RESEARCH RAP

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IMPACT OF UNCONVENTIONAL MONETARY POLICY ON FIRM FINANCING CONSTRAINTS: EVIDENCE FROM THE MATURITY EXTENSION PROGRAM

This paper investigates the impact of unconventional monetary policy on firm financing constraints. It focuses on the Federal Reserve's maturity extension program (MEP), which was intended to lower longer-term rates and flatten the yield curve by reducing the supply of long-term government debt. Consistent with those models that emphasize bond market segmentation and limits to arbitrage, around the MEP's announcement, stock prices rose most sharply for those firms that are more dependent on longer-term debt. These firms also issued more long-term debt during the MEP and expanded employment and investment. These responses are most pronounced for those firms with stronger balance sheets. There is also evidence of "reach for yield" behavior among some institutional investors, as the demand for riskier debt also rose during the MEP. The authors' results suggest that unconventional monetary policy may have helped to relax financing constraints and stimulate economic activity in part by affecting the pricing of risk in the bond market.

Working Paper 15–30. Nathan Foley-Fisher, Federal Reserve Board; Rodney Ramcharan, University of Southern California; Edison Yu, Federal Reserve Bank of Philadelphia.

DISCLOSURE OF STRESS TEST RESULTS

Should regulatory bank examinations be made public? Regulators have argued that the confidentiality of the examination process promotes frank exchanges between bankers and examiners and that public disclosure of examination results could have a chilling effect. The author examines the tradeoffs in a world in which examination results can be kept confidential, but regulatory interventions are observable by market participants, as they typically are for stress tests. Inducing banks to communicate truthfully requires regulators to engage in forbearance, which is priced into banks' uninsured debt and raises the costs of inducing truthful communication. Regulators that disclose exam results bear higher monitoring costs and impose excessive capital requirements because interventions are not as sensitive to underlying risks. My model predicts that disclosure is optimal when the regulator's model is relatively inaccurate.

Working Paper 15–31. Mitchell Berlin, Federal Reserve Bank of Philadelphia.

THE SYSTEM OF NATIONAL ACCOUNTS AND ALTERNATIVE ECONOMIC PERSPECTIVES

Brent Moulton and Nicole Mayerhauser (2015) point out that, for more than 50 years, economists have featured the concept of human capital in their models of labor, growth, productivity, and distribution of income. The authors recommend the addition to the System of National Accounts (SNA) of supplemental person-level accounts: i.e., a System of Person Accounts (SPA). They see this as the best way of recognizing the processes of human capital creation as well as related issues of how income is distributed among individuals and families. The authors argue that this change would support three different perspectives from which economic activity can be viewed: (1) a current period outcomes perspective, (2) a risky possibilities perspective, and (3) a resources perspective. Moreover, these gains could be realized without changing the SNA in any substantial respects.

Working Paper 15–32. Alice O. Nakamura, University of Alberta; Leonard I. Nakamura, Federal Reserve Bank of Philadelphia.

FOREIGN COMPETITION AND BANKING INDUSTRY DYNAMICS: AN APPLICATION TO MEXICO

The authors develop a simple general equilibrium framework to study the effects of global competition on banking industry dynamics and welfare. They apply the framework to the Mexican banking industry, which under-

went a major structural change in the 1990s as a consequence of both government policy and external shocks. Given the high concentration in the Mexican banking industry, domestic and foreign banks act strategically in the authors' framework. After calibrating the model to Mexican data, the authors examine the welfare consequences of government policies that promote global competition. They find relatively high economywide welfare gains from allowing foreign bank entry.

Working Paper 15–33. Dean Corbae, University of Wisconsin–Madison, National Bureau of Economic Research; Pablo D'Erasmo, Federal Reserve Bank of Philadelphia.

HEALTH-CARE REFORM OR LABOR MARKET REFORM? A QUANTITATIVE ANALYSIS OF THE AFFORDABLE CARE ACT

An equilibrium model with firm and worker heterogeneity is constructed to analyze labor market and welfare implications of the Patient Protection and Affordable Care Act, commonly called the Affordable Care Act (ACA). The authors' model implies a significant reduction in the uninsured rate from 22.6 percent to 5.6 percent. The model predicts a moderate positive welfare gain from the ACA because of the redistribution of income through health insurance subsidies at the exchange as well as the Medicaid expansion. About 2.1 million more part-time jobs are created under the ACA at the expense of 1.6 million full-time jobs, mainly because the link between full-time employment and health insurance is weakened. The model predicts a small negative effect on total hours worked (0.36 percent), partly because of the general equilibrium effect.

Working Paper 15–34. Makoto Nakajima, Federal Reserve Bank of Philadelphia; Didem Tüzemen, Federal Reserve Bank of Kansas City.

EXCESS RESERVES AND MONETARY POLICY NORMALIZATION

In response to the Great Recession, the Federal Reserve resorted to several unconventional policies that drastically altered the landscape of the federal funds market. The current environment, in which depository institutions are flush with excess reserves, has forced policymakers to design a new operational framework for monetary policy implementation. The authors provide a parsimonious model that captures the key features of the current federal funds market, along with the instruments introduced by the Federal Reserve to implement its target for the federal funds rate. The authors use this model to analyze the factors that determine rates and volumes as well as to identify the conditions such that monetary policy implementation will be successful. They also calibrate the model and use it as a quantitative benchmark for applied analysis, with a particular emphasis on understanding how the market is likely to respond as policymakers raise the target rate.

Working Paper 15–35. Roc Armenter, Federal Reserve Bank of Philadelphia; Benjamin Lester, Federal Reserve Bank of Philadelphia.

GENTRIFICATION AND RESIDENTIAL MOBILITY IN PHILADELPHIA

Gentrification has provoked considerable debate and controversy about its effects on neighborhoods and the people residing in them. This paper draws on a unique large-scale consumer credit database to examine the mobility patterns of residents in gentrifying neighborhoods in the city of Philadelphia from 2002 to 2014. The authors find significant heterogeneity in the effects of gentrification across neighborhoods and subpopulations. Residents in gentrifying neighborhoods have slightly higher mobility rates than those in nongentrifying neighborhoods, but they do not have a higher risk of moving to a lower-income neighborhood. Moreover, gentrification is associated with some positive changes in residents' financial health as measured by individuals' credit scores. However, when more vulnerable residents (low-score, longer-term residents, or residents without mortgages) move from gentrifying neighborhoods, they are more likely to move to lower-income neighborhoods and neighborhoods with lower values on quality-of-life indicators. The results reveal the nuances of mobility in gentrifying neighborhoods and demonstrate how the positive and negative consequences of gentrification are unevenly distributed.

Working Paper 15–36. Lei Ding, Federal Reserve Bank of Philadelphia; Jackelyn Hwang, Princeton University; Eileen Divringi, Federal Reserve Bank of Philadelphia.

A TRACTABLE CITY MODEL FOR AGGREGATIVE ANALYSIS

An analytically tractable city model with external increasing returns is presented. The equilibrium city structure is either monocentric or decentralized. Regardless of which structure prevails, intracity variation in endogenous vari-

ables displays exponential decay from the city center, where the decay rates depend only on parameters. Given population, the equilibrium of the model is generically unique. Tractability permits explicit expressions for when a central business district (CBD) will emerge in equilibrium, how external increasing returns affect the steepness of downtown rent gradients, and how wages and welfare vary with population. An application to urban growth boundary is presented.

Working Paper 15–37. Satyajit Chatterjee, Federal Reserve Bank of Philadelphia; Burcu Eyigungor, Federal Reserve Bank of Philadelphia.

AGENCY AND INCENTIVES: VERTICAL INTEGRATION IN THE MORTGAGE FORECLOSURE INDUSTRY

In many U.S. states, the law firms that represent lenders in foreclosure proceedings must hire auctioneers to carry out the foreclosure auctions. The authors empirically test whether processing times differ for law firms that integrate the mortgage foreclosure auction process compared with law firms that contract with independent auction companies. They find that independent firms are able to initially schedule auctions more quickly, but when postponements occur, they are no faster to adapt. Since firms schedule the initial auction before contracting, independent auction companies have an incentive to conform to the law firms' schedules in order to secure the contracts. The authors argue that this is evidence of a cost of integration stemming from poorly aligned incentives within the firm.

Working Paper 15–38. Lauren Lambie-Hanson, Federal Reserve Bank of Philadelphia; Timothy Lambie-Hanson, Haverford College.

BANKING PANICS AND PROTRACTED RECESSIONS

This paper develops a dynamic model of bank liquidity provision to characterize the ex post efficient policy response to a banking panic and study its implications for the behavior of output in the aftermath of a panic. It is shown that the trajectory of real output following a panic episode crucially depends on the cost of converting long-term assets into liquid funds. For small values of this liquidation cost, the recession associated with a banking panic is protracted. For intermediate values, the recession is more severe but short lived. For relatively large values, the contemporaneous decline in real output in the event of a panic is substantial but followed by a vigorous rebound in real activity above the long-run level. The author argues that these theoretical predictions are consistent with the observed disparity in crisis-related output losses.

Working Paper 15–39. Daniel Sanches, Federal Reserve Bank of Philadelphia.

WHO IS SCREENED OUT OF SOCIAL INSURANCE PROGRAMS BY ENTRY BARRIERS? EVIDENCE FROM CONSUMER BANKRUPTCIES

Entry barriers into social insurance programs will be effective screening devices if they cause only those individuals receiving higher benefits from a program to participate in that program. We find evidence for this by using plausibly exogenous variations in travel-related entry costs into the Canadian consumer bankruptcy system. Using detailed balance sheet and travel data, we find that higher travel-related entry costs reduce bankruptcies from individuals with lower financial benefits of bankruptcy (unsecured debt discharged, minus secured assets forgone). When compared across filers, each extra kilometer traveled to access the bankruptcy system requires approximately $11 more in financial benefits from bankruptcy.

Working Paper 15–40. Vyacheslav Mikhed, Federal Reserve Bank of Philadelphia; Barry Scholnick, University of Alberta School of Business.