

Consumer Credit: Suggested Directions for Policy-Relevant Research



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Introduction

Good morning. I thank the conference organizers at the Federal Reserve Bank of Philadelphia and the *Journal of Economics and Business*, in particular, Paul Calem, Julapa Jagtiani, Bill Lang, and Ken Kopecky, for inviting me to participate in this conference on regulating consumer credit. It is a particular pleasure for me to be back at my old haunt, having grown up at the Philly Fed, and seeing the many people I count not only as my friends but also as my teachers, because I've learned so much from you over the years. I also want to acknowledge my long association with the *Journal of Economics and Business*, and the opportunity Ken Kopecky gave me to serve as an associate editor of the journal and as the editor of a special issue associated with the Federal Reserve System's March 2007 conference on financing community development.

It may not surprise you that many of the topics contained in that special issue are still being researched today, including subprime mortgages, foreclosures, predatory lending practices, and consumer literacy. Indeed, some of these very topics are covered in this conference. I don't think we should take this as signaling a lack of progress. Instead, I view it as recognition that consumer credit markets are a vital part of the modern economy, that the issues pertaining to these markets, including regulation, are intricate ones, and that the data and models being used to study these important markets are becoming more sophisticated and informative. Conferences like this one help us identify what we know and what we don't know – a necessary step on the road to more effective regulation and policymaking. Today I will offer my perspectives on the research agenda on consumer credit and household finance. As always, the views I'll present are my own and not necessarily those of the Federal Reserve System or my colleagues on the Federal Open Market Committee.

Household Finance Before, During, and After the Financial Crisis

Since I am in Philadelphia, I can't help but begin by quoting one of Philadelphia's favorite sons, Ben Franklin. Ben was not stingy with advice, and among the many pieces of wisdom he provided in his *Poor*

Richard's Almanac was the warning: "...he that goes a borrowing, goes a sorrowing."¹ Yet U.S. households appear to have ignored this warning. Since the 1960s, household debt, including mortgages and consumer credit and other liabilities, has accounted for about 25 to 30 percent of total credit market debt outstanding.² Consumer loans excluding mortgages have varied between 10 and 20 percent of commercial bank credit.³

In the aftermath of the global financial crisis, it is easy to forget the important benefits that access to such credit can mean for households and the economy at large. Well-functioning credit markets provide an efficient mechanism for allocating risk and moving funds from savers to borrowers. Credit allows households to consume and invest in goods and services that are currently unaffordable but which are affordable based on their future income, and to manage the risks associated with loss of income. This access to credit allows households to participate in the modern economy. Mortgages allow people to purchase houses, a goal of many families. Auto loans give buyers the means to search for jobs and get to work. Student loans allow people to fund their educations, raising the level of their human capital and the productivity of the workforce. So credit allows people to increase their own well-being and contribute to the country's economic growth.

Over time, financial innovations, regulatory changes, and technological advances have all led to increased access to credit by households, some of whom found it difficult to borrow in earlier times. For example, the development of the secondary mortgage market and securitization brought new sources of funds to the

¹ Benjamin Franklin included this in *The Way to Wealth*, a preface to his *Poor Richard's Almanac* of 1758, which summarized advice from earlier editions of the almanac (see <http://www.swarthmore.edu/SocSci/bdorseyl/41docs/52-fra.html>). But the advice first appeared much earlier, in 1577, in a poem by Thomas Tusser, *Five Hundred Pointes of Good Husbandrie* (http://www.archive.org/stream/fivehundredpoint08tussuoft/fivehundredpoint08tussuoft_djvu.txt), as referenced in *Hoyt's New Cyclopedia of Practical Quotations*, Funk & Wagnalls Company, 1922.

² Data are from the Federal Reserve's [Financial Accounts of the United States](#), more commonly known as the Flow of Funds Accounts. The accounts aggregate data on households and nonprofit organizations. In these remarks, household debt refers to total liabilities of households and nonprofit organizations.

³ Data are from the Federal Reserve's [Assets and Liabilities of Commercial Banks in the United States – H.8](#).

market. Permitting banks to branch nationwide lowered noninterest expenses and loan losses. And the development of credit scoring models lowered transactions costs and allowed lenders to better assess and monitor the riskiness of potential borrowers.

However, as the financial crisis underscored, not all financial innovations and credit extensions are beneficial to households or to the broader economy, especially when the risks they entail aren't fully appreciated. While household debt-to-income ratios had been trending up since the 1960s, the rate of increase rose dramatically in the period leading up to the financial crisis, from about 100 percent in 2000 to over 130 percent in 2007. Over the same period, residential mortgage debt outstanding more than doubled, from \$4.8 trillion to over \$10.6 trillion, and consumer debt excluding mortgages rose by nearly \$1 trillion, from \$1.7 trillion to \$2.6 trillion.

Expansion of the supply of mortgages, including subprime mortgages, played a role in fueling the run-up in home prices, which then permitted an increase in borrowing against home equity, further fueling the rise in debt. Research by Mian and Sufi suggests that most of the rise in household debt prior to the Great Recession was due to an expansion of mortgage debt to new homebuyers, who traditionally had had trouble getting mortgages, and to an increase in home equity borrowing by existing homeowners.⁴ Demyanyk, who is on the Cleveland Fed staff, and Van Hemert found that as subprime mortgage growth expanded significantly before the crisis, the quality of those mortgages deteriorated.⁵

The increasing complexity and opacity of some mortgages and other consumer debt products, including complicated structured debt instruments derived from these credits, also contributed to the problems to

⁴ See Atif Mian and Amir Sufi, "The Consequences of Mortgage Credit Expansion: Evidence from the U.S. Mortgage Default Crisis," *Quarterly Journal of Economics* 124, 2009, pp. 1449-1496, and Atif Mian and Amir Sufi, "House Prices, Home Equity Based Borrowing, and the U.S. Household Leverage Crisis," *American Economic Review* 101, 2011, pp. 2132-2156.

⁵ Yuliya Demyanyk and Otto Van Hemert, "Understanding the Subprime Mortgage Crisis," *Review of Financial Studies* 24, 2011, pp. 1848-1880.

come. Adjustable rate mortgages with introductory teaser rates, option ARMs, piggyback second mortgages, and other types of complex mortgages were offered. Some of these could be sustained only if it were assumed that house prices would keep rising, allowing the borrower to refinance to repay the mortgage. Credit card contracts began including more complex terms like double-cycle billing, in which interest was based on the current and prior month's balance.

As these dynamics continued, systemic risks were building up. The seminal model of Kiyotaki and Moore shows how such risks can be amplified and propagated.⁶ In their model, because borrowers cannot be forced to repay, all lending is collateralized. When the economy is performing well, the value of the collateral increases, which supports further borrowing and higher output. But when a negative shock hits the economy and output declines, collateral values also fall, which means borrowing falls, which depresses output even further. Thus, the collateral constraint is a mechanism that amplifies and propagates the effects of temporary shocks on the economy. Brunnermeier and Sannikov build on the Kiyotaki and Moore model.⁷ In their model, an economic boom increases bank capital levels high enough so that credit is amply available to borrowers. This lowers the volatility of both output and asset prices. The lower volatility induces banks to increase their leverage and lend even more, so much so that the system is now vulnerable to a negative shock. Geanakoplos talks about this in terms of a leverage cycle.⁸ Variation in leverage can have an important impact on asset prices and contribute to economic booms and busts. Agents that value the asset more are willing to pay more and leverage up to get it, driving the price up. If they are unable to borrow or are hit by a wealth shock, they will buy less and the value of the asset will fall. So leverage is high in booms and low in bad economic times, and in the boom times, the economy becomes quite vulnerable to economic shocks.

⁶ Nobuhiro Kiyotaki and John Moore, "Credit Cycles," *Journal of Political Economy* 105, 1997, pp. 211-248.

⁷ Markus K. Brunnermeier and Yuliy Sannikov, "A Macroeconomic Model with a Financial Sector," *American Economic Review* 104, 2014, pp. 379-421.

⁸ John Geanakoplos, "The Leverage Cycle," in *NBER Macroeconomics Annual*, D. Acemoglu, K. Rogoff, and M. Woodford, eds., Chicago: University of Chicago Press, 2009, pp. 1-65.

When home prices began to fall, many borrowers found the amount owed on their mortgages was higher than the value of their property. Negative equity led to foreclosures when borrowers were unable to keep up their mortgage payments; some houses were sold at fire-sale prices, leading to further declines in real estate prices. The poor underwriting of many of these mortgages and the concentration of these risky assets into securities helped propagate the problems throughout the financial system, with spillovers to other asset-backed securities markets. Other significant weaknesses in the financial system were also revealed. Among them were over-reliance on short-term wholesale funding to finance longer-term assets, which made institutions vulnerable to runs; misaligned incentives; lax underwriting standards; and inadequate risk monitoring by institutions and regulators alike. As the housing market collapsed, highly leveraged households began to cut back on their spending. Businesses cut activity and hiring. Banks, under stress from their mortgage loans and securitized assets, began to restrict credit; loan losses rose, and bank capital levels shrunk. The economy entered a severe recession.

But nearly six years ago, the economy began to emerge from that Great Recession, although seemingly begrudgingly at first. Among the so-called headwinds that held back growth earlier in the recovery was the significant deleveraging that households needed to do to get their balance sheets back in order. The good news is that this headwind has waned – there has been a significant improvement in household balance sheets over the expansion, and this is supporting consumer spending.

At the aggregate level, household net worth fell by more than \$10 trillion in 2008.⁹ It took more than three years to rebuild this wealth, but now thanks to higher equity and house prices, household net worth has risen to \$83 trillion and is 24 percent higher than its previous peak of \$67 trillion in 2007. Household debt peaked in the third quarter of 2008 at \$14.6 trillion. By the third quarter of 2012, it had fallen by \$1

⁹ Data in this paragraph are derived from the Federal Reserve's Financial Accounts of the United States (Flow of Funds Accounts).

trillion to a trough of \$13.6 trillion, led by declines in mortgage debt that reflect a combination of charge-offs and a drop in new mortgage issuance. But household debt is now rising again as charge-offs have been shrinking, mortgage issuance has turned positive, and consumer credit excluding mortgages has been rising. Despite this rise in credit, households' leverage ratios are down. Household debt relative to disposable personal income has fallen to around 100 percent and is near its longer-run trend. The improvement in households' balance sheets is one of the important fundamentals underlying the outlook for continued expansion, further improvement in labor markets, and inflation gradually moving back to the Federal Reserve's 2 percent target over the medium term.

The Fed's Interest in Consumer Credit Research

The Federal Reserve System has long supported research on consumer credit and household finance, but the significant toll that the financial crisis and Great Recession have taken on the economy underscores the need for improving our knowledge of the important linkages between the health of the consumer financial sector and the health of the broader macroeconomy and financial markets.

Because retail credit is an important part of bank portfolios, Fed bank supervisors and examiners need to be able to identify the emerging risks and trends in consumer credit markets in order to promote the safety and soundness of individual institutions. Even though some aspects of consumer protection rule-writing and the responsibility for oversight of large banks' consumer-credit-related activities have shifted from the Fed to the Consumer Financial Protection Bureau (CFPB), the Fed maintains responsibility for conducting consumer compliance examinations, including fair lending reviews and financial institutions' performance under the Community Reinvestment Act. This act induces lenders to find ways to extend credit and provide financial services in low- and moderate-income neighborhoods.

The Dodd-Frank Act, signed into law in 2010, directed the Federal Reserve and other financial regulatory agencies to augment the microprudential supervision of individual institutions with a macroprudential

approach designed to address systemic risk. If anyone ever doubted that emerging problems in household financial products have the potential to threaten not only the safety and soundness of individual financial institutions but also overall financial stability, the recent financial crisis quashed that view. Retail credit, including residential mortgages, credit cards, auto loans, and other consumer loans, is an important component of the Comprehensive Capital Analysis and Review (CCAR) and Dodd-Frank supervisory stress tests applied to bank holding companies with over \$50 billion in assets.

And as we've been discussing, because disruptions in the household finance sector can have significant effects on the macroeconomy, Federal Reserve policymakers need to be able to quantify those effects in order to promote our monetary policy goals of maximum employment and price stability.

Policy-Relevant Consumer Credit Research

Research in consumer credit plays an important role in helping the Fed meet its responsibilities for setting monetary policy, promoting financial stability, and ensuring the safety and soundness of the financial institutions we examine. Good policymaking and regulation are not based merely on good intentions. The basis of effective policy is the economic and finance research that informs it. This research is hard work. Simple intuition that makes some things sound obviously true at first blush may be misleading, in particular when important interactions take place among decision makers with different preferences and incentives. Simple empirical regularities may exist in the data – until they don't; they are not a reliable basis for effective regulation. Careful analysis can help ameliorate unintended consequences of regulations.

Regulation Q is an example of a regulation that started with good intentions but played out poorly.

Competition for bank deposits was thought to have contributed to the bank failures in the early part of the Great Depression. The Banking Acts of 1933 and 1935 sought to limit that competition by prohibiting the payment of interest on demand deposits and imposing interest rate ceilings on time and savings

accounts. Reg Q implemented these provisions. Although the rate ceilings were intended to make the banking system more stable, they did just the opposite when market rates rose sharply in the late 1970s and early 1980s and there were large outflows of deposits from depository institutions.¹⁰

Of course, to do the sound research needed to inform sound policymaking, researchers need the right tools. In his presidential address to the American Finance Association in January 2006, Harvard University Professor John Campbell pointed out that two challenges to the study of household finance are measurement and modeling.¹¹ Because data on households' choices of financial instruments, accounts, and payment methods are hard to obtain, it is hard to gain a deeper understanding of the drivers of those choices and how they change over the life cycle. Standard textbook models typically rely on the representative agent and single-period decision making. But households are more complicated. They differ in their rate of time preference and risk tolerance, and for any particular household, these are likely to change over its life cycle. Even my use of the word "household" is an abstraction, since who actually makes financial decisions within a household differs across households, products, and time.

Progress is being made on both the data and modeling fronts. The workhorse data sets of consumer finance research – the Federal Reserve's triennial Survey of Consumer Finances and the Home Mortgage Disclosure Act (HMDA) data – are now being augmented by credit bureau data, new consumer surveys, data generated by field experiments, and non-U.S. surveys. Indeed, several papers included in this conference use new data sets. The Federal Reserve System has been putting consumer credit data in the hands of its bank examiners and researchers via the System's Risk Assessment, Data Analysis, and Research data warehouse, or RADAR, which began as a collaboration between the Federal Reserve Bank of Philadelphia and the Federal Reserve Bank of Kansas City.

¹⁰ For a discussion of Reg Q, see R. Alton Gilbert, "Requiem for Regulation Q: What It Did and Why It Passed Away," *Review*, Federal Reserve Bank of St. Louis, February 1986, pp. 22-37.

¹¹ John Y. Campbell, "Household Finance," *Journal of Finance* 61, 2006, pp. 1553-1604.

The focus of macroeconomists on better understanding the microfoundations of their models has also helped the study of consumer credit markets. Better computational resources and numerical techniques have allowed researchers to incorporate heterogeneous agents and expanded credit markets with borrowers, lenders, and savers of different types into general equilibrium models. These general equilibrium models, which are then calibrated to characteristics of the economy being investigated, allow researchers to study equilibrium dynamics, something that simpler models are less able to do. These models also allow for the serious evaluation of different policies, so-called policy experiments. They are less subject to the Lucas critique because by incorporating agents' expectations about the policy regime they are in, the models help uncover structural relationships in the economy that are invariant to the alternative policy choices being studied.

On the empirical side, researchers are applying insightful identification strategies to help isolate causal relationships in the data and test alternative hypotheses; some are running controlled experiments. For example, to uncover the important role leverage played in the effect of changes in house prices on consumer spending, Mian and Sufi exploited cross-sectional variation in household leverage across U.S. counties.¹² An example of a controlled experiment is the study of the effectiveness of homeownership counseling conducted by the Philadelphia Fed's Community Development Studies and Education Department under lead investigator Marty Smith. The experimental design involved random assignments of study participants into a treatment group, whose participants received one-on-one credit counseling as well as a two-hour homebuyer's workshop, and a control group, whose participants received only the two-hour workshop. The participants' financial performance was then tracked for four years. The study found that both groups benefited from the counseling they received, but the improvement in terms of

¹² They found that when house prices declined, counties that had exhibited higher growth in household debt-to-income ratios from 2002 to 2006 experienced sharper declines in consumer spending on durables than did less-leveraged counties, and that the declines in spending by highly leveraged counties are sizable. See Atif Mian and Amir Sufi, "Household Leverage and the Recession of 2007-09," *IMF Economic Review* 58, 2010, pp. 74-117.

credit scores, indebtedness, and days delinquent on debt payment tended to be higher for the treatment group.

Directions for Future Research on Consumer Credit

Partly due to applications of new data and modeling techniques, our understanding of consumer credit markets has advanced quite a bit from where it was 10 years ago. But there is more work to be done. Let me finish with three broad areas I think deserve further study.

(1) First, we need to consider what the findings derived from applying behavioral finance to the study of household finance imply for the regulation of consumer credit markets and products. The research shows that consumers often make decisions that differ from those that would come from a standard optimization framework. For example, they often use simple rules of thumb to make decisions, or take other steps to limit their choice sets before making decisions. Households tend to be under-diversified in their asset holdings and to under-participate in the stock market; they rebalance their portfolios at frequencies lower than those suggested by theory; and many households fail to exercise the option to refinance their mortgages even though they'd stand to benefit.¹³ The discrepancy between what households do and what theory suggests they should do differs by type of product and by household characteristics.

Whether remedies are needed to address these discrepancies, and what remedies would be effective in doing so, is an open question. Perhaps it is the theory that needs adjusting rather than the behavior of consumers. If certain high-cost loan products are being chosen by particular households, one needs to ask whether these are the best products available to them. Are there certain characteristics of the product on which they place high value even if the median consumer would not? Are they being screened out of alternative, lower-cost products because of their risk characteristics, or are they being screened out

¹³ See Campbell (2006) for further discussion.

unfairly based on irrelevant information? Are they locked into the high-cost product because of high switching costs, which afford the lender market power? Are they unaware of attractive alternatives, either because the complexity of the products makes them difficult to compare or because of insufficient disclosures? Whether regulatory intervention is called for and, if it is, the type of intervention needed would differ in each of these cases.

It is also interesting to consider the relationship between the behavioral results suggesting that households may not be fully optimizing because they lack knowledge and financial literacy and other findings suggesting that some households make strategic financial choices. For example, Amromin, Huang, Sialm, and Zhong study complex mortgages with features like zero or negative amortization, short interest rate reset periods, and low introductory teaser interest rates. Contrary to what simple intuition might suggest, they find that over the 2003 to 2009 period, complex mortgages were used by financially sophisticated borrowers with high incomes and credit scores, and that these borrowers were more likely to strategically default on their mortgages when they were in a negative equity position compared to households with more traditional mortgages.¹⁴ If so, then additional disclosures of contract terms would not have necessarily changed demand for these mortgages or improved the welfare of these borrowers.

Guiso, Sapienza, and Zingales also provide evidence of strategic defaults. They find that during the recent housing bust, roughly a quarter to a third of mortgage defaults were by homeowners in negative equity positions who defaulted even though they had the ability to pay.¹⁵ These results suggest that the heterogeneity across borrowers, including their level of sophistication, will be important to incorporate into our models and to consider when formulating regulations.

¹⁴ Gene Amromin, Jennifer Huang, Clemens Sialm, and Edward Zhong, “Complex Mortgages,” National Bureau of Economic Research Working Paper 17315, August 2011.

¹⁵ Luigi Guiso, Paola Sapienza, and Luigi Zingales, “The Determinants of Attitudes Toward Strategic Default on Mortgages,” *Journal of Finance* 68, 2013, pp. 1473-1515.

(2) A second important issue that deserves more study is how regulation of consumer financial products and markets may affect financial innovation. It would be a mistake to infer from the financial crisis that financial innovation is always harmful. Innovation has led to a more efficient financial system, extended the benefits of financial services to underserved communities and households, and yielded more product choice. But it would also be a mistake not to recognize that some innovations may be harmful or do not provide sufficient benefits to justify their costs. For example, loan pricing terms can be so complex as to reduce transparency and impede competition. Some provisions defy easy disclosure – like the double-cycle billing in which a bank calculated interest based on the current balance and on the previous month's balance. The Board of Governors banned this practice after determining its complexity reduced transparency and provided no benefit to the consumer.

As Campbell discusses, many investment products involve a cross-subsidy from unsophisticated consumers of the product who don't take full advantage of the product's embedded options to sophisticated borrowers who do. But this means that lenders have no incentive to try to educate consumers of these products, since this would reduce the ability to cross-subsidize; indeed, they may have the incentive to create more complex, hard-to-explain, higher priced products.

How to strike the proper balance between regulations that foster a more efficient, competitive, and safe financial system without stifling beneficial innovation should be informed by further research.

(3) Finally, given the importance of the household sector to both the macroeconomy and to financial markets, more work needs to be done on the nexus between monetary policy and financial stability policy. This includes determining the most effective way to address emerging risks to financial stability and developing models that can be used to evaluate how policymakers should incorporate financial stability

concerns into monetary policymaking.¹⁶ Improving our ability to monitor and assess risks in the financial system is critically important, but it isn't enough. We also need to be able to evaluate the cost and benefits of actions policymakers can take to mitigate emerging risks before they result in financial imbalances that threaten financial stability. Supervisors are developing macroprudential tools, such as countercyclical capital buffers, capital conservation buffers, and stress test scenarios, as well as tools not yet established in the U.S. but used in other countries, including loan-to-value ratio limits and debt-to-income ratio limits that vary over the cycle and which have been targeted to particular sectors like housing credit or household credit.¹⁷ These tools show promise, but as yet, their performance is largely untested.

In remarks at an economic development conference, former Fed Chairman Alan Greenspan cited some emerging risks the Federal Reserve was following in consumer credit markets. He said, "Last quarter credit card delinquencies ratcheted up to just short of an all-time high, and consumer bankruptcies continue at a record pace. We also have heard first hand at the Federal Reserve about the use of 'equity stripping' by some mortgage lenders who have made loans to lower-income homeowners that have no reasonable prospects of repayment."¹⁸ It might surprise you to know that this statement was not made at

¹⁶ There is an ongoing research effort at central banks around the world to develop such models. Yves Mersch, member of the Executive Board of the European Central Bank, discusses some of this research in "Monetary Policy and Economic Inequality," keynote speech, Corporate Credit Conference, Zurich, October 17, 2014.

¹⁷ For example, Canada tightened loan-to-value and debt-to income limits on mortgage lending over the 2009 to 2012 period. See Ivo Krznar and James Morsink, "With Great Power Comes Great Responsibility: Macroprudential Tools at Work in Canada," IMF Working Paper WP/14/83, May 2014.

Beginning in 2010, Israel also implemented a package of macroprudential tools to restrict the supply of housing credit. See Stanley Fischer, "Macroprudential Policy in Action: Israel," in George A. Akerlof, Olivier J. Blanchard, David Romer, and Joseph E. Stiglitz, eds., *What Have We Learned? Macroeconomic Policy After the Crisis*, Cambridge, Mass: The MIT Press, 2014, pp. 87-98.

Spain introduced dynamic loan-loss provisioning in 2000. This method builds up reserves during good economic times according to the historical losses experienced by the asset classes held in the bank's portfolio. This buffer is then available to absorb losses in bad times. See Eliana Balla and Andrew McKenna, "Dynamic Provisioning: A Countercyclical Tool for Loan Loss Reserves," Federal Reserve Bank of Richmond *Economic Quarterly* 95, Fall 2009, pp. 383-418.

¹⁸ Alan Greenspan, "Remarks at the Economic Development Conference of the Greenlining Institute," San Francisco, CA, October 11, 1997.

the height of the recent financial crisis; it was made in a speech given in October 1997, suggesting that although identifying emerging risks may be difficult, determining whether action should be taken and what actions are appropriate in addressing those risks may be even more difficult.

Conclusion

I would like to end my remarks the same way I started – with another quote from our friend Ben Franklin, who said: “Being ignorant is not so much a shame, as being unwilling to learn.”¹⁹ The financial crisis and ensuing Great Recession imposed very high costs on the American public, showing that there is still a lot to learn, but also that the returns to further knowledge are likely to be very high as well.

The research agenda in the area of household finance undertaken by both central bank and academic economists has expanded our knowledge; it is producing results that are informing how we assess risk in individual financial institutions, the overall financial sector, and the macroeconomy. I hope and expect that researchers will continue to work on the household finance research agenda. This agenda includes the basic theoretical and empirical research needed to produce testable models so we can better understand the complex interactions in credit markets, assess the effects of proposed regulations, and understand the tradeoffs and linkages between monetary policy and financial stability. The agenda also includes more applied research focused on tools to better monitor emerging risks in the financial system and individual institutions that originate in consumer credit markets. We should heed the words of Ben Franklin. As policymakers charged with responsibility for monetary policy, and micro- and macroprudential supervision, it's our duty not only to support the advancement of this knowledge but also to be willing to learn from it.

¹⁹ Ascribed to Benjamin Franklin in *Poor Richard's Almanac* of 1755 by *The Dover Anthology of American Literature, Volume 1: From the Origins Through the Civil War*, B. Blaisdell, ed., 2014, p. 33.