

ECONOMIC COMMENTARY

Financial Stability: Risks, Resilience, and Policy

*Joseph G. Haubrich**

As the COVID-19 pandemic and its economic fallout continue, policymakers keep a watchful eye on the stability of the financial system. Having learned many lessons from the financial crisis of 2007–2009, they may again turn to that crisis for insights into potential vulnerabilities emerging in the financial sector and ways to make financial markets and institutions more resilient to shocks. At a recent conference on financial stability, 12 papers and two keynotes explored this ground. This *Commentary* summarizes the papers' findings and the keynotes.

A decade after the financial crisis, the world still grapples with issues raised by the events of 2007–2009. These issues have become particularly important as financial markets and policymakers contend with the fallout from COVID-19. As the pandemic exposes vulnerabilities in the financial system and forces central banks and governments to dust off playbooks from a decade ago, a closer look at the lessons of the financial crisis can perhaps help guide today's policy. What financial risks still remain, how can we make financial markets and institutions resilient to shocks that we know—and don't know—are out there, and what role does policy have in reducing risk and promoting resiliency?

These questions were explored at a conference on financial stability held by the Federal Reserve Bank of Cleveland and the Office of Financial Research in November 2019. The conference included panels of academics, regulators, and industry participants, a policy keynote that featured a discussion between Cleveland Fed President Loretta J. Mester and FDIC Chairman Jelena McWilliams, and an academic keynote from Professor Anjan Thakor.

This *Commentary* summarizes the conference presentations, which clustered around five themes: macroprudential aspects of liquidity, what promotes resilience, digital currencies, household balance sheets, and whether central banks have a higher purpose.

Macroprudential Aspects of Liquidity

One lesson from the crisis was that too often regulatory policy, while focusing on the safety of individual banks, neglected the overall stability of the system. As a result, policymakers increased their emphasis on macroprudential policy. The three papers in this session examined the financial stability effects of liquidity regulation.

In “Unconventional Monetary Policy and Funding Liquidity Risks,” Quentin Vandeweyer, Adrien d’Avernas, and Matthieu Darracq Pariès argue that short-term money markets are a key aspect of banks’ liquidity management and that the liquidity management practices of diverse types of banks can have an important impact on the prices of other financial assets. Furthermore, central bank policies,

*Joseph G. Haubrich is a senior economic advisor at the Federal Reserve Bank of Cleveland. The views authors express in *Economic Commentary* are theirs and not necessarily those of the Federal Reserve Bank of Cleveland, the Board of Governors of the Federal Reserve System, or its staff.

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by indirectly affecting asset prices through the banking sector, can have an important influence on the less-regulated shadow banking sector. When banks are well-capitalized, their access to the money markets lets them easily offset funding shocks. When capital is low, a vicious cycle arises as declining asset prices make it more difficult for banks to offset funding shocks, further lowering asset prices. The central bank has several options to help break the cycle. Injecting liquidity by increasing the supply of reserves reduces liquidity risk in the traditional banking sector. However, it does not help the shadow banking sector. The authors show that “when the shadow banking sector is large, as in the US in 2008, the central bank can further stabilize asset prices by directly purchasing illiquid securities.”

If bank liquidity is important, then perhaps there is a need to regulate it. Yao Lu looks at the consequences of one major US liquidity regulation in “Does Liquidity Disclosure Regulation Negatively Affect Liquidity Holdings in the Banking System?” The regulation he considers is the liquidity coverage ratio (LCR), which mandates that banks hold a certain amount of high-quality liquid assets (HQLA). In 2017 the largest banks were in addition required to release details about their liquidity holdings and the way their LCRs were calculated. Lu investigates whether this mandatory disclosure affects bank liquidity holdings. To the extent that the disclosures provide useful information about liquidity in the banking system as a whole, other banks may feel less need to hold liquidity—with less uncertainty, their precautionary demand is lower. Lu finds that this is indeed the case, with banks that have less of a relationship with the disclosure-releasing banks showing a greater decline in liquidity, thus emphasizing the informational aspect of the effect. While not necessarily indicating that the disclosure regulation is unwarranted, this work does indicate a possible downside.

Other effects of the LCR were considered in “Unintended Consequences of Post-Crisis Liquidity Regulation” by Suresh Sundaresan and Kairong Xiao. They show that the LCR pushed banks to increase their HQLA by borrowing from the Federal Home Loan Banks (FHLBs). Since the FHLBs hold illiquid bank assets as collateral against these advances, the illiquidity has not left the system, and in fact the LCR has not reduced bank dependence on publicly provided liquidity. Furthermore, regulatory reforms in the money market induced money market mutual funds to become major lenders to the FHLBs. With banks satisfying their LCRs with FHLB advances, funded by short-term money market funds, it is unclear if the system is safer from a macroprudential perspective.

What Promotes Resilience?

Several conference papers explored the issue of resilience, questioning what makes the system less vulnerable to shocks and able to prevent problems from turning into crises. Three papers addressed these issues in several ways.

A major reform postcrisis was regulators’ recommending that financial assets traded over-the-counter (OTC) be

cleared through a central counterparty (CCP). Mark Paddrik and Simpson Zhang looked at the systemic risk of these CCP institutions in “Central Counterparty Default Waterfalls and Systemic Loss.” Each CCP has a specific “waterfall” of funds to draw upon in the event of members’ default: the individual margin of members, the guarantee fund of defaulting members, the CCP’s own capital, and the guarantee fund of surviving members, with the possibility of additional assessments to remaining members. Paddrik and Zhang’s paper explores how the waterfall structure affects the transmission of shocks when some members default. They show that there is a tradeoff in default waterfall design: The designs that make the CCP and the system more resilient also impose higher costs on the participants, making them less likely to join the CCP. Finding the most efficient design that promotes resiliency yet provides incentives to join remains an important issue for CCPs.

Of course, a financial crisis indicates a major failure in resilience. Alexandr Kopytov asks why systemic crises seem to happen at the end of credit booms and provides his answer in “Booms, Busts, and Common Risk Exposures.” He attributes the correlation between booms and crises to connectedness among banks, specifically through their common portfolio holdings. Banks can reduce their individual risk by diversifying their portfolios, but taken to extremes, all banks end up holding nearly identical portfolios and thus are all subject to the same risk. At the peak of a credit boom, only low-quality borrowers are looking for credit, so the banks are particularly anxious to share the risk, making the system more prone to common shocks. The banks don’t account for their impact on the overall economy, and so a desire for individual safety leads to systemic problems.

An important part of resiliency or its lack is the interaction between different parts of the financial market. Robert Czech finds an important connection between “Credit Default Swaps and Corporate Bond Trading.” Using regulatory data on credit default swap (CDS) holdings and corporate bond transactions, Czech finds that the existence of an accessible CDS market enhances the liquidity of the underlying corporate bond market in normal times. In stress periods, however, severe mark-to-market losses on CDS positions can lead to fire sales in the corporate bond market. Using a recent change in margin requirements to control for confounding factors, Czech shows that investors facing losses on their CDS holdings tend to sell off more corporate bonds. These fire sales can lead to a downward liquidity spiral that further depresses prices in the underlying bond market.

Digital Currencies

Critics often complain that policymakers are prone to “fight the last war” and adopt laws and regulations that react to the previous crisis. That is why it is important to look ahead, and several conference papers did so by considering the impact of emerging technologies, specifically, aspects of digital currencies.

A classic question in monetary economics is what is the optimal amount of currency to issue? Ye Li, Lin William Cong, and Neng Wang update this question to the blockchain era with “Tokenomics and Platform Finance.” A platform—an electronic market place—issues tokens that are used as a local medium of exchange on the platform. In a sense, a token is money, like cash or currency, that drives value as a means of payment. Tokens have an additional role in that they are also a financing instrument for the platform. Through a token offering (e.g., an initial coin offering), the platform can issue tokens to raise resources for platform development and pay tokens to its founders as rewards. But what prevents the platform from issuing a nearly infinite amount of tokens, and hence, driving the token value to zero? First, the founders’ interests are maximized if the platform follows a dynamic strategy, gradually releasing tokens to the market. The continuation or franchise value serves as a discipline against excessive token issuance. Second, blockchain technology enables commitment to a predetermined token supply strategy. Commitment also adds value via a predetermined platform development strategy under the dynamic inconsistency due to conflicts of interest between platform founders and users. The paper characterizes the optimal token supply strategy, the endogenous growth of platform productivity and user base, and the equilibrium pricing of tokens.

Despite its flexibility, blockchain architecture does matter for market functioning, as Peter Zimmerman points out in “Blockchain Structure and Cryptocurrency Prices.” Cryptocurrencies have some unique aspects that derive from combining the finite capacity of the blockchain with the way demand and supply determine the token prices. The price is determined by demand for the cryptocurrency as a means of payment, but the finite structure of the blockchain restricts the currency’s settlement capacity. Thus, higher speculative demand for the cryptocurrency, that is, demand for it as an investment asset, can crowd out its usage as money, because investment demand eats up settlement capacity and reduces the price. With speculation crowding out monetary uses, it becomes less likely that the cryptocurrency will survive as an important currency, and so the investment becomes a risky bet, with highly volatile prices.

Digital currencies may have originated as an alternative to the currencies issued by central banks, but several central banks have shown interest in creating their own digital currencies. Itai Agur, Anil Ari, and Giovanni Dell’Ariccia study the optimal design of a central bank digital currency (CBDC) in an environment where agents sort into users of cash, CBDC, and bank deposits according to their preferences over anonymity and security and where network effects make the convenience of payment instruments dependent on the number of their users. A CBDC can be designed to look more similar to cash, which is anonymous but not secure, or to deposits, which are secure but not anonymous. Even if it looks more like cash, it can bear interest. A CBDC that closely competes with

deposits depresses bank credit and output, while a cash-like CBDC may lead to the disappearance of cash. The optimal CBDC design trades off bank intermediation against the value of maintaining diverse payment instruments. When network effects matter, so that the value of a currency depends on the number of users, allowing the CBDC to pay interest can alleviate the central bank’s tradeoff.

Household Balance Sheets

Though a lot of thought about financial stability centers on banks and financial firms, housing markets also played a central role in the 2007–2009 financial crisis, and a key cost of the crisis was its impact on households. Three conference papers looked at the implications of household balance sheets for financial stability.

Can credit markets help people respond to disasters? That is the question Tess Scharlemann, Alejandro Del Valle, and Stephen Shore explore in “Household Financial Behavior after Hurricane Harvey.” Researchers can make use of the occurrence of a hurricane to study consumer behavior because a hurricane is both unexpected and able to be placed in time precisely. With detailed data on flooding depth and credit card use by location, this paper teases out some specific effects of Hurricane Harvey. In line with previous work, but perhaps still surprising, borrowing on existing credit cards showed little impact from the hurricane. The big change showed up in the increased use of new credit cards, particularly among homeowners who were able to borrow at the temporarily low “teaser” rates. Households also took advantage of mortgage-forgiveness offers, another inexpensive form of borrowing. The high balances on new credit cards were paid off quickly, suggesting that the credit cards served as a bridge until insurance payments arrived, helping people deal with disasters. It also suggests that consumers are sensitive to interest rates, but that the major competition in credit cards is via new accounts.

One central concern in responding to financial crises is the problem of moral hazard: By providing insurance, bailing firms out, or otherwise protecting people from the negative effect of shocks, people may become less careful, take more risks, and make a crisis more likely. Sasha Indarte looks at the tradeoff between providing insurance and moral hazard in “Moral Hazard versus Liquidity in Household Bankruptcy.” Bankruptcy may promote the social good if it acts as a sort of insurance against cash-flow shocks and liquidity constraints, but if bankruptcy is driven by a strategic motive to increase wealth by discharging debt, it may be less useful and lead to less lending as lenders fear losses. Indarte identifies which of these factors is at work in the United States by employing an innovative regression kink design based on differences across states in the homestead exemption. Households respond much more strongly to cash-flow problems than to the same-sized changes in the generosity of the homestead exemption, suggesting the insurance factor is more important than the strategic factor in bankruptcy.

A big question in financial stability is whether, and the extent to which, problems at banks get passed on to consumers. If banks run into trouble and cut their lending, can consumers find substitutes, or will they have to cut back on purchases or dip into savings? Rohan Ganduri, Sudheer Chava, Nikhil Paradkar, and Linghang Zeng explore one aspect of this question by looking at the impact of bank stress on banks' credit card lending in "Shocked by Bank Funding Shocks: Evidence from 500 Million Consumer Credit Cards." Using an impressively large data set, the authors investigate how bank health affects consumer spending via credit cards, a channel of spending that accounts for a healthy 24 percent of personal consumption expenditures. The credit card issuers that experienced a greater decline in wholesale funding reduced customer credit card limits by more. One feature of the paper is that it is able to look at customers with credit cards from several banks, and thus is able to conduct a "within-consumer" analysis that can control for consumer demand factors and identify the effect of the credit-limit cuts on consumers. Banks cut credit limits more for consumers with higher credit utilization and lower credit ratings; that is, banks transmit their funding shocks differentially across consumers. Further, those customers with higher credit utilization and lower credit ratings cut back their credit card spending and total spending more than others; that is, credit-constrained consumers could not hedge away from a bank-transmitted funding shock. Together these results suggest that, when faced with liquidity shocks, banks pass these shocks on to consumers who are least able to cope with them.

Does Banking Have a Higher Purpose?

In the academic keynote address, Anjan Thakor talked about "Financial Stability: Capital, Culture, and Higher Purpose." He started from the question of how best to strike a balance between financial stability and economic growth so that sustainable growth can be achieved without sacrificing stability. He suggests a three-pronged approach relating capital, culture, and higher purpose.

Thakor's approach starts with capital, because high leverage was a major contributor to the 2008 financial crisis. Higher capital creates a larger buffer for losses but more importantly induces banks to take less risk, and that in turn can also make them less vulnerable to liquidity shortages that may be triggered by insolvency concerns. For that reason, Thakor's solution would require higher capital requirements for banks and restrictions on consumer leverage, but it would also go beyond regulations. Thakor wants to encourage a stronger safety-oriented bank culture, one that emphasizes safety more than competition or growth. Achieving such a culture would involve more than banks just acting ethically, and indeed it would require that banks discover a higher purpose beyond the maximization of profits in an ethical manner. This higher purpose would be a prosocial contribution goal that would transcend profit maximization but also intersect with the bank's business

Find the Papers

Links to the papers and presentations can be found at:

<https://www.clevelandfed.org/newsroom-and-events/events/2019/2019-financial-stability-conference/agenda.aspx>

Note: Some papers have been updated since the conference, and in this *Commentary* I refer to papers by their updated titles.

strategy; that is, it would not be accomplished with charity but rather something that influences routine decisions. The higher purpose would also shape the bank's culture, and culture influences behavior beyond formal contracts and regulation. So the bank's higher purpose, culture, and capital would have to work in concert to generate bank behavior that makes prosocial contributions and fosters sustainable economic growth and stability. Thakor acknowledges that achieving this end will require encouraging a broad discussion among banks, regulators, and academics about the higher purpose of banking.

Conclusion

In addition to the paper presentations, several other types of discussion took place. Each group of papers was discussed by an expert in the respective topic and received further comments and suggestions in a short period of general discussion. Further reflection on the issues addressed at the conference was provided in panel discussions consisting of policymakers, academics, and industry participants. In the policy keynote, Cleveland Fed President Loretta Mester moderated a discussion with Jelena McWilliams, chairman of the FDIC. Chairman McWilliams described her work heading up the agency that serves as the primary federal regulator for state-chartered banks that are not members of the Federal Reserve System. She talked about the importance of regulators having a risk focus and ensuring that regulation promotes safe and sound banking that supports local economies. She talked about innovation in banking, which ranges from digital fintech firms to a bank that puts an ATM on a bus and takes it to farmer's markets.

It's probably not possible to draw a single, overarching lesson from the papers, panels, and keynotes, but as a collection they emphasize the range and complexity of the questions involved. Government regulation can help keep the financial system stable, but the market often reacts in ways that lead to an unexpected outcome, and a poorly designed policy can have perverse effects. Often what makes predicting the outcome so difficult is the sheer diversity of the players in the market, who are always facing different local conditions, legal structures, and types of consumers.



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