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It Takes a Regime Shift: Recent Developments in Japanese Monetary Policy through the Lens of the Great Depression

Christina D. Romer, *University of California, Berkeley, and NBER*

Last week, we witnessed one of the most exciting developments in monetary policymaking since the 1930s. The Japanese central bank staged an honest-to-goodness regime shift. The Bank of Japan went beyond vague promises and cheap talk. It took dramatic actions and pledged convincingly to do whatever it takes to end deflation.

The theoretical reasons why this regime shift may be important are well understood by economists. Japan's slow growth over the past two decades surely reflects a mixture of structural and cyclical problems. But persistent deflation in recent years suggests that Japan continues to suffer from a shortfall of demand. Unfortunately, the Bank of Japan's policy interest rate is already at the zero lower bound. Riskier, long-term rates are also very low—suggesting that unconventional policies such as large-scale asset purchases are unlikely to do much to further reduce nominal rates.

In such situations, the main tool that a central bank has to stimulate demand is expectations management. As discussed by Paul Krugman (1998), Gauti Eggertsson and Michael Woodford (2003), and others, if unconventional monetary policy can raise expected inflation, this can push down real interest rates even though nominal rates cannot fall. This, in turn, can raise aggregate demand by stimulating interest-sensitive spending.

Perhaps even more important, as discussed in a recent paper by Iván Werning (2011), if aggressive monetary policy actions can cause expectations of real growth, this may have an even greater impact on consumer spending and investment. Consumers who expect to have a job are far more likely to buy cars and remodel their kitchens than those

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who do not. And firms that expect to have customers are far more likely to build new factories and buy new machines than those that do not.

The regime shift we are seeing in Japan is just the kind of bold action that might actually succeed in changing both inflation and growth expectations a substantial amount. As a result, it may be an effective tool for encouraging robust recovery and an end to deflation.

My support for that conclusion is based less on theory and more on economic history. In the last century, there have been three times when major countries have hit the zero lower bound on safe, short-term rates: the United States in the 1930s, Japan in the 1990s and 2000s, and many advanced countries since 2008. The only true success story is the United States in the 1930s.[1] Neither Japan nor the United States and Europe in recent years have managed to use monetary policy to jump-start a robust recovery at the zero lower bound. But, in the mid-1930s, we did.

Through a combination of actions, the most important of which were monetary, Franklin Roosevelt managed to turn our ocean liner of an economy on a dime. Industrial production climbed 57 percent in the first four months of the Roosevelt administration. And real GDP continued to grow at an average rate of nearly 10 percent per year between 1933 and 1937.

The fundamental feature of Roosevelt's policy was a regime shift. This is the conclusion of an old paper by Peter Temin and Barry Wigmore (1990), which I failed to appreciate when it was published back in 1990, but which I now think is not just right, but prescient. Roosevelt's actions were bold enough and different enough from what had been done before that people had no choice but to notice.

In my talk, I want to discuss the evidence that economic historians and macroeconomists have accumulated that suggests that a regime shift really was important to the recovery from the Great Depression. I then want to discuss the implications of that evidence for monetary policy today. I will argue that it can help us to understand why the Fed's actions since 2009 have done relatively little to spur recovery. Exactly what the Federal Reserve has not been willing to do is have a regime shift. I will also discuss why I think the new Japanese monetary policy really is an important break with the past, and as a result, just might work.

I. Roosevelt's Regime Shift

Roosevelt came into office on March 4, 1933. The country had been through nearly four years of crushing depression. What exactly did the new president do?

A. Nature of the Shift

Temin and Wigmore suggest that Roosevelt's most dramatic and consequential action was going off the gold standard. The United States had been on some form of a gold standard since the late 1800s. During the early 1930s, it was widely perceived to limit what monetary and fiscal policies the United States could pursue (Eichengreen 1992). Going off the gold standard was therefore a powerful signal that Roosevelt intended to focus on the domestic economy and take very different policies.

Figure 1, which replicates one from Temin and Wigmore, shows the dollar/pound exchange rate and the American price of cotton in the early 1930s. The dollar had appreciated relative to the British pound when Britain devalued in September 1931. Technically, what the United

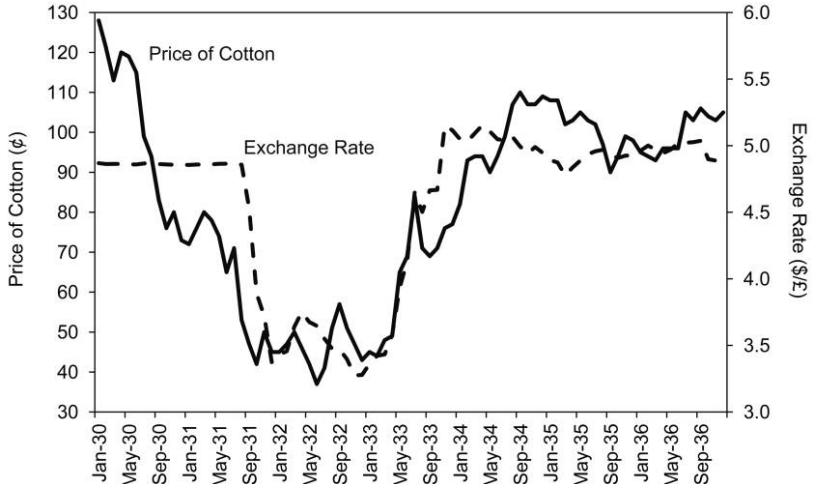

Fig. 1. Dollar devaluation and the price of cotton

Sources: Replication of figure 3 of Temin and Wigmore (1990, 496). Data on the price of cotton are from US Department of Commerce (1932, 23; 1936, 11; 1938, 11). Data on the exchange rate are from US Board of Governors of the Federal Reserve System (1943, 681).

Fig. 2. Money supply
Source: Friedman and Schwartz (1963, table A1, 712–15).

States did in early April 1933 was suspend convertibility of the dollar and allow it to float. When that happened, the dollar depreciated greatly. And you can see it had a large and immediate impact on the price of tradable goods—particularly agricultural commodities. The price of cotton rose almost 90 percent in just a few months.

Though devaluation was the most dramatic sign of the regime shift, it was backed up by aggressive monetary expansion. Figure 2 shows the behavior of M1 in the Depression. You certainly can't miss the collapse of the money supply in the early 1930s emphasized by Milton Friedman and Anna Schwartz (1963). But what's important to the regime shift story is the enormous increase under Roosevelt. I have drawn in a line in March 1933 so you can see the timing of the change.

In a paper I wrote many years ago, I described the source of this monetary expansion (Romer 1992). It was not the result of the Federal Reserve finally seeing the error of its ways. Rather, it was arguably the one time in modern US history when we had monetary expansion by the executive branch. In January 1934, the United States went back on the gold standard, at a price for gold in terms of dollars not quite double what it had been when Roosevelt took office. The revaluation of gold caused a large gold inflow, which the Treasury chose not to sterilize.

Then, by a lucky-for-us, unlucky-for-Europe coincidence, mounting political tensions in Europe caused gold to continue to flow to the

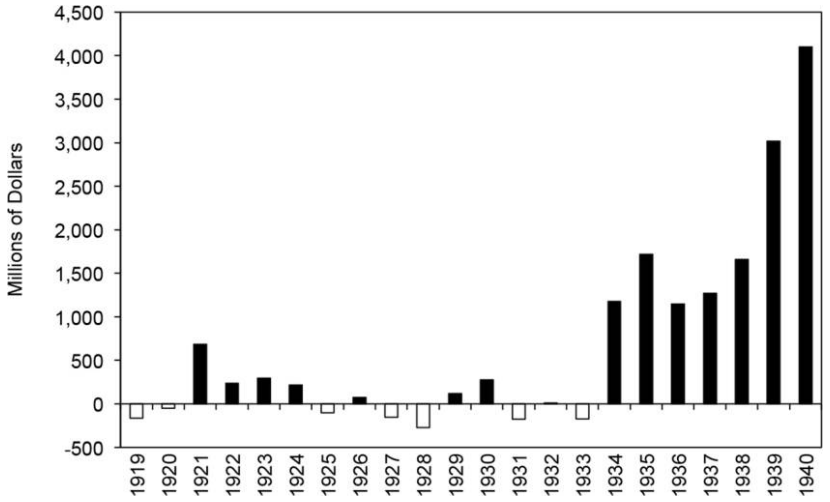

Fig. 3. Gold flows to the United States

Source: US Board of Governors of the Federal Reserve System (1943, table no. 157, 538).

United States in large quantities. Figure 3 shows these gold inflows. Importantly, the Treasury continued to monetize the inflow. The result was a dramatic increase in the money supply. This was an essential part of the regime shift. A true regime shift is not just a change in words, but action. Roosevelt backed up devaluation with rapid monetary expansion.

As many people have emphasized, Roosevelt also switched to fiscal expansion (see, for example, Eggertsson 2008). Figure 4 shows a rough estimate of the change in the federal high-employment surplus in the 1930s. You can see that the high-employment surplus fell in 1934, indicating fiscal expansion. However, the size of the fiscal expansion was fairly modest—only about a percent and a half of GDP.[2]

Finally, Roosevelt also backed up his regime shift with a consistent and effective communications policy. He spoke often of the need to return prices and incomes to their pre-Depression levels. For example, his second fireside chat in May 1933 was focused on devaluation and reflation. He said:

> The Administration has the definite objective of raising commodity prices to such an extent that those who have borrowed money will, on the average, be able to repay that money in the same kind of dollar which they borrowed. . . . That is why powers are being given to the Administration to provide, if necessary, for an enlargement of credit.[3]

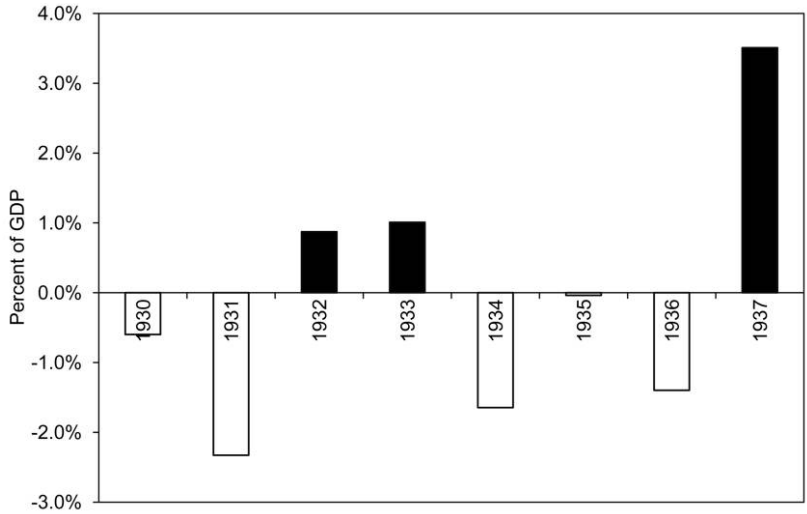

Fig. 4. Change in the high-employment surplus

Sources: US Bureau of Economic Analysis (2013, tables 1.1.5 and 3.2) and author's calculations. A negative change in the high-employment surplus corresponds to fiscal expansion.

A wonderful old video, described in a recent book by Robert Hetzel, suggests that these ideas were getting through to ordinary Americans.[4] It was made in June of 1933 and ran in theaters before feature films. It sings the virtues of Roosevelt's inflationary policies, and explains clearly how such policies could spur both consumer and business spending. This suggests to me that the changes Roosevelt undertook were bold enough and consequential enough that they *were* noticed.

B. Evidence of an Impact

The case for believing there was a regime shift in 1933 is very strong. What about evidence that the shift had an expansionary impact on the economy? Here, I will be the first to admit that the evidence is largely circumstantial—but it is pretty good circumstantial evidence.

One fact that suggests the regime shift mattered is just the sheer speed of the turnaround. Figure 5 replicates a graph of industrial production from Temin and Wigmore. The low point was March 1933. Industrial production started to grow rapidly in April and May. As I mentioned, overall IP rose 57 percent between March and July of 1933. You can see that iron and steel production, arguably a leading indicator of other industrial production, grew even more rapidly.

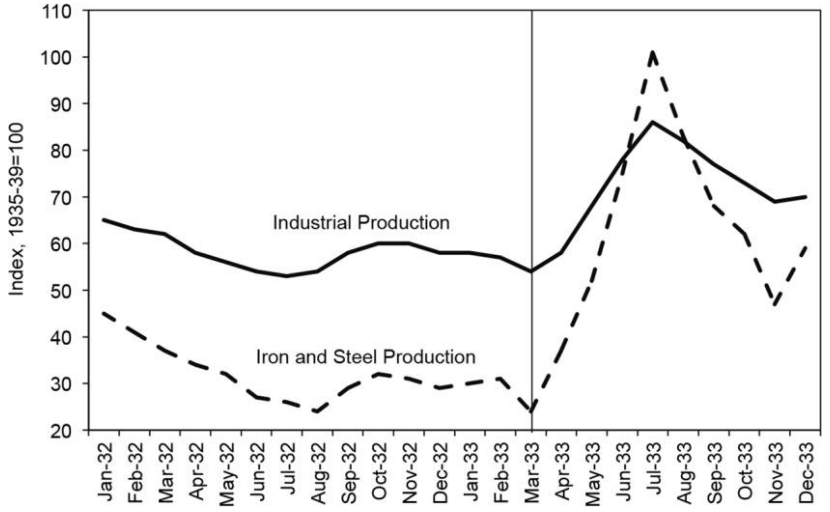

Fig. 5. Industrial and steel production indexes, 1932–1933

Sources: Replication of figure 4 of Temin and Wigmore (1990, 498). Both series are from US Board of Governors of the Federal Reserve System (1940, 765 [industrial production]; 768 [iron and steel production]).

Part of what makes this turnaround so remarkable is that the US economy was in the midst of a terrible financial panic at the time of Roosevelt's inauguration. This last wave of the financial crisis was finally stopped by the national bank holiday Roosevelt declared two days after the inauguration. That output nevertheless soared in the spring of 1933 suggests to me that something other than just the ordinary forces of recovery was at work.

Perhaps more persuasive is the fact that indicators of expectations turned roughly coincidently with Roosevelt's actions. One such indicator is stock prices. Figure 6, which graphs the monthly Dow Jones Industrial Average, shows a stark change in stock prices starting in March 1933. After falling almost continuously for four years, stock prices jumped 70 percent between March and June of 1933 (though, admittedly, the large percentage change is partly a consequence of the painfully low starting level).

One reason why this turnaround in stock prices is significant is that it may indicate that expectations of real growth turned around. As I described earlier, such changes in growth expectations may be even more important than the inflationary expectations economists usually emphasize.

However, inflationary expectations also turned around. James

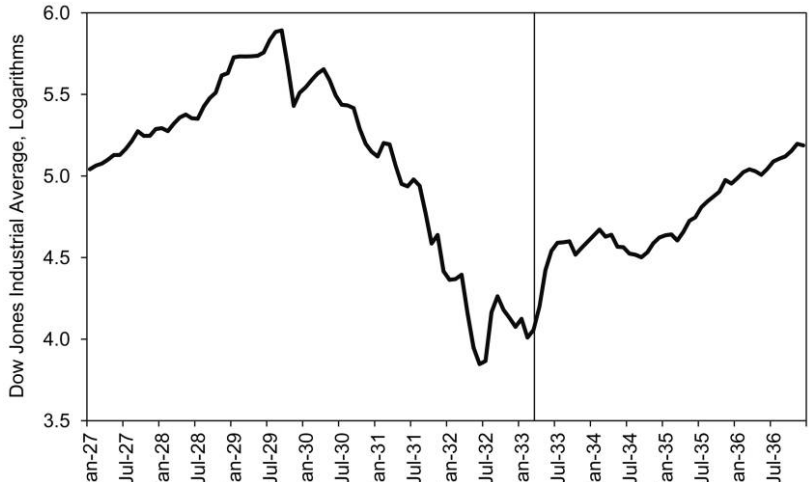

Fig. 6. Stock prices

Source: Federal Reserve Bank of St. Louis, FRED Economic Data, Series M1109BUSM293NNBR.

Hamilton (1992) has put together a series on inflation expectations deduced from commodity futures prices. Most of the interest in his series has been with the expectations earlier in the 1930s, and the question of whether the deflation in 1930 and 1931 was expected. Figure 7 shows Hamilton's expected inflation series. There was an extraordinary change in inflation expectations in 1933. According to these data, which are for thirds of a year, there were still deflationary expectations in the middle third of 1933. But then in the last third, they swung strongly to expected inflation. And the change was enormous—from expected *deflation* of 7 percent in the first third of 1933 to expected *inflation* of 6 percent in the last third of the year.

To understand just how extraordinary that change was, recall that output was about 50 percent below the pre-Depression trend in 1933 and unemployment was 25 percent (Romer 1992). Why was anyone expecting inflation? The most plausible explanation is that Roosevelt's actions were having a powerful impact on the public's psyche.

In a recent paper, David Romer and I (2013a) looked at expectations of deflation in 1930 and 1931 through the eyes of the business press. We found that monetary contraction played a central role in causing expectations of deflation early in the 1930s. This makes it plausible that monetary expansion had the opposite impact after 1933. Something

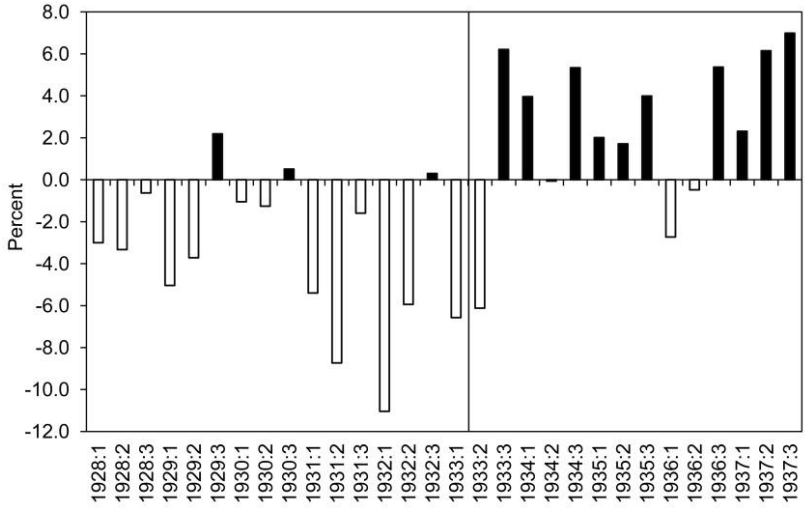

Fig. 7. Expected inflation as measured using commodity futures prices
Source: Hamilton (1992, table 7, 171).

that I think would be very helpful is to look for narrative evidence of a change in inflation expectations in the spring of 1933. It might help to solidify or contradict the empirical estimates. More important, it could help identify *why* expectations changed when they did.

Further circumstantial evidence on the importance of Roosevelt's regime shift is provided by the composition of the increase in production. Figure 8 shows industrial production in durables and nondurables manufacturing. Durables manufacturing turned around much more strongly—which could reflect a surge in interest-sensitive spending. That would be consistent with the regime shift having an impact on inflationary expectations and lowering real interest rates.

Temin and Wigmore point out that price expectations may have had a particularly direct impact on farmers and their spending. If devaluation and monetary expansion raised expectations of farm prices, this would have directly affected expected farm incomes. And it is indeed the case that farm spending rose quickly and dramatically. Figure 9 shows that truck sales took off in April 1933. A Berkeley graduate student, Joshua Hausman, is working on the recovery of 1933 in his dissertation. One of his new findings is that the change in car sales by state in the spring of 1933 was very positively related to the fraction of the population of the state employed in agriculture (Hausman 2013).

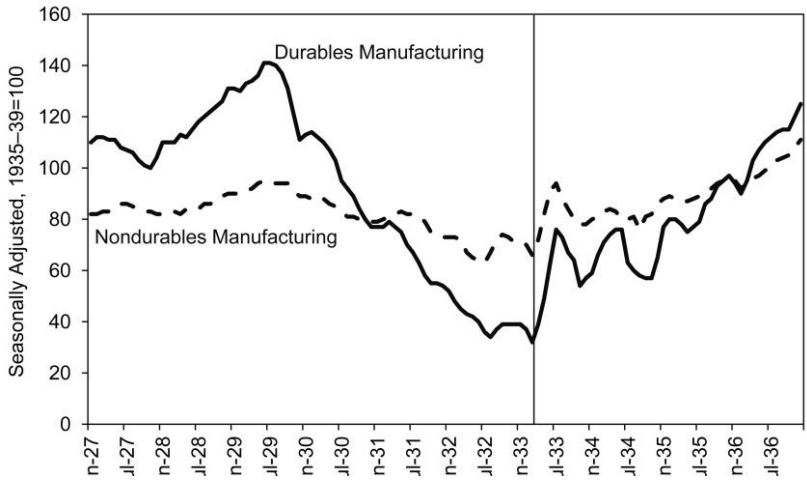

Fig. 8. Index of industrial production by manufacturing type
Source: US Board of Governors of the Federal Reserve System (1940, 764–65).

The bottom line is that there is suggestive evidence that Roosevelt's largely monetary regime shift was an important source of recovery. More work is needed, but the evidence is already pretty strong. If this were a clinical trial, one might stop it early and start treating patients.

II. Implications for Policy Today

This brings me to the implications for policy today. The evidence from the Great Depression may help us to understand why monetary policy actions over the past few years have not been particularly effective. More important, it may provide a potential road map for what could be done to rescue troubled economies at the zero lower bound today.

A. Policy in the United States

Let me start by talking briefly about recent monetary policy in the United States. Like just about everyone, I believe the Fed's response to the financial crisis and its initial efforts at unconventional policy were effective. The extraordinary measures taken to unfreeze financial markets in the fall of 2008 helped to prevent an even worse meltdown of the economy. And the first round of quantitative easing, which included purchases of more than $1 trillion of agency debt and mortgage-backed

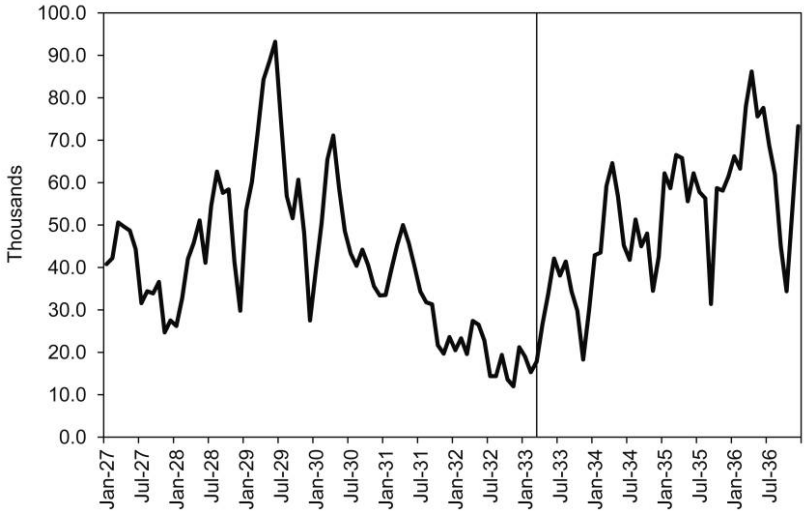

Fig. 9. Truck production

Source: Federal Reserve Bank of St. Louis, FRED Economic Data, Series M0144AUSM607NNBR.

securities, was both bold and powerful.[5] It not only helped push down mortgage rates, but likely improved expectations and helped further stabilize financial markets.

But from early 2010 until last September, the Federal Reserve was fairly cautious. Though American monetary policymakers took additional actions during this period, the measures were practically designed in such a way as to minimize their effect on expectations. Both the size and the duration of actions in the second round of quantitative easing and Operation Twist were specified in advance—so they were inherently limited.

Moreover, additional moves were justified by explicit references to deteriorating conditions or grim forecasts. For example, the Federal Reserve's press release from November 3, 2010 announcing the second round of quantitative easing shows the conflicting messages. It stated:

> Information received since the Federal Open Market Committee met in September confirms that the pace of recovery in output and employment continues to be slow. . . . Business spending on equipment and software is rising, though less rapidly than earlier in the year . . . .
>
> Although the Committee anticipates a gradual return to higher levels of resource utilization in a context of price stability, progress toward its objectives has been disappointingly slow.[6]

Such language may have helped to generate consensus among members of the FOMC, but it did painfully little to raise expectations of either real growth or inflation. And without doing that, these actions were doomed to have limited impact.

In September 2012, the Fed changed its tone and actions noticeably. It undertook a third round of asset purchases and deliberately did not give the program an end date or ultimate size. The gloomy language previously used to justify such a move was replaced by more positive statements. And Chairman Bernanke went out of his way to say that very accommodative monetary policy would likely continue even after conditions began to improve.[7] Then in December, the conditional guidance language was added. The statement that the federal funds rate would not be raised until unemployment hit 6.5 percent or inflation rose above 2.5 percent was unquestionably a step toward more concerted expectations management.

But the truth is even these moves were pretty small steps. They pushed the edges of the Fed's flexible-inflation-targeting regime, but they did not fundamentally change it. The Fed has been unwilling to do something more fundamental, such as adopt a target for the path of the price level or nominal GDP. And even the changes that have been made have had their expectations impact weakened by public debate among FOMC members about the wisdom and the desired size and duration of the program.

The bottom line is that the Federal Reserve has been unwilling to do a regime shift. And because of that, monetary policy has not been able to play a decisive role in generating recovery. To paraphrase E. Cary Brown's famous conclusion about fiscal policy in the Great Depression: monetary policy has not been a strong recovery tool in recent years not because it did not work but because it was not tried—at least not on the scale and in the form that was necessary to have a large impact.

B. Policy in Japan

Now let me come back to where I began my talk—to a discussion of Japan. As is well understood, Japan has struggled with low growth for more than two decades. And as figure 10 shows, prices have been falling in Japan for most of the past fifteen years. Now this is not the place to relive the policies of the Bank of Japan since 1990. But, the big picture is that for much of this period, Japanese monetary policymakers have

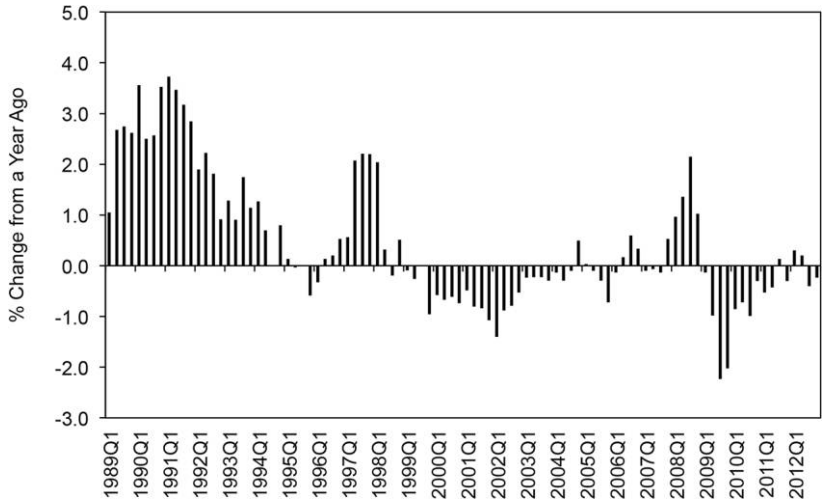

Fig. 10. Consumer Price Index inflation in Japan
Source: Federal Reserve Bank of St. Louis, FRED Economic Data, Series JPNCPIALLQINMEI_PC1.

been pessimistic about their ability to end deflation, and have not taken strong steps to do so.[8]

The current situation appears to be very different. A new government was elected in December with a large majority. And it ran on a platform of restoring demand. It explicitly rejected the notion that Japan's problems were entirely structural. Among the policies the new government advocated were moderate fiscal expansion, structural reforms, and exchange rate depreciation.

On the monetary side, the government of Shinzō Abe pushed the Bank of Japan to raise its inflation target from 1 percent to 2 percent, and to get there fairly soon. Perhaps more important, Abe encouraged the previous governor of the bank to leave office early, so that he could put in a new governor and two deputy governors at the same time.

The new governor, Haruhiko Kuroda, was thought to be committed to rapid monetary expansion going in to office. But the recent policy announcements were even more expansionary than almost anyone expected.[9] The Bank of Japan changed its focus from the policy interest rate to the monetary base, and pledged to double the base by December 2014.[10] This change may not be as dramatic as Roosevelt's going off the gold standard, but it is getting there.

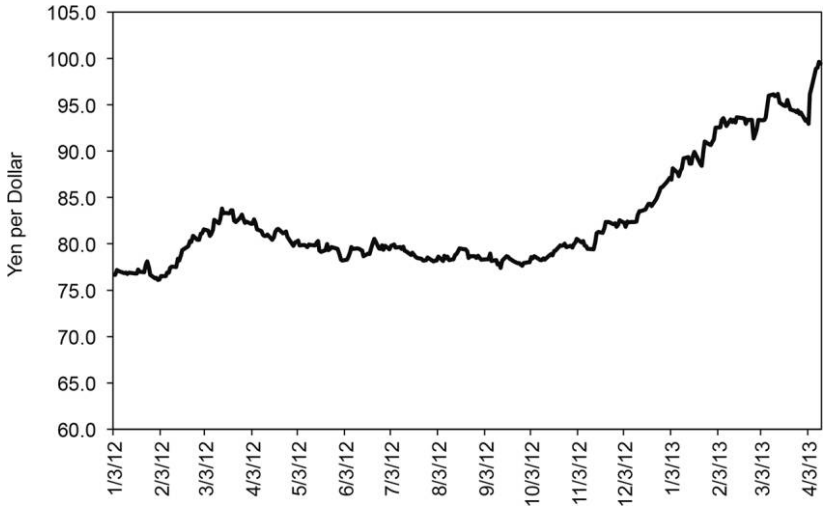

Fig. 11. Yen-dollar exchange rate
Source: Federal Reserve Bank of St. Louis, FRED Economic Data, Series DEXJPUS.

The Bank of Japan also committed to asset purchases on a scale far more significant than anything the Fed has done: $77 billion per month—which is almost as large as the Fed's current rate—in an economy one-third the size of the United States.[11]

Perhaps most important of all were the communications around the action. The central bank decisions were almost all unanimous—which surprised everyone—and signaled widespread commitment. And Governor Kuroda has emphasized that the Bank of Japan will do "whatever it takes" to end deflation.[12]

The initial indicators are consistent with Japan's actions being perceived as a genuine regime shift. Figure 11 shows that the yen has fallen about 20 percent since December. It fell 5 percent just after the monetary policy announcement last week. The Nikkei has increased sharply—a rise of more than 30 percent since November—suggesting an impact on expectations of real growth.

A survey done by the Bank of Japan before its recent meeting showed that the share of households expecting prices to rise increased from 53 percent in December to 74 percent in March.[13] More direct data on inflationary expectations can be derived from the relationship between nominal and real bond yields. Figure 12 shows the five-year

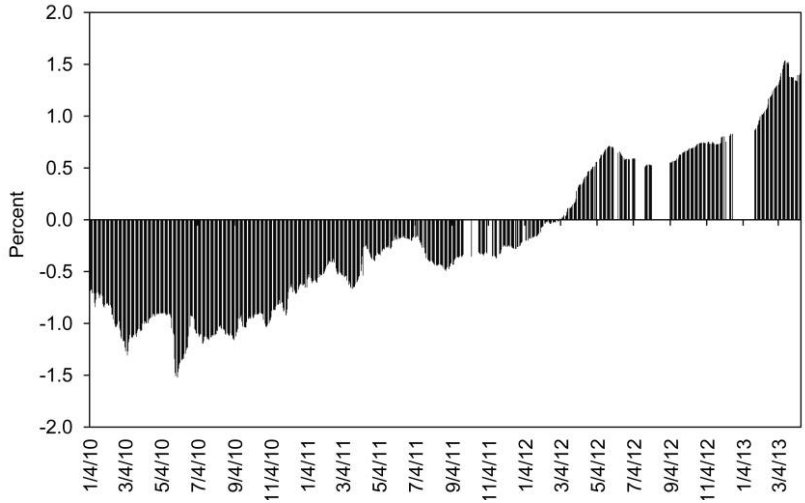

Fig. 12. Expected inflation in Japan

Source: Bloomberg, series-code JYGGBE05, five-year break-even inflation rate derived from the relationship between real and nominal bond yields.

break-even rate of inflation in Japan. These estimates suggest that expected inflation has risen about a percentage point since the Japanese election.

Now, there are plenty of ways this regime shift could unravel. Dissension could develop among members of the policymaking committee of the Bank of Japan, which could cause the expansion to be cut short. It is also very possible that the impact of the monetary actions will be slow in coming. Any policy taken after more than a decade of deflation is inevitably facing some pretty entrenched expectations. One fear I have is that if conditions do not improve rapidly, the political consensus in favor of monetary expansion could evaporate.

But, if Japanese policymakers stick with the new regime—and augment it with needed structural reforms—I think there is a good chance that there will be a sharp break in the performance of the Japanese economy. At least that is the lesson from the Great Depression.

III. Conclusion

There is a tendency for both policymakers and economists to say that humility is a key characteristic in a central banker. I agree that it is only

right to admit that there is much we do not know about monetary policy and its effects on the economy. But, such humility can express itself in two very different ways.

Often humility can lead to paralysis. If policymakers are unsure about the effectiveness of a policy or fear there could be large costs, they may just do nothing or be willing to take only small steps. Why take risks when we don't know if a policy will work?

In a recent paper, David Romer and I (2013b) discuss that such views are potentially very damaging. We show that what are widely viewed as the two clearest missteps in Federal Reserve history—inaction in the wake of banking panics early in the Depression, and inaction in the face of high and rising inflation in the 1970s—were both borne of unwarranted humility. Fear that policies might not work or might be costly led policymakers to conclude that the prudent thing was to do nothing. Yet there is now widespread consensus that action would have been effective in both these periods.

But there is another direction that humility can take policymakers. Humility about how much we don't know can lead policymakers to admit when something isn't working. It can lead them to revise opinions and be open to new evidence. This other kind of humility can lead to experimentation. Rather than assuming that doing nothing is the best course, policymakers can choose to act aggressively on the best evidence available, even if it is highly imperfect.

It seems to me that what we are seeing in Japan now is this second kind of humility. Rather than rehashing the old arguments about why they can't do anything about deflation and low growth, Japan is trying a grand experiment. It is based on the best evidence available, but that evidence is highly imperfect—one observation from a very different place and time.

I don't know if the Japanese experiment with monetary regime change will have the desired effects. But I am confident that we will learn a great deal because they had the nerve to try.

Endnotes

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1. Crafts (2013) argues that the United Kingdom in the mid-1930s may be another case where a monetary regime shift helped an economy at the zero lower bound recover.

2. A more controversial element of Roosevelt's regime shift was the National Industrial Recovery Act, passed in June 1933. The NIRA encouraged industries to pass codes of conduct that limited price competition and established minimum wages. Eggertsson (2012) suggests that the NIRA may have been another factor raising expected inflation in 1933 and 1934.

3. Franklin D. Roosevelt, "Second Fireside Chat," May 7, 1933, http://www.presidency.ucsb.edu/ws/index.php?pid=14636.

4. Hetzel (2012, 67). The video is available at: http://www.youtube.com/watch?v=JUvm9UgJBtg.

5. See, for example, Gagnon et al. (2011) and Fuster and Willen (2010).

6. Board of Governors of the Federal Reserve System, Press Release, November 3, 2010, http://www.federalreserve.gov/newsevents/press/monetary/20101103a.htm.

7. Ben S. Bernanke, Press Conference, September 13, 2012, http://www.federalreserve.gov/mediacenter/files/FOMCpresconf20120913.pdf.

8. See, for example, Ito and Mishkin (2006).

9. "Bank of Japan Joins Fed, ECB in Record Stimulus," Bloomberg, April 5, 2012, http://www.bloomberg.com/news/2013-04-05/bank-of-japan-joins-fed-ecb-in-record-stimulus.html; "Bank of Japan Mounts Bold Bid for Revival," *Wall Street Journal*, April 5, 2013, http://online.wsj.com/article/SB10001424127887323646604578401633067110420.html.

10. Bank of Japan, "Minutes of the Monetary Policy Meeting on April 3 and 4, 2013," http://www.boj.or.jp/en/mopo/mpmsche_minu/minu_2013/g130404.pdf.

11. "Yen Plunges Most in Three Years on Japan Stimulus; Dollar Drops," Bloomberg, April 5, 2013, http://www.bloomberg.com/news/2013-04-06/yen-plunges-most-in-three-years-on-japan-stimulus-dollar-drops.html.

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13. "'Abenomics' Lifts Japan Business Mood, Households' Inflation Expectations," Reuters, April 1, 2013, http://www.reuters.com/article/2013/04/01/us-japan-economy-tankan-idUSBRE93000620130401.

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