

good for output in the long run. No study of which I am aware suggests a negative effect on output. Thus, even in the worst case, there is nothing to be lost in terms of output by pursuing price stability—a sort of “free lunch.” All in all, the conclusion I derive is that a medium-term monetary policy oriented to price stability is the best contribution that a central bank can make to long-run economic growth.

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One of the most thought-provoking charts that we viewed during the conference was Allen and Oura’s (2004) comparison of U.S. economic growth during the Great Depression and Japan’s performance during its recent “Great Stagnation.” Of course, these two lengthy episodes both began with dramatic crashes of asset price bubbles,

followed by systemic financial distress and a hesitant monetary response. In both cases, monetary policymakers seemed to be “fighting the last war,” with U.S. central bankers through the late 1930s concerned about resurgent inflation, and Japanese policymakers even now so concerned.

There is much to be learned, therefore, by reflecting upon the differences between the two experiences. Like the Great Depression, in which the international gold standard played a key role, Japan’s Great Stagnation had a global element that emerged in the Asian currency crisis of the late 1990s. But that global shudder, while showing some signs of spreading out from the Asia-Pacific region, turned out to be relatively brief. Events might have transpired quite differently if, for example, China had devalued its currency or Long-Term Capital Management had been allowed to fail. Clearly, international influences such as the politics of the yen-U.S. dollar exchange rate and the secular rise of China and the East Asian tiger economies are central in understanding Japan’s experience.

Compared to the United States in the 1930s, Japan’s growth slowdown is a milder affair. Real output has fallen more than Allen and Oura’s chart suggested, though, because of efficiency losses that do not come through in official GDP numbers. As argued by Anil Kashyap and others, the fall in measured GDP has been cushioned by the practice of financial “evergreening,” which, along with regulatory forbearance, has prolonged the life of “zombie” firms and helped to hide unemployment (see Caballero, Hoshi, and Kashyap [2003]).

Another great contrast has been in the political economy of economic policy. In the United States, the central bank lost considerable independence as a result of the crisis—while in Japan, the central bank gained target as well as instrument independence! Unlike in the 1930s, financial and trade liberalization have, despite some occasional setbacks, continued on the whole to advance since the late 1980s.

Japan’s domestic and international experience in the past 15 years, despite encompassing the first protracted period of deflation and very low interest rates since the Depression, is far from a replay of that earlier experience. The story is as complex, however, and again shows the difficulty of policy formulation in a rapidly shifting world. It is already clear that the economic historians should get to work. Japan’s Great Stagnation will need its Friedmans and Schwartzes—as well as its Temins, Eichengreens, Christina Romers, Bernankes, and Meltzers. They should not wait 20 years; the time to interview the bankers, policymakers, and other market participants is now. We still debate the Great Depression vigorously, and it seems equally likely that we will debate the lessons of Japan for many years to come.

I submit that one important lesson we have learned is the need to avoid what Reinhart (2004) in his presentation on the war against inflation called “too much of a good thing.” We need to adopt inflation targeting strategies that avoid excessive deflationary risks.<sup>16</sup>

One way to do so, I conjecture, is provided by the following symmetry proposition: *To prevent inflationary pressures, the central bank must be able credibly to promise that it will tolerate some slow growth, or even an output decline, if inflation appears set to*

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16. The author wisely did not give his paper the title “Mission Accomplished.”

*become too high. Similarly, to prevent deflationary pressures, the central bank must be able credibly to promise that it will tolerate a period of inflation that is somewhat above its target average level.*

To understand how to put this advice into practice, consider an alternative widely accepted recommendation. That recommendation is to adopt an inflation target that is higher than what might otherwise be desirable, to reduce the risk of hitting the zero lower bound on the nominal policy interest rate. This prescription, in my opinion, puts too much emphasis on the importance of the zero lower bound. As is clear from Krugman's (1998) Brookings paper on the liquidity trap, or from my more recent work together with Alan Auerbach (Auerbach and Obstfeld [2005, forthcoming]), the main obstacle to effective monetary policy at the zero bound—in the form of quantitative easing of the money stock—is the public's fear that the central bank is so inflation-averse that it will ultimately reverse any money supply expansion. This fear could be eliminated if the central bank were credibly committed to a target range of allowable positive inflation rates, with the notional "target" perhaps the midpoint of that range.<sup>17</sup> In this setup, much like the European Central Bank's (ECB's) definition of "price stability," the central bank would be perceived as willing to move rapidly to the top of its allowable inflation range in response to actual or threatened deflation. That stance will normally allow for effective monetary policy, even in a liquidity trap.

The point can be made more formally in a multi-period example based on my work with Auerbach. There are three dates, 1, 2, and 3, and initially the central bank's inflation objective is the point target  $\pi^* = 0$ . Prices are partially sticky (predetermined) for one period. The inflation rate initially expected between dates 2 and 3 is  $\pi_2^e = 0$ , but I assume that the date 2 nominal interest rate  $i_2 > 0$ . Between dates 1 and 2, however,  $\pi_1^e < 0$  and  $i_1 = 0$ : the liquidity trap prevails on date 1. As a result, raising the money supply in period 1,  $M_1$ , has no effect. All that matters for stimulating the economy on date 1 is  $M_2$ .

If the central bank can credibly and permanently raise  $M_2$ , then it can stimulate the economy on date 1, at the same time raising  $P_2$ ,  $P_3$ , etc., in proportion. But consider an announced increase in  $M_2$ , given the central bank's inflation target of  $\pi^* = 0$ . One might assume that if this change raises period 1 inflation,  $\pi_1$ , exactly to zero, then there is no problem. Inflation is at its target of zero in all periods. But there is a credibility problem—we must ask what happens if the public does not believe that  $M_2$  will be raised permanently. In that case, period 1 inflation,  $\pi_1$ , will remain negative and to nonetheless implement its "threat" to raise  $M_2$ , the central bank would have to allow positive inflation between dates 2 and 3. It will not do so, given the preceding assumed preferences. So if the public disbelieves the announcement that  $M_2$  will be raised, the central bank will ratify that skepticism. As Svensson (2003) observes, there are multiple equilibria.

But suppose the central bank, instead, has an allowable target range for inflation with a positive ceiling, say, at  $\epsilon > 0$ . Suppose also, as in my paper with Auerbach, that the bank, once within its inflation target range, places some weight on moving the

17. Interestingly, Stein (1989) has shown that even a central bank that cannot credibly communicate a precise inflation target may be able credibly to communicate a target range.

money supply in the direction it has promised. Now, when it promises to increase  $M_2$ , there is some room for positive inflation between dates 2 and 3. The fact that this room is small does not matter—any wedge allows for some small monetary increase on date 2 in case the public is skeptical, which, in turn, will stimulate the economy on date 1, moving some of the resulting inflation earlier in time and pushing down inflation between dates 2 and 3. This again creates some wiggle room between dates 2 and 3, allowing more of a monetary increase on date 2 to be carried out if the public fails to believe. In the resulting (unique) equilibrium, the full monetary increase can be credibly promised. My conclusion is that having a target range, rather than a point target of zero, and being willing to move aggressively upward in that range, can be very beneficial in terms of fighting deflation. Incidentally, the ECB has wisely allowed inflation slightly above its normative range in recent years.

The message of this analysis is that the central banks wishing to combat deflationary pressure need to communicate to the public that in some circumstances, some inflation is allowable.<sup>18</sup> One problem with Japan's quantitative easing policy of recent years may be public fears of just how inflation-averse the Bank of Japan really is. The Bank of Japan Law of 1997 gives the Bank independence to pursue "price stability" but does not define the term, nor, to my knowledge, has the Bank itself ever done so in an operationally meaningful way. It would be helpful at this juncture for the Bank to be more transparent in communicating a clear definition of price stability to the public—a definition that recognizes that a credible willingness to tolerate some inflation is necessary to fight deflation effectively. Brief periods of moderate inflation should not be too costly in any case, so the obstacles to such communication with the public are hard to see.

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18. A similar message comes out of the optimal monetary rules implied by the precommitment analysis of Eggertsson and Woodford (2003).