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Financial Innovations and the Real Economy: Conference Summary

This Economic Letter summarizes the papers presented at the conference “Financial Innovations and the Real Economy” held at the Federal Reserve Bank of San Francisco by the Bank’s Center for the Study of Innovation and Productivity on November 16–17, 2006. The papers are listed at the end and are available at <http://www.frbsf.org/economics/conferences/0611/agenda.pdf>.

This conference featured seven papers that address the impact of innovations in the financial sector on the real economy. The papers can be divided roughly into three groups. The first group examines how innovations in financial markets affect consumer spending and borrowing. The second group focuses on how new financial instruments may help firms mitigate risk but, in so doing, may also increase the risk to the overall financial system. The third group explores how financial innovations affect business borrowing behavior, and how that behavior may increase the volatility of financial variables but decrease the volatility of real variables, such as employment and output.

Financial innovations and the consumer

The paper by Campbell and Hercowitz begins by observing several facts about the composition of U.S. household debt and the ways it has changed over time. One stylized fact is that household debt has increased sharply since the 1980s. The authors argue that deregulation (in particular, several laws passed in the early 1980s) increased competition in the consumer lending market, spurring financial firms to provide more services at lower cost to households. For instance, as the costs of tapping into home equity were greatly reduced and down payment requirements were lowered, many households may have become more willing to acquire a greater amount of debt that is collateral-

ized by their houses (the single largest source of debt for U.S. households).

One way to gauge the potential importance of financial innovation on consumer borrowing behavior is to develop a model that analyzes how changes in regulations would affect consumer behavior and then see if the model’s predictions match what is observed in the data. To that end, the authors construct a general equilibrium model of savers and borrowers. The general equilibrium concept is important because it recognizes that, for every dollar of money borrowed, someone must be willing to lend that dollar. It has been documented that many U.S. households are net borrowers, while a minority are net savers. Therefore, in the Campbell-Hercowitz model, there are two types of consumers: net borrowers and net savers. They show, through a variety of exercises, that their model is consistent with much of the data.

The paper by Dynan, Elmendorf, and Sichel addresses how financial innovation may help consumers smooth consumption over time. In their previous research (2006), these authors argued that innovations in financial markets could be one of the reasons that the economy has become less volatile since the mid-1980s. Their argument is that financial innovations have enhanced the ability of businesses and consumers to smooth their spending in the face of swings in income.

In this paper, they focus on the household level. They analyze income and spending from a data set that tracks individual households over time and find several interesting patterns. Among these, the volatility of annual income at the household level was higher after 1984 than before, even though aggregate volatility in the economy declined. They



explore possible reconciliations of these divergent patterns. Finally, the authors find that, at the household level, spending has become less responsive to changes in income, especially when income falls. Financial innovations, such as easier access to home equity, may account for this last fact.

The final paper in this group differs substantially from others in that it focuses on financial services provided to the very poor in Guatemala. Authors de Janvry, McIntosh, and Sadoulet examine the role of credit bureaus (institutions that gather and make available people's credit histories) and the information consumers have about credit bureaus in the demand and supply of credit.

It has long been recognized that the poor in developing countries have little, if any, access to credit. One of the many reasons is that banks are unsure about which borrowers would be good credit risks, a situation that credit bureaus might help alleviate. In addition, if consumers were aware that credit bureaus exist, they might be more likely to pay back their loans and to undertake less risky activities to avoid having an adverse credit report that would lessen the prospects for future borrowing. To measure the extent to which the introduction of credit bureaus affects borrower and lender behavior, the authors exploit a randomized experiment in Guatemala. Their results suggest that credit bureaus do indeed help lenders identify low-risk borrowers and increase the supply of credit. They also find that those borrowers who are educated about the role of credit bureaus in providing credit ratings are more likely to pay back their loans than less educated borrowers.

Financial innovations and firms: Risk-sharing and systemic risk

Financial innovations arguably have improved lenders' risk management and have made firms that want to borrow less dependent on particular lenders. Ashcraft and Santos look for empirical support of this notion by focusing on a particular innovation, namely, the credit default swap (CDS) market, where a CDS is an insurance contract that pays the insured party if a specific borrower defaults. Specifically, they examine whether CDS transactions, which supposedly lower corporate funding costs, have led firms to issue more debt and operate with higher leverage ratios. Using market data starting in 2001, they do find that a firm's borrowings in the syndicated loan market and its operating leverage both increase after the firm begins having its name traded in the CDS market. How-

ever, they do not find any evidence that this increase in credit supply is being driven by lower spreads or weaker nonprice terms on syndicated bank loans. Hence, the mechanism by which this financial innovation facilitates increased corporate borrowing requires further analysis.

Similarly, the larger systemic effects of financial innovation in corporate lending are not yet fully understood. New financial instruments like CDS are widely believed to facilitate risk-sharing across financial intermediaries and, hence, to have reduced the probability that difficulties at a single intermediary could affect the entire financial system. However, because financial innovation is spreading financial risks more widely, some observers have raised concerns that new, unforeseen risk concentrations among less-prepared market participants could amplify certain adverse shocks, which would increase systemic financial risk. Some commentators also have argued that these concerns are particularly strong in the current environment, since many of the markets for the recent financial innovations have not yet been through a prolonged period of stress, such as a deep economic recession.

Gai, Kapadia, Millard, and Perez lay out a model economy in which adverse macroeconomic shocks could lead to asset "fire sales" that raise the probability of a systemic financial crisis. Financial innovations should diminish this probability, since they give firms greater access to funding and thereby diminish firms' need to sell their assets so quickly during a recession. However, this greater liquidity also leads firms to borrow more than before, which makes them more vulnerable to adverse shocks. The model's trade-off between a reduced frequency of systemic shocks and a potential increase in their severity perfectly reflects the overall uncertainty that policymakers face regarding the current rapid pace of financial innovation.

Financial innovations and firms: Borrower and lender behavior

In many models of the real economy, the financial sector plays no important role. The assumption is that asset prices simply reflect real fundamentals, with no feedback from financial markets to the real economy. However, models with financing frictions suggest that innovations in financial markets should have important macroeconomic implications.

Jermann and Quadrini discuss the impact of financial innovation on the volatility of debt, equity, and output. They argue that, although the real sector

of the economy has become less volatile in the past few decades, the volatility of the financial structure of firms has increased. To explain this observation, they construct an economic model where business cycle fluctuations are driven by asset price shocks. Because of financial frictions, increases in asset prices affect firms' ability to produce, which then affects the real side of the economy. For example, lenders who are worried about default will limit the size of their loan exposure relative to the borrower's net worth; if asset prices rise, the borrowing constraint is relaxed and firms can increase employment and investment. Innovations in financial markets that allow for greater financial flexibility of firms—reflecting either increased ability to borrow or increased ability to substitute equity for debt—thus reduce the volatility of employment, investment, and output.

Wang also argues that innovations in financial markets should lead to higher financial volatility but lower real volatility. In her model, firms face shocks to demand for their products. In the face of these shocks, firms would like to use inventories to smooth production, which would, in turn, minimize overall production costs. However, smoothing production would cause cash flow to be highly volatile. If firms face an increasing premium for obtaining external financing—reflecting, perhaps, the difficulty that lenders have in verifying exactly why the firm wants to borrow—then firms would also like to smooth cash flow. This incentive to smooth cash flow thus restricts the extent to which firms choose to smooth production. Financial innovations that affect the size of the external financing premium (and its relationship to the amount of financing) allow firms to have more volatile cash flow but smoother employment and output. Wang then models how information technology has affected the premium charged by banks and other financial institutions. In particular, she argues that advances in information and communication technology have greatly lowered the marginal cost of collecting, processing, and transmitting information in general and credit information in particular (for example, by using

computer-based credit scoring models). As a result, banks today make loans not only to more borrowers but also to smaller borrowers.

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Conference papers

Ashcraft, Adam, and Joao Santos. "Has the Development of the Structured Credit Market Affected the Cost of Corporate Debt?"

Campbell, Jeffrey, and Zvi Hercowitz. "The Macroeconomic Transition to High Household Debt."

Dynan, Karen, Douglas Elmendorf, and Daniel Sichel. "Financial Innovation and the Great Moderation: What Do Household Data Say?"

Gai, Prasanna, Sujit Kapadia, Stephen Millard, and Ander Perez. "Financial Innovation, Macroeconomic Stability, and Systemic Crises."

de Janvry, Alain, Craig McIntosh, and Elisabeth Sadoulet. "The Supply and Demand Side Impacts of Credit Market Information."

Jermann, Urban, and Vincenzo Quadrini. "Financial Innovations and Macroeconomic Volatility."

Wang, Christina. "Financial Innovations, Idiosyncratic Risk, and the Joint Evolution of Real and Financial Volatilities."

Reference

Dynan, Karen, Douglas Elmendorf, and Daniel Sichel. 2006. "Can Financial Innovation Help to Explain the Reduced Volatility of Economic Activity?" *Journal of Monetary Economics* 53(1) (January) pp. 123–150.

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