

## Better Living through Monetary Economics

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In the mid-1990s macroeconomists began noticing and studying a remarkable change in the performance of the U.S. economy. The economy had become much more stable than in the past. The change appeared to have occurred some fifteen years earlier, in the early 1980s. Not only had inflation and interest rates and their volatilities diminished compared with the experience of the 1970s, but the volatility of real gross domestic product (GDP) had reached lows never seen before. Economic expansions had become longer and stronger, while recessions had become rarer and shorter.

At the time I called this phenomenon the Long Boom (Taylor 1998). It was as if there was one long growth expansion starting with the end of the deep recession in 1982 and continuing right through its fifteenth anniversary in 1997, with the mild 1990–1991 recession seeming like a small interruption compared with recessions of the past. Others called the phenomenon the Great Moderation (Blanchard and Simon 2001) because of the general decline in volatility of output growth and the inflation rate.

I conjectured that the improved macroeconomic performance could be explained by a regime shift in monetary policy, which also occurred in the early 1980s. I argued that this shift in monetary policy could be explained by a major change in monetary theory (Taylor 1997), which also occurred at about the same time. In other words, there was a Great Moderation in economic performance, which could be explained by a Great Regime Shift

in monetary policy, which in turn could be explained by a Great Awakening in monetary theory.

Neither the Great Moderation, the Great Regime Shift, nor the Great Awakening turned out to be a flash in the pan. Each lasted for another ten years. The Long Boom reached its twenty-fifth anniversary in 2007, with the mild 2001 recession turning out to be an even smaller interruption than the 1990–1991 recession. The monetary policy that characterized the Great Regime Shift continued, and the Great Awakening of monetary theory blossomed into a more fully developed theory that some called New Keynesian economics. Great moderations were seen in many other economies around the world with associated monetary policy regime shifts and an apparent spread of these monetary ideas. Indeed, at the start of the twenty-first century we had a Long Boom on a global scale.

All these events have been researched thoroughly to the point where I think that it is possible to go beyond conjecture and to present evidence of the influence of theory on policy and outcomes. The purpose of this chapter is to review and present that evidence. There is no question that these improvements in economic performance during this period—the shorter, milder recessions and the lower, more stable inflation rates—in the United States and around the world improved people's lives. If we can establish that the ultimate cause of this improvement was economics—and, in particular, monetary economics—then this is an excellent example of “better living through economics.”

As we look into the future, it is of course an open question whether the good economic performance seen during the Great Moderation will last. Will future researchers conclude that its twenty-fifth anniversary in 2007 turned out to be its end? If so, will they find that the end was caused by yet another monetary policy shift, this time away from the policy followed during the Great Moderation? As I write in 2009, there is clear evidence of a large recession along with a financial crisis more serious than any other in the previous twenty-five years, perhaps since the Great Depression. But there is also evidence of another shift in monetary policy—a reversal. During the period leading up to this crisis, especially in 2002–2005, interest rates were held far below what historical experience during the Great Moderation would have predicted. Thus the connection between monetary policy and macroeconomic performance may indeed hold up when future economic researchers examine this period. Whether this policy reversal was caused by some underlying change in monetary theory or by something else will determine whether monetary economics is again chosen to be a chapter in a future “better living through economics” volume.

## Documenting the Great Moderation

Many research studies have documented the improved cyclical performance of the U.S. economy and pinpointed the date as starting in the early 1980s, including Kim and Nelson (1999), McConnell and Pérez-Quirós (2000), Blanchard and Simon (2001), and Koenig and Ball (2007). No matter what metric one uses—the variance in the real GDP growth rate, the variance in the real GDP gap, the average length of expansions, the frequency of recessions, or the duration of recessions—there was a huge improvement in economic performance. There was also an improvement in price stability, with the inflation rate much lower and less volatile than in the period from the late 1960s to the early 1980s.

Figures 6.1 and 6.2 present a simple summary of the facts. Figure 6.1, which is based on Koenig and Ball (2007), shows the quarterly growth rate of real GDP from the 1950s to the present. It is clear that the volatility of the growth rate declined sharply starting in the early 1980s. Figure 6.2, which is based on Rosenblum (2007), measures the improvement in terms of the reduction in the time that the economy spends in recession. This is a remarkable change and clearly an improvement in people's lives.

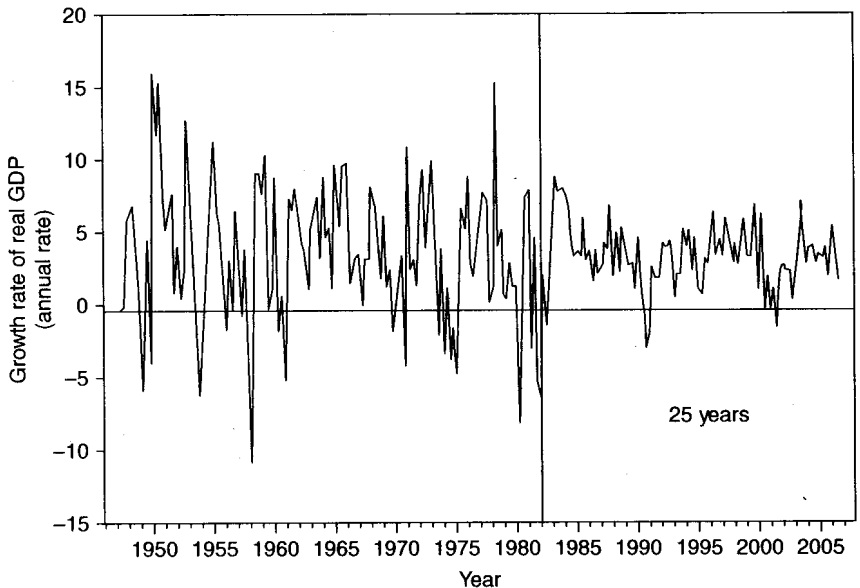


Figure 6.1 Decline in the volatility of the growth rate of real GDP. *Source:* Koenig and Ball 2007.

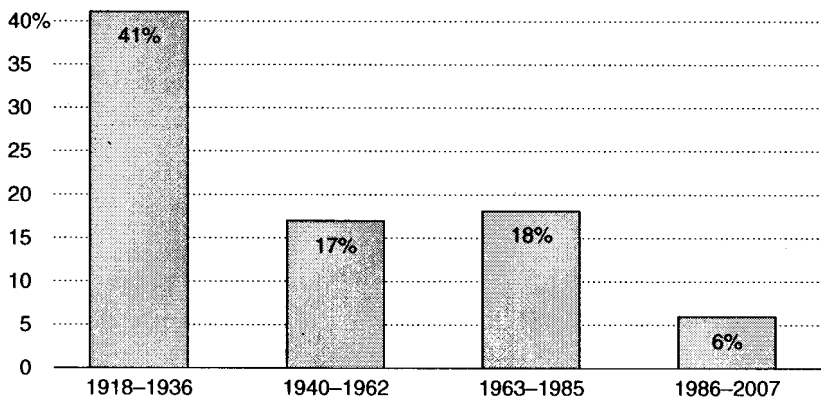


Figure 6.2 Percentage of time spent in recession in the United States. *Source:* Rosenblum 2007.

Much of the research on the Great Moderation in the United States focused on the decline in variability in the 1980s compared with the earlier post-World War II period as exemplified by Figure 6.2. However, as shown in Figure 6.1, the decline appears to be part of a longer-term trend. Of course, a large component of the high proportion of time the economy spent in recession in the pre-World War II period was due to the Great Depression. If one excludes the Great Depression, looks at the earlier pre-World War II period, and makes adjustments in the data as recommended by Romer (1986), then one finds that there was not much of a reduction in the post-World War II period until the early 1980s. In this analysis the shift in the 1980s is unique and not part of a longer-term trend.

Table 6.1, which is drawn from Cecchetti et al. (2007), shows that this same type of improved performance occurred in other developed countries. Related work by Cecchetti, Flores-Lagunes, and Krause (2006) shows that the same is true of an even broader group of countries, including most developing countries.

Finally, it has been widely documented that the rate of inflation and the volatility of the inflation rate came down dramatically in the United States in the 1980s and stayed low compared with the period of high and rising inflation of the late 1960s and 1970s. Researchers have also documented that the inflation rate and the volatility of inflation declined dramatically for many other economies around the world. For the industrial countries as a whole, the timing is similar to that in the United States; for the developing countries the decline in inflation and volatility occurred later. Figure 6.3, which is based on International Monetary Fund (IMF) staff research, reported in the April 2006 *World Economic Outlook*, shows that

Table 6.1 Standard deviation of real GDP growth in the G7 economies (median)

Country	Full sample	1970–1979	1980–1989	1990–1999	2000–2006
Canada	2.30	2.32	2.56	1.58	1.32
France	1.41	2.69	2.00	1.12	0.66
Germany	2.18	2.70	2.08	2.33	2.23
Italy	1.64	3.55	1.89	1.52	1.33
Japan	2.34	1.69	1.41	1.31	1.25
United Kingdom	1.95	2.50	2.20	1.60	1.20
United States	2.11	2.78	1.81	1.43	1.32
Median	2.11	2.69	2.00	1.52	1.32

Source: Cecchetti et al. 2007.

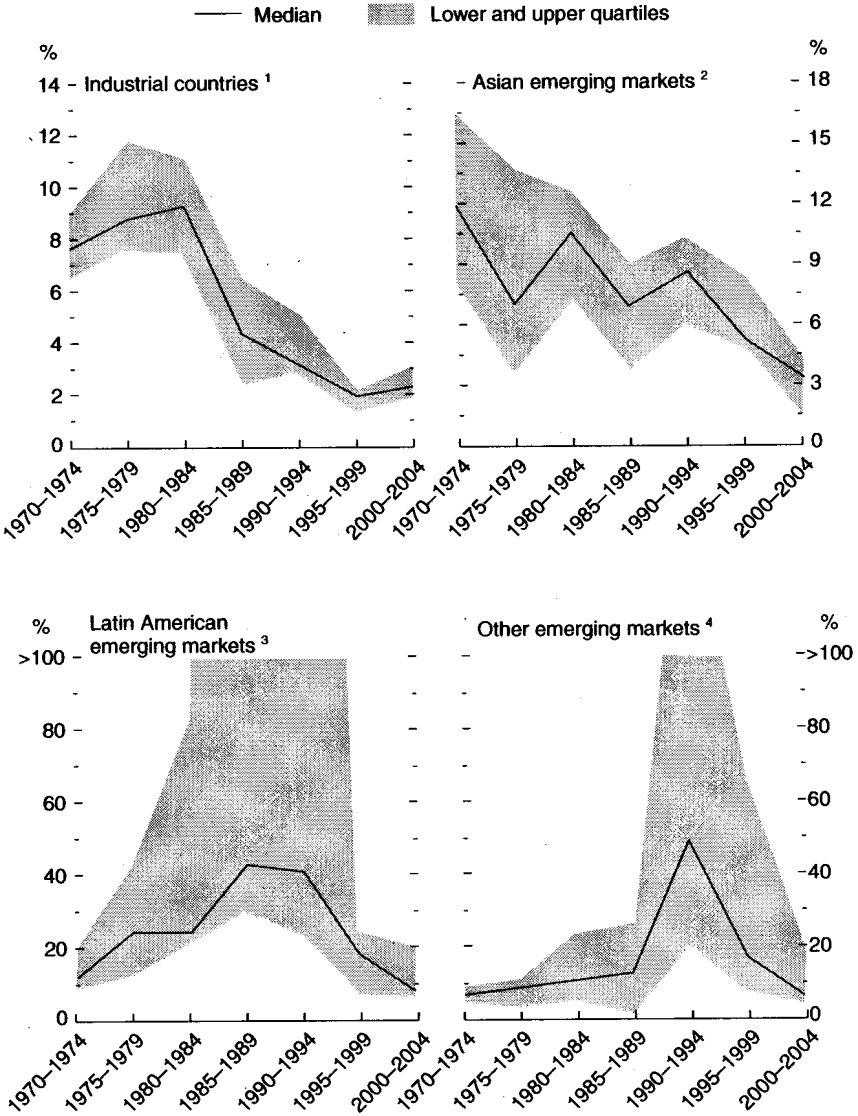
the decline in inflation was more recent in the developing countries. Figure 6.4 shows that the volatility also decreased in the developing countries.

### The Great Regime Shift in Monetary Policy

Just as there are several ways to document the Great Moderation, there are several ways to document a regime shift in monetary policy. I will consider four here. By all these measures a shift appears to have occurred in the early to mid-1980s and to have continued at least through the 1990s and perhaps longer. The shift is thereby closely temporally correlated with the Great Moderation in output volatility.

First, consistent with the view that inflation is ultimately a monetary phenomenon, the decline in the inflation rate, as shown in Figure 6.3, must be included as part of the evidence of a regime change. Over long periods of time inflation and money growth, suitably measured, are strongly correlated. Hence, in effect, a shift in monetary policy from consistently inflationary levels of money growth to consistently noninflationary levels of money growth represents a regime change. However, as monetary policy is currently practiced, money growth does not play a central role in day-to-day decisions, which are focused on the appropriate settings for short-term interest rates. Fortunately, as I describe later, there is evidence of a regime shift that is based on measures of how central banks set interest rates.

A second piece of evidence is the greater focus on inflation targets, either informally, as has been the case at the Federal Reserve, or more formally, as at the Reserve Bank of New Zealand, the Central Bank of Chile, the



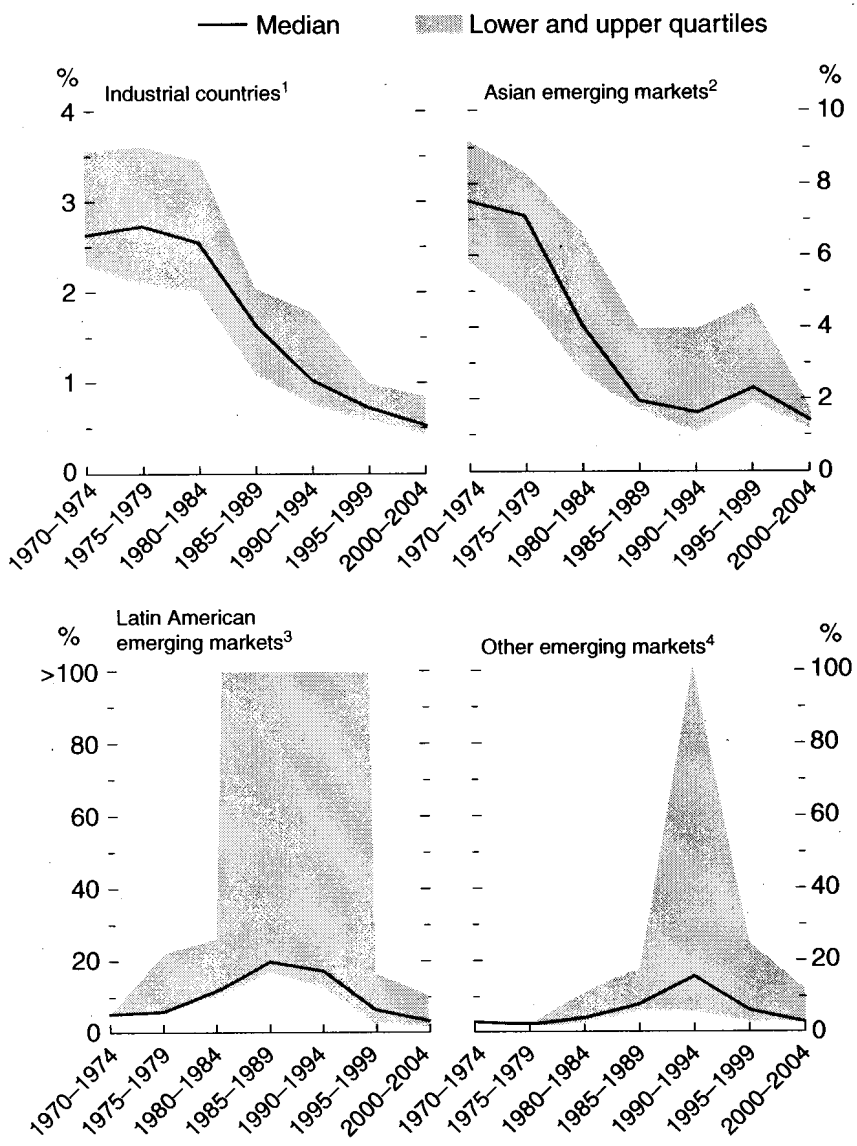
<sup>1</sup> Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

<sup>2</sup> China, India, Indonesia, Korea, Malaysia, the Philippines, and Thailand.

<sup>3</sup> Argentina, Brazil, Chile, Colombia, Dominican Republic, Ecuador, Mexico, Peru, and Venezuela.

<sup>4</sup> Czech Republic, Egypt, Hungary, Poland, Romania, Russia, South Africa, and Turkey.

Figure 6.3 CPI inflation rates: five-year moving averages. *Source:* IMF, *World Economic Outlook*, April 2006, Figure 3.1.



<sup>1</sup> Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

<sup>2</sup> China, India, Indonesia, Korea, Malaysia, the Philippines, and Thailand.

<sup>3</sup> Argentina, Brazil, Chile, Colombia, Dominican Republic, Ecuador, Mexico, Peru, and Venezuela.

<sup>4</sup> Czech Republic, Egypt, Hungary, Poland, Romania, Russia, South Africa, and Turkey

Figure 6.4 Standard deviations of CPI inflation: five-year moving averages. *Source:* IMF, *World Economic Outlook*, April 2006, Figure 3.2.

Bank of England, the Riksbank, and now many other central banks. The shift to a regime that focused much more on price stability than in the 1970s under the leadership of Paul Volcker was the most dramatic and obvious. Volcker, his colleagues, and his successors were clear about the goal of price stability, arguing that at least, inflation should be low enough not to interfere with the decision making of firms and investors. The use of more formal inflation targets at other central banks was also a dramatic and obvious change; it has helped spread the idea of price stability as the primary goal of monetary policy around the world. A closely related development was the shift, for example, in the United Kingdom, to more independent central banks, although there was no similar formal change in the United States.

Third, in the new regime central banks focused much more on predictable or rulelike decision making, including a focus on transparency and expectations of future policy actions. The increase in transparency in the process of making decisions can be seen in many different ways. For example, at the Federal Reserve, before the 1980s decisions about an interest-rate change were tied in vague ways to decisions about borrowed reserves and were usually left to the market to figure out. A far different and clearer communications method was used after the 1980s, in which the Fed announced its interest-rate decision immediately after making it and explained to the markets what it was thinking about the future. This change enhanced the central bank's credibility to stick to its predictable operations and inflation targets.

Other central banks have also been clearer about their policy process, sometimes by publishing inflation reports with their own inflation and output forecasts and their analyses of the current situation. The intent has been to be as predictable and systematic as possible and to aim the instruments of policy convincingly and consistently at the inflation target or price-stability goal. This was a huge change from the days when central bankers tried to preserve their mystique and thought that they had to surprise markets from time to time in order for monetary policy to be effective.

Fourth, central banks became markedly more responsive to developments in the economy when they adjusted their policy interest rate. In my view this is the most important part of the regime change. It refers specifically to the actual actions of central banks rather than to their words, and it can be measured and investigated empirically to determine whether the change in policy has affected economic performance, as discussed later. Indeed, this is a policy regime change in the classic sense in that one can observe it by estimating, during different periods, the coefficients of



the central bank's policy rule—in particular by using a rule that describes how the central bank sets its interest rate in response to inflation and real GDP.

A number of researchers have used this technique to detect a regime shift (see, for example, Stock and Watson, 2003). Such studies have shown that the Fed's interest-rate moves were less responsive to changes in inflation and to real GDP in the old regime, before the 1980s. After the mid-1980s the reaction coefficients increased significantly. The reaction coefficient to inflation nearly doubled. The estimated reaction of the interest rate to a one percentage point increase in inflation rose from about three-quarters to about one and one-half. The reaction to real output also rose. In general, the coefficients are much closer to the parameters of a Taylor rule in the period after the mid-1980s than they were before. I found similar results over longer sample periods for the United States: the implied reaction coefficients were also low in the highly volatile pre-World War II period (Taylor 1999).

Cecchetti et al. (2007) and others have shown that this same type of shift occurred in other countries. Figure 6.5, which is drawn from Cecchetti et al. (2007), pinpoints the regime shift as having occurred in a number of countries in the early 1980s. It presents the deviations from a Taylor rule, which indicate that monetary policy reactions were much different in the earlier period in these countries.

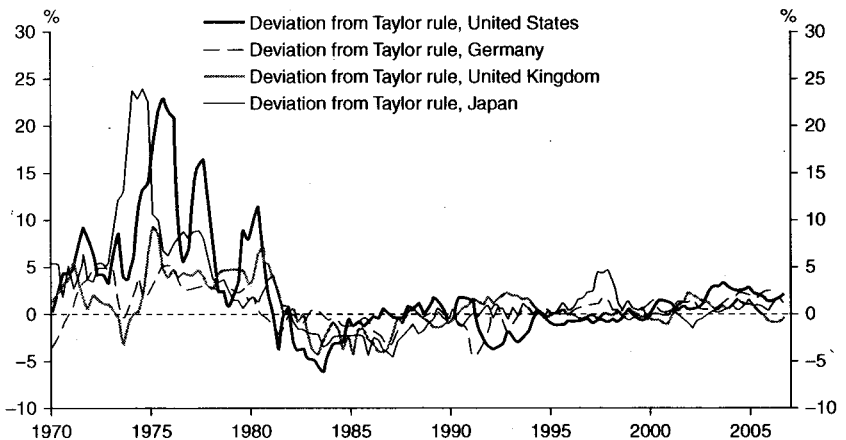


Figure 6.5 Evidence of a regime shift in the early 1980s. *Source:* Cecchetti et al. (2007).

## The Causal Connection between Policy Regime Change and Improved Performance

So far we have established that there was a Great Moderation that has lasted for about twenty-five years and a Great Regime Shift that has lasted for about the same twenty-five years. This coincidence of timing suggests, of course, that the two were related and that the regime shift may have led to the improved performance, but it does not prove this. For this reason researchers have endeavored to use formal statistical techniques or macroeconomic models to help assess causality and help us understand what aspects of the regime shift led to the improvement in performance. Beyond causality, it is important for the future to know what parts of the regime change were essential and what may have been incidental.

For example, Stock and Watson (2003) used a statistical time-series decomposition technique to assess causality. They found that the change in monetary policy did have an effect on performance, although they also found that other factors—mainly a reduction in other sources of shocks to the economy (inventories, supply factors)—were responsible for a larger part of the reduction in volatility. In particular, they showed that the shift in the monetary policy rule (the fourth piece of evidence listed in the previous section) led to a more efficient point on the trade-off between variance in inflation and variance in output.

With the same goals in mind, Cecchetti, Flores-Lagunes, and Krause (2006) used a more structural model and empirically studied many different countries. For twenty of the twenty-one countries that had experienced moderation in the variance of inflation and output, they found that better monetary policy accounted for over 80% of the moderation. They used the same type of output-inflation variability trade-off that Stock and Watson (2003) used.

At a fundamental level I think that there is a more straightforward way to make the case that the change in regime improved performance. First, simply making policy more predictable, which has been a key part of the regime change, reduces uncertainty by making it easier for the private sector to plan and thereby reduces volatility. In his last academic paper Milton Friedman (2006), for example, argued that it was the reduction in the fluctuations and uncertainty relating to money growth that led to the reduction in output volatility.

Moreover, as I show in the next section, the change in regime was precisely in the direction recommended by new monetary models of the economy. The recommendations from simulations and analyses with these

monetary models were policy prescriptions with an inflation target and rules for the instruments to achieve this target. The models predicted that the variance of inflation and output (or at least a weighted sum of the variance of inflation and output) would decline if monetary policy was conducted in the recommended way rather than in the way it was conducted in the 1970s and earlier. In other words, the policy rules that were recommended were derived from an empirically based monetary theory that showed that such policy rules would bring about a great moderation. So it should not be surprising that when actual policy was conducted in this way, such a moderation was realized.

### A Great Awakening in Monetary Theory

I now turn to developments in monetary economics and their role in helping bring about a change in monetary policy and the resulting improvement in performance. It was during the mid- to late 1970s that monetary economists began to focus intently on finding policies that would reduce the volatility of real GDP and inflation. Some evidence of this is found in the very explicit and frequent use of an objective function that captured the goal. It was usually written in the form of a loss function  $l\text{Var}(y) + (1-l)\text{Var}(p)$ , which was to be minimized, where  $y$  represented real GDP relative to normal levels and  $p$  represented the inflation rate relative to the target. The weight  $l$  described the relative importance of each variable, and for most of the models there was a trade-off between these two variances (see, for example, Sargent and Wallace 1975; Kydland and Prescott 1977; and Taylor 1979).

In this research the form of the policy to accomplish this objective was usually a policy rule for the monetary instruments. One reason for the focus on policy rules was the idea of rational expectations, which required that contingency plans for policy be part of the analysis, as laid out by Lucas (1976).

The monetary theory that was developed to address this policy objective had at its center a description of the inflation process that included both rational expectations—the importance of which was clear from Lucas's critique—and sticky prices, which were the source of monetary nonneutrality. Also included was a description of how the real economy was affected by the policy interest rate and a description of how the policy interest rate is set, again usually through a policy rule.

Before the advent of rational expectations in monetary economics, Milton Friedman and Edmund Phelps proposed, in the late 1960s, the expectations-

augmented Phillips curve, which showed that if inflation rose above expected inflation, then output and employment would rise above normal. It also showed that if inflation were to be reduced below its currently expected level, then real output and employment would have to fall below normal levels for a time. As long as expectations were adaptive, the expectations-augmented Phillips curve gave a reasonably accurate description of the time-series pattern of inflation and real GDP. But rational expectations changed this. If expectations were rational, then monetary policy—if it was anticipated or followed a known rule—could not create a difference between the actual and expected inflation rate; thus there was no way for monetary policy to affect real GDP. It could achieve any inflation rate it wanted with any degree of accuracy without any adverse impact on the real economy.

Although this result attracted much attention at the time, it was not very useful for monetary policy analysis. For this reason a new theory was developed with a defining characteristic: the combination of sticky prices and rational expectations (Clarida, Gali, and Gertler, 2000). The basic idea was that firms would not change their prices instantaneously. There would be a period during which the firm's prices would be fixed, and the pricing decisions of different firms would not all be made at the same time. Rather, they would be staggered and unsynchronized.

With this new pricing assumption, the usual equilibrium theory in which price was given by the intersection of the supply and demand curves would not work, and a number of important issues arose that were not part of the classic supply-and-demand framework. Some firms' prices will be outstanding when another firm is deciding on a price to set. Thus this firm needs to look back at the price decisions of other firms. Also, each firm's prices will last for a period; hence firms must forecast the future, including the prices of other firms.

One of the ways this theoretical problem was first handled in the 1970s was to make the simplifying assumption that the price is set at a fixed level for a fixed period (Taylor 1980), similar to the simplifying assumption in the original overlapping-generation model that all people live for exactly two periods. This was the staggered-pricing assumption, and like the overlapping-generations model, the simplifying aspects of the assumption were dropped in practical empirical work.

Despite the simplicity of staggered pricing with rational expectations, the theory yielded a set of results with implications for monetary policy. The first result was that expectations of future inflation matter for pricing decisions today. The reason is that because the current price decision is expected to last into the future, some prices set in the future will be relevant for today's decision. This is very important for monetary policy.

For the first time, expectations of future inflation come into play in determining the current inflation rate. This gave a rationale for central-bank credibility in its commitment to price stability and for setting an inflation target.

Second, inertia in the inflation process is more complex than in the expectations-augmented Phillips curve and other earlier models without the combination of rational expectations and staggered pricing. Past prices matter because they are relevant for present price decisions, but inertia lasts longer than the period during which prices are fixed. Price shocks take a long time to run through the market because last period's price decisions depend on price decisions in the period before that, and so on into the distant past. The theory also predicted that the degree of inertia or persistence depends on monetary policy. The more aggressively the central bank responds to inflation, the less persistent are inflation shocks. That this prediction was later shown to be true is part of the evidence that the theory and the policy were related. Indeed, over time, inflation persistence has come down as the monetary responses have gone up.

Third, the newer theory implied a trade-off curve between price stability and output stability, and monetary policy could achieve better results in both dimensions by moving the economy toward the curve. In other words, inefficient monetary policies would be off the curve, while efficient monetary policies would be on the curve. Moreover, changes in policy could actually move the trade-off curve in a favorable direction because of expectations effects that would change the price-setting process. For example, a policy that resulted in a movement along the curve toward more price stability and less output stability could shift the curve, bringing about more output stability. Bernanke (2004) used this trade-off curve to explain the role of monetary policy in the Great Moderation. This is the type of framework that led to the recommendations for particular policy rules.

Fourth, the optimal monetary policy rule to minimize the variability of output and inflation could be calculated numerically either by simulating the new monetary models or by using optimal control theory with these models. The optimal monetary policy involved reacting to both inflation and real GDP. If the policy instrument was the money supply, as it was in the earliest research, then it was optimal to react to real GDP, unlike a fixed growth rate of the money supply. If the policy instrument was the interest rate, as it was coming to be in the early 1980s, then it would involve moving the interest rate more aggressively to control inflation and real GDP.

Fifth, the costs of disinflation were less than in the expectations-augmented Phillips curve. This prediction proved accurate when people later examined the disinflation of the early 1980s. It is relevant for the

current discussion because it may have been one of the factors tipping the balance in favor of undertaking the disinflation that occurred from 1980 to 1983.

Over time the underlying monetary theory that yielded these results and principles has evolved and improved greatly. An important improvement is that the price-adjustment equations have now been derived formally from an individual-firm optimization problem (see Woodford 2003 for this and other examples of how the theory has developed). In general, the original principles and results, at least the five listed here, have proved robust to these changes. For example, simulations of policy rules derived in the early models perform well in the more recent models with optimally derived equations (Taylor 1999). The defining characteristic of the theory as it first developed—the combination of rational expectations and staggered unsynchronized price setting—remains the same.

More recently, researchers have relaxed the simplifying assumption that prices are set for an exogenous interval of time. Rather, firms' pricing decisions depend on the state of the market, which has given rise to the name "state-dependent" pricing models and has created the need to give the original models a new name, "time-dependent" (Dotsey, King, and Wolman 1999; Gertler and Leahy 2006; Golosov and Lucas 2006). Klenow and Kryvtsov (2007) consider some of the pros and cons of the newer models by looking at how they compare with actual pricing decisions obtained from Bureau of Labor Statistics (BLS) microdata.

### The Causal Connection between Theory and Policy

There is a close connection in time between what I am calling the Great Regime Shift in monetary policy and the Great Awakening in monetary economics. Moreover, as the summaries of the theory and the policy make clear, there are close connections between the principles and recommendations and the actual policy, including the importance for expectations of setting an inflation target, the importance of more predictable policy, and the importance of responding aggressively to inflation and real output. That policy changed in the directions of the recommendations is certainly some evidence that there was a causal connection.

But can we go further in establishing a connection? Or must we settle for Keynes's famous generalization that policy makers are the slaves of some defunct economists no matter what the policy makers say? Although it is difficult, I believe that we can go further. For example, Asso, Kahn, and Leeson (2007) have documented many references to policy rules and

related developments in the transcripts of the Federal Open Market Committee (FOMC). Meyer (2004), who is one of the policy makers referred to in their paper, makes it clear in his insider's story that there was a framework underlying the policy and that this framework is similar to the theory that I have outlined earlier. If one compares Meyer's (2004) account during the period after the regime shift with the account of an insider such as Maisel (1973) before the regime shift, one finds a huge difference in the framework underlying policy decisions. There is a section on policy rules in chapter 2 of the most recent editions of the Fed's official *Purposes and Functions* (Board of Governors of the Federal Reserve System, 2005). Other evidence comes from the increased interaction between researchers at central banks and monetary economists more generally. Indeed, much of the research that has formed this Great Awakening has been conducted by the staffs at the central banks.

In assessing causation it is essential to distinguish between the role of the Great Awakening in (1) ending the old regime and opening the way to a new regime versus (2) shaping and sustaining a new regime. There is more evidence of the latter than of the former. The dramatic moves of the Fed in the 1980s to reduce inflation under Volcker's leadership were in part a reaction to the harm caused by high inflation during the 1970s, and one suspects that this was more of a factor than the Great Awakening in monetary theory. In contrast, we have more evidence that the policy followed during the 1990s has been influenced by the Great Awakening, as my examples in the previous paragraph illustrate.

To put this another way, like most regime changes, the Great Regime Shift in monetary policy consisted of two interconnected phases: (1) the end of the old inflationary regime of the late 1960s and 1970s, which was largely accomplished through a sharp increase in interest rates until inflation was broken, and (2) the effort to put in place and maintain a new regime in which interest rates rise and fall according to some monetary principles. I think the Great Awakening was very important to the second phase even if it was not important to the first phase.

## Conclusion

I began this chapter by summarizing the key characteristics of the Great Moderation of the past twenty-five years. I then reviewed developments in monetary policy and monetary economics that took place during the same period, and I drew attention to a Great Regime Shift in monetary policy and a Great Awakening in monetary economics. This review, as well as more direct evidence of causality, suggests that all three of these developments

were closely related and that monetary theory had a constructive influence on monetary policy and thereby on the favorable macroeconomic outcomes.

Of course, monetary economics was not all that mattered. Factors other than monetary theory were certainly part of the influence on monetary policy, and factors other than monetary policy were certainly partly responsible for the improved cyclical performance. Nonetheless, monetary economics mattered significantly and is thus an excellent example of better living through economics.

As I mentioned in the introduction to this chapter, it is possible that the financial crisis that began in 2007 will mark the end of the Great Moderation. But consistent with the theme of this chapter, there is evidence that another monetary policy shift may have been a cause of this crisis. In particular, in remarks prepared for the annual conference of central bankers in Jackson Hole, Wyoming, in August 2007 (see Taylor 2007), I showed that interest rates were set too low in 2002–2005 (compared with levels that would have been expected from the experience since the early 1980s), and this led, at least in part, to the housing boom and the subsequent housing bust that was at the heart of the financial crisis.

In thinking about future research on this topic, however, it is important to recall that the Great Moderation and the Long Boom were already nearly fifteen years old before economists started noticing and documenting them and determining the date of their beginning. Unless the Great Moderation has a dramatic and tumultuous death with a massive decline in real GDP and an unemployment rate higher than the peaks in the 1970s, I believe that it will take as long to document and establish its end.

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