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Using Bankruptcy to Reduce Foreclosures: Does Strip-Down of Mortgages Affect the Supply of Mortgage Credit?

The authors assess the credit market impact of mortgage “strip-down” — reducing the principal of underwater residential mortgages to the current market value of the property for homeowners in Chapter 7 or Chapter 13 bankruptcy. Strip-down of mortgages in bankruptcy was proposed as a means of reducing foreclosures during the recent mortgage crisis but was blocked by lenders. The authors’ goal is to determine whether allowing bankruptcy judges to modify mortgages would have a large adverse impact on new mortgage applicants. Their identification is provided by a series of U.S. Court of Appeals decisions during the late 1980s and early 1990s that introduced mortgage strip-down under both bankruptcy chapters in parts of the U.S., followed by two Supreme Court rulings that abolished it throughout the U.S. The authors find that the Supreme Court decision to abolish mortgage strip-down under Chapter 13 led to a reduction of 3% in mortgage interest rates and an increase of 1% in mortgage approval rates, while the Supreme Court decision to abolish strip-down under Chapter 7 led to a reduction of 2% in approval rates and no change in interest rates. The authors also find that markets react less to circuit court decisions than to Supreme Court decisions. Overall, the authors’ results suggest that lenders respond to forced renegotiation of contracts in bankruptcy, but their responses are small and not always in

the predicted direction. The lack of systematic patterns evident in the authors’ results suggests that introducing mortgage strip-down under either bankruptcy chapter would not have strong adverse effects on mortgage loan terms and could be a useful new policy tool to reduce foreclosures when future housing bubbles burst.

Working Paper 14-35. Wenli Li, Federal Reserve Bank of Philadelphia; Ishani Tewari, Yale School of Management; Michelle J. White, University of California, San Diego, Cheung Kong Graduate School of Business; National Bureau of Economic Research.

Enhancing Prudential Standards in Financial Regulations

The financial crisis has generated fundamental reforms in the financial regulatory system in the U.S. and internationally. Much of this reform was in direct response to the weaknesses revealed in the precrisis system. The new “macroprudential” approach to financial regulations focuses on risks arising in financial markets broadly, as well as the potential impact on the financial system that may arise from financial distress at systemically important financial institutions. Systemic risk is the key factor in financial stability, but our current understanding of systemic risk is rather limited. While the goal of using regulation to maintain financial stability is clear, it is not obvious how to design an effective regulatory framework that achieves the financial stability objective while also promoting financial innovations. This paper discusses academic research and expert opinions on this vital subject of financial stability and regulatory reforms. Specifically, among other

issues, it discusses the impact of increasing public disclosure of supervisory information, the effectiveness of bank stress testing as a tool to enhance financial stability, whether the financial crisis was caused by too big to fail (TBTF), and whether the Dodd-Frank Wall Street Reform and Consumer Protection Act (DFA) resolution regime would be effective in achieving financial stability and ending TBTF.

Working Paper 14-36. Franklin Allen, Wharton School, University of Pennsylvania, Imperial College London; Itay Goldstein, Wharton School, University of Pennsylvania; Julapa Jagtiani, Federal Reserve Bank of Philadelphia; William W. Lang, Federal Reserve Bank of Philadelphia.

Banking Panics and Protracted Recessions

This paper develops a dynamic theory of money and banking that explains why banks need to hold an illiquid portfolio to provide socially optimal transaction and liquidity services, opening the door to the possibility of equilibrium banking panics. Following a widespread liquidation of banking assets in the event of a panic, the banking portfolio consistent with the optimal provision of transaction and liquidity services during normal times cannot be quickly reestablished, resulting in an unusual loss of wealth for all depositors. This negative wealth effect stemming from the liquid portion of the consumers' portfolio is strong enough to produce a protracted recession. A key element of the theory is the existence of a dynamic interaction between the ability of banks to offer transaction and liquidity services and the occurrence of panics.

Working Paper 14-37. Daniel R. Sanches, Federal Reserve Bank of Philadelphia.

Understanding House Price Index Revisions

Residential house price indexes (HPI) are used for a large variety of macroeconomic and microeconomic research and policy purposes, as well as for automated valuation models. As is well known, these indexes are subject to substantial revisions in the months following the initial release, both because transaction data can be slow to come in, and as a consequence of the repeat sales methodology, which interpolates the effect of sales over the entire period since the house last changed hands. The authors study the properties of the revisions to the CoreLogic House Price Index. This index is used both by researchers and in the Financial Accounts of the United States to compute the value of residential real estate. The authors show that the magnitude of revisions to this index can be significant: At the national level, the ratio of standard deviation of monthly revisions to the growth rate of the index, relative to the standard deviation of the growth rate in the index, is 29%, which is comparable to the relative ratio for other macroeconomic series. The revisions

are also economically significant and impact measures used by policymakers: Revisions over the first 12 releases of the index reduce estimates of the fraction of borrowers nationwide with negative equity by 4.3%, corresponding to 423,000 households. Lastly, the authors find that revisions are ex-ante predictable: Both past revisions and past house price appreciation are negatively correlated with future revisions.

Working Paper 14-38. Ronel Elul, Federal Reserve Bank of Philadelphia; Joseph M. Silverstein, University of Pennsylvania; Tom Stark, Federal Reserve Bank of Philadelphia.

House-Price Expectations, Alternative Mortgage Products, and Default

Rapid house-price depreciation and rising unemployment were the main drivers of the huge increase in mortgage default during the downturn years of 2007 to 2010. However, mortgage default was also associated with an increased reliance on alternative mortgage products such as pay-option and interest-only adjustable rate mortgages (ARMs), which allow the borrower to defer principal amortization. The goal of this paper is to better understand the forces that spurred use of alternative mortgages during the housing boom and the resulting impact on default patterns, relying on a unifying conceptual framework to guide the empirical work. The conceptual framework allows borrowers to choose the extent of mortgage "backloading," the postponement of loan repayment through various mechanisms that constitutes a main feature of alternative mortgages. The model shows that, when future house-price expectations become more favorable, reducing default concerns, mortgage choices shift toward alternative products. This prediction is confirmed by empirical evidence showing that an increase in past house-price appreciation, which captures more favorable expectations for the future, raises the market share of alternative mortgages. In addition, using a proportional-hazard default model, the paper tests the fundamental presumption that backloaded mortgages are more likely to default, finding support for this view.

Working Paper 15-01. Jan K. Brueckner, University of California, Irvine; Paul S. Calem, Federal Reserve Bank of Philadelphia; Leonard I. Nakamura, Federal Reserve Bank of Philadelphia.

Recourse and Residential Mortgages: The Case of Nevada

The state of Nevada passed legislation in 2009 that abolished deficiency judgments for purchase mortgage loans made after October 1, 2009, and collateralized by primary single-family homes. In this paper, the authors study how the law change affected lenders' decisions to grant mortgages and borrowers' decisions to apply for them and subsequently default. Using unique mortgage loan-level application and

performance data, the authors find strong evidence that lenders tightened their lending standards for mortgages affected by the new legislation. In particular, lenders reduced approval rates and loan sizes for mortgages after implementation of the law. Borrowers, by contrast, did not delay their mortgage applications until after the law change. Furthermore, the law change did not appear to have affected borrowers' default decisions. These results cast a cautionary note on the effectiveness of policy recommendations that intend to use deficiency laws to curb mortgage defaults.

Working Paper 15-02. Wenli Li, Federal Reserve Bank of Philadelphia; Florian Oswald, University College London.

Localized Knowledge Spillovers: Evidence from the Agglomeration of American R&D Labs and Patent Data

The authors employ a unique data set to examine the spatial clustering of private R&D labs, and, using patent citations data, they provide evidence of localized knowledge spillovers within these clusters. Jaffe, Trajtenberg, and Henderson (1993, hereafter JTH) provide an aggregate measure of the importance of knowledge spillovers at either the state or metropolitan area level. However, much information is lost regarding differences in the localization of knowledge spillovers in specific geographic areas. In this article, the authors show that such differences can be quite substantial. Instead of using fixed spatial boundaries, they develop a new procedure — the multiscale core-cluster approach — for identifying the location and size of specific R&D clusters. This approach allows the authors to better capture the geographic extent of knowledge spillovers. The authors examine the evidence for knowledge spillovers within R&D clusters in two regions: the Northeast Corridor and California. In the former, the authors find that citations are from three to six times more likely to come from the same cluster as earlier patents than in comparable control samples. The results are even stronger for labs located in California: Citations are roughly 10 to 12 times more likely to come from the same cluster. The authors' tests reveal evidence of the attenuation of localization effects as distance increases: The localization of knowledge spillovers is strongest at small spatial scales (5 miles or less) and diminishes rapidly with distance. At the smallest spatial scales, the authors' localization statistics are generally much larger than JTH report for the metropolitan areas included in their tests.

Working Paper 15-03. Kristy Buzard, Syracuse University; Gerald A. Carlino, Federal Reserve Bank of Philadelphia; Robert M. Hunt, Federal Reserve Bank of Philadelphia; Jake K. Carr, Ohio State University; Tony E. Smith, University of Pennsylvania.

Housing over Time and over the Life Cycle:

A Structural Estimation

The authors estimate a structural model of optimal life-cycle housing and nonhousing consumption in the presence of labor income and house price uncertainties. The model postulates constant elasticity of substitution between housing service and nonhousing consumption and explicitly incorporates a housing adjustment cost. The authors' estimation fits the cross-sectional and time-series household wealth and housing profiles from the Panel Study of Income Dynamics (1984 to 2005) reasonably well and suggests an intratemporal elasticity of substitution between housing and nonhousing consumption of 0.487. The low elasticity estimate is largely driven by moments conditional on state house prices and moments in the latter half of the sample period and is robust to different assumptions of housing adjustment cost. The authors then conduct policy analyses in which they let house price and income take values as those observed between 2006 and 2011. The authors show that the responses depend importantly on the housing adjustment cost and the elasticity of substitution between housing and nonhousing consumption. In particular, compared with the benchmark, the impact of the shocks on homeownership rates is reduced, but the impact on nonhousing consumption is magnified when the house selling cost is sizable or when housing service and nonhousing consumption are highly substitutable.

Working Paper 15-04. Supersedes Working Paper 09-7. Wenli Li, Federal Reserve Bank of Philadelphia; Haiyong Liu, East Carolina University; Fang Yang, Louisiana State University; Rui Yao, Baruch College.

Weather-Adjusting Employment Data

This paper proposes and implements a statistical methodology for adjusting employment data for the effects of deviation in weather from seasonal norms. This is distinct from seasonal adjustment, which only controls for the normal variation in weather across the year. Unusual weather can distort both the data and the seasonal factors. The authors control for both of these effects by integrating a weather adjustment step in the seasonal adjustment process. They use several indicators of weather, including temperature, snowfall and hurricanes. Weather effects can be very important, shifting the monthly payrolls change number by more than 100,000 in either direction. The effects are largest in the winter and early spring months and in the construction sector.

Working Paper 15-05. Michael Boldin, Federal Reserve Bank of Philadelphia; Jonathan H. Wright, Johns Hopkins University.

History and the Sizes of Cities

The authors contrast evidence of urban path dependence with efforts to analyze calibrated models of city sizes. Recent evidence of persistent city sizes following the obsolescence of historical advantages suggests that path dependence cannot be understood as the medium-run effect of legacy capital but instead as the long-run effect of equilibrium selection. In contrast, a different, recent literature uses stylized models in which fundamentals uniquely determine city size. The authors show that a commonly used model is inconsistent with evidence of long-run persistence in city sizes and propose several modifications that might allow for multiplicity and thus historical path dependence.

Working Paper 15-06. Hoyt Bleakley, University of Michigan; Jeffrey Lin, Federal Reserve Bank of Philadelphia.

A Seniority Arrangement for Sovereign Debt

A sovereign's inability to commit to a course of action regarding future borrowing and default behavior makes long-term debt costly (the problem of debt dilution). One mechanism to mitigate the debt dilution problem is the inclusion of a seniority clause in sovereign debt contracts. In the event of default, creditors are to be paid off in the order in which they lent (the "absolute priority" or "first-in-time" rule). In this paper, the authors propose a modification of the absolute priority rule that is more suited to the sovereign debt context and analyze its positive and normative implications within a quantitatively realistic model of sovereign debt and default.

Working Paper 15-07. Satyajit Chatterjee, Federal Reserve Bank of Philadelphia; Burcu Eyigungor, Federal Reserve Bank of Philadelphia.

Credit Risk Modeling in Segmented Portfolios: An Application to Credit Cards

The Great Recession offers a unique opportunity to analyze the performance of credit risk models under conditions of economic stress. The authors focus on the performance of models of credit risk applied to risk-segmented credit card portfolios. Specifically, the authors focus on models of default and loss and analyze three important sources of model risk: model selection, model specification, and sample selection. Forecast errors can be significant along any of these three model-risk dimensions. Simple linear regression models are not generally outperformed by more complex or stylized models. The impact of macroeconomic variables is heterogeneous across risk segments. Model specifications that do not consider this heterogeneity display large projection errors across risk segments. Prime segments are proportionally more severely impacted by a downturn in economic conditions relative to the subprime or near-prime segments. The sensitivity of modeled losses to macroeconomic factors is conditional on the model development sample. Models estimated over a period that does not incorporate a significant period of the Great Recession may fail to project default rates, or loss rates, consistent with those experienced during the Great Recession.

Working Paper 15-08. José J. Canals-Cerdá, Federal Reserve Bank of Philadelphia; Sougata Kerr, Federal Reserve Bank of Philadelphia.