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Southwest Economy

Immigrant Assimilation: Is the U.S. Still a Melting Pot?

The immigration debate is heating up in 2004 after a three-year hiatus. President Bush's temporary worker proposal, announced in January, prompted both pro- and anti-immigration camps to make their case in the media. The focus is increasingly on the long-term effects of mass immigration. This interest is to be expected with the country emerging from a decade of record immigration levels. A similar discourse ensued after earlier waves of immigration, such as in the 1850s and the decade 1900–10. The questions go to the heart of the immigration debate: Is the United States still a melting pot? Will immigrants assimilate and achieve the American dream?

In an earlier article, I focused on the important role immigrants play in the U.S. economy.[1] Immigration is key to current economic growth, and immigrants contributed over 40 percent of labor force growth in the mid- to late 1990s. But immigration is also central to future growth, not only because immigration will continue, but also because the children of today's immigrants are tomorrow's workers and investors.

Concerns about the children of immigrants

(Continued on page 2)

Monetary Policy Prospects

Federal Reserve Chairman Alan Greenspan and other Federal Reserve officials have publicly remarked that current monetary policy is highly accommodative and that short-term interest rates "will eventually need to rise toward a more neutral level." However, Federal Reserve pronouncements have also emphasized that with inflation low and resource use slack, "policy accommodation can be removed at a pace that is likely to be measured."[1]

This article looks at the Federal Reserve's policy stance and discusses why short-term interest rates will almost certainly have to increase at some point. The article also examines the historical relationship between Federal Reserve policy, inflation and resource slack for insights on future rate changes. The

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examination suggests that a wide range of policy outcomes are plausible over the next two years, depending on the strength of the recovery, the economy's growth potential and the sustainable unemployment rate—variables that economists can't, unfortunately, pin down with much confidence.

The Current Stance of U.S. Monetary Policy

The Federal Funds Rate. The Federal Reserve's principal policy tool is the interest rate on overnight loans between banks—the federal funds rate. The Federal Reserve's Federal Open Market Committee (FOMC) meets eight times each year to set a target for the funds rate. The Domestic Trading Desk at the Federal Reserve Bank of New York then adds or withdraws reserves from the banking system, as needed, to keep the actual funds rate near the agreed target level.

At 1 percent, the current funds-rate target is the lowest in over 45 years. However, the Great Depression and 1990s Japan teach us that low interest rates need not signal that policy is accommodative. To determine how much stimulus policy is providing, we must have a reference against which to compare the funds rate. To this end, we compare the funds rate with the yield on 10-year Treasury bonds and then with expected inflation.

The Yield Curve. The real yield on 10-year bonds—the market yield less expected inflation—varies mostly for nonmonetary reasons (such as changes in long-term productivity trends). However, monetary policy actions *can* have a temporary impact on short-term real interest rates. A policy that drives short-term real rates down relative to the 10-year real rate encourages current investment and consumer-durables spending, stimulating real activity. Conversely, a policy that drives short-term interest rates up relative to 10-year real rates discourages current spending and restrains real activity.

Surveys of professional forecasters suggest that long-term and short-term inflation expectations have tended to move together over the past 20 years (*Chart 1*). Consequently, the gap between the market yields on 10-year bonds and federal funds—the slope of the market yield curve—has been a reliable indicator of the difference between real long-term and short-term interest rates and, by the

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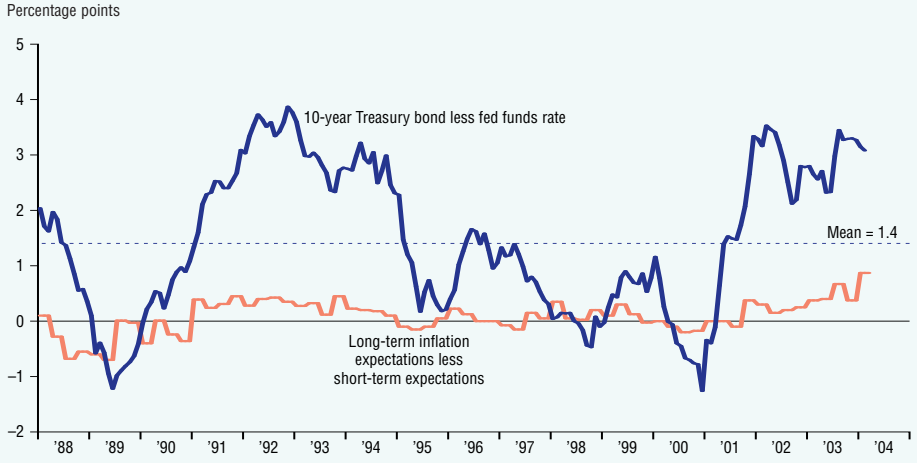
Chart 1

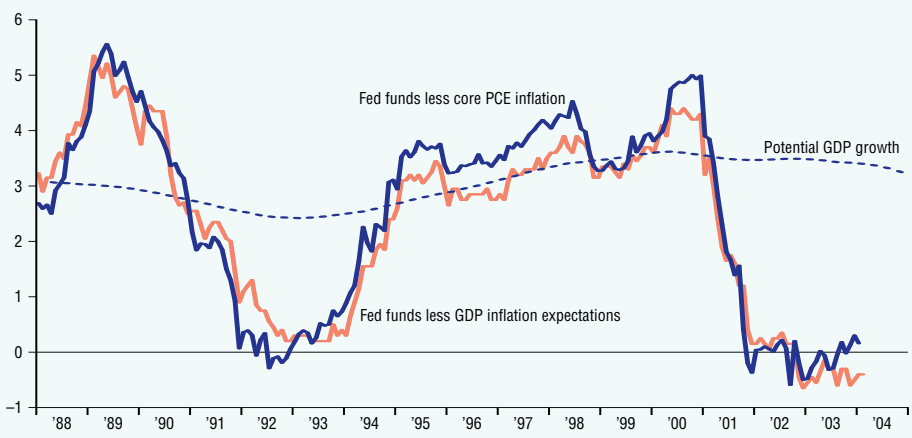
The Yield Curve Signals Highly Accommodative Policy



SOURCES: Federal Reserve Board; Federal Reserve Bank of Philadelphia.

Chart 2

The Real Funds Rate Signals Highly Accommodative Policy



SOURCES: Federal Reserve Board; Bureau of Economic Analysis; *Blue Chip Economic Indicators*; Congressional Budget Office.

The gap between the market yields on 10-year bonds and federal funds has been a good guide to the stance of monetary policy and a useful indicator of the economy's future strength.

arguments given above, has also been a good guide to the stance of monetary policy and a useful indicator of the economy's future strength.[2]

The dividing line between policy accommodation and policy restraint isn't always clear-cut and varies over time, but a negatively sloped yield curve (when the 10-year bond yield is below the federal funds rate) is a reliable signal of restraint and a precursor of sluggish output growth, if not outright recession. The yield curve was negatively sloped in 1989, 1998 and 2000 and almost turned negative in 1995. Currently, in contrast, the yield curve is far steeper than average, reflecting that the federal funds rate is unusually low relative to the 10-year Treasury rate. According to the yield curve, then, policy is highly accommodative.

The Real Funds Rate. It was argued above that by comparing the federal funds rate with a long-term bond rate, analysts approximate a comparison between the real federal funds rate and a real long-term interest rate. The approximation works well provided long-term and short-term inflation expectations move together. An alternative approach is to focus on the real federal funds rate alone, calculated as the difference between the market funds rate and a measure of short-term inflation expectations. Little is lost by excluding the long-term real interest rate from consideration provided it is fairly stable.

To calculate the real federal funds rate, we need a measure of inflation expectations. This article uses, first, actual core personal consumption expenditure (PCE) inflation over the prior 12 months and, second, consensus one-quarter-ahead gross domestic product (GDP) price inflation forecasts from the monthly Blue Chip survey of professional forecasters. The two resulting series for the real federal funds rate, plotted in Chart 2, are very much alike.

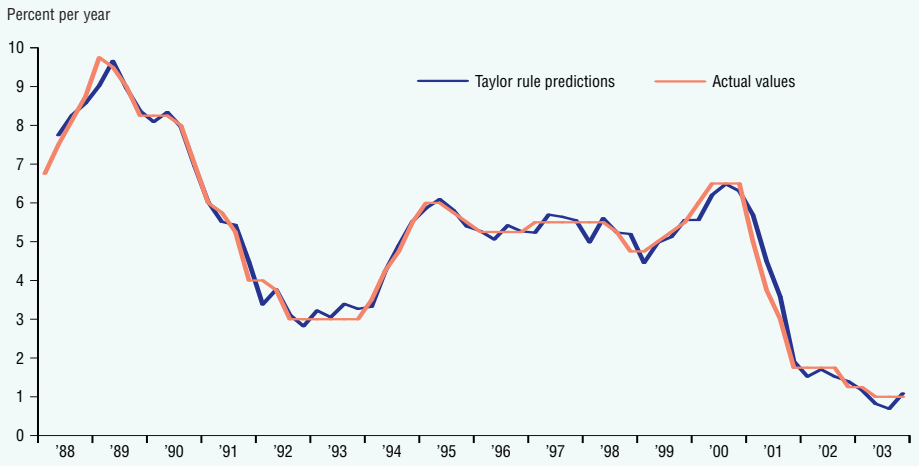
Chart 2 also includes Congressional Budget Office estimates of potential real GDP growth. A real funds rate below this level is probably not sustainable over the long term and signals accommodative policy.[3] Conversely, the further the real funds rate exceeds this level, the more likely it is that policy is restrictive. By this standard, the real funds rate was notably high in 1989 and at least somewhat elevated in 1995, 1998 and 2000. On the other hand, the real funds rate was exceptionally low in 1992–93. Similarly, after a sharp drop in 2001, the real funds rate was highly accommodative in 2002 and 2003.

Three Determinants of Fed Policy

Policymakers recognize that current policy is unsustainably accommodative but have argued that the Fed can afford to be patient in moving toward a more neutral policy stance. Without drawing conclusions on the merits of this posi-

Chart 3

The Taylor Rule Explains Fed Policy Fairly Well



SOURCES: Haver Analytics Inc.; author's calculations.

tion, we might hope to assess whether patience is consistent with the Federal Reserve's past behavior and to determine which economic variables are most likely to drive future policy changes. Of course, any such analysis will only be as accurate as our characterization of past actions. A good starting point for this characterization is the Taylor rule.

The Taylor Rule. The Federal Reserve has a dual mandate to seek full employment and price stability. Work done by Stanford professor John Taylor suggests that Fed policymakers take this dual mandate seriously. Taylor showed that a simple formula relating the federal funds rate to recent inflation and current economic slack does a fairly good job of explaining Fed policy decisions.[4] This formula has come to be known as the Taylor rule.

A number of researchers have found that the Taylor rule's performance improves if it is made forward-looking.[5] For example, the version of the Taylor rule estimated for this article explains policy using forecasted inflation instead of inflation in the recent past. Current slack—measured by the unemployment rate—is included in the funds-rate formula, but so is forecasted growth in the ratio of actual to potential real GDP, which determines future *changes* in slack.[6]

Just how important are each of the three funds-rate determinants? Suppose inflation forecasts for the coming year are revised upward by a full percentage point. The track record of the Greenspan Fed suggests the FOMC would respond initially with a 1-percentage-point tightening move, all else constant. If the inflation forecast remains elevated, the FOMC eventually hikes the funds rate by nearly 2 percentage points (*Table 1*). Similarly, a 1-percentage-point increase in the unemployment rate would initially be met

Policy is determined by economic time—the pace at which slack resources are put back to work and inflation pressures rise—rather than chronological time.

Table 1

Fed Funds-Rate Response to a 1-Percentage-Point Increase in Each of Three Determinants

	Fed Funds-Rate Response	
Determinant	Initial (percentage points)	Eventual (percentage points)
Expected inflation	+1.0	+1.9
Unemployment rate	–1.0	–2.1
Expected GDP growth	+0.4	+0.7

Even if policymakers followed a mechanical rule, small differences in forecasts and assumptions might produce strong differences of opinion about current and future policy.

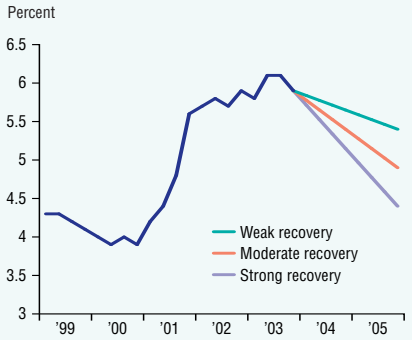
with a 1-percentage-point funds-rate cut, and eventually with just over a 2-percentage-point decline. Real growth prospects appear to play a smaller role in the policy process. Thus, a 1-percentage-point increase in expected GDP growth, relative to potential-GDP growth, triggers only a 40-basis-point immediate rate hike and a 70-basis-point long-run response. However, this last figure is misleading because it ignores potentially important indirect effects. Thus, if faster growth materializes, it will put gradual downward pressure on the unemployment rate and may eventually put upward pressure on inflation. The fall in unemployment and the rise in inflation trigger a second round of interest-rate hikes that are not captured in the table. A good portion of the remainder of this article will be devoted to correcting this omission.

Assessing the Modified Taylor Rule. First, though, let's put the modified Taylor rule to the test. As shown in Chart 3, the rule has done a good job, with errors generally a quarter point or less. However, the funds rate fell significantly faster than predicted in early 2001. From published FOMC minutes, it appears that policy was unusually aggressive during this period out of concerns that the stock market might act as a drag on consumer spending and that a large capital overhang might reduce the interest-rate sensitivity of investment spending. Since 2001, the rule has done fairly well. For example, the predicted value for the end of 2003 is 1.09 percent—quite close to the actual target value of 1 percent.

Clearly, the modified Taylor rule oversimplifies policymaking. It omits considerations that are, from time to time, important in policy discussions. More generally, the fact that the rule has done a good job of tracking the Federal Reserve's policy stance to date is no guarantee that it will continue to do so in the future. With the federal funds rate so near its zero lower bound, for example, it may be that policymakers would respond especially quickly or forcefully to any sign that the recovery might be weakening or that inflation might be falling. Moreover, the relationship between the unemployment rate and other measures of slack, such as manufacturing capacity utilization, appears to have shifted—partly, perhaps, because labor-force participation rates have become more sensitive to economic conditions.[7] These factors are not captured by the analysis that follows.

Chart 4

Strength of the Recovery Determines How Quickly the Unemployment Rate Declines



SOURCES: Bureau of Labor Statistics; author's calculations.

Alternative Unemployment-Rate and Inflation Paths

As noted above, the prospective growth in GDP relative to potential GDP may have important indirect effects on policy through future changes in the unemployment rate and inflation. Before we can get very far in our policy analysis, we must explore these indirect channels of influence.

The Unemployment Channel. As shown in Chart 4, the unemployment rate reached a cyclical peak of just over 6.1 percent in second quarter 2003 and averaged 5.9 percent in the fourth quarter. Contingent forecasts of the unemployment rate's future path are straightforward using Okun's law, which says we can expect to see the unemployment rate decline by about 0.5 percentage points per year for each 1 percentage point that real GDP growth exceeds potential-GDP growth.[8] If we have a weak recovery during 2004 and 2005, for example, with GDP growth only 0.5 percentage points above potential-GDP growth, then the unemployment rate will likely fall to 5.4 percent in fourth quarter 2005. If we have a strong recovery, with GDP growth 1.5 percentage points in excess of potential-GDP growth, the unemployment rate will fall to 4.4 percent. Finally, a moderate recovery, with

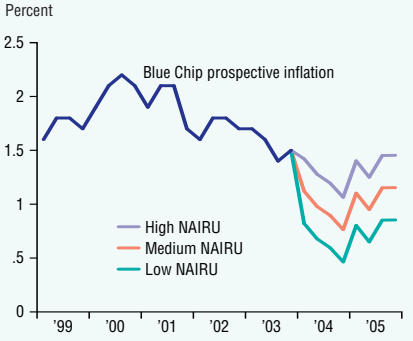
GDP growth 1 percentage point above potential-GDP growth, should produce a 4.9 percent average unemployment rate in fourth quarter 2005.

The Inflation Channel. Most empirical studies suggest that the unemployment rate is an important determinant of future changes in inflation. Unfortunately, the unemployment rate that is consistent with stable inflation is not constant over time, and shifts in this critical unemployment rate—called the non-accelerating inflation rate of unemployment, or NAIRU—are imperfectly understood and often not recognized until well after the fact.[9] Thus, policymakers' inflation expectations depend on their beliefs about the NAIRU as well as on their beliefs about the future path of the unemployment rate.

Chart 5 shows four-quarter-ahead GDP price inflation forecasts from the Blue Chip survey of professional forecasters. For example, the plot shows that at the end of 2003, Blue Chip forecasters were expecting 1.5 percent inflation in 2004. The chart also contains three alternative inflation simulations, which are contingent on the strength of the economic recovery (and, hence, the path of the unemployment rate) in a manner consistent with historical experience.[10] Each simulation assumes a 5.0 percent NAIRU. Each shows a V-shaped pattern, with prospective inflation first dipping and then turning upward. In no case does forecasted inflation ever drop below 0.5 percent per year or rise above 1.5 percent per year.

Chart 6

Inflation Prospects and the NAIRU



SOURCES: *Blue Chip Economic Indicators*; author's calculations.

Chart 6 shows the sensitivity of prospective inflation to the value of the NAIRU. The simulated inflation paths labeled "high NAIRU," "medium NAIRU" and "low NAIRU" assume 5.5 percent, 5.0 percent and 4.5 percent NAIRUs, respectively, beginning in 2004.[11] In each case, the strength of the recovery is "moderate." According to the simulations, a 0.5-percentage-point difference in the NAIRU translates into a 0.3-percentage-point difference in inflation that remains constant throughout the simulation period. (If the simulated paths were extended further, gaps between them would begin to widen.) Comparing Charts 5 and 6, prospective inflation is more sensitive, in the near term, to the NAIRU assumption than to the strength-of-recovery assumption. Even so, inflation stays between 0.5 and 1.5 percent during the entire simulation period, regardless of the NAIRU. Moreover, the range of inflation forecasts in fourth quarter 2005 is equally wide in the two charts.

Policy Implications

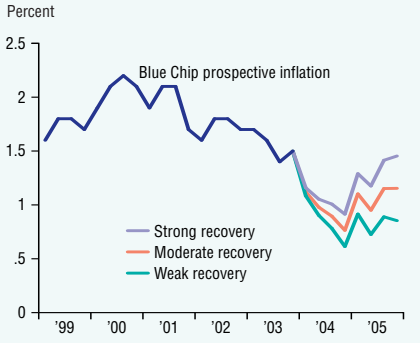
The Strength of the Recovery and the Funds Rate. We've looked at how the unemployment rate and inflation might behave, depending on whether the recovery is weak, moderate or strong. What does the modified Taylor rule say about the federal funds rate? Chart 7 shows the wide range of funds-rate paths implied by the rule, depending on the strength of the GDP growth relative to potential-GDP growth in 2004 and 2005. (All three simulations assume a 5.0 percent NAIRU.) We've seen that a weak recovery produces only a very modest decline in the unemployment rate (see *Chart 4*), while prospective inflation drops initially and then partially rebounds (see *Chart 5*). Fed policymakers respond by lowering the target funds rate to zero by the end of 2004 and then gradually increasing the funds rate to just under 75 basis points in fourth quarter 2005. In contrast, the strong recovery scenario produces an immediate 25-basis-point funds rate hike, followed by a series of additional rate increases. By the end of 2005, the funds rate is over 4 percent. Finally, with a moderate recovery the Fed holds the funds rate steady through the end of 2004, then gradually raises rates to about 2.5 percent in fourth quarter 2005.

Comparing the weak recovery and strong recovery scenarios, a 1-percentage-point difference in output growth relative to potential output growth produces roughly a 3.5-percentage-point difference in the funds rate over two years. Thus, indirect effects quintuple the "eventual" impact of a change in expected output growth, as listed in Table 1.

The NAIRU and the Federal Funds Rate. Finally, Chart 8 examines the sensitivity of the modified Taylor rule's prescriptions to the value of the NAIRU, given a moderate recovery. Results depend very much on whether policymakers are aware that a NAIRU shift has occurred. An increase in the NAIRU from 5.0 to 5.5 percent produces the "high

Chart 5

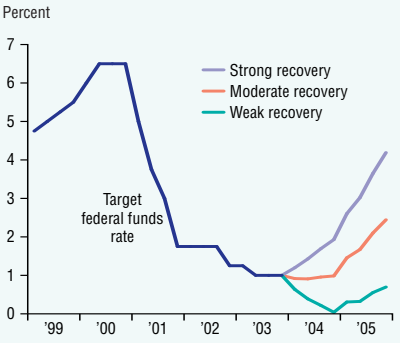
Inflation Prospects and the Strength of the Recovery



SOURCES: *Blue Chip Economic Indicators*; author's calculations.

Chart 7

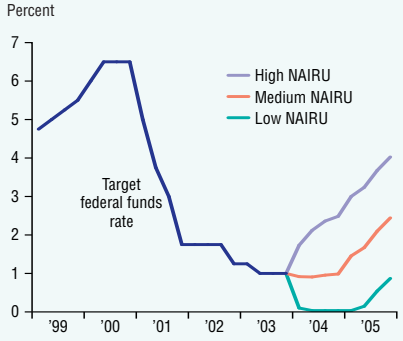
Policy Impact of the Recovery's Strength Builds Over Time



SOURCES: Haver Analytics Inc.; author's calculations.

Chart 8

Perceived NAIRU Has a Powerful, Immediate Impact on Policy



SOURCES: Haver Analytics Inc.; author's calculations.

NAIRU" policy response in the chart, assuming that Fed policymakers are immediately aware of what's happened. The funds rate is given an immediate 75-basis-point boost, and then rises steadily to 4.0 percent in fourth quarter 2005. Conversely, a sudden decrease in the NAIRU to 4.5 percent (the "low NAIRU" scenario) causes the Fed to slash the funds rate to zero and hold it there through first quarter 2005. Even at the close of 2005, the funds rate is less than 1 percent. Finally, if policymakers believe the NAIRU is 5.0 percent—regardless of whether that view is correct—the funds rate follows the middle path in Chart 8, which is identical to the path labeled "moderate recovery" in Chart 7.

Looking at Charts 7 and 8, it's easy to understand why the FOMC revised its policy directive to eliminate language that suggested policymakers were unconditionally committed to a 1 percent federal funds rate "for a considerable period." There are clearly plausible scenarios under which policymakers would not want to have their hands tied. Policy is determined by economic time—the pace at which slack resources are put back to work and inflation pressures rise—rather than chronological time.

Summary and Conclusions

By several measures, U.S. monetary policy is currently highly accommodative. Short-term interest rates will have to rise substantially at some point because a federal funds rate held permanently at 1 percent is inconsistent with the current level of inflation. The interesting question isn't *whether* interest rates are going to rise but how soon they'll rise and how fast they'll go up once they start. Policy simulations presented here suggest the answers depend strongly on how much slack is thought to remain in the economy and on how quickly slack is eliminated in coming quarters. The fact that short-term interest rates must eventually rise does not necessarily mean that they should increase immediately or sharply. By imposing various simplifying assumptions, this article has, if anything, understated uncertainty about the future course of policy.

An important corollary is that even if Fed policymakers followed a mechanical rule—which they emphatically do not—small differences in economic forecasts and assumptions might produce strong differences of opinion about current policy and about how policy ought to evolve in the future.

—Evan F. Koenig

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Notes

[1] See Alan Greenspan's testimony before the Committee on Financial Services, U.S. House of Representatives, February 11, 2004, and the public statement released by the FOMC following its May 2004 meeting, www.federalreserve.gov.

[2] The Conference Board, for example, includes the slope of the market yield curve in its Composite Leading Index.

[3] Under standard technology assumptions, capital income should equal a constant fraction of GDP. Hence, the present discounted value of the future stream of capital income would be infinite if the real interest rate were expected to remain below the economy's real growth rate. The usefulness of the interest-rate–growth-rate comparison is less clear in an economy subject to uncertainty. See "Assessing Dynamic Efficiency: Theory and Evidence," by Andrew B. Abel, N. Gregory Mankiw, Lawrence H. Summers and Richard J. Zeckhauser, *Review of Economic Studies*, vol. 56, January 1989, pp. 1–20.

[4] "Discretion Versus Policy Rules in Practice," by John B. Taylor, Carnegie-Rochester Conference Series on Public Policy, vol. 39, December 1993, pp. 195–214.

[5] Early examples of the forward-looking approach are "Modeling the Fed: A Forward-Looking Monetary Policy Reaction Function," by Stephen K. McNees, Federal Reserve Bank of Boston *New England Economic Review*, November/December 1986, pp. 3–8, and "A Forward-Looking Monetary Policy Reaction Function: Continuity and Change," by Stephen K. McNees, Federal Reserve Bank of Boston *New England Economic Review*, November/December 1992, pp. 3–13.

[6] Details are given in the forthcoming "Monetary Policy Prospects," by Evan F. Koenig, Federal Reserve Bank of Dallas *Economic and Financial Policy Review*, www.dallasfedreview.org.

[7] See "New Economy, New Recession?" by Evan F. Koenig, Thomas F. Siems and Mark A. Wynne, Federal Reserve Bank of Dallas *In Depth*, March 2002, www.dallasfed.org/research/indepth/2002/id0203.pdf.

[8] See the intermediate macroeconomics textbook *Macroeconomics*, 9th edition, by Robert J. Gordon, Boston: Addison Wesley, 2003.

[9] The NAIRU is often associated with the accelerationist-Phillips-curve inflation model, which assumes that monetary policy affects inflation only indirectly, by creating or removing economic slack. This article interprets the NAIRU more broadly and, in particular, does not rule out a direct, inflation-expectations channel for monetary policy. For example, an inflation scare (fear that the Fed's commitment to a low long-run average inflation rate might be wavering) would have the same effects as a high NAIRU in the simulations presented here.

[10] Koenig (forthcoming) gives details of the inflation equation used in the simulations.

[11] The NAIRU is assumed to equal 5.0 percent in 2002 and 2003—an estimate taken from Gordon (2003).