Research Update

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Market Discipline in the Secondary Bond Market: The Case of Systemically Important Banks

The authors investigate the association between the yields on debt issued by U.S. systemically important banks (SIBs) and their idiosyncratic risk factors, macroeconomic factors, and bond features in the secondary market. Although greater SIB risk levels are expected to increase debt yields (Evanoff and Wall, 2000), prevalence of government safety nets complicates the market discipline mechanism, rendering the issue an empirical exercise. Their main objectives are twofold. First, they study how bond buyers reacted to elevation of SIB-specific and macroeconomic risk factors over the recent business cycle. Second, they investigate the degree to which the proportion of variance in yields explained by SIB and macroeconomic risk factors changed across the phases of the cycle. Their data include over 8 million bond trades across 26 SIBs. The authors divide their sample period into the pre-crisis (2003:Q1 to 2007:Q3), crisis (2007:Q4 to 2009:Q2), and post-crisis (2009:Q3 to 2014:Q3) sub-periods to contrast the findings. They obtain several results. First, bond buyers do react to changes in the SIB-specific risk factors (leverage, credit risk, inefficiency, lack of profitability, illiquidity, and interest rate risk) by demanding higher yields. Second, bond buyers' responses to risk factors are sensitive to the phase of the business cycle. Third, the proportion of variance in yields driven by SIB-specific and bond-specific risk factors increased from 23 percent in the pre-crisis period to 47 percent and 73 percent, respectively, during the crisis and post-crisis periods. These findings indicate that the force of market discipline improved greatly during the crisis and post-crisis periods, at the expense of macroeconomic factors. The strengthening of market discipline in the crisis and post-crisis periods, despite the unprecedented regulatory intervention in the form of quantitative easing programs, the Troubled Asset Relief Program, large bailouts, and generally accommodative fiscal and monetary policies adopted during these periods, demonstrates that regulatory intervention and market discipline can work in tandem.

Working Paper 17–05. Elyas Elyasiani, Temple University; Jason M. Keegan, Federal Reserve Bank of Philadelphia Supervision, Regulation, and Credit Department.

How Data Breaches Affect Consumer Credit

The authors use the 2012 South Carolina Department of Revenue data breach as a natural experiment to study how data breaches and news coverage about them affect consumers' interactions with the credit market and their use of credit. They find that some consumers directly exposed to the breach protected themselves against potential losses from future fraudulent use of stolen information by monitoring their files and freezing access to their credit reports. However, these consumers continued their regular use of existing credit cards and did not switch lenders. The response of consumers exposed to the news about the breach only was negligible.

Supersedes Working Paper 15–42.
Working Paper 17–06. Vyacheslav Mikhed, Federal Reserve Bank of Philadelphia Payment Cards Center; Michael Vogan, Moody's Analytics.

Self-Fulfilling Debt Crises, Revisited: The Art of the Desperate Deal

The authors revisit self-fulfilling rollover crises by introducing an alternative equilibrium selection that involves bond auctions at depressed but strictly positive equilibrium prices, a scenario in line with observed sovereign debt crises. They refer to these auctions as "desperate deals," the defining feature of which is a price schedule that makes the government indifferent to default or repayment. The government randomizes at the time of repayment, which the authors show can be implemented in pure strategies by introducing stochastic political payoffs or external bailouts. Quantitatively, auctions at fire-sale prices are crucial for generating realistic spread volatility.

Working Paper 17–07. Mark Aguiar, Princeton University; Satyajit Chatterjee, Federal Reserve Bank of Philadelphia Research Department; Harold Cole, University of Pennsylvania; Zachary Stangebye, University of Notre Dame.

Regime Shift and the Post-crisis World of Mortgage Loss Severities

The average loss rate for conventional mortgages rose from less than 10% pre-crisis to more than 30% during the crisis, reaching and sustaining greater than 40% post-crisis. Using a novel database that contains the components of mortgage losses, the authors identify a regime shift in loss severities caused by various government interventions and changes in business practices in the servicing industry. This regime shift helps explain the persistently high loss severities post-crisis, even after a strong recovery in the housing market. The authors' findings have implications for loss modeling, pricing, and, potentially, mortgage credit availability.

Working Paper 17–08. Xudong An, Federal Reserve Bank of Philadelphia Supervision, Regulation, and Credit Department; Larry Cordell, Federal Reserve Bank of Philadelphia Supervision, Regulation, and Credit Department.

The Impacts of Financial Regulations: Solvency and Liquidity in the Post-crisis Period

This paper discusses the new financial regulations in the post-financial crisis period, focusing on capital and liquidity regulations. Basel III and the capital stress tests introduced new requirements and new definitions while retaining the structure of the pre-2010 requirements. The total number of requirements increased, making it difficult to determine which constraints are binding. The authors find that the new common equity tier 1 (CET1) and Level 1 high-quality liquid assets (HQLAS) are the binding constraints at large U.S. banks, especially for banks that are active in capital markets activities. Banks have been holding more CET1 and a larger share of Level 1 HQLAS since the financial crisis of 2007 to 2009. The authors also find that the market pricing of bank debt appears to have responded to changes in liquidity measures, especially at large capital markets banks. The Basel III regulatory capital ratios appear to have little direct influence on spreads.

Working Paper 17–10. Colleen Baker, independent consultant; Christine Cumming, Federal Reserve Bank of New York (retired); Julapa Jagtiani, Federal Reserve Bank of Philadelphia Supervision, Regulation, and Credit Department.

Endogenous/Exogenous Segmentation in the A-IRB Framework and the Pro-cyclicality of Capital: An Application to Mortgage Portfolios

This paper investigates the pro-cyclicality of capital in the advanced internal ratings-based (A-IRB) Basel approach for retail portfolios "and identifies the fundamental assumptions required for stable A-IRB risk weights over the economic cycle. Specifically, it distinguishes between endogenous and exogenous segmentation risk drivers and, through application to a portfolio of first mortgages, shows that risk weights remain stable over the economic cycle when the segmentation scheme is derived using exogenous risk drivers, while segmentation schemes that include endogenous risk drivers are highly pro-cyclical. Also analyzed is the sensitivity of the A-IRB framework to model risk resulting from the selection, at the quantification stage, of a data sample period that does not include a period of significant economic downturn. The analysis illustrates important limitations and sensitivities of the A-IRB framework and sheds light on the implicit restrictions embedded in recent regulatory guidance that underscore the importance of rating systems that remain stable over time and throughout business cycles.

Working Paper 17–09. José J. Canals-Cerdá, Federal Reserve Bank of Philadelphia Supervision, Regulation, and Credit Department.

Identification Through Heterogeneity

The authors analyze set identification in Bayesian vector autoregressions (VARS). Because set identification can be challenging, they propose to include micro data on heterogeneous entities to sharpen inference. First, the authors provide conditions when imposing a simple ranking of impulse-responses sharpens inference in bivariate and trivariate VARS. Importantly, they show that this set reduction also applies to variables not subject to ranking restrictions. Second, the authors develop two types of inference to address recent criticism: (1) an efficient fully Bayesian algorithm based on an agnostic prior that directly samples from the admissible set and (2) a prior-robust Bayesian algorithm to sample the posterior bounds of the identified set. Third, they apply our methodology to U.S. data to identify productivity news and defense spending shocks. The authors find that under both algorithms, the bounds of the identified sets shrink substantially under heterogeneity restrictions relative to standard sign restrictions.

Working Paper 17–11. Pooyan Amir-Ahmadi, University of Illinois at Urbana–Champaign; Thorsten Drautzburg, Federal Reserve Bank of Philadelphia Research Department.