

## **Central Bank Independence and Sovereign Default<sup>1</sup>**

Narayana Kocherlakota  
President  
Federal Reserve Bank of Minneapolis

Sovereign Debt Seminar  
CME Group-MSRI Prize in Innovative Quantitative Applications  
Chicago, Illinois  
September 26, 2011

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<sup>1</sup> These remarks are highly similar to those I gave on April 1, 2011, in Philadelphia. I thank Marco Bassetto, V. V. Chari, Ron Feldman, Futoshi Narita and Juan-Pablo Nicolini for their comments. The views I express here today are my own, and not necessarily those of others in the Federal Reserve System or my colleagues on the Federal Open Market Committee.

Sargent and Wallace published their classic “Some Unpleasant Monetarist Arithmetic” in the Minneapolis Fed’s *Quarterly Review* in 1981. Since that date, there has been a growing appreciation of the role of fiscal policy in the determination of the price level. The idea is a simple one. Consider a government that borrows only using non-indexed debt denominated in its own currency. There is an intertemporal government budget constraint that implies that the current real value of government liabilities—including the monetary base—must equal the present value of future real surpluses. Because the liabilities are nominal and non-indexed, the government budget constraint provides a linkage between the public’s assessment of future real tax collections and government spending and the current price level.

I like John Cochrane’s analogy here.<sup>2</sup> He thinks of money and government bonds as being like stock in a company. Just like a firm’s stock, money and bonds implicitly represent claims to the ownership of the government’s stream of surpluses. And just like with financial assets, the variations in their prices are fundamentally linked to variations in the present discounted value of government profits—that is, surpluses.<sup>3</sup>

This simple insight has rather profound consequences for how we think about inflation. Inflation is no longer “always and everywhere a monetary phenomenon.” Instead, even apparently independent central banks may not have control of the price level. Thus, if the public begins to think that the fiscal authority is behaving irresponsibly, that belief will push upward on the price level.

However, in the existing literature, the analysis of fiscal effects on the price level is typically based on the presumption that a fiscal authority will never default on liabilities denominated in its own currency. In my remarks today, I will relax this assumption. Once I do so, it will become clear that a sufficiently tough central bank does have the ability to control the price level, regardless of the behavior of the fiscal authority.<sup>4</sup> I will argue that its ability to do so hinges on the nature of its response to the possibility of default on the part of the fiscal authority. I will talk about some of the short-run versus long-run tensions involved in that response. Throughout, I will refer to the central bank as CB and the fiscal authority as FA. I will refer to the currency as being dollars, but that should not be viewed as suggesting that I am talking about the United States—or Australia.

Let me start by describing a simple CB policy: a commodity price peg. Suppose the central bank holds  $X$  ounces of gold. It commits to being willing to buy and sell  $p$  dollars for each ounce of gold and has a monetary base of  $\$pX$ . This policy successfully ties the price level to variations in the price of gold, *regardless of the behavior of the FA*.

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<sup>2</sup> See Cochrane (2005).

<sup>3</sup> The present-discounted-value formula for stock price evaluation is based on the assumption that the stock price does not have a bubble component. In the same way, the intertemporal government budget constraint relies on the assumption that the price of neither money nor bonds has a bubble component. This assumption is violated in a wide class of models of money.

<sup>4</sup> See Bassetto (2008) for a related analysis.

What impact does this policy have on the FA? Now, when the FA borrows in dollars, it is essentially borrowing in a real commodity: gold. All of the FA's debt is essentially indexed to the price of gold, and it is certainly conceivable that various shocks could lead the FA to default on those obligations.<sup>5</sup>

Of course, as I have argued elsewhere, this simple policy is generally viewed as suboptimal by macroeconomists.<sup>6</sup> In contrast, suppose that the CB follows an aggressive Taylor rule when determining the path of the short-term interest rate.<sup>7</sup> That policy pins down an inflation path in the usual way, regardless of the FA's fiscal plans.<sup>8</sup> However, given that inflation path, the FA's nominal debt is now actually real. This means that if the FA is faced with an unexpected decline in its current and expected future real surpluses, it will be forced to default.

Thus, once we allow for the possibility of default by the FA, a sufficiently tough CB can have considerable control over the price level. Of course, I've been arguing through examples. It would be more interesting to deliver a fuller characterization of the term "sufficiently tough"—but I'm not going to attempt to do so. Instead, in what follows, I'll discuss some aspects of the CB's response to a particularly critical situation.

Suppose the FA owes \$10 billion on a given Friday. It plans to repay that loan by auctioning new debt on the preceding Monday. However, when it auctions off the new debt, it finds that it can only raise \$5 billion. The FA is now in danger of defaulting on its Friday obligation of \$10 billion.

It is at this stage that the level of commitment of the CB to its chosen inflation path will be severely tested. The FA will ask the CB to take some action that will allow the FA to raise an additional \$5 billion on Wednesday. There are many possible actions. The FA might ask the CB to intervene by setting a floor on the price of debt in the Wednesday auction. But there are less overt approaches. For example, the CB can commit to a price peg for the FA's debt in the secondary market for that debt.

In any event, if the CB does intervene in some way to ensure the FA's solvency, the CB no longer can be said to have independent control over the price level. If the CB's intervention was largely unanticipated by markets, expected inflation will rise after the CB's intervention. Then, incipient fiscal insolvency has triggered inflationary pressures. Of course, markets may well have already assigned a positive probability to the possibility that the CB might intervene in this kind of scenario. If so, then past inflation was already influenced by the markets' expectations of this fiscal policy scenario.

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<sup>5</sup> As modeled, for example, by Eaton and Gersovitz (1987).

<sup>6</sup> See Kocherlakota (2011).

<sup>7</sup> Here, I'm assuming that the CB is exchanging reserves and FA securities so as to control the path of a short-term nominally risk-free interest rate. This nominally risk-free interest rate may not be the same as the interest rate on FA debt.

<sup>8</sup> Atkeson, Chari and Kehoe (2010) and Cochrane (2011) argue (convincingly to my mind) that an aggressive Taylor rule is not sufficient to determine inflation. The former authors suggest how price level determination can be achieved using a hybrid rule that augments an activist Taylor rule with a commodity price peg. Note though that their implementations implicitly require the CB to have the ability to buy back money from the public. If the CB can only hold assets issued by the FA, then the FA's actions will influence the value of the CB's portfolio and thereby influence the CB's ability to implement a given price level path. In this sense, the CB does not have independent control of the price level.

Should the CB be required to never intervene in this sort of insolvency scenario? I've argued that a ban on these interventions will give the CB more independence in its control over the price level. For those who think of CB independence as being the foundational element of macroeconomic policy, that pretty much settles the question.

But I see a couple of reasons for caution here. It is certainly conceivable that FA insolvency can be triggered by shocks that are well outside the control of the FA itself. And, empirically, FA insolvency is associated with large short-term and even medium-term declines in output. Should the CB be prepared to drive the FA into insolvency given the possible adverse economic impact on the country?

More subtly, regardless of the FA's solvency, sovereign debt issues can fail simply through a coordination failure among investors. If I, as an investor, don't anticipate that others will buy into the debt issue, I won't either. In this sense, sovereign debt issues may be susceptible to suboptimal "runs." The CB can eliminate this possibility by ensuring the nominal promises of the FA whenever the FA is threatened with default.

Thus, I see trade-offs. On the one hand, if the CB is known to be willing to intervene to keep the FA solvent, then inflation is necessarily shaped by fiscal considerations and by the short-run incentives of elected officials. We know from many years of theoretical and empirical research that this effect is not a desirable one. On the other hand, if the CB is fully committed to allow the FA to default if necessary, then even optimal debt management by the FA may end up exposing the country to troubling risks, like sovereign debt runs.

Let me wrap up. I've argued that even if the fiscal authority borrows exclusively in its country's own currency, the central bank can have a large amount of control over the price level. But the central bank can only achieve that control if it is willing to commit to letting the fiscal authority default. Such a commitment may expose the country to risks of short-term and medium-term output losses. How this trade-off should best be resolved awaits future research. But it may turn out to be optimal for central banks to guarantee fiscal authority debts in some situations. If so, we again have to think of price level determination as something that is done jointly by the fiscal authority and the central bank—just as Sargent and Wallace taught us 30 years ago.

## References

Atkeson, Andrew, V. V. Chari and Patrick J. Kehoe. 2010. "Sophisticated Monetary Policies." *Quarterly Journal of Economics* 125, 47-89.

Bassetto, Marco. 2008. "Fiscal Theory of the Price Level," in Lawrence Blume and Steven Durlauf (eds.), *New Palgrave: A Dictionary of Economics, 2nd edition*. MacMillan: London.

Cochrane, John H. 2005. "Money as Stock." *Journal of Monetary Economics* 52, 501-28.

Cochrane, John H. 2011. "Determinacy and Identification with Taylor Rules." Working paper. University of Chicago, Booth School of Business.

Eaton, Jonathan, and Mark Gersovitz. 1987. "Country Risk and the Organization of International Capital Transfer." NBER Working Paper 2204, April.

Kocherlakota, Narayana. 2011. "It's a Wonderful Fed." Speech, St. Paul, Minn.  
[http://www.minneapolisfed.org/news\\_events/pres/speech\\_display.cfm?id=4619](http://www.minneapolisfed.org/news_events/pres/speech_display.cfm?id=4619).

Sargent, Thomas, and Neil Wallace. 1981. "Some Unpleasant Monetarist Arithmetic." *Federal Reserve Bank of Minneapolis Quarterly Review*, Fall, 1-17.