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Working Papers

FISCAL ASPECTS OF CENTRAL BANK INDEPENDENCE

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CESifo Working Paper No. 547

August 2001

Presented at CESifo Conference
Issues of Monetary Integration in Europe, December 2000

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ISSN 1617-9595

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Abstract

Most macroeconomic models treat the central bank and the treasury as a unified entity. The balance sheet of the central bank is therefore implicitly treated as an accounting fiction. While this is often realistic, the central bank balance sheet has implications for central bank independence. There are wide differences in the nature of central bank balance sheets today, with the US and ESCB balance sheets nearly at the extremes. The reasons for and implications of these differences are studied here.

JEL Classification: E58.

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FISCAL ASPECTS OF CENTRAL BANK INDEPENDENCE

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ABSTRACT. Most macroeconomic models treat the central bank and the treasury as a unified entity. The balance sheet of the central bank is therefore implicitly treated as an accounting fiction. While this is often realistic, the central bank balance sheet has implications for central bank independence. There are wide differences in the nature of central bank balance sheets today, with the US and ESCB balance sheets nearly at the extremes. The reasons for and implications of these differences are studied here.

I. INTRODUCTION

There are two ideal models of a central bank, of which actual central banks are usually a mixture. In type F, which is close to describing the US Federal Reserve system, the central bank's balance sheet is always perfectly hedged, with short term interest-bearing nominal bond assets and high-powered money liabilities that leave almost no risk of balance sheet problems. There is a single government budget constraint, reflecting the certainty that mature government bonds can always be redeemed for high powered money and the fact that there is no doubt that potential central bank balance sheet problems are nothing more than a type of fiscal liability for the treasury.

In type E, which seems to be the model underlying the constitution of the ECB and which (in an extreme version) is close to matching currency-board arrangements like that in Hong Kong, the central bank holds assets whose return distributions do not match those of its liabilities, but are intended to act as reserves, guaranteeing a lower bound on the value of its high-powered money liabilities in terms of some other store of value. In this model, the central bank budget constraint is distinct from that of the treasury (or in the case of the ECB, treasuries). Mature nominal government debt might not, in some circumstances, be convertible at par into high-powered money, and conversely it is not obvious

Date: July 28, 2001.

that a treasury would automatically see central bank balance sheet problems as its own liability.

In either model, central bank policy actions aimed at controlling the price level have budgetary implications. There is a flow of interest earnings on assets held by the central bank that generally exceeds any interest it pays out on liabilities, most of which is usually turned over to the treasury. There may also be other cash flows between the central bank and the treasury as the bank buys and sells assets in the market. The essence of central bank independence is that these cash flows are regarded simply as byproducts of a central bank monetary policy aimed at meeting its assigned policy objectives, with no presumption that the treasury or the legislature requires any commitment from the central bank to provide specified or minimum cash flows.

In most advanced economies it is now the norm that the treasury is not allowed to require the central bank to purchase given amounts of treasury debt. Equally important, it is conventional nearly everywhere to treat the central bank's interest earnings as a residual item in the budget, with no discussion of targets for such revenue. In unusual but nonetheless important circumstances, however, central bank seignorage revenue, interpreted broadly as changes in its net worth, can become negative. The convention that other branches of government are not concerned with the level of the central bank's interest earnings does not usually extend to such cases of negative seignorage, and this fact constitutes a limitation on the level of independence available to the central bank.

In model F, this potential limitation is kept a very remote possibility by the structure of the bank balance sheet. Of course surprise changes in asset prices can occur, but with assets that are short-term, interest-bearing and denominated in the same units as nearly all of its liabilities, there is very little room for disparate movements in the values of the central bank's assets and liabilities.

In model E, the bank must balance a risk of negative shocks to its balance sheet against the principle that it should be capable of allowing and weathering a government default. It therefore acquires assets whose risks are not as perfectly correlated with those of its currency liabilities as with model E. Foreign exchange reserves, for example, are always subject to sudden revaluation, as are any securities issued by private entities. A model E central bank can minimize the risk of balance sheet problems by diversifying its portfolio of assets, by investing only in securities issued by the most sound and stable entities, and by building up net worth through incomplete rebate of interest earnings to the treasury. Each of these approaches, however, implies some important limits on the bank's freedom of action.

Another route by which Model E independence might be undermined is the treatment of seignorage revenue. If bank net worth is not to grow exponentially,

there must be a rule requiring that earnings in excess of expenses be turned over to a treasury (or some other entity). This is of course true of Model F central banks as well, but for a Model E bank the oversight may be less strong, because of its weaker links to the treasury. Also, for a Model E bank the problems that would be created by negative net worth provide an apparent rationale for indefinite accumulation of positive net worth. But when this occurs, as in Hong Kong's case, the large positive net worth is likely itself to become a threat to bank independence. Political pressure to use the accumulated wealth for some worthwhile public purpose may be strong. If the seignorage is regularly turned over to the treasury, and if the revenue grows very large, the treasury is likely to come to depend on it and to apply pressure to avoid its shrinking. In defense, the central bank is likely to be tempted to expand its mission, for example by undertaking to be a backup source of liquidity for a growing list of types of financial institutions. But such "mission creep" exposes the bank to new risks and therefore again to limitations on its ability to control the price level.[1]

Both ideal models can provide a stable price level, and the differences between them may not appear important in normal times. But in any general equilibrium model, uniqueness and stability of the price level depends on beliefs of the public about how the system would react in the face of extreme circumstances like very high inflation, severe financial instability, or deflations in which the zero lower bound on nominal interest rates is approached. The kind of behavior required of the central bank and the treasury in such circumstances is different under the two models. Because of these differences, the ability of severe disturbances to force policy-makers to allow a deviation from price stability also differs across the two models.

II. Informal Discussion of Conditions for Existence and Uniqueness

We will consider an economy in which barter equilibrium, with real balances zero, is a non-trivial possibility. This could be because use of a foreign currency for transactions is possible, or because electronic payments systems could expand greatly if the cost of holding money was held high enough, or simply because people are ingenious (as recently in certain sectors of the Russian economy).

Suppose monetary policy simply fixes $M = \bar{M}$, where M is the quantity of non-interest-bearing currency. If there are no disturbances to the economy, this policy is likely to be consistent with a unique, constant price level, under either model of the central bank. However, it is also generally consistent with the pure

[1]See Kwan and Lui (1999) for a discussion of the evolution of the Hong Kong exchange fund and the ambiguity of its mission.

barter equilibrium in which money is valueless. Monetary theory has made it clear by now that these are usually not the only two equilibria. Usually there is a continuum of equilibria, one for every initial value of the price level above the level $\bar{p}$ that is consistent with constant p. In each of these equilibria, the price level explodes upward, velocity explodes upward, and real balances shrink toward zero, so the economy approaches barter.

These explosive equilibria can be eliminated if the fixed-M policy is supplemented with a commitment to support the value of money at some ceiling level of prices $P = P^*$. The policy would be that the central bank or the treasury would stand ready to sell arbitrary amounts of real goods in return for money at the price P^*. The model E central bank can make such a commitment if it owns a stock F of a "real" asset, and if it has chosen P^* such that $\bar{M}/P^* < F$. Note that it requires no assist from the treasury in making such a commitment and that there is no requirement that $\bar{M}/\bar{P} < F$. The bank can be at negative net worth all the time. Because speculators know that the bank's commitment to redeem money will not come into play until the price level has risen to P^*, the speculators can see that the explosive paths are not sustainable, which will force any initial $P > \bar{P}$ immediately back down to $\bar{P}$.

An economy with a model F central bank can also rule out these explosive demonetization equilibria, but to do so requires treasury intervention. Because on the inflation path the assets of the bank are shrinking as fast as its liabilities, the ratio of its net worth to the value of M will not grow as inflation proceeds. A credible commitment to redeem money at P^* requires a commitment to use the power to tax.

As recently pointed out by Benhabib, Schmitt-Grohe, and Uribe (1998), indeterminacy problems can also arise as uncontrollable deflations, with interest rates stuck at zero. If we pay no attention to fiscal policy, this outcome seems a remote possibility with an $M = \bar{M}$ policy, as the real value of currency outstanding increases without bound as price drops, and the resulting wealth effect should make the downward spiral unsustainable. Benhabib, Schmitt-Grohe, and Uribe get their result by assuming that the fiscal authority treats the rising real value of central bank liabilities as treasury liabilities that must be backed with taxation, thereby offsetting the real balance effect on private wealth. As the recent example of Japan shows, this type of fiscal reaction to deflation is not as implausible as it sounds at first. Of course in Japan there have been large fiscal deficits, but these are accompanied by rhetoric about what a large burden of future taxation or reduced expenditure these deficits imply. Furthermore, a central bank concerned about its deteriorating balance sheet can take quasi-fiscal actions that contribute to further deflation. An example is the sharp increase in reserve requirements imposed by the US Federal Reserve before the 1937 recession. A

bank with such concerns could also hoard interest earnings and refrain from bold, risky open market purchases to sustain fiscal institutions or end the deflation.

Since this kind of indeterminacy is primarily a problem of bad fiscal policy, models E and F do not directly imply different outcomes here. However, to the extent that the central bank has the power to make risky open market purchases to end the deflation, it requires an understanding that it will if necessary have fiscal backing. This is a natural possibility (if not at all inevitable) for a model F bank. For a model E bank it apparently violates the essence of its "independence". Such a bank might therefore be more likely to see no feasible action available to it in a liquidity trap.

Another simple policy is a pure price peg. Of course such a policy presents implementation problems in practice, but assume for now that it is possible.[2] A bank with positive net worth can implement a price peg. The peg will not be subject to speculative attack because of the net worth cushion. But as soon as the bank's net worth becomes negative at the pegged price, it becomes unsustainable and multiple equilibria, corresponding to possibility of random speculative attack that demonetizes the economy, arise. Obviously a type F bank, because it is much more reliably cushioned against negative net worth, is more likely to be able to sustain a price peg.

Finally, there is the possibility of a pure nominal interest rate peg. It is one of the main novel results of the fiscal theory of the price level that such equilibria are sustainable, with stable prices, if fiscal policy is appropriate. For a type F bank the interest rate peg becomes in effect a commitment to monetize a fixed fraction of variation in the level of nominal debt, and prices become proportional to the quantity of nominal debt. This requires that the fiscal authorities generate a "nominal anchor", by not not basing their rule for real taxation on a measure of real debt outstanding. This type of equilibrium obviously requires tight coordination between the central bank and fiscal authorities, so it is inconsistent with the type E model. It is likely to imply a less smooth path for the price level than a price-targeting policy or a fixed-M policy, but it has the appeal that it narrows the amplitude of swings in the level of taxation compared to the other equilibria, which is appealing on efficiency grounds if taxes are distorting.[3]

We can summarize the implications of these discussions as follows. A type F central bank depends on fiscal cooperation and backup under certain conditions if it is to guarantee a stable price level. If it can rely on such backup, it will need to invoke it only very rarely, so its effective degree of independence may be great. A type E bank can do without fiscal backup under certain conditions in which a

[2]We will see below that price level targeting via an interest rate instrument gives qualitatively similar results.

[3]See Sims (1999a) and references therein.

type F bank would need it. But in a much broader set of conditions, a type E bank will find the need to maintain or attain positive net worth a constraint on its ability to tightly control the price level.

There is no unique answer as to which model will perform better. In an economy where the political system and fiscal expertise are low, the coordination and restraint required of the treasury by a type F arrangement may not be available, and the type E model may be more attractive. Certainly currency boards, which are a type E arrangement, are more common in less developed countries. One would think that in an economy as advance as that of Euroland, type F would be the natural model. But since the ECB has a multitude of treasuries to deal with, it is quite understandable that in the initial stages it is framed as a type E bank.

III. Models F and E in general equilibrium

Our aim here is not to prove results in great generality, but to provide a simple model within which the intertemporal equilibrium mechanisms are transparent. We can reach some conclusions without being explicit about which type of central bank is present in the model.[4] We suppose an economy with a representative agent maximizing

$$\int_0^\infty e^{-\beta t} \log C_t \, dt \tag{1}$$

with respect to the time paths of C, F_P, B and M, subject to the constraint

$$C(1+\psi(v)) + \dot{F}_P + \frac{\dot{M}+\dot{B}}{P} = Y + \rho F_P + \frac{\dot{B}}{P} + \tau \, . \tag{2}$$

Here C is consumption, $v = PC/M$ is velocity of money, F_P is private holdings of the real asset, B is nominal government debt, M is money (non-interest-bearing currency), Y is an exogenous endowment stream, and τ is transfer payments from the government. The real and nominal interest rates are, respectively, ρ and τ.

[4]Model F is dealt with in detail in other papers. Closest to this one in ideas and motivation is Sims (1999b), but see also Sims (1997). This paper's theory differs in that it considers model E and in that it allows the private sector to borrow and lend externally at a fixed real rate.

The first order conditions for the private agent are

$$\partial B: \qquad \frac{\lambda}{P}\left(-\frac{\dot{\lambda}}{\lambda}+\beta+\frac{\dot{P}}{P}\right)=\frac{r\lambda}{P} \tag{3}$$

$$\partial F: \qquad -\dot{\lambda}+\beta\lambda=\rho\lambda \tag{4}$$

$$\partial M: \qquad \frac{\lambda}{P}\left(-\frac{\dot{\lambda}}{\lambda}+\beta+\frac{\dot{P}}{P}\right)=\frac{\lambda}{P}\psi' v^2 \tag{5}$$

$$\partial C: \qquad C^{-1}=\lambda(1+\psi+\psi' v)\,. \tag{6}$$

These equations can be reduced to

$$r=\rho+\frac{\dot{P}}{P} \tag{7}$$

$$r=\psi' v^2 \tag{8}$$

$$\rho-\beta=\frac{\dot{C}}{C}+\frac{(2\psi'+\psi'' v^2)\dot{v}}{1+\psi+\psi' v}\,. \tag{9}$$

Note that in all these equations we are supposing that the economy evolves without uncertainty after $t=0$, but that some variables may change discontinuously at $t=0$. Thus all time derivatives (dotted variables) are to be interpreted as right-derivatives.

Now suppose that the monetary authority adopts an "active" monetary policy in the terminology of Leeper (1991), for example that it targets the price level, using an interest rate instrument. Such a policy could take the form of setting the nominal interest rate according to

$$r=\theta_0+\theta_1 p\,, \tag{10}$$

where p is the log of the price level. Combining (10) with (7) gives us

$$\dot{p}=\theta_0+\theta_1 p-\rho\,. \tag{11}$$

We will suppose that ρ is set exogenously, and is constant except possibly for a discontinuous change at $t=0$. Equation (11) is easily seen to be an unstable equation with a unique non-explosive solution:

$$p\equiv\bar{p}=(\rho-\theta_0)/\theta_1\,. \tag{12}$$

If the initial value of p exceeds $\bar{p}$, p explodes exponentially upward, while if the initial value is below $\bar{p}$, it explodes downwards.

Notice that if the explosive paths are not equilibria, the price level is constant in equilibrium regardless of the size of θ_1, so long as it is positive. That is, the response of interest rates to price level changes can be as small as we like without

altering the conclusion that the price level is constant. However, if we consider the effects of an exogenous shift in ρ at $t = 0$, the conclusion is different. It is natural to suppose that the monetary authority cannot accurately track the real rate, so it will not be able to offset changes in it by changing θ_0. In this case equation (12) can be read as describing how p reacts to exogenous shifts in ρ, and we can see that the amount of price change produced by a shift in ρ is smaller, the larger is θ_1. That is, by moving the nominal rate aggressively in response to changes in the price level, the monetary authority can keep the price level more stable in the presence of exogenous variation in the real rate.

Now we must consider whether it is indeed possible to exclude the explosive paths for the price level as possible equilibria. To illustrate how the model works, we consider the case of

$$\psi(v) = \frac{\psi_0 v}{1+v}\,. \tag{13}$$

This specification implies that as $v \to \infty$, transactions costs converge to a finite limit, so that a barter equilibrium, with zero real balances, is technologically viable. In this setting (8) becomes

$$r = \frac{\psi_0 v^2}{(1+v)^2}\,, \tag{14}$$

and it is then easily seen that we can satisfy this equation and (11) in the stable, constant-price equilibrium only if $\psi_0 > \rho$.

Assuming this condition is met it is still possible for the economy to start on a path for which initial $p > \bar{p}$, which would require that r rise steadily. But in this model, with this interest rate policy, there is an upper bound on p, because as $v \to \infty$, $r \to \psi_0$. That is, there is a level r^* of the nominal rate, corresponding, via the policy equation, to a level p^* of the log price level, at which the public altogether gives up the use of currency for transactions purposes. When M has reached zero, the monetary authority can no longer continue with conventional interest rate policy, so to characterize equilibrium we need to describe monetary policy behavior once $M = 0$.

One kind of modified policy that works here is a commitment to supply reserves F in return for currency at some price ratio $\bar{\bar{p}} < p^*$ at any time. If this commitment is credible, it undermines the speculative dynamics that support the explosive price paths. These paths can exist only because expectations of continued inflation, make high nominal interest rates and low real balances attractive to private agents. If there is an upper bound $\bar{\bar{p}}$ to p, then as the bound is reached, expectations of reduced inflation will tend to increase demand for money, thereby pushing down the price level. Foreseeing this, markets will push the price level

down even earlier, and so on, leaving us with no upwardly explosive paths as equilibria.

But is it credible that the monetary authority can provide F in return for M at the price level p^*? A model F central bank can do so if it is tightly linked to a treasury with untapped powers to tax. Such a treasury can issue interest-bearing debt that implies a credible commitment to future taxation, and the real value of this debt will be stable. It can supply such debt to the central bank as fresh injections of capital in the event that the bank were to run out of its own holdings of assets. For a model E central bank, the answer to the question depends on its balance sheet position. It is not required that the bank have positive net worth at the price level $p = \bar{p}$. By the time the price level has reached $\bar{\bar{p}} > \bar{p}$, the real value of the bank's original liabilities will have been reduced, while the assets it holds in the form of F will have retained their value. Along a path on which r and p exploded upward, the bank will have to be selling reserves to absorb M in order to keep r rising according to its policy. Its commitment to a price ceiling at $\bar{\bar{p}}$ is credible if its reserves are sufficient to absorb the whole money stock along such a path. If $\bar{\bar{p}}$ is enough larger than $\bar{p}$, the commitment can be credible even with substantially negative net worth for the bank at $p = \bar{p}$. And with a credible commitment, the explosive paths are eliminated as potential equilibria, so the reserves are never called upon.

Of course if the reserves are not sufficient, then this interest rate policy is subject to the same kind of speculative attack, multiple equilibrium scenario as the pure price peg. We can find from equations we have already derived that

$$\bar{\bar{p}} - \bar{p} < \frac{\psi_0 - \rho}{\theta_1} \,. \tag{15}$$

That is, the percentage deviation above the stable price level at which demonetization is complete is a decreasing function of θ_1. Thus in place of the extreme result we obtained informally in discussing a price-pegging policy, we obtain a more continuous analogue: the more tightly the central bank attempts to control the price level with interest rates, the more sensitive it is to a blow to its net worth.

While we now have the main results from this model that interest us, we have computed only part of the equilibrium. It may not be obvious that there is a complete equilibrium for an arbitrary exogenously fixed ρ. However, we do know that if equilibrium exists under the price targeting policy, it will involve constant prices, and therefore from (7) $r = \rho$. Then from the liquidity preference relation (8) and the definition of ψ (13), we can find the constant equilibrium value of v, which we can call $\bar{v}$. Then turning to (9) we see that with v constant we will have $\dot{C}/C = \rho - \beta$ constant as well. Thus if ρ increases from an initial value of β

we shift from an equilibrium with constant C to one with exponentially growing C. Since P and v are constant, M must grow in proportion to C.

Is such a growth path for C technically feasible? Under the assumption that real assets F can be borrowed or purchased from abroad and pay a fixed real rate ρ, the increase in ρ will cause an initial drop in C, followed by steady growth that can be financed by a growing holding of real assets.

IV. Central bank Independence as Historical Reality

IV.1. **Are ECB and the Fed actually examples of E and F?.** This paper has suggested that its type E and F categories correspond to the ECB and the US Federal Reserve. This may be controversial, but it has at least some superficial plausibility. The documents defining the ECB make it very clear that it is not to hold directly debt issued by the EMU treasuries. They discuss explicitly the possibility that countries that run irresponsible fiscal policies will find themselves paying premiums on their borrowing rates, which the ECB is committed not to eliminate. Such premia could arise only if markets contemplate the possibility that government debt might not be redeemable at par in some eventuality—that is, that governments could default. Conversely, the very fact that there is a host of fiscal authorities that would have to coordinate in order to provide backup were the ECB to develop balance sheet problems suggests that such backup is at least more uncertain than in the US. And finally the balance sheet of the European System of central banks shows (in the November 2000 issue of the *Monthly Bulletin* of the ECB, Table 1) that 54% of the system's assets are non-euro-denominated, more than enough to back all outstanding currency with non-euro assets.

In contrast, the US Federal Reserve System manages the marketing of US Federal Government debt, making the notion of its failing to redeem mature debt at par seem bizarre, though not impossible. For a long time Treasury Notes circulated alongside Federal Reserve Notes as currency in the US. Though this is no longer the case, I think that there is still no legal barrier to the Treasury's deciding, if necessary to issue non-interest-bearing notes of modest denomination, which adds to the difficulty of imagining Treasury securities not being redeemable at par, in nominal terms. The Federal Reserve system, according to its 1999 86th annual report, had only 4.9% of its assets in foreign-denominated form, which is only a very small fraction of its outstanding currency liabilities.

The Fed carries just 1.9% of its balance sheet in capital and reserves, while the ECB has 6.7% in this category.[5]

All these differences fit the pattern I have suggested for type F and E approaches to institutionalizing central bank independence, though of course there remains plenty of room for disagreement.

IV.2. **Mexico, Japan, Grover Cleveland.** It is now widely accepted that the Japanese central bank has in recent years been slow to move against persistent deflation in part because of fears about what some suggested bold interventions might do to its balance sheet. According to its November 2000 balance sheet as reported on its website at `http://www.boj.or.jp/en/dlong_f.htm`, the Bank of Japan is close to the type F model. It has only 3.5% of its assets in foreign reserves, and less than 5% of its balance sheet in net worth. It has been suggested that the Bank make massive purchases of long-term debt, or of foreign currency. Either of these courses of action would leave its balance sheet subject to sudden revaluation. The former would almost automatically create difficulties if it succeeded in undoing deflationary expectations, thereby reducing bond prices. The latter would tend to improve the bank's balance sheet if it created the desired inflation and (thereby) devaluation, but because of the inherent unpredictability of exchange rates would nonetheless create balance sheet risk. Either would require moving away from the type F model of a risk-matched balance sheet with minimal risk of losing net worth.

The Bank of Mexico at the time of its last major crisis undertook long term swap agreements with private banks, taking private loans off their hands in return for government securities. As these agreements have expired, the private banks fear that their viability will be impaired by the return of the now-questionable loans. A fiscal bailout has been proposed, but, in part because the loans were in many cases to influential members of the formerly dominant political party, it has been extremely controversial. While I know of no clear effect of this situation on Bank of Mexico policy, it is clear that it is a situation that could make the bank in future think twice about a similar intervention. Nearly any attempt to shore up confidence in a fiscal crisis by discounting privately issued securities will face a central bank with the risk of a situation like this, in which fiscal backing could prove necessary.

[5]Plus another 17.5% in "revaluation accounts", whose meaning I'm not sure of. If they are accumulated capital gains, they belong with the capital and reserves for current purposes and would push the total to 24.2%.

V. Conclusion

What are the implications of the point of view developed in this paper for the structure and policy of the ECB? For the ECB itself, there is no implied critique of their existing framework. In fact, once we see the ECB as a type E bank, their reluctance to fully embrace inflation targeting and their apparent affection for considering the quantity of money as one "pillar" of policy are more understandable. As we have seen, aggressive inflation-targeting[6] carries serious risks for a type E bank, while stabilizing the quantity of money is less likely to generate balance sheet problems.

But for the European Community as a whole, this analysis brings out some unresolved problems that deserve attention. To help the ECB evolve toward the more stable type F model, and thereby to help it compete as a world reserve currency, the EMU will need to develop fiscal institutions capable of prompt and strong actions at a Europe-wide level. This is a tall order, and may not be filled any time soon, unless a financial crisis forces some rapid political innovation. It might be worthwhile for Europe to consider creating a fiscal emergency system to be invoked only in time of financial crisis. This, since it would be thought of as a backstop to be rarely if ever used, might be easier to negotiate than a broader fiscal integration. Lars Svensson has informed me that, at least at one point in history, it was part of the legislation defining the Swedish central bank that the bank could require the treasury to issue interest-bearing debt that the bank could use to replenish a gap in net worth. In Europe, any facility like this would have to be negotiated in advance, to spread the fiscal burden across nations fairly. But it seems a valuable arrangement to have made, and perhaps not so difficult to achieve.

The other side of this issue is that, while it is still in type E mode, the ECB will be constantly tempted to let its balance sheet and net worth grow, to make the prospect of balance sheet difficulties more remote. If the temptation is not resisted, this could create serious long run problems both for the bank and for the European political system. A very large accumulation of wealth in the center of a system with weak political institutions is an invitation to trouble.

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[6]We have actually seen this only for price level targeting, but at least some forms of inflation targeting would have similar implications.

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