

Modernizing Our Payments System



**Loretta J. Mester
President and Chief Executive Officer
Federal Reserve Bank of Cleveland**

**Fourth Annual Financial Literacy Day:
Understanding Global Markets and Finance
The Global Interdependence Center
University of South Florida Sarasota-Manatee College of Business
Sarasota, FL**

February 14, 2020

Introduction

I thank David Kotok and the Global Interdependence Center for this wonderful opportunity to speak on the campus of the University of South Florida, Sarasota-Manatee. As you probably know, the Federal Reserve is very interested in promoting financial literacy. One reason is that our economy performs better if people are equipped with the knowledge to make sound savings and investment decisions.

Another reason is that our monetary policy is actually more effective if people understand how it works. I am proud to be on the board of the Council for Economic Education (CEE), which is a champion of both economic and financial literacy for students from kindergarten through high school. The CEE recently released the 2020 Survey of the States, a biennial look into the state of K-12 economic and financial education in the U.S.¹ The results show that progress is being made. Twenty-one states now require high school students to take a course in personal finance, four more than in 2018, and 25 states now require an economics course, three more than in 2018. The CEE is working to encourage more states to adopt such requirements because research indicates that they lead students to make more informed real-world economic decisions, such as those pertaining to college financing. I am also proud that the Cleveland Fed is an active partner with schools across the Fourth Federal Reserve District to improve the financial skills of students and members of our community. You are welcome to visit our learning centers in Cleveland or Cincinnati, but some of our materials are also available online for those of you who'd prefer to stay in the warmth of the Florida sun.²

I want to spend my time with you today focusing on one particular aspect of our country's financial system, one that is less understood and is undergoing rapid change: the payments system. The Federal Reserve System plays an important role in helping to ensure that our payments system is efficient, secure,

¹ The Council for Economic Education offers many materials to advance financial literacy and economic education on its website at [www. https://www.councilforeconed.org/](https://www.councilforeconed.org/). The Survey of the States is available at <https://www.councilforeconed.org/survey-of-the-states-2020/>. EconEdLink, at <https://www.econedlink.org/>, is CEE's web portal of resources supporting K-12 teachers of economics and finance.

² The Cleveland Fed's Learning Center and Money Museum provides materials to foster financial and economic literacy on its website at <https://www.clevelandfed.org/learningcenter/explore.aspx>.

and effective. I recently became chair of the Financial Services Policy Committee (FSPC), which oversees the provision of payment services to depository institutions and the U.S. Treasury by the 12 Federal Reserve Banks. So as a follow-up to the discussion we just heard about new forms of payments, I thought it would be useful to provide you with an update on some of the Fed's ongoing work to modernize the U.S. payments system, and then offer a policymaker's perspectives on some payments innovations. Of course, the views I will present today are my own and not necessarily those of the Federal Reserve System or my colleagues on the Federal Open Market Committee.

FedNowSM Service³ Will Be a New Service for Making Real-Time Payments in the U.S.

It shouldn't surprise anyone when I say that a well-functioning and secure payments system is an essential ingredient for a sound economy. Like highways, bridges, and railroads, the payments system is a critical part of the infrastructure of our country; everyone has a stake in a healthy U.S. payments system.

According to the 2019 Federal Reserve Payments Study, noncash payments have been growing by almost 7 percent per year since 2015; these include debit and credit card transactions, checks, and direct deposit and automatic payment transactions that go through the automated clearing house system. In 2018 there were 174 billion noncash transactions made in the U.S. – more than 500 payments for every American.⁴ These transactions totaled over \$97 trillion. As the nation's central bank, the Federal Reserve works to promote the macroeconomic and financial stability of our \$21 trillion economy and the Fed's oversight of and participation in the payments system is a vital part of this work.

Last year, the Board of Governors of the Federal Reserve System announced that the Fed would develop a new service called FedNow. This new interbank payments service will allow people all over the country to make payments securely and in real time, at all times of the day and night, including on weekends and

³ "FedNow" is a service mark of the Federal Reserve Banks.

⁴ See Federal Reserve System (2019).

holidays.⁵ Although payments made through mobile apps and the internet appear to be instantaneous, the underlying infrastructure does not move funds immediately from the payer's bank to the payee's bank. Currently, this takes several days. With FedNow, you'll be able to send and receive payments securely at any time and anywhere, and get access to funds within seconds. This speed will provide economic benefits, making it easier for individuals and businesses to manage money and make time-sensitive payments. This service, along with similar private-sector alternatives like The Clearing House's Real-Time Payments (RTP[®]) service, may be especially beneficial for those households and businesses that don't have as much funds in reserve, allowing them to avoid late fees when making last minute payments. Similarly, workers who aren't getting regular payroll checks will be able to get faster access to their wages.

The history of the U.S. payments system shows the need for the FedNow service. Over the decades, the evolution of the payments landscape has led to a patchwork of payment vehicles and providers, often lacking interoperability with one another or the ability to combine billing invoice information with a payment. Our payments system is concentrated in the banking system but is quite complex. Currently, there are several platforms for making payments. The automated clearing house (ACH), which was conceived of in the late 1960s, handles smaller value, regularly scheduled payments, like your paycheck or your utility bills, via batch processing of a group of transactions during a predetermined time period. Although ACH was conceived as a way to eliminate the use of paper checks, checks are still used for making some payments. There are credit and debit card systems as well. This complexity makes it harder to foster payments innovations. Indeed, not all parts of the U.S. payments system have kept up with the evolving expectations and demands of consumers and businesses. This has allowed nonbank providers, including fintech companies, to enter the payments business, offering consumers and

⁵ See Board of Governors of the Federal Reserve System (2019). More information on FedNow is available at the FedNow web site: <https://www.frbservices.org/financial-services/fednow/index.html>.

businesses more modern payments methods that clear and settle on the bank-centric traditional payments infrastructure. The consumers and businesses enjoy a more user-friendly experience, and while it appears that the payments are moving in real time, the actual clearing and settlement of payment instructions on both sides of these transactions take place through the traditional system: transactions are settled in periodic batches, processed one or more days later, and available only during regular banking hours. Of course, this creates some risk because banks might choose to make final funds available to the customer before receiving the covering funds from the payer's bank.

This highlights the need for an updated U.S. payments system that is faster from end-to-end and meets the needs of consumers, businesses, and financial institutions in a safe and efficient way. To address this need, the Fed engaged in several years of study and consultation with a diverse group of payment system stakeholders, including financial institutions of all sizes, private-sector payment networks, businesses, consumers, fintech companies, and software vendors. Those stakeholders made clear that they wanted access to enhanced interbank settlement mechanisms 24 hours a day, 7 days a week, 365 days a year. This was reinforced when the vast majority of respondents to a 2018 Federal Reserve request for comment advocated for the Fed to build a faster payment system.⁶ In response to this demand, the Federal Reserve has embarked on building a resilient real-time payments system that will enable our nation's more than 10,000 banks and credit unions of all sizes to use their existing electronic connections to the Fed and their existing Fed settlement accounts to process real-time retail payments for consumers and businesses. This payments system modernization will bring the U.S. in line with other countries that have developed faster payment networks, including Australia, the U.K., Singapore, India, Mexico, and some European countries.

Before making the decision to move forward with the FedNow service, the Fed determined that the

⁶ See the *Federal Register* Notice in Board of Governors of the Federal Reserve System (2019).

service met its established criteria for offering a new payments service. These criteria are, first, that it is a service that other providers alone cannot be expected to provide with reasonable effectiveness, scope, and equity; second, that there is a clear public benefit; and, third, that the Fed be will able to fully recover its costs of providing the service over the long run.

It is important to know that the Fed will offer FedNow alongside payments services operated by private-sector companies, just as it does today with check, ACH, and wire transfer services. This will encourage competition among operators and provide an added layer of resiliency in the event of downtime at any one of the real-time payment systems. The Fed is working closely with financial institutions and technology firms to prepare for an anticipated launch of the FedNow service in 2023 or 2024. An official launch date has not been announced, as ongoing work to finalize business requirements and design features to meet the needs of potential users of the service will help determine the timeline for implementation. The project is complex, and we want to get it right.

Achieving a Broad Reach for Faster Payments to Serve the Public

The FedNow service is being developed with the aim of having a broad nationwide reach and the ability to work across different systems. Payments industry stakeholders have emphasized the importance of establishing a real-time payment capability for the nation whereby any payer can reach any payee, regardless of which real-time retail payments system is used by their banks. Such interoperability has not always been a given in the U.S. and no doubt will be a challenge. For example, in the early 1970s, there were several regional automated clearing house associations, each providing clearing and settlement among and between only their own bank members. In most cases, the ACH associations had an agreement with the regional Federal Reserve Banks to help operate the ACH networks. In 1974, the regional ACH associations formed Nacha to facilitate the nationwide clearing of ACH transactions. And by 1978, an interoperator agreement between the Federal Reserve and Nacha was executed to link local ACHs on a nationwide basis. The message exchange protocols that allowed that to happen are still in

place today. Interoperability is also a feature of debit cards and of wire transfers. For each of these services, interoperability also evolved over decades and followed different paths to arrive at different models.

Today, the Fed, private sector-operators, and other stakeholders are exploring options to ensure a broad reach for faster payments. Interoperability as currently achieved in the ACH system is one possible approach. Another approach is dual participation, where some banks choose to join more than one operator network. This is the prevailing model for high-value, urgent payments processed through the wire transfer networks. Hybrid models are also possible, where service providers are designated as agents in each network and route payments to the receiving bank's network of choice. A broad reach is achieved by relying on relatively few service providers, each of which establishes connections to all of the payment operators for that payment type, thereby acting as hubs. This type of interoperability characterizes today's debit card networks.

The Fed will be exploring the various possibilities, working with private-sector stakeholders, to arrive at the best solution for ensuring that we deliver a faster payment service that is broadly accessible to consumers and businesses alike so that it best serves the public.

Beyond the development of FedNow, the Fed is actively monitoring and studying new technologies and approaches to payments. These approaches don't always rely on sovereign currency or a country's central bank to settle payments, or on traditional bank accounts to transact payments. I will use the remainder of my time to discuss one of these payments innovations: digital currencies.

Digital Currencies

Cryptocurrencies

By now, everyone has heard of Bitcoin, an example of a digital currency, which was introduced in 2008,

holding the promise that it could serve as a means of faster payments, as a unit of account, and as a store of value.⁷ Since Bitcoin's introduction, thousands of other digital currencies have been created. Such currencies present an innovative approach to processing payments in which a bank or central authority is replaced with a distributed group of anonymous people who verify the accuracy and trustworthiness of the transaction over the internet. Distributed ledger technology, open source software, and a downloadable database of account balances allow decentralized members of the network to vote with their computing power to determine whether a transaction is valid or not.⁸ Since transactions are cryptographically secured, many have adopted the term "cryptocurrencies" to describe Bitcoin and other similar products.

Although its market capitalization has grown to over 100 billion euros, Bitcoin has not seen wide adoption as a means of payment.⁹ Its value is volatile, driven by speculation in the currency, making it less useful as a unit of account. Its settlement time has been too slow to make it practical for mainstream payments. In addition, the real costs of operating the system, driven by energy consumption to power a vast web of computers, are much higher than those associated with traditional sovereign currency. The distributed nature of the governance system around Bitcoin and similar digital currencies also makes it more difficult to resolve any disputes that may arise or to decide on technical changes that likely would be needed as the platform grows.¹⁰

Stablecoins

In part to address some of these challenges, there has been a proliferation of so-called "stablecoins."¹¹

⁷ See Nakamoto (2008).

⁸ See Craig and Kachovec (2019).

⁹ Brainard (December 18, 2019).

¹⁰ See Craig and Kachovec (2019).

¹¹ For informative overviews of stablecoins, including their benefits and challenges, see Bank for International Settlements (October 2019 and December 2019), Financial Stability Board (October 10, 2018; June 6, 2019; and October 18, 2019), Brainard (October 16, 2019 and December 18, 2019), and Evans (2019).

Stablecoins are digital currencies designed to minimize price volatility by pegging their value to the value of a stable asset or basket of assets, such as commodities, commercial bank deposits, government securities, or sovereign currencies. This limits the price volatility in the stablecoins, making them candidates for payments that require a stable medium of exchange.

The practice of backing a form of money by a stable asset is not new. The gold standard, in which the economic unit of account is based on a fixed quantity of gold, was widely used in the 19th and early 20th centuries. Another example is Kenya's M-PESA system, established in 2007 to enable transfers of mobile phone account balances backed by deposits held at commercial banks, which in turn hold government securities. Facebook's June 2019 announcement of Libra, a stablecoin to be made available to its more than 2.5 billion users, garnered considerable attention because of its potential to reach a global scale in a short period of time. Announcements such as this have served as a wakeup call to regulators, standards-setting bodies, and central banks around the world for the need to study the benefits and risks of stablecoins.

A global stablecoin has the potential to deliver some benefits by increasing the speed of certain payments and improving competition in and lowering the cost of making cross-border payments. By enhancing the diversity of the payment system infrastructure, global stablecoins could increase resiliency. Stablecoins might also be attractive to countries that prefer an alternative to the U.S. dollar or the euro for making international transactions, and they could provide an efficient mechanism for commercial banks to settle the payment leg of a wholesale transaction involving the sale of another digital asset.

But against these potential benefits, stablecoins also pose some challenges, including a range of legal, governance, and compliance issues. It is likely that there are conflicts in the legal frameworks of different jurisdictions that a global currency may traverse, and such conflicts would need to be reconciled before adoption. For example, there would need to be clarity about when the finality of the payment is achieved

and around the rights and obligations of all parties, including on whom or what the stablecoin holder has a claim. Regulators would need to understand who is responsible for operating different aspects of the system, and how international safety and soundness standards, such as the principles for financial market infrastructures, would apply to this type of payments system. In recent congressional testimony, Fed Chair Jerome Powell highlighted some of the concerns about compliance with consumer privacy and protection statutes, including the rules around know-your-customer, anti-money laundering, and consumer data privacy.¹² Policymakers also need to assess potential risks to financial stability if stablecoins gain traction. While the availability of stablecoins may enhance payments system resiliency, it could also undermine stability if there is a loss of confidence in a global stablecoin that leads to runs on stablecoin redemptions. Similarly, understanding whether stablecoins would impact the effectiveness of traditional monetary policy tools must also be part of the research agenda.

Central bank digital currencies

Another development under study is digital currency issued by a central bank.¹³ This would be just like the physical currency issued by central banks today, but in a digital form and, potentially, without the anonymity of physical currency. Depending on how these currencies are designed, central banks could support them without the need for commercial bank involvement via direct issuance into the end-users' wallets combined with central-bank-facilitated transfer and redemption services. Of the 66 central bank respondents to a 2020 survey conducted by the Bank for International Settlements, 80 percent are currently or soon will be engaged in digital currency work, mostly related to researching, planning for, or piloting the technology.¹⁴ China, Europe, and Russia, among other jurisdictions, have initiatives underway. Some countries, like Sweden, cite the declining use of cash as motivating their interest in

¹² Powell (July 10, 2019).

¹³ Powell (November 19, 2019) discusses the Fed's view on this subject. Also see Brainard (September 16, 2019, and December 18, 2019), and Evans (2019).

¹⁴ See Boar, Holden, and Wadsworth (2020).

central bank digital currencies.¹⁵ To the extent that they displace cash, such currencies may help to prevent money laundering and tax evasion. Of course, for the same reason, if they are designed without anonymity, they could be used by a totalitarian regime to control its citizenry. In other jurisdictions, like Uruguay, central bank digital currency offers the promise of broadening financial inclusion by being more accessible to underserved segments of the population compared with bank accounts. In another survey, many of the responding central banks expressed interest in central bank digital currency as a way to maintain payment systems that are competitive with costly cash issuance or emerging private-sector alternatives, like Libra.¹⁶ Others have suggested that central bank digital currency could enhance the transmission of monetary policy, offering a more practical way to implement negative interest rates, which some central banks, including the European Central Bank, the Bank of Japan, and the Swiss National Bank, are currently imposing on reserve deposits to address low inflation and low growth.¹⁷

Just as with private-sector digital currencies, a range of potential risks and policy issues surrounding central bank digital currency need to be better understood, and the costs and benefits evaluated, before a central bank would implement a central bank digital currency. In the U.S. a basic question is whether the Federal Reserve has the legal authority to issue such a currency and offer transfer and safekeeping services directly to consumers and businesses. Another is whether the central bank would need to gain access to sensitive consumer and business information in order to issue digital currency and how privacy could be protected. In addition, the design features necessary to prevent illicit activities would need to be determined. Finally, monetary policy transmission, potential disruption to short-term funding markets, and financial stability issues would need to be evaluated.

¹⁵ Information on the Swedish central bank's e-krona project is available on its website at <https://www.riksbank.se/en-gb/payments--cash/e-krona/>. See also Sveriges Riksbank (2018) for several articles on the e-krona, the Riksbank's potential digital currency.

¹⁶ See Official Monetary and Financial Institutions Forum (2019).

¹⁷ See Rogoff (2016) and Bordo and Levin (2017).

The outcome of the cost-benefit analysis may differ across countries. The status of the U.S. dollar as a global reserve currency, the stable demand for U.S. bank notes, and the mature, developed nature of the U.S. financial system are all distinguishing factors that would need to be taken into account when considering the benefits vs. the costs of central bank digital currency in the U.S. Central banks around the world, including the Federal Reserve, continue to research this potential payments innovation, and they are sharing what they learn with one another and the public.

Conclusion

The payment system is undergoing a period of rapid change. The emergence and widespread adoption of new technologies have shaped the public's expectations for faster, more efficient, secure, and broadly accessible payment services. In the U.S., FedNow, a new real-time payments system, will be an integral part of this modernized payment system. As work on FedNow proceeds, so does the evolution of other payment methods like digital currencies. While each payments innovation offers benefits, it also comes with some risks and policy implications that need to be evaluated. The Federal Reserve is monitoring developments, evaluating potential new payments enhancements, and engaging with private-sector stakeholders and fellow central banks, as we work to modernize the payment system on behalf of the public.

References

- Bank for International Settlements, Committee on Payments and Market Infrastructures, “Wholesale Digital Tokens,” December 2019.
(<https://www.bis.org/cpmi/publ/d190.pdf>)
- Bank for International Settlements, G7 Working Group on Stablecoins, “Investigating the Impact of Global Stablecoins,” October 2019.
(<https://www.bis.org/cpmi/publ/d187.pdf>)
- Boar, Codruta, Henry Holden, and Amber Wadsworth, “Impending Arrival – A Sequel to the Survey on Central Bank Digital Currency,” Bank for International Settlements, BIS Papers No. 107, January 2020.
(<https://www.bis.org/publ/bppdf/bispap107.pdf>)
- Board of Governors of the Federal Reserve System, “Federal Reserve Announces Plan to Develop a New Round-the-Clock Real-Time Payment and Settlement Service to Support Faster Payments,” August 5, 2019.
(<https://www.federalreserve.gov/newsevents/pressreleases/other20190805a.htm>)
- Bordo, Michael D., and Andrew T. Levin, “Central Bank Digital Currency and the Future of Monetary Policy,” National Bureau of Economic Research, NBER Working Paper Series, Working Paper 23711, August 2017.
(<https://www.nber.org/papers/w23711>)
- Brainard, Lael, “Digital Currencies, Stablecoins, and the Evolving Payments Landscape,” Remarks at the Future of Money in the Digital Age, sponsored by the Peterson Institute for International Economics and Princeton University’s Bendheim Center for Finance, Washington, DC, October 16, 2019.
(<https://www.federalreserve.gov/newsevents/speech/files/brainard20191016a.pdf>)
- Brainard, Lael, “Update on Digital Currencies, Stablecoins, and the Challenges Ahead,” Remarks at Monetary Policy: The Challenges Ahead, at the ECB Colloquium, Frankfurt, Germany, December 18, 2019.
(<https://www.federalreserve.gov/newsevents/speech/files/brainard20191218a.pdf>)
- Council for Economic Education, *Survey of the States: Economic and Personal Finance Education in Our Nation’s Schools*, 2020.
(<https://www.councilforeconed.org/wp-content/uploads/2020/02/2020-Survey-of-the-States.pdf>)
- Craig, Ben R., and Joseph Kachovec, “Bitcoin’s Decentralized Decision Structure,” Federal Reserve Bank of Cleveland Economic Commentary, no. 2019-12, July 16, 2019.
(<https://www.clevelandfed.org/~media/content/newsroom%20and%20events/publications/economic%20commentary/2019/ec%20201912/ec%20201912.pdf>)
- Evans, Charles, “Innovation on the Fringe and at the Core of Financial Services,” Third Annual Fintech Conference, Federal Reserve Bank of Philadelphia, November 14, 2019.
(<https://www.chicagofed.org/~media/publications/speeches/2019/11-14-19-innovations-on-fringe-and-at-core-pdf.pdf>)
- Federal Reserve System, “The 2019 Federal Reserve Payments Study,” December 2019.
(<https://www.federalreserve.gov/newsevents/pressreleases/files/2019-payments-study-20191219.pdf>)

Financial Stability Board, “Crypto-asset Markets: Potential Channels for Future Financial Stability Implications,” October 10, 2018.

(<https://www.fsb.org/wp-content/uploads/P101018.pdf>)

Financial Stability Board, “Decentralised Financial Technologies,” Report on Financial Stability, Regulatory and Governance Implications, June 6, 2019.

(<https://www.fsb.org/wp-content/uploads/P060619.pdf>)

Financial Stability Board, “Regulatory Issues of Stablecoins,” October 18, 2019.

(<https://www.fsb.org/wp-content/uploads/P181019.pdf>)

Nakamoto, Satoshi, “Bitcoin: A Peer-to-Peer Electronic Cash System,” 2008.

(<https://bitcoin.org/bitcoin.pdf>)

Official Monetary and Financial Institutions Forum, “A Central Bank Will Issue a Consumer-Ready Digital Currency Within Five Years,” October 29, 2019.

(<https://www.omfif.org/press-releases/a-central-bank-will-issue-a-consumer-ready-digital-currency-within-five-years-a-new-omfif-and-ibm-report-finds/>)

Powell, Jerome, “Letter to Congressman French Hill on Digital Currencies,” November 19, 2019.

(<https://src.bna.com/MYB>)

Powell, Jerome, “Testimony before the House Financial Services Committee,” July 10, 2019.

(<https://financialservices.house.gov/calendar/eventsingle.aspx?EventID=403999#Wbcast03222017>).

Rogoff, Kenneth, *The Curse of Cash*. Princeton, NJ: Princeton University Press, 2016.

Sveriges Riksbank, *Special Issue on the e-Krona, Economic Review*, Third Quarter, 2018.

(<https://www.riksbank.se/globalassets/media/rapporter/pov/engelska/2018/economic-review-3-2018.pdf>)