

Federal Reserve Bank
of Minneapolis



Fall 2002

Quarterly Review

Reprints

**Money and Inflation
in Colonial Massachusetts** (p. 3)

Bruce D. Smith

**The Relationship Between Money and Prices:
Some Historical Evidence Reconsidered** (p. 17)

Bruce D. Smith

**Lessons From a Laissez-Faire
Payments System:
The Suffolk Banking System (1825–58)** (p. 32)

Arthur J. Rolnick
Bruce D. Smith
Warren E. Weber

The Published Work of Bruce D. Smith (p. 43)

Federal Reserve Bank of Minneapolis

Quarterly Review

Vol. 26, No. 4

ISSN 0271-5287

This publication primarily presents economic research aimed at improving policymaking by the Federal Reserve System and other governmental authorities.

Any views expressed herein are those of the authors and not necessarily those of the Federal Reserve Bank of Minneapolis or the Federal Reserve System.

Editor: Arthur J. Rolnick

Associate Editors: Patrick J. Kehoe, Warren E. Weber

Economic Advisory Board: Harold L. Cole, Edward J. Green,
Preston J. Miller, Richard M. Todd,
Warren E. Weber, Stephen D. Williamson

Managing Editor: Kathleen S. Rolfe

Article Editors: Kathleen S. Rolfe, Inga Velde

Production Editor: Jenni C. Schoppers

Designer: Phil Swenson

Typesetter: Mary E. Anomalay

Circulation Assistant: Robbie Egge

The *Quarterly Review* is published by the Research Department of the Federal Reserve Bank of Minneapolis. Subscriptions are available free of charge.

Quarterly Review articles that are reprints or revisions of papers published elsewhere may not be reprinted without the written permission of the original publisher. All other *Quarterly Review* articles may be reprinted without charge. If you reprint an article, please fully credit the source—the Minneapolis Federal Reserve Bank as well as the *Quarterly Review*—and include with the reprint a version of the standard Federal Reserve disclaimer (italicized above). Also, please send one copy of any publication that includes a reprint to the Minneapolis Fed Research Department.

Electronic files of *Quarterly Review* articles are available through the Minneapolis Fed's home page on the World Wide Web: <http://www.minneapolisfed.org>.

Comments and questions about the *Quarterly Review* may be sent to

Quarterly Review
Research Department
Federal Reserve Bank of Minneapolis
P. O. Box 291
Minneapolis, Minnesota 55480-0291
(Phone 612-204-6455 / Fax 612-204-5515).

Subscription requests may also be sent to the circulation assistant at robbie.egge@mpls.frb.org; editorial comments and questions, to the managing editor at ksr@res.mpls.frb.fed.us.

The Published Work of Bruce D. Smith

In the *Federal Reserve Bank of Minneapolis Quarterly Review*

- 2000 The Suffolk Bank and the Panic of 1837
With Arthur J. Rolnick and Warren E. Weber
24 (Spring 2000): 3–13
- 1998 Lessons From a Laissez-Faire Payments System:
The Suffolk Banking System (1825–58)
With Arthur J. Rolnick and Warren E. Weber
22 (Summer 1998): 11–21
- 1993 In Order to Form a More Perfect Monetary Union
With Arthur J. Rolnick and Warren E. Weber
17 (Fall 1993): 2–13
- 1988 The Relationship Between Money and Prices:
Some Historical Evidence Reconsidered
12 (Summer 1988): 18–32
- 1984 Money and Inflation in Colonial Massachusetts
8 (Winter 1984): 1–14

In Other Journals

Forthcoming

The Value of Inside and Outside Money
With James Bullard
Journal of Monetary Economics, forthcoming

What to Stabilize in the Open Economy
With Valerie Bencivenga and Elisabeth Huybens
International Economic Review, forthcoming

- 2002 Deposit Insurance: A Reconsideration
With John H. Boyd and Chun Chang
Journal of Monetary Economics 49 (September 2002): 1235–60

The Conduct of Monetary Policy With a Shrinking Stock of Government Debt
With Stacey L. Schreft
Journal of Money, Credit, and Banking 34 (Part 2, August 2002): 848–82

- Monetary Policy, Banking Crises, and the Friedman Rule
American Economic Review 92 (May 2002): 128–34
- 2001 Introduction to Monetary and Financial Arrangements
Journal of Economic Theory 99 (July–August 2001): 1–21
(introduction to edited symposium issue)
- Private and Public Circulating Liabilities
With Costas Azariadis and James Bullard
Journal of Economic Theory 99 (July–August 2001): 59–116
- Banks, Short-Term Debt and Financial Crises:
Theory, Policy Implications, and Applications: A Comment
Carnegie-Rochester Conference Series on Public Policy
54 (June 2001): 73–83
- Dollarization and the Integration of International Capital Markets:
A Contribution to the Theory of Optimal Currency Areas
With Valerie R. Bencivenga and Elisabeth Huybens
Journal of Money, Credit, and Banking 33 (Part 2, May 2001): 548–89
- The Impact of Inflation on Financial Sector Performance
With John H. Boyd and Ross Levine
Journal of Monetary Economics 47 (April 2001): 221–48
- 2000 Deposit Insurance and Lender-of-Last-Resort Functions
With Christopher Sleet
Journal of Money, Credit, and Banking 33 (Part 2, August 2000): 518–75
- The Evolution of Cash Transactions:
Some Implications for Monetary Policy
With Stacey L. Schreft
Journal of Monetary Economics 46 (August 2000): 97–120
- Secondary Capital Markets, Long-Run Growth,
and the Term Structure of Asset Yields
With Valerie R. Bencivenga and Ross M. Starr
International Economic Review 41 (August 2000): 769–800
- 1999 The Use of Debt and Equity in Optimal Financial Contracts
With John H. Boyd
Journal of Financial Intermediation 8 (October 1999): 270–316
- Private Money Creation and the Suffolk Banking System
With Warren E. Weber
Journal of Money, Credit, and Banking 31 (Part 2, August 1999): 624–59
- Inflation and Asset Returns
With Michelle Barnes and John H. Boyd
European Economic Review 43 (April 1999): 737–54

- Inflation, Financial Markets, and Long-Run Real Activity
With Elisabeth Huybens
Journal of Monetary Economics 43 (April 1999): 283–315
- Adverse Selection in a Neoclassical Growth Model
With Costas Azariadis
North American Journal of Economics and Finance 10 (2, 1999): 339–61
- 1998 Economic Development and Financial Depth
in a Model With Costly Financial Intermediation
With Valerie R. Bencivenga
Research in Economics / Ricerche Economiche 52 (December 1998): 363–86
- Financial Markets, Specialization, and Learning-by-Doing
With Thomas F. Cooley
Research in Economics / Ricerche Economiche 52 (December 1998): 333–61
- The Evolution of Debt and Equity Markets
in Economic Development
With John H. Boyd
Economic Theory 12 (November 1998): 519–60
- Informational Asymmetries in Macroeconomics and Finance:
An Introduction
Economic Theory 12 (November 1998): 451–60
(introduction to edited symposium issue)
- Repeated Insurance Relationships
in a Costly State Verification Model:
With an Application to Deposit Insurance
With Cheng Wang
Journal of Monetary Economics 42 (October 1998): 207–40
- Financial Market Frictions, Monetary Policy,
and Capital Accumulation in a Small Open Economy
With Elisabeth Huybens
Journal of Economic Theory 81 (August 1998): 353–400
- Moral Hazard Under Commercial and Universal Banking
With John H. Boyd and Chun Chang
Journal of Money, Credit, and Banking 30 (Part 2, August 1998): 426–68
- Some Even More Unpleasant Monetarist Arithmetic
With Joydeep Bhattacharya and Mark G. Guzman
Canadian Journal of Economics 31 (August 1998): 596–623
- The Effects of Open Market Operations
in a Model of Intermediation and Growth
With Stacey L. Schreft
Review of Economic Studies 65 (July 1998): 519–50
- Financial Intermediation and Regime Switching in Business Cycles
With Costas Azariadis
American Economic Review 88 (June 1998): 516–36

Lessons From a Laissez-Faire Payments System:
The Suffolk Banking System (1825–58)
With Arthur J. Rolnick and Warren E. Weber
Federal Reserve Bank of St. Louis Review 80 (May–June 1998): 105–16

Government Borrowing Using Bonds
With Randomly Determined Returns:
Welfare Improving Randomization in the Context of Deficit Finance
With Anne P. Villamil
Journal of Monetary Economics 41 (April 1998): 351–70

Capital Market Imperfections in a Monetary Growth Model
With John H. Boyd
Economic Theory 11 (March 1998): 241–73

Review of “Great Inflations of the 20th Century: Theories, Policies, and Evidence,”
edited by Pierre L. Siklos
Journal of Economic History 58 (March 1998): 249–51

James Madison’s Monetary Economics
Federal Reserve Bank of Cleveland Economic Review
34 (1st Quarter 1998): 7–20

1997 Coinage, Debasements, and Gresham’s Laws
With Thomas J. Sargent
Economic Theory 10 (August 1997): 197–226

Money, Banking, and the Determination
of Real and Nominal Exchange Rates
With Caroline M. Betts
International Economic Review 38 (August 1997): 703–34

Unemployment, Migration, and Growth
With Valerie R. Bencivenga
Journal of Political Economy 105 (June 1997): 582–608

Monetary, Fiscal, and Reserve Requirement Policy
in a Simple Monetary Growth Model
With Joydeep Bhattacharya, Mark G. Guzman, and Elisabeth Huybens
International Economic Review 38 (May 1997): 321–50

Capital Market Imperfections, International Credit Markets,
and Nonconvergence
With John H. Boyd
Journal of Economic Theory 73 (April 1997): 335–64

Money, Banking, and Capital Formation
With Stacey L. Schreft
Journal of Economic Theory 73 (March 1997): 157–82

Financial Markets in Development, and
the Development of Financial Markets
With Jeremy Greenwood
Journal of Economic Dynamics and Control 21 (January 1997): 145–81

- 1996 **Currency Elasticity and Banking Panics: Theory and Evidence**
With Bruce Champ and Stephen D. Williamson
Canadian Journal of Economics 29 (November 1996): 828–64
- Private Information, Money, and Growth:
Indeterminacy, Fluctuations, and the Mundell-Tobin Effect**
With Costas Azariadis
Journal of Economic Growth 1 (September 1996): 309–32
- Inflation, Financial Markets, and Capital Formation**
With Sangmok Choi and John H. Boyd
Federal Reserve Bank of St. Louis Review 78 (May–June 1996): 9–35
- The Coevolution of the Real and Financial Sectors
in the Growth Process**
With John H. Boyd
World Bank Economic Review 10 (May 1996): 371–96
- Equity Markets, Transactions Costs, and Capital Accumulation:
An Illustration**
With Valerie R. Bencivenga and Ross M. Starr
World Bank Economic Review 10 (May 1996): 241–65
- Credit Market Imperfections and Economic Development:
Theory and Evidence**
With Chien-Hui Ma
Journal of Development Economics 48 (March 1996): 351–87
- Do Open Market Operations Matter?
Theory and Evidence From the Second Bank of the United States**
With Richard A. Highfield and Maureen O'Hara
Journal of Economic Dynamics and Control
20 (January–March 1996): 479–519
- Liquidity of Secondary Capital Markets:
Allocative Efficiency and the Maturity Composition
of the Capital Stock**
With Valerie R. Bencivenga and Ross M. Starr
Economic Theory 7 (January 1996): 19–50
- 1995 **Transactions Costs, Technological Choice,
and Endogenous Growth**
With Valerie R. Bencivenga and Ross M. Starr
Journal of Economic Theory 67 (October 1995): 153–77
- A Theory of Mutual Formation and Moral Hazard
With Evidence From the History of the Insurance Industry**
With Michael J. Stutzer
Review of Financial Studies 8 (Summer 1995): 545–77
- Is There a “Credit Channel” for Monetary Policy? Commentary**
Federal Reserve Bank of St. Louis Review 77 (May–June 1995): 78–82

Sectoral Employment and Cyclical Fluctuations
in an Adverse Selection Model
International Economic Review 36 (May 1995): 261–81

Indivisible Assets, Equilibrium, and the Value of Intermediation
With Thomas F. Cooley
Journal of Financial Intermediation 4 (January 1995): 48–76

1994 How Good Are Standard Debt Contracts?
Stochastic Versus Nonstochastic Monitoring
in a Costly State Verification Environment
With John H. Boyd
Journal of Business 67 (October 1994): 539–61

Mischief and Monetary History:
Friedman and Schwartz Thirty Years Later
Journal of Monetary Economics 34 (August 1994): 27–45

Efficiency and Determinacy of Equilibrium Under Inflation Targeting
Economic Theory 4 (3, 1994): 327–44

Los Mercados Financieros en el Desarrollo,
y el Desarrollo de los Mercados Financieros
With Jeremy Greenwood
Cuadernos Económicos de I.C.E. 58 (3, 1994): 137–69

1993 A Theory of Optimal Denominations for Government Liabilities
With Thomas F. Cooley
Economic Theory 3 (October 1993): 597–623

Adverse Selection in the Overlapping Generations Model:
The Case of Pure Exchange
With Costas Azariadis
Journal of Economic Theory 60 (August 1993): 277–305

The Equilibrium Allocation of Investment Capital
in the Presence of Adverse Selection and Costly State Verification
With John H. Boyd
Economic Theory 3 (July 1993): 427–51

Some Consequences of Credit Rationing
in an Endogenous Growth Model
With Valerie R. Bencivenga
Journal of Economic Dynamics and Control
17 (January–March 1993): 97–122

Review of “Introduction to Dynamic Macroeconomic Theory:
An Overlapping Generations Approach”
by George McCandless and Neil Wallace
Journal of Economic Education 24 (Winter 1993): 85–91

- 1992 Intermediation and the Equilibrium Allocation of Investment Capital:
Implications for Economic Development
With John H. Boyd
Journal of Monetary Economics 30 (December 1992): 409–32
- Deficits, Inflation, and the Banking System in Developing Countries:
The Optimal Degree of Financial Repression
With Valerie R. Bencivenga
Oxford Economic Papers 44 (October 1992): 767–90
- 1991 Bank Panics, Suspensions, and Geography:
Some Notes on the “Contagion of Fear” in Banking
Economic Inquiry 29 (April 1991): 230–48
- Financial Intermediation and Endogenous Growth
With Valerie R. Bencivenga
Review of Economic Studies 58 (April 1991): 195–209
- Interest on Reserves and Sunspot Equilibria:
Friedman’s Proposal Reconsidered
Review of Economic Studies 58 (January 1991): 93–105
- 1990 Adverse Selection, Aggregate Uncertainty,
and the Role for Mutual Insurance Contracts
With Michael J. Stutzer
Journal of Business 63 (October 1990): 493–510
- Adverse Selection and Mutuality:
The Case of the Farm Credit System
With Michael J. Stutzer
Journal of Financial Intermediation 1 (June 1990): 125–49
- 1989 Unemployment, the Variability of Hours,
and the Persistence of “Disturbances”:
A Private Information Approach
International Economic Review 30 (November 1989): 921–38
- A Model of Nominal Contracts
Journal of Labor Economics 7 (October 1989): 392–414
- Dynamic Coalition Formation and Equilibrium Policy Selection
With Thomas F. Cooley
Journal of Monetary Economics 24 (September 1989): 211–33
- Credit Rationing and Government Loan Programs:
A Welfare Analysis
With Michael J. Stutzer
American Real Estate and Urban Economics Association Journal
17 (Summer 1989): 177–93
- A Business Cycle Model With Private Information
Journal of Labor Economics 7 (April 1989): 210–37

- Legal Restrictions, "Sunspots," and Cycles
Journal of Economic Theory 47 (April 1989): 369–92
- 1988 Organizations in Economic Analysis
With John H. Boyd and Edward C. Prescott
Canadian Journal of Economics 21 (August 1988): 477–91
- Legal Restrictions, "Sunspots," and Peel's Bank Act:
The Real Bills Doctrine Versus the Quantity Theory Reconsidered
Journal of Political Economy 96 (February 1988): 3–19
- 1987 Irrelevance of Open Market Operations in Some Economies
With Government Currency Being Dominated in Rate of Return
With Thomas J. Sargent
American Economic Review 77 (March 1987): 78–92
- 1986 Limited Information, Money, and Competitive Equilibrium
Canadian Journal of Economics 19 (November 1986): 780–97
- 1985 Some Colonial Evidence on Two Theories of Money:
Maryland and the Carolinas
Journal of Political Economy 93 (December 1985): 1178–1211
- American Colonial Monetary Regimes:
The Failure of the Quantity Theory and Some Evidence
in Favour of an Alternative View
Canadian Journal of Economics 18 (August 1985): 531–65
- Government Expenditures, Deficits, and Inflation:
On the Impossibility of a Balanced Budget
Quarterly Journal of Economics 100 (August 1985): 715–45
- 1984 Private Information, Deposit Interest Rates,
and the "Stability" of the Banking System
Journal of Monetary Economics 14 (November 1984): 293–317
- Money, Nonconvex Preferences, and the Existence of Equilibrium:
A Note
Journal of Economic Theory 32 (April 1984): 359–66
- 1983 The Standard of Living Debate, Rational Expectations,
and Neutrality: Some Evidence From the Industrial Revolution
With David M. Modest
Journal of Monetary Economics 12 (November 1983): 571–93
- Limited Information, Credit Rationing,
and Optimal Government Lending Policy
American Economic Review 73 (June 1983): 305–18

In Books

Forthcoming

Introduction: Evolution and Procedures in Central Banking
With David E. Altig
In *Evolution and Procedures in Central Banking*
ed. David E. Altig and Bruce D. Smith
New York: Cambridge University Press, forthcoming

Establishing a Monetary Union in the United States
With Arthur J. Rolnick and Warren E. Weber
In *Evolution and Procedures in Central Banking*
ed. David E. Altig and Bruce D. Smith
New York: Cambridge University Press, forthcoming

2000 **Equity Markets, Transactions Costs, and Capital Accumulation:
An Illustration**
With Valerie R. Bencivenga and Ross M. Starr
In *International Capital Movements*
ed. Hans Singer, Neelambar Hatti, and Rameshwar Tandon
New World Order Series Vol. 17, Part 1, pp. 423–57
New Delhi: B. R. Publishing, 2000

1998 **The Suffolk Bank and the Panic of 1837**
With Arthur J. Rolnick and Warren E. Weber
In *Risk Measurement and Systemic Risk:
Proceedings of the Second Joint Central Bank Research Conference*, pp. 483–505
Tokyo: Institute for Monetary and Economic Studies, Bank of Japan, 1998

1996 **Financial Intermediation and Endogenous Growth**
With Valerie R. Bencivenga
In *Economic Growth: Theory and Evidence*, Vol. 2
ed. Gene M. Grossman, pp. 466–80
Cheltenham, U.K.: Edward Elgar, 1996

1994 **The Origins of the Monetary Union in the United States**
With Arthur J. Rolnick and Warren E. Weber
In *Varieties of Monetary Reforms:
Lessons and Experiences on the Road to Monetary Union*
ed. Pierre L. Siklos, pp. 323–49
Boston: Kluwer Academic, 1994

1992 **Irrelevance of Open Market Operations in Some Economies
With Government Currency Being Dominated in Rate of Return**
With Thomas J. Sargent
In *The New Classical Macroeconomics*, Vol. 1
ed. Kevin D. Hoover, pp. 487–501
Aldershot, U.K.: Edward Elgar, 1992

The Overlapping-Generations Model and Monetary Economics

With Karl Shell

In *New Palgrave Dictionary of Money and Finance*, Vol. 3

ed. J. Eatwell, M. Milgate, and P. Newman, pp. 104–9

London: Macmillan, 1992

The Real-Bills Doctrine

In *New Palgrave Dictionary of Money and Finance*, Vol. 3

ed. J. Eatwell, M. Milgate, and P. Newman, pp. 298–300

London: Macmillan, 1992

Sunspot Equilibrium

With Karl Shell

In *New Palgrave Dictionary of Money and Finance*, Vol. 3

ed. J. Eatwell, M. Milgate, and P. Newman, pp. 601–5

London: Macmillan, 1992

- 1991 **Some Colonial Evidence on Two Theories of Money:
Maryland and the Carolinas**
In *Major Inflation in History*
ed. Forrest H. Capie, pp. 217–50
Aldershot, U.K.: Edward Elgar, 1991
- 1988 **The Irrelevance of Government Foreign Exchange Operations**
With Thomas J. Sargent
In *Economic Effects of the Government Budget*
ed. Elhanan Helpman, Assaf Razin, and Efraim Sadka, pp. 328–45
Cambridge, Mass.: MIT Press, 1988
- 1987 **Private Information, the Real Bills Doctrine,
and the Quantity Theory: An Alternative Approach**
In *Contractual Arrangements for Intertemporal Trade*
ed. Edward C. Prescott and Neil Wallace, pp. 48–80
Minneapolis: University of Minnesota Press, 1987