

NBER WORKING PAPER SERIES

THE GREENSPAN ERA: DISCRETION, RATHER THAN RULES

Benjamin M. Friedman

Working Paper 12118

<http://www.nber.org/papers/w12118>

NATIONAL BUREAU OF ECONOMIC RESEARCH

1050 Massachusetts Avenue

Cambridge, MA 02138

March 2006

The views expressed herein are those of the author(s) and do not necessarily reflect the views of the National Bureau of Economic Research.

©2006 by Benjamin M. Friedman. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

The Greenspan Era: Discretion, Rather Than Rules

Benjamin M. Friedman

NBER Working Paper No. 12118

March 2006

JEL No. E52

**ABSTRACT**

What stands out in retrospect about U.S. monetary policy during the Greenspan Era is the ongoing movement away from mechanistic restrictions on the conduct of policy, together with a willingness on occasion to depart even from what more flexible guidelines dictated by contemporary conventional wisdom would imply, in the interest of carrying out the Federal Reserve System's dual mandate to pursue both stable prices and maximum employment. Part of this change was procedural – for example, the elimination of money growth targets. The most substantive demonstration of policy flexibility came in the latter half of the 1990s, as unemployment fell below 6% (in 1994), then below 5% (in 1997), and then remained below 5% for more than four years, yet the Federal Reserve did not tighten monetary policy. This policy stance was consistent with a view of the economy, including faster productivity growth and increased exposure to international competition, that Chairman Greenspan had articulated nearly a decade before.

Benjamin M. Friedman

Department of Economics

Harvard University

Cambridge, MA 02138

and NBER

[bfriedman@harvard.edu](mailto:bfriedman@harvard.edu)

**The Greenspan Era: Discretion, Rather Than Rules**

Benjamin M. Friedman\*

Policy rules ... anticipate that key causal connections observed in the past will remain fixed over time .... But we have found that very often historical regularities have been disrupted by unanticipated change .... The evolving patterns mean that the performance of the economy under any rule, were it to be rigorously followed, would deviate from expectations.... In an ever changing world, some element of discretion appears to be an unavoidable aspect of policymaking.

Alan Greenspan<sup>1</sup>

The Greenspan era (1987-2006) has been a good period for both the practice and the product of monetary policy in the United States. Of the two, outcomes are of course easier to measure. Price inflation has been mostly low and consistently stable. The mean inflation rate in the four years ending in 1987 was 2.9% per annum; in the four years ending in 2005 it was 2.3%.<sup>2</sup> The volatility of output and employment has likewise been limited by historical standards with two business recessions, both short and both of modest magnitude, over eighteen years. The 1990-1 downturn lasted just eight months, and unemployment peaked at 7.8%; the 2001 downturn likewise lasted eight months, and unemployment peaked at 6.3%. Market interest rates have shown little volatility as well, and the nation's financial markets weathered both the collapse of the thrift industry in the late 1980s and the 2001-3 stock market decline with little

sense of real threat to either the functioning of markets or the integrity of well-managed institutions.

Changes in the practice of monetary policy are harder to document, although some changes made during these years are also easily visible. Most obvious, perhaps, have been steps toward increased transparency of the central bank's actions. As of 1987 the policy directive adopted at each meeting of the Federal Open Market Committee was released to the public only after the elapse of three months, and even then the public statement contained no explicit reference to any specific level of the federal funds rate that the Committee sought to impose. Today a brief statement indicating the Committee's decision, including the specific interest rate target just adopted, is regularly issued at the conclusion of each meeting, with the release of edited minutes following after only three weeks.

The more important change in policy practice, however – indeed, what stands out from the Greenspan era as a whole, in retrospect – has been the ongoing movement away from mechanistic restrictions on the conduct of monetary policy, together with a willingness on occasion to depart even from what more flexible “guidelines” dictated by contemporary conventional wisdom would imply, in the interest of carrying out the Federal Reserve System's dual mandate to pursue both “stable prices” and “maximum employment.”<sup>3</sup>

Although the Federal Open Market Committee had stopped setting a growth target for the narrow M1 money stock after 1986, the Committee was, at least as a formal matter, still formulating policy in terms of a targeted growth rate for the broader M2 aggregate when Alan Greenspan assumed the chairmanship in 1987. There is also evidence that in the late 1980s the money growth target was not a mere formality, but rather played a significant role in influencing

the Committee's setting of the federal funds rate.<sup>4</sup> That influence steadily waned, however, and in 1993 the Federal Reserve publicly announced that the Committee had "downgraded" its M2 target. Thereafter the Committee continued to set a "range" for M2 growth (and M3 as well, along with a credit aggregate), but it made clear that such ranges were merely "intended to communicate its expectation as to the growth of these monetary aggregates that would result" under specified assumed conditions. By 1998 the Committee stated explicitly that it was setting such ranges "not as expectations for actual money growth, but rather as benchmarks for M2 and M3 behavior that would be consistent with sustained price stability, assuming velocity change in line with *pre-1990* historical experience" (emphasis added). More specifically, they were not "guides to policy." Beginning in 2001, the Committee stopped setting such ranges altogether.

The more substantive demonstration of flexibility in pursuit of the Federal Reserve's dual objective came in the conduct of actual monetary policy, first in the mid 1990s and then, far more so, in the latter years of the decade. After peaking at 7.8% in mid 1992, unemployment had declined as the new business expansion gained strength. In September 1994 the rate fell below 6%. Unemployment had been below 6% throughout 1988 and 1989, in a period when inflation was moving steadily upward – from 2.7% in 1987 (just 2.2% the year before, in part because of the sharp decline in oil prices) to 3.4% in 1988, 3.8% in 1989, and 4.8% per annum in the first half of 1990; hence the Open Market Committee's action, beginning in the spring of 1988, to raise the federal funds rate by some 225 basis points in the lead-up to what became the 1990-1 recession. In 1994 likewise, the Committee began to raise the federal funds rate, moving from just 3% at the beginning of the year to 5½% by yearend, and on to 6% by mid 1995.

Unlike when the Federal Reserve had tightened policy six years earlier, however, the

economy did not slow. Output continued to grow, by 2.5% in 1995, then 3.7% in 1996 and 4.5% in 1997. More Americans found jobs, as nonfarm payrolls expanded by 3 million in 1995, 2.4 million in 1996 and 3 million again in 1997. With an ongoing increase in labor force participation as well, the share of the adult population formally employed rose to a record high (higher even than at the peak of World War II, including men and women in uniform).

Unemployment continued to decline, falling below 5% in May 1997 – for the first time since 1973, infamously the beginning of the worst increase in inflation in U.S. post-war experience. But also unlike previous experience, not just in the 1970s but also in the years leading up to the 1990-1 recession, this time rapid economic expansion and declining unemployment did not bring increased inflation. Instead, inflation gradually but steadily slowed: from 2.1% in 1994 to 2.0% in 1995, then 1.9% in 1996 and 1.7% in 1997.

But shouldn't inflation have increased? The then-conventional wisdom of the economics profession certainly thought so. Robert J. Gordon's (1998, but actually published in mid 1997) macroeconomics text, for example, which had the especially useful feature of listing relevant data in the back, showed the "non-accelerating inflation rate of unemployment" at an even 6%. Numerous papers of the time, investigating the nexus between potential and actual output, the labor market, and inflation – by Gordon (1997), Kenneth N. Kuttner (1994), and Douglas Staiger, James H. Stock and Mark W. Watson (1997), among others – came to the conclusion that if the economy's "natural" rate of unemployment was below 6%, it was not much below. The implication for monetary policy was clear. Allowing output to expand at such a rate that unemployment had fallen increasingly below 6% was, at best, risky. Now allowing unemployment increasingly below 5% would surely be inflationary.

Little in the conventional economic wisdom of the day, therefore, suggested that an expansion of this magnitude would not be inflationary. Little in the conventional wisdom of monetary policy suggested that the Open Market Committee would forbear tightening policy as the expansion continued, even with the presumed increase in inflation yet to come. Yet the Open Market Committee did not act. Indeed, even as unemployment was falling the Committee had cut the federal funds rate from 6% at midyear 1995 to 5½% by the time unemployment crossed through the 5% mark. A year later, with unemployment now down to 4.4%, the funds rate was still 5½%. After a further, quickly reversed cut at the time when the Asian financial crisis became especially worrisome, the rate remained 5½% at the beginning of 2000, by which time unemployment stood at just 4.0%.

One early anticipation of this unorthodox sequence of policy decisions (and, more directly, of the underlying economics of the situation) was an article, signed by Chairman Greenspan personally, that had appeared in the *Wall Street Journal* in October 1988, back when unemployment had also been below 6% and increasing inflation *was* a problem of concern to monetary policymakers.<sup>5</sup> Greenspan's central theme was "the marked downsizing of economic output," not just in America but throughout the industrialized world: "The creation of economic value in recent decades has shifted toward conceptual values – that is, those created by new scientific insights and technology – with far less reliance on physical volumes."

Viewed in retrospect, with an eye in particular to understanding the rationale underlying the willingness a decade later to gamble that extraordinary economic growth and low unemployment would prove not to be inflationary, two implications of this "downsizing" phenomenon stand out as especially salient: First, the growing economic importance of

information technology – “the explosive growth in information gathering and processing techniques, which have greatly increased our ability to substitute ideas for physical volume” (and, one might add, for human inputs to production as well). And second, the greater exposure of ever more sectors of economic activity to international competition – “the increased ease with which economic goods and services can spill over national borders.”

Did Greenspan anticipate the speed-up of U.S. productivity growth, and the economy’s ability to achieve rapid output growth and low unemployment without increased inflation, nearly a decade before either became a reality? As of 1988 output per hour in the economy’s nonfarm business sector had advanced by 1.6% per annum over the prior two decades. During 1988-95 productivity growth averaged only 1.5%. But in the latter half of the 1990s the average pace increased to 2.5% (and since then it has jumped to 3.4%). The noninflationary consequences of unemployment consistently below 6% after mid 1994 and then, for more than four years beginning in late 1997, below 5%, represented a similar departure. Was the *Wall Street Journal* article prescient? Was the monetary policy that followed a decade later a consequence?

The answer remains unclear. And it is likewise unclear to what extent the nonmechanical monetary policy of the Greenspan era was responsible for the favorable economic outcomes that ensued. Olivier Blanchard and John Simon (2001), for example, concluded that while systematic factors, not just small shocks (in other words, luck), have accounted for the reduced volatility of both output and inflation in recent years, improved monetary policy is not among them. Similarly, Athanasios Orphanides (2003) has shown that the systematic component of U.S. monetary policy in the Greenspan era has not significantly differed from that of earlier times when outcomes were far less favorable – in particular, the inflationary 1970s.<sup>6</sup> But even if the



*systematic* components of monetary policy have borne little responsibility for the improved outcomes, or have themselves changed little from prior periods, what nonetheless stands out in the Greenspan era, and especially from the mid 1990s onward, is the nonmechanistic flexibility that allowed a forward-looking policy to anticipate what, in retrospect, plainly turned out to be different economic circumstances.

Will this flexibility survive Alan Greenspan's service as chairman? Or will U.S. monetary policy now begin to reverse course, retracing the steps it has traveled in the last two decades (beginning in the later Volcker years) along the spectrum represented by the longstanding "rules versus discretion" debate?

The cutting edge of the current movement to send monetary policy back in the direction of "rules" is the increasingly widespread support for inflation targeting.<sup>7</sup> Although some more elaborate forms of inflation targeting regimes, like that proposed by Lars E.O. Svensson (2005), are fully consistent with the kind of flexible approach to policymaking that has been characteristic of the Greenspan era, many others are not. Here the main point is that the argument for "rules," in terms of implications for the public's expectations of and confidence in future monetary policy and economic outcomes, requires that such rules be simple to enunciate and easy for the public to understand. Yet a further concern, also valid, is that publicly announcing a numerical target for the "price stability" part of the U.S. central bank's dual mandate but not the "maximum employment" part will not only result in a less flexible form of monetary policymaking but also, over time, undermine the Federal Reserve's commitment to the part of that mandate for which there is no numerical target.<sup>8</sup> The core of the argument for central bank accountability is that policymakers inevitably assume greater responsibility for outcomes

for which they are held accountable, and (as the experience with money growth targets clearly demonstrated) a publicly disclosed numerical target achieves precisely this purpose.

The Greenspan era, therefore, may stand as the modern-day pinnacle of “discretion,” rather than “rules,” in U.S. monetary policymaking. The record of economic performance that it leaves behind is surely one to be admired. Perhaps some day we shall envy it.

## **References**

- Bernanke, Ben S., and Michael Woodford. 2005. *The Inflation-Targeting Debate*. Chicago: University of Chicago Press.
- Blanchard, Olivier, and John Simon. 2001. "The Large and Long Decline in U.S. Output Volatility." *Brookings Papers on Economic Activity* (No. 1), 135-164.
- Friedman, Benjamin M. 1997. "The Rise and Fall of Money Growth Targets as Guidelines for U.S. Monetary Policy," in Iwao Kuroda (ed.), *Towards More Effective Monetary Policy*. Houndmills, U.K.: Macmillan Press.
- Friedman, Benjamin M. 2004. "Why the Federal Reserve Should Not Adopt Inflation Targeting." *International Finance*, 7 (Spring), 129-136.
- Gordon, Robert J. 1997. "The Time-Varying NAIRU and Its Implications for Economic Policy." *Journal of Economic Perspectives*, 11 (Winter), 11-32.
- Gordon, Robert J. 1998. *Macroeconomics*. 7<sup>th</sup> ed. Reading, MA: Addison Wesley.
- Greenspan, Alan. 1988. "Goods Shrink and Trade Grows." *Wall Street Journal* (Oct. 24).
- Greenspan, Alan. 1997. "Rules vs. Discretionary Monetary Policy." Speech at Stanford University, Center for Economic Policy Research (September 5).
- Kuttner, Kenneth N. 2004. "Estimating Potential Output as a Latent Variable." *Journal of Business and Economic Statistics*, 12 (July), 361-368.
- Orphanides, Athanasios. 2003. "Historical Monetary Policy Analysis and the Taylor Rule." *Journal of Monetary Economics*, 50 (July), 983-1022.
- Piger, Jeremy M., and Daniel L. Thornton. 2004. *Inflation Targeting: Prospects and Problems*. Federal Reserve Bank of St. Louis, *Review*, 86 (July/August).

- Staiger, Douglas, James H. Stock and Mark W. Watson. 1997. "How Precise are Estimates of the Natural Rate of Unemployment?" in Christina Romer and David Romer (eds.), *Reducing Inflation: Motivation and Strategy*. Chicago: University of Chicago Press.
- Svensson, Lars, E.O. 2005. "Optimal Inflation Targeting: Further Developments of Inflation Targeting." Mimeo: Princeton University.

**Footnotes**

\*. Department of Economics, Harvard University, Littauer Center 127, Cambridge, MA 02138, [bfriedman@harvard.edu](mailto:bfriedman@harvard.edu). I am grateful to Athanasios Orphanides for helpful discussions and to the Harvard Program for Financial Research for research support.

1. Greenspan (1997).
2. Figures given refer to the GDP price index. Data for 2005 are for the first three quarters only.
3. The phrases quoted are from the Federal Reserve Act, as most recently amended (for this purpose) in 1988.
4. See, for example, Friedman, (1997), Table 6.2; but the evidence on the subject is voluminous.
5. Greenspan (1988).
6. The reason, in large part, is that the fit is so poor in both periods, especially when using real-time data.
7. See, for example, the papers in Piger and Thornton (2004) and Bernanke and Woodford (2005).
8. See Friedman (2004).

**To order any of these papers in hard copy, see instructions at the end of this list. To subscribe to all NBER Working Papers or the papers in a single area, see instructions inside the back cover.**

<u>Number</u>	<u>Author(s)</u>	<u>Title</u>	<u>Date</u>
12062	Miles Kimball Helen Levy Fumio Ohtake Yoshiro Tsutsui	Unhappiness After Hurricane Katrina	2/06
12063	Uri Gneezy John A. List	Putting Behavioral Economics to Work: Testing for Gift Exchange in Labor Markets Using Field Experiments	2/06
12064	Jeffrey Groen George H. Jakubson Ronald G. Ehrenberg Scott Condie Albert Yung-Hsu	Program Design and Student Outcomes in Graduate Education	2/06
12065	Ronald G. Ehrenberg George H. Jakubson Jeffrey Groen Eric So Joseph Price	Inside the Black Box of Doctoral Education: What Program Characteristics Influence Doctoral Students' Attrition and Graduation Probabilities?	2/06
12066	Roland G. Fryer, Jr. Steven D. Levitt	Testing for Racial Differences in the Mental Ability of Young Children	2/06
12067	Raj Chetty	A Bound on Risk Aversion Using Labor Supply Elasticities	2/06
12068	Dirk Jenter Fadi Kanaan	CEO Turnover and Relative Performance Evaluation	2/06
12069	Howard Kunreuther Erwann Michel-Kerjan	Looking Beyond TRIA: A Clinical Examination of Potential Terrorism Loss Sharing	2/06
12070	Don Fullerton Seung-Rae Kim	Environmental Investment and Policy with Distortionary Taxes and Endogenous Growth	3/06
12071	Fali Huang Peter Cappelli	Employee Screening: Theory and Evidence	3/06
12072	Agata Antkiewicz John Whalley	Recent Chinese Buyout Activity and Implications for Global Architecture	3/06
12073	Erik Snowberg Justin Wolfers Eric Zitzewitz	Partisan Impacts on the Economy: Evidence from Prediction Markets and Close Elections	3/06
12074	Kris James Mitchener	Are Prudential Supervision and Regulation Pillars of Financial Stability? Evidence from the Great Depression	3/06
12075	Gary Gorton Ping He Lixin Huang	Asset Prices When Agents are Marked-to-Market	3/06

**To order any of these papers in hard copy, see instructions at the end of this list. To subscribe to all NBER Working Papers or the papers in a single area, see instructions inside the back cover.**

<u>Number</u>	<u>Author(s)</u>	<u>Title</u>	<u>Date</u>
12076	Robert G. King	Discretionary Policy and Multiple Equilibria	3/06
12077	Thomas Lemieux	Post-Secondary Education and Increasing Wage Inequality	3/06
12078	David Card Jesse Rothstein	Racial Segregation and the Black-White Test Score Gap	3/06
12079	Andres Arias Gary D. Hansen Lee E. Ohanian	Why Have Business Cycle Fluctuations Become Less Volatile?	3/06
12080	Alan M. Garber Charles I. Jones Paul M. Romer	Insurance and Incentives for Medical Innovation	3/06
12081	Fumio Hayashi Edward C. Prescott	The Depressing Effect of Agricultural Institution on the Prewar Japanese Economy	3/06
12082	Mark Aguiar Erik Hurst	Measuring Trends in Leisure: The Allocation of Time Over Five Decades	3/06
12083	Justin Wolfers Eric Zitzewitz	Prediction Markets in Theory and Practice	3/06
12084	Gary Gorton Ping He	Agency-Based Asset Pricing	3/06
12085	George J. Borjas	Immigration in High-Skill Labor Markets: The Impact of Foreign Students on the Earnings of Doctorates	3/06
12086	Patricia Born W. Kip Viscusi Tom Baker	The Effects of Tort Reform on Medical Malpractice Insurers' Ultimate Losses	3/06
12087	Heitor Almeida Murillo Campello	Financial Constraints, Asset Tangibility, and Corporate Investment	3/06
12088	George J. Borjas	Making it in America: Social Mobility in the Immigrant Population	3/06
12089	Bennett T. McCallum Edward Nelson	Monetary and Fiscal Theories of the Price Level: The Irreconcilable Differences	3/06
12090	Nicole M. Boyson Christof W. Stahel René M. Stulz	Is There Hedge Fund Contagion?	3/06
12091	Elhanan Helpman	Trade, FDI, and the Organization of Firms	3/06
12092	Steven J. Davis	War in Iraq versus Containment	3/06

**To order any of these papers in hard copy, see instructions at the end of this list. To subscribe to all NBER Working Papers or the papers in a single area, see instructions inside the back cover.**

<u>Number</u>	<u>Author(s)</u>	<u>Title</u>	<u>Date</u>
	Kevin M. Murphy Robert H. Topel		
12093	Raghuram G. Rajan Luigi Zingales	The Persistence of Underdevelopment: Institutions, Human Capital, or Constituencies?	3/06
12094	Michael R. Darby Lynne G. Zucker	Innovation, Competition and Welfare-Enhancing Monopoly	3/06
12095	Gita Gopinath Roberta Rigobon	Sticky Borders	3/06
12096	Genia Long David Cutler Ernst Berndt Jimmy Royer Andree-Anne Fournier Alicia Sasser Pierre Cremieux	The Impact of Antihypertensive Drugs on the Number and Risk of Death, Stroke and Myocardial Infarction in the United States	3/06
12097	John A. List	Friend or Foe? A Natural Experiment of the Prisoner's Dilemma	3/06
12098	Wayne E. Ferson Andrew F. Siegel	Testing Portfolio Efficiency with Conditioning Information	3/06
12099	Sebastian L. Mazzuca James A. Robinson	Political Conflict and Power-sharing in the Origins of Modern Colombia	3/06
12100	Marco Battaglini Stephen Coate	A Dynamic Theory of Public Spending, Taxation and Debt	3/06
12101	Guillermo A. Calvo Alejandro Izquierdo	Phoenix Miracles in Emerging Markets: Recovering without Credit from System Financial Crises	3/06
12102	Christopher J. Ruhm	A Healthy Economy Can Break Your Heart	3/06
12103	Eric M. Leeper Shu-Chun Susan Yang	Dynamic Scoring: Alternative Financing Schemes	3/06
12104	Chang-Tai Hsieh Jonathan A. Parker	Taxes and Growth in a Financially Underdeveloped Country: Evidence from the Children	3/06
12105	Anna Aizer	Public Health Insurance, Program Take-up, and Child Health	3/06
12106	Patrick Boyer	Migration and Hedonic Valuation: The Case of Air Quality	3/06
12107	Patrick Bolton	Pay for Short-Term Performance: Executive Compensation	3/06



**To order any of these papers in hard copy, see instructions at the end of this list. To subscribe to all NBER Working Papers or the papers in a single area, see instructions inside the back cover.**

<u>Number</u>	<u>Author(s)</u>	<u>Title</u>	<u>Date</u>
	Jose Scheinkman Wei Xiong	in Speculative Markets	
12108	Daron Acemoglu James A. Robinson	Persistence of Power, Elites and Institutions	3/06
12109	Martin Lettau Stijn Van Nieuwerburgh	Reconciling the Return Predictability Evidence	3/06
12110	J. Vernon Henderson Ari Kuncoro	“Sick of Local Government Corruption? Vote Islamic”	3/06
12111	Karen Clay Werner Troesken	Deprivation and Disease in Early Twentieth-Century America	3/06
12112	Amy Finkelstein James Poterba	Testing for Adverse Selection with “Unused Observables”	3/06
12113	Robert Kaestner Xin Xu	Effects of Title IX and Sports Participation on Girls’ Physical Activity and Weight	3/06
12114	John H. Tyler Jeffrey R. Kling	Prison-Based Education and Re-Entry into the Mainstream Labor Market	3/06
12115	Catherine Weinberger Peter Kuhn	The Narrowing of the U.S. Gender Earnings Gap, 1959-1999: A Cohort-Based Analysis	3/06
12116	Richard B. Freeman	Learning from Other Economies: The Unique Institutional and Policy Experiments Down Under	3/06
12117	Philippe Aghion Philippe Bacchetta Romain Ranciere	Exchange Rate Volatility and Productivity Growth: The Role of Financial Development	3/06
12118	Benjamin M. Friedman	The Greenspan Era: Discretion, Rather Than Rules	3/06

Copies of the above working papers can be obtained for \$10.00 per copy (plus \$10.00 per order for shipping for all locations outside the continental U.S.) to Working Papers, NBER, 1050 Massachusetts Avenue, Cambridge, MA 02138-5398. Pre-payment is required on all orders and may be made by check or credit card. Checks should be made payable to the NBER and must be in dollars drawn on a U.S. bank. If paying by credit card, include the cardholder's name, account number, and expiration date. For all orders, please be sure to include your return address and telephone number. Working papers may also be ordered by telephone (868-3900), fax (617-868-2742), or email ([orders@nber.org](mailto:orders@nber.org)).