiscal policy provides it with no backing.
- Central bankers resist talking openly about these issues for fear of undermining confidence, but this may be short-sighted.