

Commentary: Should the European Central Bank and the Federal Reserve Be Concerned about Fiscal Policy?

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Canzoneri, Cumby, and Diba (henceforth, CC&D) have written a lovely three-act play, set in the majestic shadows of the Grand Tetons. I enjoyed reading it, and I enjoyed seeing it performed live.

Actually, the opus is a trio of one-act plays united by a common theme, which is how fiscal policy might influence monetary policy. Like many such artistic creations, the three acts hang together only loosely, and the authors explicitly invite us to treat each as a free-standing work—which I will do. After a few remarks on each, I will suggest a new fourth act, which would bring back an important issue that CC&D seem to have banished to the wings: the policy mix. Returning it to center stage offers me an opportunity to stroll down memory lane a bit, for I presented the very first paper at the very first Jackson Hole conference on precisely this topic.¹

Act 1: Fiscal discipline in the stability and growth pact

So, let me start with Act 1, which is a thoughtful criticism of the EU's "Stability and Growth Pact." Some of us will recall that this agreement was originally called the "Stability Pact." The reference to growth was added at the 11th hour, just when financial penalties for miscreants were being added. In a curious compromise, France won on the wording and Germany won on the penalties for noncompliance. But the pact was always focused on stability; it was designed to ensure

that any lack of *fiscal* discipline in member countries would not interfere with the ECB's quest for *monetary* stability in the euro area.

CC&D offer two criticisms of the pact, both of which I agree with. First, it sets limits on annual budget *deficits*, even though most coherent arguments for fiscal limits apply to cumulative national *debts*. For example, countries with large debt burdens might lobby the central bank for lower interest rates. The consistency, in steady state, of a 3-percent-of-GDP deficit limit and a 60-percent-of-GDP debt limit with 5 percent nominal GDP growth may be a lovely piece of arithmetic. But CC&D correctly point out that substituting the deficit limit for the debt limit may penalize the wrong countries at the wrong times.

CC&D's other criticism is that the pact sets limits on *actual* budget deficits rather than *structural* budget deficits. In so doing, it potentially interferes with the operation of the automatic fiscal stabilizers—which, of course, work far faster than discretionary policy ever can. As the authors note, this problem is particularly worrisome in Europe, where what they call the *deficit elasticity* is quite high—roughly double that of the United States.² To put the point bluntly, adherence to the pact during a serious recession might force a country to pursue Hooverite fiscal policies, even if its long-run fiscal house was in good order. This unhappy scenario must look somewhat less than hypothetical in Germany right now.

I agree with CC&D's criticisms wholeheartedly and only wish they had been empowered to draft the Stability and Growth Pact. But I would like to take the point further—to *discretionary* fiscal policy. All the countries in the European Economic and Monetary Union have, by necessity, a common monetary policy. But their cyclical situations are bound to be quite disparate at times—as they are now. If Ireland is in an exuberant boom while Belgium is languishing in a slump, the ECB's choice of monetary policy will presumably be too loose for Ireland and too tight for Belgium. Doesn't it then make sense to *tighten* fiscal policy in Ireland and *loosen* fiscal policy in Belgium? The pact will not stand in the way of the Irish tightening, but it might prevent the Belgian easing, thereby giving the euro area as a whole a deflationary bias.

Now, you might be thinking that this same problem must apply to the fifty states of the United States, all of which live under the Fed's common monetary policy. But the analogy is a poor one, for the fifty states are truly united, while the twelve countries are not. If, for example, New Jersey is booming while Wyoming is depressed, significant (per capita) fiscal transfers will flow automatically from New Jersey to Wyoming via Washington. The analogous transfers through Brussels are puny by comparison. Labor mobility across state lines in the United States is also much greater than labor mobility across national borders in Europe.³ So, there is much greater need for *nation-specific* discretionary fiscal policy in Europe than there is for *state-specific* discretionary fiscal policy in the United States. When it comes to dealing with country-specific shocks, the monetary union tied one hand behind policymakers' backs, perhaps for good reasons. The Stability and Growth Pact then tied the other. Try riding a horse with both hands tied behind your back.

Act 3: Does discretionary fiscal policy make sense?

I'd now like to jump to Act 3 because it is more closely related to Act 1. CC&D ask two questions. The first is: Has discretionary fiscal policy in the United States actually been used as a macroeconomic stabilizer? Their answer is: not often. I agree. If Congress and the President could not get their act together under the clear-emergency conditions that followed September 11, I think we might as well bury the possibility of intelligent fiscal policy. And may it rest in peace.

CC&D's second question is whether fiscal deficits raise long-term interest rates, as seemingly all policymakers and market participants believe. One of the dirty little secrets of empirical macroeconomics, which the authors here reveal, is that there is almost no empirical evidence supporting this commonsense proposition. Yet, many of us continue to believe it. For example, I think I saw with my own eyes that long-term interest rates fell dramatically in response to the Clinton Administration's deficit reduction plan in 1993.

Fortunately for all of us, CC&D present some new empirical results that buttress the commonsense view. They find that projected (by the

Congressional Budget Office) fiscal deficits “exert a substantial and statistically significant effect on interest rates.” (p. 366-367.) I am, of course, cheered by these findings. But Act 1 reminds us of a nagging question. Doesn’t the very idea that prices adjust to clear markets suggest that bond prices should react to the outstanding *stock* of government *debt*, rather than to the *flow* of annual *deficits*?

Actually, CC&D’s results may support this hunch. When you add up projected deficits, or changes in projected deficits, over ten-year periods, you may well obtain a variable that correlates better with the expected *debt* ten years from now than with this year’s annual *deficit*. I would recommend that the authors try substituting the projected future stock of debt for the variable they use and see what kind of results they get.

Act 2: The fiscal theory of the price level

I come now to Act 2, which is mostly about the so-called fiscal theory of the price level. The theory’s name derives from its peculiar conclusion that *fiscal policy*, not monetary policy, determines the price level in the very long run—a curiosum that CC&D do a fine job of explicating. For present purposes, the hallmark of the theory is its emphasis on the need for a certain degree of *fiscal discipline* if monetary policy is to do its job. As the authors put it, “the government’s approach to fiscal solvency has strong implications for the options that are left open to the central bank.” (p. 344.)

Does it really? Despite coming from Princeton, I am not convinced that the FOMC should pay much attention to the fiscal theory of the price level when it meets next month, or next year, or even next decade.⁴ The main reason pertains to the meaning of the phrase “long run” in this context. The point, which CC&D make tacitly but do not emphasize, is that the time span to which the fiscal theory applies is a very long one, indeed. I call it the “infinite run.” You can find several hints of this in CC&D’s Act 2.

First, they emphasize their novel theoretical finding that the fiscal discipline required to give monetary policy enough independence “can

be quite lax.” (p. 350.) Specifically, the deficit must react negatively to the accumulated debt “infinitely often,” (p. 350.)—which, in the authors’ words might mean “after every election, at the beginning of every decade, or even at the beginning of every century.” (p. 350.) Let’s see. If “infinitely often” can mean once a century, then even Lyndon Johnson, Ronald Reagan, and George W. Bush can be viewed as paragons of fiscal virtue.⁵

Second, they note in a footnote that the government’s present value budget constraint is derived by “iterating the government’s flow budget constraint forward, and applying the transversality condition.” (p. 380, footnote 22.) Mention of any transversality condition should ring a warning bell in your minds. It refers to an *asymptotic* convergence condition—what I just called “the infinite run.” Over *that* long a run, we are not just all dead, we are all fully decomposed!

Third, their description of how the economy responds to a tax cut will sound odd to most students trained in macroeconomics: “A tax cut lowers the right-hand side of [the present value budget constraint], and the price level rises to bring the left-hand side in line.” (p. 347.) Wait a minute. Is the key equilibrium condition really the satisfaction of the present value budget constraint? Does the price level really bear the main burden of adjustment? Don’t many other variables adjust much faster—such as real output and interest rates, both of which should rise after a tax cut? Any empirical macro model will tell us that what is portrayed here as the effect of a fiscal expansion on the price level must take a very long time, indeed.

Let’s think a bit about how the actual macrodynamics play out after a rise in government spending.⁶ Start the economy in equilibrium with a balanced budget. Now raise spending, thereby stimulating aggregate demand. If the central bank holds either bank reserves or the money supply constant, interest rates will rise immediately, with the magnitude dependent on expectations of, e.g., how long-lasting the deficit is expected to be and how monetary policy might respond in the future. If the central bank holds the short-term interest rate constant, the yield curve should steepen.

As this process is playing out, new assets—either high-powered money or government bonds—must be created to cover the budget deficits. That's the flow budget constraint:

$$\Delta M + \Delta B = G + iB - T(y,P), \quad (1)$$

in nominal terms, where $T(y,P)$ is tax receipts, G is government expenditure, i is the nominal interest rate, M is the (high-powered) money supply and B is the number of \$1 bonds.⁷ The asset creation described by equation 1 will also drive aggregate demand upward. As Carl Christ pointed out in a 1968 paper, a new steady-state equilibrium requires that the budget deficit eventually be closed.⁸ How does that happen? Here, the mix of future monetary and fiscal policies becomes crucial, which was the point of a once-famous but now forgotten 1973 paper by Bob Solow and me.⁹

Let's review the four possible cases and relate each to the fiscal theory of the price level. An increase in government spending that enlarges current and future budget deficits will require some combination of:

- (1) increased issuance of interest-bearing debt,¹⁰
- (2) increased creation of high-powered money,
- (3) increases in future taxes,
- (4) decreases in future government expenditures.

Case 1. Stability under bond financing: The fiscal expansion sets a horse race in motion. On the one hand, real output (y) and the price level (P) rise, thereby increasing tax receipts and helping to close the deficit. But, on the other hand, interest rates (i) and the national debt (B in nominal terms, $b=B/P$ in real terms) also rise, which widens the deficit. Solow and I (1973) showed that, for some parameter values, the economy's natural dynamics will be stable even when all deficits are financed by issuing bonds. In that case, the economy will converge to a new, higher equilibrium with budget balance restored:

$$t(y,P) = g + ib, \quad (2)$$

where $t(.)=T(.) / P$, $g=G/P$, and $b=B/P$. In the stable case, the fiscal expansion will never “force” the central bank to print more money. So, this case is “non-Ricardian,” in the language of the fiscal theory of the price level. More important, it is not threatening to the functional independence of the central bank.

That’s good news. But is the economy likely to be stable under bond financing? In the simple case where the tax function is linear homogeneous (so that $tP=0$),¹¹ the long-run multiplier implied by equation 2 is:

$$dy/dg = (1/t_y) [1 + b(di/dg) + i(db/dg)]. \quad (3)$$

Explicit solutions for di/dg and db/dg depend on the details of the underlying model. But scrutiny of equation 3 will do for present purposes. Surely di/dg and db/dg will be positive, making the term in square brackets larger than one. And $1/t_y$ is a pretty big number—say, three or four in the United States. So, equation 3 suggests a rather large multiplier, dy/dg , certainly much larger than what the FRB/US model tells the FOMC. That should alert us to the strong possibility that the economy might never converge to the new equilibrium under bond financing.¹²

Case 2. Instability under bond financing: In fact, using a fixed-price model, Solow and I (1973) showed that the economy might well be unstable under bond financing of deficits, but is always stable under money financing. A few years later, Tobin and Buiter (1976) established corresponding results for a full-employment model in which a variable P did all the adjusting while y was fixed.¹³ Shortly thereafter, Pyle and Turnovsky (1976) derived similar results for a more complicated model in which both P and y adjusted simultaneously.¹⁴ The message of these and other papers was simple and consistent: Stability under money financing was vastly more likely than stability under bond financing.

What do these results mean in practice? If the government runs a

deficit, and the economy is stable under money financing but unstable under bond financing, the central bank may be forced to finance deficits by printing money. The other option doesn't work. Since the policy of bond financing can be viewed as adherence to monetarism (because the central bank sticks to its money target, regardless of the deficit), this result anticipated Sargent and Wallace's (1981) "unpleasant monetarist arithmetic."¹⁵ From the point of view of the fiscal theory of the price level, it is also the more worrisome "non-Ricardian" case. Here, monetary policy does lose control of the price level to fiscal policy.

Cases 3 and 4. Adjusting future fiscal policy instead: But what about the so-called Ricardian cases, which Solow and I did not consider back in 1973? Imagine that the economy starts bombing off on one of the unstable paths. Something has to give, because actual economic variables do not go to positive or negative infinity. We have just noted that money financing of deficits can stabilize the system, though at a cost of considerable inflation. What about changes in fiscal policy?

In a quite different context, Barro (1974) pointed out that current tax *cuts* can be balanced by future tax *increases* that preserve the present-value budget constraint.¹⁶ If present-value constraints are all that matter—a proposition I would dispute—a tax cut is a non-event in this case. Alternatively, current tax cuts (or expenditure increases) can be balanced by future reductions in government spending of equal present value. In neither of these cases is the ability of the central bank to stabilize the price level compromised in any way.

So, where does this all leave us, and how does it relate to CC&D's nicely written second act? If the government runs a large deficit, thereby boosting the growth of aggregate demand, there are four pure possibilities—and, of course, an infinite number of combinations of the four.

(1) If all deficits are covered by issuing bonds, and the economy is stable under this financing policy, the central bank need not react. It might want to react by tightening monetary policy to prevent inflation. But the central bank, not the fiscal authorities, controls the price level.

(2) If bond financing of deficits leads to dynamic instability (or, under rational expectations, to “unpleasant monetarist arithmetic”), and the fiscal authorities refuse to be disciplined, the central bank may be forced to cover the deficits by printing money. In that case, it does, indeed, lose control over the price level and of monetary policy more generally.

(3) and (4) In the unstable case, the fiscal authorities might decide to prevent instability by exercising some discipline. That could mean either raising taxes or cutting spending. Either reaction would take the pressure off monetary policy. And CC&D tell us that not much discipline is required.

Finally, we should all remember that this discussion is loaded with, what I call, “angels-on-the-head-of-a-pin economics.” The “runs” to which these theoretical results apply are very long, indeed. Over time spans that a practical central banker might think of as “the long run,” say five to ten years, the present-value budget constraint is not terribly relevant under normal circumstances. And even the flow budget constraint equation 1 is just an accounting identity that summarizes options rather than imposes any serious constraints.¹⁷ It is, instead, the old-fashioned fiscal-monetary policy mix that may really affect the economy. This brings me to the unwritten Act 4, wherein the prince of Denmark enters the play.

Suggested Act 4: The fiscal-monetary policy mix

I begin with the obvious. Both fiscal policy and monetary policy influence aggregate demand, exchange rates, real interest rates, and stock market valuations. Mostly through the latter two, they influence the share of investment in GDP. If we imagine holding aggregate demand constant and changing the policy mix toward more expansionary fiscal policy and tighter monetary policy, that should raise real interest rates and decrease the investment share. (CC&D’s Act 3 reassures us on this point.) It should, therefore, damage medium-term growth. A change in the policy mix in the other direction should be pro-investment, and therefore pro-growth.

All that is economic kindergarten. Yet, the policy mix, an issue barely raised by CC&D, was the focus of my 1982 Jackson Hole paper on the coordination of monetary and fiscal policy. Why?

Because in August 1982, the United States was in the early stages of reacting to the Reagan-Volcker policy mix. The abandonment of fiscal discipline by the Reagan Administration, even though it would be corrected in much less than a century, collided violently with the anti-inflation policies of the Federal Reserve under Paul Volcker, sending interest rates skyrocketing. This undesirable mix of tight money and loose fiscal policy had plagued us before—think, for example, of Johnson and Martin in 1966. But the Reagan-Volcker episode was probably the most spectacular example ever. In commenting on my 1982 paper, James Tobin opined that the “fiscal-and-monetary tug-of-war has over the years, spectacularly right now, led to a mix that penalizes capital formation and growth.”¹⁸ The perverse policy mix made a great deal of difference to the U.S. economy. It was, I would say, one of the two main macroeconomic stories of the 1980s—the other being the conquest of inflation—even though it did not last long enough to wrest control of the price level from the Fed.

The main macroeconomic story of the 1990s was precisely the opposite. The Clinton-Greenspan policy mix of tighter fiscal policy (leading ultimately to large surpluses) and easier monetary policy served the nation extremely well. It presumably boosted both the investment share and the growth rate for years. And what might happen a century later was presumably unimportant to markets, to citizens, and to policymakers.

Now, in the 2000s, we are faced with the possibility that fiscal and monetary policy might collide again. It is not revealing any trade secrets to state that monetary policy will have to be tightened considerably once the current period of weakness is over. The FOMC has already said that, and I’m sure it did not have the year 2102 in mind. Yet, fiscal discipline has collapsed again. Not only are we in the midst of a ten-year tax-cutting binge, but the shackles on government spending have also come off. It could be that the Bush-Greenspan policy mix will wind up being a smaller-scale replay of Reagan-Volcker.

If you will indulge me one last word about my 1982 Jackson Hole paper, I will conclude by tying Act 4 back to Act 2. Among the topics that worried me then was the lack of coordination between monetary and fiscal policy. I suggested that a policy mix of tight money and loose fiscal policy might be the natural Nash equilibrium of a noncooperative game between a government that placed higher weight on reducing unemployment and a central bank that placed higher weight on reducing inflation.¹⁹ One way to solve this problem, I observed, was suggested by Milton Friedman back in 1948—years before he became the first monetarist.²⁰ Friedman suggested that fiscal policy set spending and taxes on *microeconomic* criteria, and not vary them cyclically. With what we now call the *structural* deficit fixed at zero, the actual budget would show a surplus or a deficit, depending on the stage of the business cycle. And Friedman suggested that all such deficits or surpluses be financed by money creation or destruction.

Notice three things about this policy. First, recall the theoretical finding that the economy is (virtually) always dynamically stable under money financing of deficits. Second, in terms of the four cases dealt with in Act 2, this non-Ricardian case is precisely the opposite of monetarism: The supply of bonds is non-reactive while money growth varies sharply with the business cycle—and in a stabilizing manner. And third, this Friedman rule would create an extremely powerful automatic stabilizer. A \$100 billion deficit, for example, would lead to \$100 billion in new *high-powered* money. That's quite a kick. It wouldn't last for a century, but it ought to cure slumps in short order.

I can't help thinking that both fiscal and monetary policymakers might be better off studying the 1948 writings of Milton Friedman than the modern fiscal theory of the price level.

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Endnotes

¹ See Alan S. Blinder. "Issues in the Coordination of Monetary and Fiscal Policy," in *Proceedings of a Conference on Monetary Policy Issues in the 1980s* (Federal Reserve Bank of Kansas City, 1982), pp. 3-34.

² The terminology is misleading. The "deficit elasticity" is the derivative (not the elasticity) of the government budget deficit with respect to GDP.

³ This is true even though even labor mobility in the United States should not be exaggerated. See Olivier Blanchard and Lawrence Katz, "Regional Evolutions," *Brookings Papers on Economic Activity*, 1:1992, pp. 1-75.

⁴ I refer to the fact that two of my esteemed colleagues, Christopher Sims and Michael Woodford, have been major proponents of the theory. See, for example, Sims (1994) or Woodford (1994). [References are in CC&D's bibliography.]

⁵ Of course, these once-a-century fiscal adjustments would have to be very large to do the trick. CC&D are playing with the mathematics of infinity here.

⁶ I switch from a tax cut to an increase in government spending only for notational simplicity.

⁷ To keep the arithmetic simple, I model government bonds as having zero maturity. A more realistic model would let bond prices depend on interest rates and allow for capital gains and losses.

⁸ See Carl F. Christ, "A simple macroeconomic model with a government budget restraint," *Journal of Political Economy*, 76:1968, pp. 53-67. In a growth context, the corresponding condition is that the debt/GDP ratio be stabilized.

⁹ See Alan S. Blinder and Robert M. Solow. "Does Fiscal Policy Matter?" *Journal of Public Economics*, 2:1973, pp. 319-337.

¹⁰ Of course, if the country's long-run fiscal situation truly raises the specter of insolvency, it may not be able to float debt. This is an important case for the fiscal theory of the price level. But it is not likely to apply to the EU or the United States.

¹¹ This simplification is in no way crucial to any results; it just reduces the algebra.

¹² Note that, under money financing, db/dg will be zero and di/dg will probably be negative.

¹³ In this case, a linear homogeneous tax function will not do. Rising P must raise *real* tax receipts. See James Tobin and Willem Buiter. "Long-Run Effects of Fiscal and Monetary Policy on Aggregate Demand," in Jerome Stein, ed., *Monetarism* (North-Holland, 1976).

¹⁴ See David H. Pyle and Stephen J. Turnovsky. "The Dynamics of Government Policy in an Inflationary Environment: An 'Intermediate Run' Analysis," *Journal of Money, Credit, and Banking*, 8:1976, pp. 411-437.

¹⁵ In the stable case, the steady-state multiplier dy/dg is actually *larger* under bond financing than under money financing. This implies that an open-market purchase of bonds will be disinflationary—which is the essence of Sargent and Wallace's surprising result. [Reference is in CC&D's bibliography.]

¹⁶ See Robert J. Barro. "Are Government Bonds Net Wealth?" *Journal of Political Economy*, 82:1974, pp. 1095-1117.

¹⁷ One major exception is if the nation's finances are in such a mess that it cannot float bonds. In that case, monetary policy becomes subordinated to fiscal policy because a fiscal deficit forces money creation.

¹⁸ See James Tobin. "Discussion," in Federal Reserve Bank of Kansas City, *Monetary Policy Issues in the 1980s*, 1982, p. 44.

¹⁹ Both were assumed to favor a higher investment share of GDP.

²⁰ See Milton Friedman. "A Monetary and Fiscal Framework for Economic Stability," *American Economic Review*, 38: 1948, pp. 245-264.