Commentary

Laurence M. Ball

The conference organizers asked Marvin Goodfriend to survey current mainstream thought on monetary policy. Marvin has done this job very well.

I agree with parts of Marvin's paper (Goodfriend, 2005), such as his discussion of explicit interest rate targeting. However, I disagree with many of the paper's major ideas. These ideas are not just Marvin's; they are part of the current consensus among central bankers and economists. In my opinion, this consensus is flawed.

I will organize my discussion around two related questions. First, what has economic theory since 1979 contributed to practical monetary policy? Second, why has Federal Reserve policy been successful since 1979? In particular, in what ways has the Fed performed better than other central banks?

THE CONTRIBUTIONS OF POST-1979 THEORY

One of Marvin's themes is that monetary theory has been "revolutionized" since 1979. Advances in theory have led to great improvements in real-world policy.

This view is common, but it is not universal. A wise man from St. Louis, Laurence Meyer, has a different opinion. In remarks at a National Bureau of Economic Research conference, Meyer revealed his view of the practical usefulness of post-1979 research.

> People ask me what accounts for my success as an economist and economic forecaster, such as it is. I tell them it's everything I learned in graduate school at MIT in the 1960s, plus the fact that I haven't learned much since then.

I think Meyer's assessment of post-1979 research is on target—especially for research on the unemployment-inflation trade-off, or Phillips curve. As Marvin points out, this trade-off is central to the challenges facing monetary policy. In my opinion, the Phillips-curve research that Marvin discusses has little practical value.

Theory Before 1979

Let me give my take on the history of thought. I agree with Marvin that economists were confused during the 1960s. They believed in a long-run trade-off between output and inflation. They also advanced nonmonetary theories of inflation. For example, some suggested that inflation was caused by greedy firms and labor unions, whose behavior could not be controlled by the Fed (see Nelson, 2004).

Fortunately, a genius arrived on the scene: Milton Friedman. Friedman cleared away confusion. He repeatedly explained to us that "inflation is always and everywhere a monetary phenomenon." In 1968, he explained that the output-inflation trade-off exists only in the short run; in the long run, unemployment must gravitate to its natural rate.

Friedman's views were controversial at first, but they were soon absorbed into mainstream thinking. By 1979, U.S. policymakers had learned Friedman's main lessons. The Fed deserves credit for taking only 11 years to apply cutting-edge theory from 1968. (By contrast, David Ricardo explained the benefits of free trade in 1817, and policymakers are still having trouble grasping his point.)

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Friedman didn't just state general principles about the economy. His address to the American Economic Association also included a precise theory of the Phillips curve. It was presented in two famous sentences:

> [T]here is always a temporary trade-off between inflation and unemployment; there is no permanent trade-off. The temporary trade-off comes not from inflation per se, but from unanticipated inflation, which generally means, from a rising rate of inflation. (Friedman, 1968)

Friedman expressed his theory verbally, but we can easily translate it into equations. Friedman's relation between unemployment and surprise inflation is captured by the expectations-augmented Phillips curve:

$$\Pi_t = E_{t-1}\Pi_t - \alpha(U_t - U^*),$$

where U^* is the natural rate of unemployment. The equivalence of unanticipated inflation and rising inflation means expectations are backward-looking:

$$E_{t-1}\Pi_t = \Pi_{t-1}.$$

Plugging this equation into the previous one yields the "accelerationist" Phillips curve:

$$\Pi_t = \Pi_{t-1} - \alpha(U_t - U^*).$$

This equation relates unemployment to the change in inflation.

Thirty-seven years after Friedman wrote, his Phillips curve is still the best simple theory of the unemployment-inflation trade-off.

Research Since 1979

Marvin argues that monetary theory has advanced greatly since 1979. What are the advances? "On the theory side," Marvin says, "the introduction of rational expectations was decisive." More specifically, rational expectations imply a key role for central banks' "credibility" as inflation fighters. In rational expectations models, an increase in credibility shifts the output-inflation trade-off favorably. Thus a major goal for policymakers is to build credibility. This is a theme throughout Marvin's paper, which uses the terms "credibility" and "credible" 33 times (about average for a modern paper on monetary policy).

These ideas have indeed revolutionized economic theory, producing Nobel prizes for Robert Lucas, Finn Kydland, and Edward Prescott, and probably others. However, I question the usefulness of rational expectations models for understanding inflation in the real world. There are several related reasons.

First, suppose one wants to explain the broad history of U.S. inflation since 1979. The accelerationist Phillips curve still seems the best tool for this job. That is, changes in inflation are well explained by short-run movements in unemployment. The deep recession of the early 1980s caused inflation to fall sharply. Inflation rose a bit in the late 1980s as unemployment fell. And inflation fell moderately during the recessions of the early 1990s and 2000s.

If credibility were really important, one would see shifts in inflation that are not explained by unemployment (or obvious supply shocks). In these episodes, changes in credibility would shift the short-run Phillips curve. We haven't seen such episodes in the United States or other countries with moderate inflation. When Sargent (1983) looked for an example, he had to go back to France in the 1920s—and even this case is disputed by historians. The concept of credibility is not useful for explaining the history of inflation.

Researchers have looked for credibility effects in various ways, and most results are negative. Some examples:

- Inflation expectations in the United States are measured by several surveys. These expectations consistently follow actual inflation with a lag. Again, there are no unusual episodes that might be explained by credibility effects.
- In theory, greater credibility reduces the cost of disinflation—the sacrifice ratio. In practice, this doesn't happen. Debelle and Fischer (1994) find that sacrifice ratios are *higher* for central banks that have a higher level of independence, which should be more credible. Sacrifice ratios are especially

high for Germany under the Bundesbank—probably the most credible central bank in history. The sacrifice ratio for the U.S. disinflation of 1990-94, after a decade of credibility building by Volcker and Greenspan, was high compared with previous U.S. disinflations (Zhang, 2001).

- Over the past 15 years, many central banks have adopted inflation targeting. Their stated objectives include greater credibility and anchored inflation expectations. However, cross-country comparisons produce little evidence that inflation targeting changes the behavior of output or inflation (Ball and Sheridan, 2005).

The "New Synthesis" Model

In the past decade, many researchers have converged on a specific model of the economy. Marvin accurately calls it the "modern consensus model." It is sometimes called the "New Neoclassical Synthesis" and sometimes the "New Keynesian Synthesis"— the model is so hot that the Keynesians and Classicals fight over who gets credit for it.

As Marvin discusses, the model is "a dynamic general equilibrium model with a real business cycle core and costly nominal price adjustment." Specifically, the model uses the Taylor/Calvo specification of staggered price setting. The model produces the following version of the Phillips curve:

$$\Pi_t = E_t \Pi_{t+1} - \alpha(U_t - U^*).$$

This equation is the centerpiece of the New Synthesis model.

The New Synthesis model has strong microfoundations. The derivation of the Phillips curve is simple and elegant. It is easy to see why so many graduate students use this model in their dissertations. However, for the purposes of monetary policy, the model has a problem: It is wildly counterfactual.

Mankiw (2001) provides the definitive debunking of the New Synthesis model. He shows that, in the model, a monetary contraction that reduces inflation also causes an output boom. This result is the *opposite* of the common empirical finding that disinflations cause recessions. The source of the theoretical result is a bit subtle: It involves the fact that the Phillips curve includes current expectations of future inflation, not past expectations of current inflation. In any case, the model's absurd predictions make it a poor tool for policy analysis.

As Marvin discusses, researchers have tried to fix the New Synthesis model by adding cost shocks, combining rigidity in wages and prices, and so on. In most cases, the output-inflation trade-off still has the wrong sign. The only thing that works is adding lagged inflation to the Phillips curve. But the New Synthesis model does not justify this term. Adding it is equivalent to ignoring the model and going back to the accelerationist Phillips curve.

WHY HAS THE FED SUCCEEDED (COMPARED WITH OTHER CENTRAL BANKS)?

As President Poole told us, this conference celebrates the Fed's success over the past 25 years. I think the celebratory mood reflects a consensus that the Fed has performed better than most central banks. Like undergraduates, central banks are graded on a curve. So let's discuss how the Fed has outperformed its peers.

The Fed has *not* been unusually successful in reducing inflation. All major countries have done this. Table 1 shows inflation rates in 1979 and 2003 for 18 developed countries. In 1979, inflation ranged from 4 percent in the Netherlands to 24 percent in Portugal; the United States was near the middle of the pack at 11.5 percent. In 2003, most inflation rates were near 2 to 3 percent; the U.S. rate of 2.3 percent was again about average. Since 1979, central banks around the world have been determined to reduce inflation. And it's easy to accomplish this goal if policymakers are willing to slow the economy sufficiently.

What *does* distinguish the Fed's record is the relatively benign behavior of U.S. unemployment. Table 2 gives summary statistics for unemployment since the end of the Volcker disinflation

Table 1

CPI Inflation (%)

Country	1979	2003	Change
Portugal	23.5	3.3	–20.2
Spain	15.7	3.0	–12.7
Italy	14.6	2.7	–11.9
New Zealand	13.7	1.8	–11.9
United Kingdom	13.5	2.9	–10.6
Ireland	13.2	3.5	–9.7
United States	**11.3**	**2.3**	**–9.0**
France	10.7	2.1	–8.6
Denmark	9.6	2.1	–7.5
Finland	7.5	0.9	–6.6
Canada	9.1	2.8	–6.3
Australia	9.1	2.8	–6.3
Sweden	7.2	1.9	–5.3
Japan	3.7	–0.3	–4.0
Germany	4.1	1.1	–3.0
Belgium	4.5	1.6	–2.9
Norway	4.8	2.5	–2.3
Netherlands	4.2	2.1	–2.1

(1984-2003). The first column of the table ranks countries by average unemployment. The U.S. figure of 5.8 percent is in the lower part of the distribution.

Of course it is doubtful whether central banks influence average unemployment. They have greater effects on volatility. The second column of Table 2 ranks countries by the standard deviation of annual unemployment, and here the United States is tied for lowest.

The final column shows the highest annual unemployment rate in each country. This statistic measures central banks' success in avoiding deep recessions. For the United States, the highest unemployment rate is 7.5 percent. This figure is beaten only by Japan (where unemployment is a misleading measure of slack) and Norway (by less than 1 percent). The median of highest unemployment across countries is 10.5 percent. I think the experience of deep recessions is why most central banks are not celebrating the past 25 years.

What Accounts for Moderate Unemployment?

Marvin suggests an explanation for the U.S. unemployment experience. He attributes it to the Fed's determination to control inflation:

> [A] central bank committed to making low inflation a priority can anchor inflation expectations and improve the stability of both inflation and output relative to potential...[T]he unemployment cost (associated with go-stop policy and inflation scares) of *failing* to make low and stable inflation a priority is now well understood. (Goodfriend, 2005, pp. 244, 252)

I think Marvin is off by 180 degrees. The Fed has done better than other central banks because it has *not* been as single-minded about fighting inflation. It has reduced inflation, but it has also paid attention to the real economy. In particular, it has eased aggressively during recessions. This behavior accounts for the Fed's high rankings in Table 2.

This point is clear from a 1994 paper by Romer and Romer, "What Ends Recessions?" Romer and Romer examine the Fed's reaction to each U.S. recession between World War II and the early 1990s. In every case, the Fed cut interest rates sharply near the start of the recession. Volcker and Greenspan were at least as aggressive as their predecessors. Since Romer and Romer's paper, this pattern has continued with the recession of 2001.

Marvin notes the Fed's reaction to the 1980 recession, but he is critical: "[T]he Fed's hesitation to tighten policy at the first sign of recession probably contributed to the inflation scare" (pp. 248). In contrast, Romer and Romer show that Fed easings were essential for ending recessions. And these actions did not conflict with disinflation. In particular, Volcker eased when recessions started in 1980 and 1981, points when inflation was still high. However, because of earlier tightening, there was plenty of disinflation in the monetary pipeline.

I have compared the Fed's responses to recessions with those of other central banks (Ball, 1999). In many countries, policymakers have *not* cut

Table 2

Unemployment 1984-2003

Country	Mean	Country	Standard deviation	Country	Maximum
Japan	3.3	**United States**	**1.1**	Japan	5.4
Norway	4.3	France	1.1	Norway	6.6
Sweden	5.4	Japan	1.1	**United States**	**7.5**
Netherlands	5.6	Italy	1.3	Netherlands	8.9
United States	**5.8**	Belgium	1.4	Portugal	9.2
Portugal	6.1	Australia	1.4	Denmark	9.6
Denmark	6.3	Norway	1.5	Germany	9.7
New Zealand	6.6	Canada	1.5	Sweden	9.9
Germany	7.4	Germany	1.5	New Zealand	10.4
Australia	7.9	Denmark	1.5	Australia	10.6
United Kingdom	8.0	Portugal	1.7	Belgium	10.8
Belgium	8.5	New Zealand	1.9	United Kingdom	11.2
Canada	9.0	Netherlands	1.9	Canada	11.4
Finland	9.3	United Kingdom	2.1	France	11.7
Italy	9.8	Spain	2.9	Italy	11.7
France	9.9	Sweden	2.9	Finland	16.8
Ireland	11.7	Finland	4.3	Ireland	16.8
Spain	15.2	Ireland	4.8	Spain	19.8

interest rates when recessions occurred. Consequently, unemployment has stayed high or risen further.

Let me discuss one example from the United Kingdom. A U.K. recession began in 1979, but the Bank of England kept interest rates high. The Bank explained why in its *Quarterly Bulletin* of June 1980:

> Government fiscal and monetary policies are designed to bring about a progressive reduction in inflation, and need to be continued until that end is accomplished: a less restrictive policy would clearly be inappropriate at a time when inflation is so high...The influence of monetary restraint can only be gradual and pervasive, with effects to be looked for over a period of years.

The Bank of England showed none of the Fed's "hesitation" about tightening during a recession. Policy stayed tight until the mid-1980s.

The main effect of this tough policy was to keep unemployment high. Unemployment stayed above 10 percent through 1986. In the United States, by contrast, unemployment was high in 1982-83 but then fell rapidly. Inflation fell by about the same amount in the two countries, so the United Kingdom's extra unemployment did not accomplish much.

In the 1980s and 1990s, it was common for European central banks to maintain tight policy during recessions. Sometimes the reason was anti-inflationary zeal, as in the United Kingdom. In other cases, such as in France in the 1980s, policymakers wanted to ease but were constrained by the exchange rate mechanism. Either way, excessive tightness produced unnecessary unemployment.

CONCLUSION: THEORY AND PRACTICE

Current monetary theory encourages central banks to focus single-mindedly on fighting infla-

tion. In rational expectations models, this focus benefits the real economy as well as reduces inflation. Unfortunately, there is little evidence that this approach works in the real world.

Many central banks have followed the prescriptions of theory. They have kept policy tight, even during recessions. This behavior has produced long periods of high unemployment.

The Fed's approach to policy has been more balanced. It has tried to control both inflation and unemployment, and it has succeeded. Fortunately, like Laurence Meyer, the Fed has not learned modern theory too well.

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