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ResearchUpdate

Research and Statistics Group www.newyorkfed.org/research

New Study Explains Buildup of Reserves in U.S. Banking System as a By-Product of Fed's Liquidity Programs

For some observers, the rapid growth of excess reserves in the U.S. banking system during the financial crisis has been a troubling development—a sign that banks are "hoarding" funds rather than lending them out and hence that the Federal Reserve's efforts to restore the flow of credit to firms and households have faltered. In "Why Are Banks Holding So Many Excess Reserves?" (*Current Issues in Economics and Finance*, vol. 15, no. 8), authors Todd Keister and James McAndrews dispute this view. Using a series of examples to illustrate how reserves are created, they demonstrate that the buildup of excess reserves is simply a by-product of the lending facilities and asset purchase programs established by the Federal Reserve during the financial crisis. The very high level of reserves, the authors contend, reflects the large scale of the Fed's initiatives, but conveys no information about the lending behavior of banks.

As the authors explain, reserves are funds held by a bank, either as balances on deposit at the Federal Reserve or as cash in the bank's vault or ATMs, that can be used to meet the bank's legal reserve requirement. Between September 2008 and the end of 2009, reserves surged from about \$45 billion to more than \$900 billion. Excess reserves—the portion of reserves remaining after a bank has met its legal requirement—accounted for the bulk of the increase.

To explain this surge, Keister and McAndrews present simple examples that show how the types of actions taken by central banks to ease liquidity strains during the financial crisis—loans to banks and other firms as well as direct purchases of assets—create large quantities of reserves. The level of reserves in a country's banking system, the authors observe, is determined almost entirely by the central bank's actions. By contrast, the actions of individual banks will have

Also in this issue...

no effect on aggregate reserves: As the authors' examples show, an individual bank can lower its reserves by lending them out or using them to purchase other assets, but its actions simply transfer the funds to other banks' reserve accounts and do not alter the total level of reserves in the banking system. Thus, the current high level of reserves in the U.S. banking system reflects the scale of the Federal Reserve's recent policy initiatives and cannot be interpreted as evidence that banks are stockpiling funds rather than lending them out.

In the final section of the article, Keister and McAndrews discuss the importance of paying interest on reserves—as the Fed began to do in October 2008—when the level of excess reserves is unusually high: "Paying interest on reserves allows a central bank to maintain its influence over market interest rates irrespective of the quantity of reserves in the banking system. The central bank can then scale its policy initiatives according to conditions in the financial sector, while setting its target for the short-term interest rate in response to macroeconomic conditions." ■

Most Downloaded Publications

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New York Fed website, 2009:

- "Understanding the Securitization of Subprime Mortgage Credit," by Adam B. Ashcraft and Til Schuermann (*Staff Reports*, no. 318, March 2008) – 12,769 downloads
- "The Yield Curve as a Predictor of U.S. Recessions," by Arturo Estrella and Frederic S. Mishkin (*Current Issues in Economics and Finance*, vol. 2, no. 7, June 1996) – 10,002 downloads
- "Why Are Banks Holding So Many Excess Reserves?" by Todd Keister and James McAndrews (*Staff Reports*, no. 380, July 2009) – 8,749 downloads

SSRN website, 2009:

- "Understanding the Securitization of Subprime Mortgage Credit," by Adam B. Ashcraft and Til Schuermann (*Staff Reports*, no. 318, March 2008) – 8,316 downloads
- "The Consolidation of the Financial Services Industry: Causes, Consequences, and Implications for the Future," Allen N. Berger, Rebecca S. Demsetz, and Philip E. Strahan (*Staff Reports*, no. 55, December 1998) – 2,524 downloads
- "An Empirical Analysis of Stock and Bond Market Liquidity," Tarun Chordia, Asani Sarkar, and Avanidhar Subrahmanyam (*Staff Reports*, no. 164, March 2003) – 1,933 downloads

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New Titles in the *Staff Reports* Series

The following new staff reports are available at www.newyorkfed.org/research/staff_reports.

MACROECONOMICS AND GROWTH

No. 396, October 2009
Prices and Quantities in the Monetary Policy Transmission Mechanism
Tobias Adrian and Hyun Song Shin

Central banks have various tools for implementing monetary policy, but the tool receiving the most attention in the literature has been the overnight interest rate. The financial crisis that erupted in the summer of 2007 has refocused attention on other channels of monetary policy, notably the transmission of policy through the supply of credit and overall conditions in the capital markets. In 2008, the Federal Reserve put into place various lender-of-last-resort programs under section 13(3) of the Federal Reserve Act to cushion the strains on financial intermediaries' balance sheets and thereby target the unusually wide spreads in various credit markets. While classic monetary policy targets a price—for example, the federal funds rate—the liquidity facilities affect balance sheet quantities. The financial crisis forcefully demonstrated that the collapse of the financial sector's balance sheet capacity can have powerful adverse effects on the real economy. This study reexamines the distinctions between prices and quantities in monetary policy transmission.

No. 397, October 2009
Monetary Tightening Cycles and the Predictability of Economic Activity
Arturo Estrella and Tobias Adrian

Eleven of fourteen monetary tightening cycles since 1955 were followed by increases in unemployment; three were not. The term spread at the end of these cycles discriminates almost perfectly between subsequent outcomes, but levels of nominal or real interest rates, as well as other interest rate spreads, generally do not.

Publications and Papers

The Research and Statistics Group produces a wide range of publications:

- *The Economic Policy Review*—a policy-oriented journal focusing on economic and financial market issues.
- *EPR Executive Summaries*—online versions of selected *Economic Policy Review* articles, in abridged form.
- *Current Issues in Economics and Finance*—concise studies of topical economic and financial issues.
- *Second District Highlights*—a regional supplement to *Current Issues*.
- *Staff Reports*—technical papers intended for publication in leading economic and finance journals, available only online.
- *Publications and Other Research*—an annual catalogue of our research output.

No. 398, October 2009
Financial Intermediaries and Monetary Economics
Tobias Adrian and Hyun Song Shin

This study reconsiders the role of financial intermediaries in monetary economics. Adrian and Shin explore the hypothesis that financial intermediaries drive the business cycle by way of their role in determining the price of risk. In this framework, balance sheet quantities emerge as a key indicator of risk appetite and hence of the "risk-taking channel" of monetary policy. The authors document evidence that the balance sheets of financial intermediaries reflect the transmission of monetary policy through capital market conditions. They find short-term interest rates to be important in influencing the size of financial intermediary balance sheets. The findings suggest that the traditional focus on the money stock for the conduct of monetary policy may have more modern counterparts, and point to the importance of tracking balance sheet quantities for the conduct of monetary policy.

No. 399, October 2009
Labor Supply Heterogeneity and Macroeconomic Comovement
Stefano Eusepi and Bruce Preston

Standard real business cycle models must rely on total factor productivity (TFP) shocks to explain the observed comovement of consumption, investment, and hours worked. This paper shows that a neoclassical model consistent with observed heterogeneity in labor supply and consumption can generate comovement in the absence of TFP shocks. Intertemporal substitution of goods and leisure induces comovement over the business cycle through heterogeneity in the consumption behavior of employed and unemployed workers. This result stems from two model features introduced to capture important characteristics of U.S. labor market data. First, individual consumption is affected by the number of hours worked: Employed agents consume more on average than the unemployed do. Second, changes in the employment rate, a central factor explaining variation in total hours, affect aggregate consumption. Demand shocks—such as shifts in the marginal efficiency of investment as well as government spending shocks and news shocks—are shown to generate economic fluctuations consistent with observed business cycles.

No. 404, November 2009
Conventional and Unconventional Monetary Policy
Vasco Cúrdia and Michael Woodford

Cúrdia and Woodford extend a standard New Keynesian model both to incorporate heterogeneity in spending opportunities along with two sources of (potentially time-varying) credit spreads and to allow a role for the central bank's balance sheet in determining equilibrium. They use the model to investigate the implications of imperfect financial intermediation for familiar monetary policy prescriptions and to consider additional dimensions of central bank policy—variations in the size and composition of the central bank's balance sheet as well as payment of interest on reserves—alongside the traditional question of the proper operating target for an overnight policy rate. The authors also study the special problems that arise when the zero lower bound for the policy rate is reached. They show that it is possible to provide criteria for the choice of policy along each of these possible dimensions within a single unified framework, and to achieve policy prescriptions that apply equally well regardless of whether financial markets work efficiently and whether the zero bound on nominal interest rates is reached.

No. 407, November 2009
How Rigid Are Producer Prices?
Pinelopi Koujianou Goldberg
and Rebecca Hellerstein

Conventional wisdom suggests that producer prices are more rigid than consumer prices and thus they play less of an allocative role than do consumer prices. Analyzing 1987-2008 Bureau of Labor Statistics microdata for the producer price index, the authors find that producer prices for finished goods and services in fact exhibit roughly the same rigidity as consumer prices that include sales and substantially less rigidity than consumer prices that exclude them. Moreover, large firms change prices two to three times more frequently than small firms do, and by smaller amounts, particularly when prices decrease. Longer price durations are associated with larger price changes, although considerable heterogeneity exists. Long-term contracts are associated with somewhat greater price rigidity for goods and services. The size of price decreases plays a key role in inflation dynamics, while the size of price increases does not. The frequencies of price increases and decreases tend to move together and so cancel one another out.

No. 408, November 2009
Implications of the Financial Crisis for Potential Growth: Past, Present, and Future
Charles Steindel

The scale of the recent collapse in asset values and the magnitude of the recession suggest that activities connected to the increase in values over the 2002-07 period—notably, expansion of the financial markets, homebuilding, and real estate—were overstated. If this is true, aggregate U.S. economic growth would have been overstated, implying that previous rates of potential GDP growth may also have been overstated and that the trajectory of potential GDP may be slower going forward. Slowing growth in the finance, homebuilding, and real estate sectors could hold back aggregate growth. A detailed examination of these sectors' direct contributions to GDP, however, suggests that overstatements of past growth would likely not have made a large difference in recorded GDP growth. Slower growth in these sectors would have, at most, a moderate direct effect on aggregate activity. The recent experience's longer term effects on GDP would seem to stem largely from factors other than retrenchment in these sectors.

No. 411, December 2009
Investment Shocks and the Relative Price of Investment
Alejandro Justiniano, Giorgio E. Primiceri,
and Andrea Tambalotti

The authors estimate a New Neoclassical Synthesis model of the business cycle with two investment shocks. The first, an investment-specific technology shock, affects the transformation of consumption into investment goods and is identified with the relative price of investment. The second shock affects the production of installed capital from investment goods or, more broadly, the transformation of savings into future capital input. The study finds that this shock is the most important driver of U.S. business cycle fluctuations in the postwar period and that it is likely to proxy for more fundamental disturbances to the functioning of the financial sector. To corroborate this interpretation, the authors show that the shock correlates strongly with interest rate spreads and that it played a particularly important role in the recession of 2008.

No. 418, December 2009
The Homeownership Gap
Andrew Haughwout, Richard Peach,
and Joseph Tracy

After rising for a decade, the U.S. homeownership rate peaked at 69 percent in the third quarter of 2006. Over the next two and a half years, as home prices fell in many parts of the country and the unemployment rate rose sharply, the homeownership rate declined by 1.7 percentage points. An important question is, How much more will this rate decline over the current economic downturn? To address this question, Haughwout, Peach, and Tracy propose the concept of the "homeownership gap" as a gauge of downward pressure on the homeownership rate. They define the homeownership gap as the difference between the "official" homeownership rate and a recomputed rate that excludes owners who are in a negative equity position, meaning that the value of their houses is less than the outstanding mortgage balance. Their estimate of this gap suggests that the official homeownership rate will likely experience significant downward pressure in the coming years.

No. 419, December 2009
Estimating the Cross-Sectional Distribution of Price Stickiness from Aggregate Data
Carlos Carvalho and Niels Arne Dam

This study estimates a multisector sticky-price model for the U.S. economy in which the degree of price stickiness is allowed to vary across sectors. For this purpose, the authors use a specification that allows them to extract information about the underlying cross-sectional distribution from aggregate data. Estimating the model using only aggregate data on nominal and real output, they find that the inferred distribution of price stickiness is strikingly similar to the empirical distribution constructed from the recent microeconomic evidence on price setting in the U.S. economy. The authors also explore their Bayesian approach to combine the aggregate time-series data with the microeconomic information on the distribution of price rigidity. Their results show that allowing for this type of heterogeneity is critically important to understanding the joint dynamics of output and prices, and it constitutes a step toward reconciling the extent of nominal price rigidity implied by aggregate data with the evidence from microeconomic data on price stickiness.

No. 420, December 2009
Real-Time Underlying Inflation Gauges for Monetary Policymakers
Marlene Amstad and Simon Potter

Central banks analyze a wide range of data to obtain better measures of underlying inflationary pressures. Factor models have been widely used to formalize this procedure. Using a dynamic factor model, this paper develops a measure of underlying inflation (UIG) at time horizons of relevance for monetary policymakers for both consumer price index inflation and personal consumption expenditures inflation. The UIG uses a broad data set allowing for high-frequency updates on underlying inflation. The paper complements the existing literature on U.S. "core" measures by illustrating how UIG has been used and interpreted in real time since late 2005.

INTERNATIONAL

No. 400, October 2009
The Determinants of International Flows of U.S. Currency
Rebecca Hellerstein and William Ryan

This paper examines the determinants of cross-border flows of U.S. dollar banknotes, using a new panel data set of bilateral flows between the United States and 103 countries from 1990 to 2007. Hellerstein and Ryan show that a gravity model explains international flows of currency as well as it explains international flows of goods and financial assets. They find important roles for market size and transaction costs, consistent with the traditional gravity framework, as well as roles for financial depth, the behavior of the nominal exchange rate, the size of the informal sector, the amount of remittance credits, the degree of competition with the euro, and the history of macroeconomic instability over the previous generation. The study finds no role for official trade flows of goods. Its results thus confirm several hypotheses about the determinants of using a secondary currency.

No. 405, November 2009
Micro, Macro, and Strategic Forces in International Trade Invoicing
Linda S. Goldberg and Cédric Tille

The use of different currencies in the invoicing of international trade transactions plays a major role in the international transmission of economic fluctuations. Existing studies argue that an exporter's invoicing choice reflects structural aspects of its industry, such as market share and the price sensitivity of demand, as well as the hedging of marginal costs (attributable, for instance, to the use of imported inputs) and macroeconomic volatility. Goldberg and Tille use a new, highly disaggregated data set to assess the roles of the various invoicing determinants. Their findings support the factors identified in the literature and document a new feature: a link between shipment size and invoicing. Specifically, larger transactions are more likely to be invoiced in the importer's currency. The authors offer a theoretical explanation for the empirical link between transaction size and invoicing by allowing invoicing to be set through bargaining between exporters and importers, a feature absent from existing models despite its empirical relevance.

MICROECONOMICS

No. 401, October 2009
Do Colleges and Universities Increase Their Region's Human Capital?
Jaison R. Abel and Richard Deitz

Abel and Deitz investigate whether the degree-production and research-and-development (R&D) activities of colleges and universities are related to the amount and types of human capital present in the metropolitan areas where the institutions are located. They find that degree production has only a small positive relationship with local stocks of human capital, suggesting that migration plays an important role in the geographic distribution of human capital. Moreover, the authors show that spillovers from academic R&D activities tilt the structure of local labor markets toward occupations requiring innovation and technical training. These findings demonstrate that colleges and universities raise local human capital levels by increasing both the supply of and demand for skill.

No. 410, December 2009
Real-Time Search in the Laboratory and the Market
Meta Brown, Christopher J. Flinn, and Andrew Schotter

While widely accepted models of labor market search imply a constant reservation wage policy, the empirical evidence strongly suggests that reservation wages decline in the duration of search. This paper reports the results of the first real-time-search laboratory experiment. The controlled environment that subjects face is stationary, and the payoff-maximizing reservation wage is constant. Nevertheless, the subjects' reservation wages decline sharply over time. The authors investigate two hypotheses to explain this decline: 1) searchers respond to the stock of accruing search costs and 2) searchers experience nonstationary subjective costs of time spent searching. The study's data support the latter hypothesis, and the authors substantiate this conclusion both experimentally and econometrically.

No. 417, December 2009
Second Chances: Subprime Mortgage Modification and Re-Default
Andrew Haughwout, Ebiere Okah, and Joseph Tracy

Mortgage modifications have become an important component of public interventions designed to reduce foreclosures. Haughwout, Okah, and Tracy examine how the structure of a mortgage modification affects the likelihood of the modified mortgage re-defaulting over the next year. Using data on subprime modifications that precede the government's Home Affordable Modification Program, the authors focus on those modifications in which the borrower was seriously delinquent and the monthly payment was reduced as part of the modification. The data indicate that the re-default rate declines with the magnitude of the reduction in the monthly payment, but also that the re-default rate declines relatively more when the payment reduction is achieved through principal forgiveness as opposed to lower interest rates.

BANKING AND FINANCE

No. 402, November 2009
What Fiscal Policy Is Effective at Zero Interest Rates?
Gauti B. Eggertsson

Tax cuts can deepen a recession if the short-term nominal interest rate is zero, according to a standard New Keynesian business cycle model. An example of a contractionary tax cut is a reduction in taxes on wages. This tax cut deepens a recession because it increases deflationary pressures. Another example is a cut in capital taxes. This tax cut deepens a recession because it encourages people to save rather than spend at a time when more spending is needed. Fiscal policies aimed directly at stimulating aggregate demand work better. These policies include: 1) a temporary increase in government spending and 2) tax cuts aimed directly at stimulating aggregate demand rather than aggregate supply, such as an investment tax credit or a cut in sales taxes. The results are specific to an environment in which the interest rate is close to zero, as observed in large parts of the world today.

No. 403, November 2009
A Bayesian Approach to Estimating Tax and Spending Multipliers
Matthew Denes and Gauti B. Eggertsson

This paper outlines a simple Bayesian methodology for estimating tax and spending multipliers in a dynamic stochastic general equilibrium model. After forming priors about the parameters of the model and the relevant shock, Denes and Eggertsson use the model to exactly match only one data point: the trough of the Great Depression, that is, an output collapse of 30 percent, deflation of 10 percent, and a zero short-term nominal interest rate. Because the authors form their priors as distributions, their key economic inferences—the multipliers of tax and spending—are well-defined probability distributions derived from the posterior of the model. While the Bayesian methods used are standard, the application is slightly unusual. Denes and Eggertsson conjecture that this methodology can be applied in several different settings with severe data limitations and where more informal calibrations have been the norm. Applying their simple estimation method to the American Recovery and Reinvestment Act, they find that the Act increased output by 3.6 percent in 2009 and 2010.

No. 406, November 2009
Broker-Dealer Risk Appetite and Commodity Returns
Erkko Etula

This paper shows that the risk-bearing capacity of securities brokers and dealers is a strong determinant of risk premia and the volatility of returns in commodity markets. Etula measures risk-bearing capacity as the fraction of broker-dealer financial assets relative to the total financial assets of broker-dealers and households. This variable has particularly strong power to forecast energy returns, both in sample and out of sample: It forecasts approximately 30 percent of the variation in quarterly crude oil returns. These findings are rationalized in a simple asset-pricing model where the economic role of broker-dealers is to provide insurance against commodity price fluctuations. The author estimates cross-sectional prices of risk using an arbitrage-free asset-pricing approach and shows that broker-dealer risk-bearing capacity forecasts commodity returns because of its association with the price of risk.

No. 409, November 2009
Macroprudential Supervision of Financial Institutions: Lessons from the SCAP
Beverly Hirtle, Til Schuermann, and Kevin Stiroh

A fundamental conclusion drawn from the recent financial crisis is that the supervision and regulation of financial firms in isolation—a purely microprudential perspective—are not sufficient to maintain financial stability. Rather, a macroprudential perspective, which evaluates and responds to the financial system as a whole, seems necessary, and the ongoing discussions of regulatory reform in the United States underscore this view. The recently concluded Supervisory Capital Assessment Program (SCAP), better known as the bank "stress test," is one example of how the macro- and microprudential perspectives can be joined to create a stronger supervisory framework that addresses a wider range of supervisory objectives. This paper reviews the key features of the SCAP and discusses how they can be leveraged to improve bank supervision in the future.

No. 413, December 2009
Valuing the Treasury's Capital Assistance Program
Paul Glasserman and Zhenyu Wang

This study develops a contingent claims framework to estimate market values of the Treasury's Capital Assistance Program (CAP). The interaction between the competing options held by the buyer and issuer of these securities creates a game between them; the authors' approach captures this strategic element of the joint valuation problem and clarifies the incentives it creates. Glasserman and Wang apply their method to eighteen bank holding companies that participated in the Supervisory Capital Assessment Program (the bank "stress test") launched with the CAP. On average, they estimate that compared with a market transaction, the CAP securities carry a net value of approximately 30 percent of the capital invested for a bank participating to the maximum extent allowed under the program's terms. Net value is also found to vary widely across banks. The results suggest that the authors' valuation aligns with shareholder perceptions of the program's value.

No. 414, December 2009
The Microstructure of the TIPS Market
Michael J. Fleming and Neel Krishnan

Fleming and Krishnan characterize the microstructure of the market for Treasury inflation-protected securities (TIPS) using novel tick data from the interdealer market. The authors find a marked difference in trading activity between on-the-run and off-the-run securities, as in the nominal Treasury securities market. They find little difference in bid-ask spreads or quoted depth between on-the-run and off-the-run securities, in contrast to the nominal market, but they do find a sharp difference in the incidence of posted quotes. Intraday activity differs strikingly from the nominal market, with activity peaking in the mid-to-late morning. Announcement effects also differ from the nominal market, with auction results and consumer price index announcements eliciting particularly sharp increases in trading activity.

No. 416, December 2009
The Mechanics of a Graceful Exit: Interest on Reserves and Segmentation in the Federal Funds Market
Morten L. Bech and Elizabeth Klee

To combat the financial crisis that intensified in fall 2008, the Federal Reserve injected a substantial amount of liquidity into the banking system. The resulting increase in reserve balances exerted downward price pressure in the federal funds market, and the effective federal funds rate began to deviate from the target rate set by the Federal Open Market Committee. In response, the Federal Reserve revised its operational framework for implementing monetary policy and began to pay interest on reserve balances in an attempt to provide a floor for the federal funds rate. Nevertheless, following the policy change, the effective federal funds rate remained below not only the target but also the rate paid on reserve balances. This study develops a model to explain this phenomenon and uses federal funds market data to evaluate it empirically. The authors show how successful the Federal Reserve may be in raising the federal funds rate even in an environment with substantial reserve balances.

QUANTITATIVE METHODS

No. 412, December 2009
Dynamic Hierarchical Factor Models
Emanuel Moench, Serena Ng, and Simon Potter

This paper uses multi-level factor models to characterize within- and between-block variations as well as idiosyncratic noise in large dynamic panels. Block-level shocks are distinguished from genuinely common shocks, and the estimated block-level factors are easy to interpret. The framework achieves dimension reduction and yet explicitly allows for heterogeneity between blocks. The model is estimated using a Markov-chain Monte Carlo algorithm that takes into account the hierarchical structure of the factors. The authors organize a panel of 447 series into blocks according to the timing of data releases and use a four-level model to study the dynamics of real activity at both the block and aggregate levels. While the effect of the economic downturn of 2007-09 is pervasive, growth cycles are synchronized only loosely across blocks. The state of the leading and the lagging sectors, as well as that of the overall economy, is monitored in a coherent framework.

No. 415, December 2009
Measuring Consumer Uncertainty about Future Inflation
Wandi Bruine de Bruin, Charles F. Manski, Giorgio Topa, and Wilbert van der Klaauw

Current survey measures of consumer inflation expectations contain no information about an individual's uncertainty about future inflation. This information is important not only for forecasting inflation and other macroeconomic outcomes, but also for assessing a central bank's credibility and effectiveness of communication. In November 2007, the authors of this paper began administering web-based surveys to participants in RAND's American Life Panel. In addition to providing point predictions, respondents were asked to provide subjective probability distributions of future inflation outcomes. The authors find that their measures of individual forecast densities and uncertainty are internally consistent and reliable. Those who are more uncertain about year-ahead price inflation are also more uncertain about longer term price inflation and future wage changes. Participants expressing higher uncertainty in their density forecasts make larger revisions to their point forecasts over time. Finally, while the authors' measure of aggregate consumer uncertainty is correlated with the dispersion in point forecasts among individuals, the two measures are distinct concepts—both relevant to the analysis of inflation expectations. ■

Recently Published

Nicola Cetorelli. 2009. "Banking and Real Economic Activity." In Allen Berger, Phillip Molineaux, and John Wilson, eds., *Oxford Handbook of Banking*. Oxford University Press.

Linda Goldberg. 2009. "Macroeconomic Interdependence and the International Role of the Dollar," with Cédric Tille. *Journal of Monetary Economics* 56, no. 7 (October): 990-1003.

Emanuel Moench. 2009. "Sectoral Price Data and Models of Price Setting," with Bartosz Maćkowiak and Mirko Wiederholt. *Journal of Monetary Economics* 56, October, Suppl. 1: S78-S99.

João Santos. 2009. "Is the Secondary Market for Loans Beneficial to Firms?" with Peter Nigro. *Quarterly Review of Economics and Finance* 49, no. 4 (November): 1410-28.

Asani Sarkar. 2009. "Liquidity Risk, Credit Risk, and the Federal Reserve's Responses to the Crisis." *Financial Markets and Portfolio Management* 23, no. 4: 335-48.

Til Schuermann. 2009. "Forecasting Economic and Financial Variables with Global VARs," with M. Hashem Pesaran and L. Vanessa Smith. *International Journal of Forecasting* 25, no. 4 (October-December): 642-75. ■

Papers Presented by Economists in the Research and Statistics Group

"The Mechanics of a Graceful Exit: Interest on Reserves and Segmentation in the Federal Funds Market," Morten Bech. European Central Bank Workshop "Challenges to Monetary Policy Implementation beyond the Financial Market Turbulence," Frankfurt, Germany, December 1. With Elizabeth Klee.

"Estimating the Cross-Sectional Distribution of Price Stickiness from Aggregate Data," Carlos Carvalho. *Understanding Price Dynamics: Recent Advances*, a conference cosponsored by Banque de France and DGCCRF (General Directorate for Competition, Consumer Affairs, and Fraud Control), Paris, France, October 15. With Niels Dam.

"Price Setting in a Variable Macroeconomic Environment: Evidence from Brazilian CPI," Carlos Carvalho. Danmarks Nationalbank seminar, Copenhagen, Denmark, October 1. With Rebecca Barros, Marco Bonomo, and Silvia Matos.

"Sectoral Price Facts in a Sticky-Price Model," Carlos Carvalho. Sveriges Riksbank seminar, Stockholm, Sweden, October 6. With Jae Won Lee. Also presented at a Norges Bank seminar, Oslo, Norway, October 19, and a CREI (Centre de Recerca en Economia Internacional) seminar, Barcelona, Spain, October 29.

"Do Charter Schools Crowd Out Private Enrollment? Evidence from Michigan," Rajashri Chakrabarti. Association for Public Policy Analysis and Management seminar, Washington, D.C., November 5. With Joydeep Roy. Also presented at a University of Connecticut seminar, Hartford, Connecticut, December 11.

"Conventional and Unconventional Monetary Policy," Vasco Cúrdia. Sveriges Riksbank seminar, Stockholm, Sweden, November 7. With Michael Woodford. Also presented at a Rutgers University seminar, New Brunswick, New Jersey, December 1.

“Do Colleges and Universities Increase Their Region’s Human Capital?” Richard Deitz. Fifty-sixth North American Meetings of the Regional Science Association International, San Francisco, California, November 21. With Jaison Abel.

“Broker-Dealer Risk Appetite and Commodity Returns,” Erkko Etula. Universidad Carlos III seminar, Madrid, Spain, November 16.

“Repo Market Effects of the Term Securities Lending Facility,” Michael Fleming. Sir John Cass Business School seminar, London, England, October 5. With Warren Hrung and Frank Keane. Also presented at the Central Bank and Financial Services Authority of Ireland, Dublin, Ireland, October 6.

“Social Security, Benefit Claiming, and Labor Force Participation: A Quantitative General Equilibrium Approach,” Sagiri Kitao. Stony Brook University Economics Department seminar, Stony Brook, New York, October 20. With Selahattin İmrohoroğlu.

“Precautionary Reserves and the Interbank Market,” James McAndrews and David Skeie. European Central Bank Workshop “Challenges to Monetary Policy Implementation,” Frankfurt, Germany, December 1. With Adam Ashcraft.

“Compensation and Leverage,” Hamid Mehran. Federal Deposit Insurance Corporation workshop, Washington, D.C., December 16.

“Compensation in the Banking Industry,” Hamid Mehran. Bank of Italy seminar, Rome, Italy, September 30.

“What Can We Learn from Privately Held Firms about Executive Compensation?” Hamid Mehran. Fourth Bank of Italy–CEPR Conference on Money, Banking, and Finance, Rome, Italy, October 1. With Rebel Cole.

“Are Comovements Excessive?” Asani Sarkar. Rotterdam School of Management seminar, Rotterdam, the Netherlands, December 8. With Maria Kasch.

“Capital Constraints, Counterparty Risk, and Deviations from CIP,” Asani Sarkar. University of Tilburg seminar, Tilburg, the Netherlands, December 7. With Niall Coffey and Warren Hrung.

“Federal Reserve Liquidity Tools,” Asani Sarkar. World Research Group Quant Trading Forum, New York City, October 22.

“Bank Liquidity, Interbank Markets, and Monetary Policy,” David Skeie. Latin American Meeting of the Econometric Society, Buenos Aires, Argentina, October 1. With Xavier Freixas and Antoine Martin.

“The Empirical Content of Models with Multiple Equilibria in Economies with Social Interactions,” Giorgio Topa. CIRANO–CIREQ Conference on the Econometrics of Interactions, Montreal, Quebec, Canada, October 22. With Alberto Bisin and Andrea Moro.

“MBS Ratings and the Mortgage Credit Boom,” James Vickery. Fifth New York Fed–NYU Stern Conference on Financial Intermediation, New York City, November 13. With Adam Ashcraft and Paul Goldsmith-Pinkham.

“How Do College Students Form Expectations?” Basit Zafar. New York University seminar, New York City, November 30. ■

Research and Statistics Group Publications and Papers: October-December 2009

Publications are available at **www.newyorkfed.org/research/publication_annuals/index.html**.

ECONOMIC POLICY REVIEW

Forthcoming
Special Issue: Central Bank Liquidity Tools and Perspectives on Regulatory Reform

Central Bank Liquidity Tools
Opening Remarks
Patricia C. Mosser

Conference Overview and Summary of Proceedings
Matthew Denes, Daniel Greenwald, Nicholas Klagge, Ging Cee Ng, Jeffrey Shrader, Michael Sockin, and John Sporn

Central Bank Tools and Liquidity Shortages
Stephen G. Cecchetti and Piti Disyatat

Provision of Liquidity through the Primary Credit Facility during the Financial Crisis: A Structural Analysis
Erhan Artuç and Selva Demiralp

Perspectives on Regulatory Reform
Informational Easing: Improving Credit Conditions through the Release of Information
Matthew Pritsker

Systemic Risk and Deposit Insurance Premiums
Viral V. Acharya, João A. C. Santos, and Tanju Yorulmazer

CURRENT ISSUES IN ECONOMICS AND FINANCE, VOL. 15

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