

Research

UPDATE

from the Federal Reserve Bank of New York

RESEARCH AND MARKET ANALYSIS GROUP

Rigid Inflation Targeting Can Lead to Wide Swings in GDP Growth

If a policymaker were to focus on inflation alone, the likely result—in the absence of fundamental changes in the structure of the economy—would be a very high level of real output variation.

Central banks that adopt a fixed inflation target run the risk of creating considerable variability in output growth, according to Stephen Cecchetti in “Policy Rules and Targets: Framing the Central Banker’s Problem” (*Economic Policy Review*, vol. 4, no. 2).

Cecchetti bases this conclusion on his analysis of the difficulties facing policymakers who must maintain steady economic growth while keeping inflation rates low. Because it is generally not possible to maintain both output and prices at their optimal levels, policymakers routinely balance the costs of output fluctuations against the costs of price fluctuations. But when policymakers introduce a system of rigid price-level

or inflation targeting, they “are implicitly altering the relative importance of inflation and output variability in their objectives, increasing the weight they attach to the former relative to the latter.”

This change in emphasis can have undesirable side effects. Drawing on empirical estimates of the impact of monetary policy shifts on output and prices over the 1984-95 period, Cecchetti finds that the output-inflation variability trade-off is extremely steep: in other words, an effort to decrease inflation variability modestly causes output to deviate significantly from its optimal path. Consequently, central banks that try to keep a tight rein on price fluctuations in order to meet an inflation target may see a sharp rise in the volatility of GDP growth. “Someone who cares about output variability is made substantially worse off by a decision to target the path of the price level,” the author writes. “As a result,

when considering policies based on prices alone, policymakers must be very cautious and ask whether they really care so little about output and other real quantities.”

Cecchetti’s discussion of inflation targeting is part of a broader analysis of the central banker’s task. The article presents an analytical framework for the formulation of a central bank policy rule—a systematic rule for adjusting interest rates as the state of the economy changes. In this framework, the deviations of output and prices from their optimal paths are treated as the “loss function” that central bankers seek to minimize through their control over interest rates.

The author also addresses several conceptual and practical issues that bear on the

development of policy rules. These issues include the influence of various types of uncertainty on policymaking, the possible justifications for interest rate smoothing, and the consequences of the fact that the nominal interest rate cannot fall below zero.

In the final section of the article, Cecchetti considers why it might be advantageous for central banks to follow policy rules. First, he notes, policymakers’ claims that they will adhere to a zero inflation policy will not be believed by the public unless these claims are supported by a formal commitment. Second, rules make policymakers more accountable by providing the public with clear and explicit standards for measuring central bank performance.

Publications and Papers

The Research and Market Analysis Group produces a wide range of publications and discussion papers:

- The *Economic Policy Review*—a policy-oriented research journal focusing on macroeconomic, banking, and financial market topics. www.ny.frb.org/rmaghome/econ_pol
- *Current Issues in Economics and Finance*—a newsletter-style publication offering concise analyses of economic and financial topics. www.ny.frb.org/rmaghome/curr_iss
- *Second District Highlights*—a regional supplement to *Current Issues* covering financial and economic developments in the Federal Reserve System’s Second District. www.ny.frb.org/rmaghome/curr_iss/sec_dis
- *Staff Reports*—technical papers presenting research findings, designed to stimulate discussion and elicit comments. These papers are intended for publication in leading economic and finance journals. www.ny.frb.org/rmaghome/staff_rp
- *Research Papers*—discussion papers reporting preliminary research findings. www.ny.frb.org/rmaghome/rsch_pap
- *Publications & Other Research*—a brochure spotlighting the Group’s research output for the year. www.ny.frb.org/rmaghome/otherres

Vertical Specialization Spurs Increase in International Goods and Services Flows

Vertical specialization in international trade has contributed significantly to the heightened global flows of goods and services in recent years, reports a new study in the *Economic Policy Review* (vol. 4, no. 2).

The authors find that vertical specialization accounts for a large and increasing share of international trade over the last several decades.

In “Vertical Specialization and the Changing Nature of World Trade,” David Hummels, Dana Rapoport, and Kei-Mu Yi note that the world’s economies have become increasingly integrated and increasingly global, as witnessed by the rising export shares of GDP of many emerging countries as well as many highly developed nations. The authors add that the internationalization of production is also contributing to the greater globalization of trade, noting that many multinational firms now use production plants in numerous countries, rather than in just one.

“Increased international production, however, does not always lead to increased international trade,” say Hummels, Rapoport, and Yi. For international production to be associated with increased trade, they argue, countries need to be linked through vertical specialization. Vertical specialization occurs when a country uses imported intermediate parts to produce goods it later exports. Countries link sequentially to produce a final good, with each country specializing in a particular stage of the good’s production process. Horizontal specialization, by comparison, involves countries that trade goods made from start to finish in one country.

To support their hypothesis that vertical specialization is significantly influencing global trade, the authors use four international-trade case studies to calculate the level and growth of vertical trade. For example, they find that at least half of all U.S.-Mexican trade could be due to vertical trade. They then examine trade data for ten developed countries in the Organization for Economic Cooperation and Development (OECD) to confirm that their estimates can be generalized to entire countries.

Hummels, Rapoport, and Yi find that vertical specialization has accounted for a large and increasing share of international trade over the last several decades—and this share has been as high as 50 percent in some of the smaller countries examined. Moreover, by the beginning of the 1990s, vertical-specialization-based trade in the ten OECD countries had increased by 20 percent from the late 1960s and early 1970s. Analysis of the OECD data reveals “a strong statistical association between the increased vertical specialization share of total trade and the rising trade shares of GDP.” The authors conclude that “globalization has gone beyond just ‘more trade.’” The fact that countries increasingly specialize in the production of certain stages of a good, rather than in the making of a complete good, means that the very nature of trade has changed.

The authors also predict that the developments that have led to increased vertical specialization—lower trade barriers and transportation and communications technology enhancements—will continue. “Thus, we can expect the importance of vertical trade to grow as the world economy heads into the twenty-first century.

Foreign Ownership of U.S. Treasury Securities Is Difficult to Determine from Published Data

Although considerable information is released on foreign holdings of U.S. Treasury securities, it is not possible to learn from the published data exactly which foreigners own Treasury debt and how much of this debt is in foreign hands. In “Foreign Ownership of U.S. Treasury Securities: What the Data Show and Do Not Show” (*Current Issues in Economics and Finance*, vol. 4, no. 5), Dorothy Sobol contends that this inability to determine foreign ownership with complete certainty stems mainly from two factors: the Treasury Department’s obligation to respect the confidentiality of individual respondents and the design of the reporting guidelines themselves.

In her overview of the data collected by the Treasury Department, the author explains that each month the Treasury asks banks, other depository institutions, and brokers and dealers to report both short-term Treasury securities held in custody for foreigners and foreign purchases and sales of long-term Treasury securities. In soliciting data, the Treasury assures respondents that the information they provide will be held in confidence. To meet this commitment, the Department publishes data on foreign holdings only in aggregate form, leaving the amounts reported by individual respondents undisclosed.

The determination of foreign ownership is also made difficult by the Treasury’s reporting guidelines, which direct respondents to assign nationality on the basis of counterparty location. In some cases, the counterparty may be acting on behalf of a firm or individual residing in another country. If so, the nationality of the ultimate owner of, or transactor in, the security will go unreported. For example, “if a U.S. bank buys a long-term Treasury security from a

Japanese resident’s account with Merrill Lynch in London, the transaction will be reported as a sale by a U.K. resident and not a Japanese resident,” Sobol explains. Similarly, if a U.S. institution sells a long-term Treasury security to the Sydney, Australia, branch of a French firm, the new holder of the security will be identified as an Australian resident.

The author indicates that somewhat better information on the ultimate owners of long-term Treasury securities is available at the time of the Treasury Department’s benchmark surveys of foreign holdings. Nevertheless, because the surveys are conducted only at five-year intervals and their findings are published with long lags, the information they contain loses relevance over time.

Sobol contends that the Treasury’s confidentiality rules and reporting guidelines have important implications for the tracking of foreign official institutions’ activity in U.S. Treasury securities. Although the data on foreign holdings show whether foreign official institutions as a group are buying or selling long-term Treasury securities from month to month, they do not reveal the actions of any individual country’s central bank at any given time nor indicate whether that central bank is buying or selling Treasury bills, notes, or bonds. “Any press or other reports stating that a specific country’s central bank is unloading Treasury securities are based on purely speculative or anecdotal evidence,” the author concludes.

Government data on foreign holdings of U.S. Treasury securities do not necessarily capture the nationality of the ultimate owners of these securities.

ATM Surcharges Bring Both Benefits and Costs

In April 1996, the two largest national automated teller machine (ATM) networks, Plus and Cirrus, ended their prohibition on direct fees for using an ATM. Since that decision, many banks and nonbanks that own machines have chosen to impose these fees, known as surcharges, on users who are not depositors of the machine owner.

In “ATM Surcharges,” James McAndrews provides a brief overview of the organization of ATM networks, the fees they charge member financial institutions (most of which are banks), and the fees banks and ATM owners charge consumers for ATM services (*Current Issues in Economics and Finance*, vol. 4, no. 4).

“Surcharges entail both benefits and costs for ATM owners, consumers, banks, and ATM networks,” reports McAndrews. The primary customer benefit is that surcharges have the potential to lead to a better match between the supply of ATM locations and customer demand for remote access to their accounts. In particular, surcharges encourage the deployment of ATMs to high-cost, high-value areas such as airports, stadiums, and ski resorts.

Surcharges, however, also impose direct costs on consumers even for the most routine transactions. Surveys show that these fees, which can reach as high as \$5.00, average about \$1.00. To avoid these direct costs, many customers appear to be going out of their way to visit their own banks’ machines in place of network machines. Besides inconveniencing customers, this change in usage has clear negative implications for the networks themselves: to the extent that customers rely on their own banks’ machines, ATM networks and network banks stand to lose revenue from surcharges and other transaction fees.

According to McAndrews, surcharges may also change how customers choose their banks. By exempting customers of ATM owners from surcharges, the current system reduces the role of the shared ATM network to which a bank belongs and expands the role of the bank’s own chain of machines. This arrangement encourages customers who most prize convenience to establish deposit accounts with banks that have ATMs located in the customers’ preferred locations rather than with banks that offer

Recently Published

Donald R. Davis. “Does European Unemployment Prop Up American Wages? National Labor Markets and Global Trade.” *American Economic Review* 88, no. 3: 478-94.

Arturo Estrella. “A New Measure of Fit for Equations with Dichotomous Dependent Variables.” *Journal of Business and Economic Statistics* 16, no. 2: 198-205.

Michael J. Fleming and Anthony P. Rodrigues. “How Workers Use 401(k) Plans: The Participation, Contribution, and Withdrawal Decisions,” with William F. Bassett. *National Tax Journal* 51, no. 2: 263-89.

Matthew Higgins. “Demography, National Savings and International Capital Flows.” *International Economic Review* 39, no. 2: 343-70.

the highest interest rates on deposit accounts. Hence, in the long term, ATM surcharges could weaken deposit interest rate competition among banks.

Since surcharges were introduced in 1996, consumers, banks, and legislators have been engaged in lively debate over the legitimacy of these fees. Consumer complaints have led

some state legislatures and congressional committees to consider bills to ban surcharges. To date, however, only two state banking regulators have imposed such bans. Although the public policy debate is far from settled, McAndrews notes, the widespread adoption of direct fees by ATM owners suggests that surcharging will continue.

Volatility of GDP Growth Is Linked to Volatility in Durable Goods Production

A dramatic decline in the volatility of U.S. GDP growth in the early 1980s can be attributed to a reduction in the volatility of durable goods production, according to Margaret McConnell and Gabriel Perez Quiros in “Output Fluctuations in the United States: What Has Changed since the Early 1980s?” (*Staff Reports*, no. 41). In turn, this structural break in durable goods production may derive from the reduced role played by inventory fluctuations after 1984.

Using quarterly GDP growth data from 1953 through mid-1997, the authors show that the variance of output fluctuations through 1983 is more than four times as large as the variance from 1984 onward.

To explore this drastic fall in volatility, the authors first determine that the break in U.S. output volatility in 1984 stems from a development unique to the U.S. economy. They then disaggregate U.S. output into components—the contribution to growth of the goods, services, and structures sectors of the economy—and examine the components for breaks. After eliminating the latter two sectors, they focus on the growth rate of goods—decomposing the rate into contributions from durables and nondurables growth. The growth

rates of goods and durables are each found to break in the first quarter of 1985; no evidence of breaks is found for nondurables. The authors conclude that “the magnitude of the decline in durables volatility alone is sufficient to account for the break in the volatility of aggregate output.”

The authors also examine four possible reasons why output volatility fell so dramatically in the early 1980s. After analyzing and discounting three reasons—changes in the composition of the U.S. economy, the stabilizing effect of monetary policy, and changes in trade patterns—McConnell and Perez Quiros focus on inventory movements, to determine if they have become a smaller share of durables production. Since inventories traditionally account for a large fraction of the variability of aggregate output, the authors contend, a declining share of inventories could have substantial effects on the volatility of output fluctuations. Strong evidence of a break in inventories is found in the third quarter of 1984—a date that corresponds closely to the date found for the change in aggregate output volatility. “Once we subtract purchases of inventories from total purchases, we have eliminated the volatility break,” note the authors.

Papers Presented by Economists in the Research and Market Analysis Group

Paul Bennett, Richard Peach, and Stavros Peristiani. “Structural Change in the Mortgage Market and the Propensity to Refinance.” American Real Estate and Urban Economics Association Mid-Year Meetings, Washington, D.C., May 26.

The authors test the hypothesis that the interest savings that trigger a home mortgage refinancing have become smaller, because of a combination of technological, regulatory, and structural changes that have made mortgage origination more competitive and more efficient. Their results strongly support the hypothesis that structural change in the mortgage market has increased homeowners’ propensity to refinance.

Sandra Black. “How to Compete: The Impact of Workplace Practices and Information Technology on Productivity,” with Lisa Lynch. Society of Labor Economists Meeting, San Francisco, May 2.

Using a new dataset, Black looks at how high-performance workplace practices affect establishment productivity. Firms with these newer practices are found to have higher productivity.

James Harrigan. “International Trade and American Wages in General Equilibrium, 1967-1995.” University of Copenhagen Conference on International Trade, Copenhagen, June 20.

Harrigan’s empirical examination of the causes of increased wage inequality finds a large role for relative price and relative factor supply changes and a small direct role for international trade.

Kenneth Kuttner and Cara Lown. “Government Debt, the Composition of Bank Portfolios, and the Transmission of Monetary Policy.” Bank of England Conference on the Relationship

between the Level and Composition of Government Debt and Monetary Policy, London, June 18-19.

Kuttner and Lown find some evidence from the 1990s to support the hypothesis that an increase in outstanding government debt leads to an increase in banks’ holdings of this debt. They also find that during periods of tight monetary policy, banks holding a large fraction of their assets as securities sell these securities and continue to lend—a practice that can at least partially undercut the goals of monetary policy.

Carol Osler. “Identifying Noise Traders: The Head-and-Shoulders Pattern in U.S. Equities.” Conference on Forecasting Financial Markets, cosponsored by the Imperial College of Business and Banque National de Paris, London, May 27-29.

Osler’s paper shows that technical speculation using the head-and-shoulders pattern—a price formation involving three consecutive price peaks—is not profitable and therefore is not rational. Nonetheless, such trading is quite active in U.S. equity markets, and it affects returns slightly.

Kei-Mu Yi. “The Growth of World Trade.” Midwest Macroeconomics Conference, cosponsored by Macroeconomic Advisors and the Federal Reserve Bank of St. Louis, St. Louis, April 17-19.

Yi’s paper explains the increasing importance of vertical specialization in world trade and shows that a model including vertical trade can more easily explain the growth of trade than standard trade models.

Individual copies of these papers can be obtained by e-mailing requests to the authors at firstname.lastname@ny.frb.org.

RESEARCH AND MARKET ANALYSIS GROUP

PUBLICATIONS AND PAPERS:

APRIL–JUNE 1998

Economic Policy Review

Volume 4, Number 2 (June)

Policy Rules and Targets: Framing the Central Banker's Problem, *by Stephen G. Cecchetti*

The Expanding Geographic Reach of Retail Banking Markets, *by Lawrence J. Radecki*

Dealers' Hedging of Interest Rate Options in the U.S. Dollar Fixed-Income Market, *by John E. Kambhu*

Does Consumer Confidence Forecast Household Expenditure? A Sentiment Index Horse Race, *by Jason Bram and Sydney Ludvigson*

Vertical Specialization and the Changing Nature of World Trade, *by David Hummels, Dana Rapoport, and Kei-Mu Yi*

Current Issues in Economics and Finance

ATM Surcharges, *by James J. McAndrews*

Volume 4, Number 4 (April)

Foreign Ownership of U.S. Treasury Securities: What the Data Show and Do Not Show, *by Dorothy Meadow Sobol*

Volume 4, Number 5 (May)

How Effective Is Lifeline Banking in Assisting the 'Unbanked'? *by Joseph J. Doyle, Jose A. Lopez, and Marc R. Saldenberg*

Volume 4, Number 6 (June)

Staff Reports

Consistent Covariance Matrix Estimation in Probit Models with Autocorrelated Errors, *by Arturo Estrella and Anthony P. Rodrigues*
Number 39 (April)

Economic Geography and Regional Production Structure: An Empirical Investigation, *by Donald R. Davis and David E. Weinstein*
Number 40 (May)

Output Fluctuations in the United States: What Has Changed since the Early 1980s? *by Margaret M. McConnell and Gabriel Perez Quiros*
Number 41 (June)

Research Papers

Rethinking the Role of NAIRU in Monetary Policy: Implications of Model Formulation and Uncertainty, *by Arturo Estrella and Frederic S. Mishkin*
Number 9806 (April)

Institutional Affiliation and the Role of Venture Capital: Evidence from Initial Public Offerings in Japan, *by Yasushi Hamao, Frank Packer, and Jay R. Ritter*
Number 9807 (April)

Risksharing within the United States: What Have Financial Markets and Fiscal Federalism Accomplished? *by Stefano Athanasoulis and Eric van Wincoop*
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Number 9809 (April)

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Number 9810 (April)

The Changing U.S. Income Distribution: Facts, Explanations, and Unresolved Issues, *by David Brauer*
Number 9811 (April)

Can VARs Describe Monetary Policy? *by Charles L. Evans and Kenneth N. Kuttner*
Number 9812 (April)

An Analysis of Brokers' Trading, with Applications to Order Flow Internalization and Off-Exchange Block Sales, *by Sugato Chakravarty and Asani Sarkar*
Number 9813 (May)

Estimating the Adverse Selection and Fixed Costs of Trading in Markets with Multiple Informed Traders, *by Sugato Chakravarty, Asani Sarkar, and Lifan Wu*
Number 9814 (May)

Risk and the Democratization of Credit Cards, *by Sandra E. Black and Donald P. Morgan*
Number 9815 (June)

Securities Class Actions, Corporate Governance, and Managerial Agency Problems, *by Philip E. Strahan*
Number 9816 (June)

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