

20-4 Securing Macroeconomic and Monetary Stability with a Federal Reserve–Backed Digital Currency

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This Policy Brief is part 1 of a two-part series.

OVERVIEW

The US monetary system faces significant challenges from advances in technology and changes in the macroeconomy that, left unaddressed, will threaten the stability of the US economy and financial system. New technology and the slow adoption by incumbents in the banking system have been accompanied by a proliferation of digital payment processors largely outside the regulatory net. Digital technologies hold the promise of faster, cheaper, and more secure payments systems, but they can also pose risks to the safety and soundness of the financial system. At the same time, low interest rates mean that central banks will not have the policy ammunition they had in the past during the next recession. The Federal Reserve needs new tools to meet its mandates of price stability and maximum employment. It also needs to preserve the safety and soundness of the financial system in a rapidly digitizing world.

We believe that a Fed-backed digital currency can solve both problems. Our proposal creates a regulated system of digital currency accounts for consumers managed by digital payment providers (DPPs) and fully backed by reserves at the Fed. The system would be limited in size, to preserve the functions and stability of the existing banking system. Fed backing would mean low capital requirements that would in turn facilitate competition. Low fees and no minimum balance requirements in the new system would also help financial institutions reach the roughly 25 percent of the US population that is currently either unbanked or underbanked.

Digital accounts for consumers could also provide a powerful new stabilization tool for both monetary and fiscal policies. For fiscal policies, it could facilitate new automatic stabilizers and while also allowing the Fed to provide quantitative

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easing (QE) directly to consumers. This tool could be used in a timely manner with broad reach to all Americans. (We discuss a structure for providing QE directly to consumers in part 2 of this Policy Brief series.)

This Policy Brief focuses on the proposed system of DPPs. We start by outlining the opportunities as well as the challenges and risks presented by new digital means of transactions and cryptocurrencies. We then outline our proposal for a Fed-backed digital currency, including the potential role of stablecoin to augment individual accounts, the safeguards to the traditional banking system, and the incentives for households to open and maintain these new accounts.

MONETARY REGIMES IN HISTORICAL CONTEXT: HOW DID WE GET HERE AND WHERE SHOULD WE GO NEXT?

A Two-Tier Banking System from the Beginning and the Birth of the Federal Reserve

The success of the US dollar in becoming the world's reserve currency is the result of a few hundred years of learning from mistakes and striking a balance in public-private partnership. Alexander Hamilton established the Bank of the United States in 1791 to serve as both fiscal agent and a fractional reserve commercial lender and to stabilize the growing system of state banks and currencies. But a geographically vast, rapidly growing, and politically divided nation was skeptical of centralized control and chafed under the constraints of a conservatively managed institution.

As the United States grew and developed, the financial system lurched between centralized and local forms of money creation. Decentralization led to bank runs and financial panics, which led to greater federal oversight. The ensuing stability came with restraint that would give way to demands for less centralized control. Repeated financial crises stemming from lightly regulated local currencies and banking systems eventually led to the creation of a national central bank. In 1913 the Federal Reserve was established to “provide a means by which periodic panics which shake the American Republic and do it enormous injury shall be stopped.”¹ The Fed's original mandate was to maintain the stability of a national banking and financial system and the US currency.

Currency and the Wild West of Digital Money

Currency serves three functions: It is a medium of exchange, a store of value, and a unit of account. Achieving these functions is no small feat and requires the collective confidence of a diverse and ever-changing population. Once confidence and stability are established, money becomes a public good of enormous value in facilitating economic growth and stability in a market-based system. But that stability is easy to take for granted.

1 Ben Bernanke, A Century of U.S. Central Banking: Goals, Frameworks, Accountability, speech at the “The First 100 Years of the Federal Reserve: The Policy Record, Lessons Learned, and Prospects for the Future,” conference sponsored by the National Bureau of Economic Research, Cambridge, MA, July 10, 2013, www.federalreserve.gov/newsevents/speech/bernanke20130710a.htm.

The urge to innovate in money creation has always existed. The current frontiers are digital currencies and the technologies that hold the promise of faster, cheaper, and more secure payments processing. The wave of cryptocurrencies created in the last decade was born out of a combination of the promise of digital efficiency and security and skepticism about the stability of sovereign currencies and private financial institutions. To date, no cryptocurrency looks poised to effectively and consistently serve the three functions of a currency; cryptocurrencies are more of an alternative asset class, a volatile store of value.

Facebook is approaching digital currency from a different angle with the proposed creation of Libra, a permissioned blockchain digital currency backed by existing sovereign currencies. Libra could potentially serve the broader functions of money while delivering efficiency and global reach. It is the most credible challenge to the dominance and stability of sovereign currencies, although it would require the blessing of regulatory authorities around the world. Facebook's Libra proposal has arguably done the sometimes overly cautious central banking community a favor. Discussions about central banking digital currency have been underway at the Bank for International Settlements, the International Monetary Fund, and various global central banks for several years, but there is now an increased sense of urgency to move forward.²

Even as cryptocurrencies have emerged, digital payment processors have been innovating and enhancing the convenience with which consumers can move their bank deposits around to exchange money and pay for goods and services. PayPal was an early provider of online payments. It now also owns Venmo, an app that facilitates person-to-person digital payments. PayPal recently reported it has 295 million users globally and is adding 9 million new users a quarter. Banks clearly see the future of digital payment processing. A consortium of banks created Zelle to process person-to-person payments. It operates as a standalone app and is also integrated within the apps of sponsoring banks. It is estimated that Zelle processed \$56 billion in payments in the fourth quarter of 2019. Many other businesses, such as Square's Cashapp, Google, and Apple, have moved into the digital payment processing space, and retailers such as Starbucks have created their own digital payment apps.³

Digital payment apps are not a new form of money; they are a more efficient way to move existing bank deposits around. These services are advancing at a rapid pace almost entirely outside of regulatory oversight. Funds can sit within these apps without the protections enjoyed by bank deposits, and users have no clear recourse if the apps are hacked or commit errors in user transactions. These payment apps process hundreds of billions in transactions every year. A growing number of users, particularly younger users, are embracing them, despite the lack of protection from technology malfunction, hacking, or breaches of privacy.

2 See, for example, BIS (2018) and Mancini-Griffoli et al. (2018).

3 See "Zelle Person-to-Person Payments (P2P)," www.earlywarning.com/products/zelle-person-person-payments-p2p.

Central banks around the world are considering how best to incorporate and address digital advances in their operating regimes.⁴ Safe and secure real-time digital payments are an issue the Fed should address. It has taken a step in this direction with the announcement of an effort to develop FedNow, a 24-hour real-time payment and settlement service. We think it can go farther and should embrace and facilitate digital efficiency while shoring up the value of the public good of a stable currency and financial system through direct involvement and oversight.⁵

THE PROPOSAL: A FED-BACKED DIGITAL CURRENCY TO PRESERVE MONETARY STABILITY, INCREASE INCLUSION, AND PROVIDE A NEW POLICY TOOL

We propose the creation of a new system of regulated financial institutions called digital payment providers (DPPs)⁶ to facilitate fast, inexpensive retail payments for consumers through the use of a digital currency backed by reserves at the Fed.⁷ The DPP system could also be used to facilitate automatic stabilizers more efficiently to consumers and provide the Fed with a new tool (discussed in part 2 of this Policy Brief). A stable digital currency, secure real-time payments processing, and a more effective tool to stimulate demand in a recession could achieve stability within the financial system and meet the Fed's mandate. Much like the current banking system, a system of private providers would promote competition and continued innovation, while Fed oversight would promote safety and soundness (figure 1).⁸

Promoting Competition and Low Barriers to Entry

Relying on the private sector alone to offer the benefits of new technology, as the United States currently does, introduces new sources of systemic risk into the system. The analogy to the proposed DPPs is the two-tier banking system in which supervised depository institutions hold deposits at the Fed and are authorized to accept deposits, extend loans, and provide other intermediation services to consumers and businesses. Regulated banks create the vast majority of money in circulation through lending activity. Our proposal preserves the

4 On the need for public sector involvement in digitalization of currencies and payments, see Lael Brainard, The digitization of payments and currency: Some issues for consideration, speech at the Symposium on the Future of Payments, Stanford, CA, February 5, 2020, www.federalreserve.gov/newsevents/speech/brainard20200205a.htm.

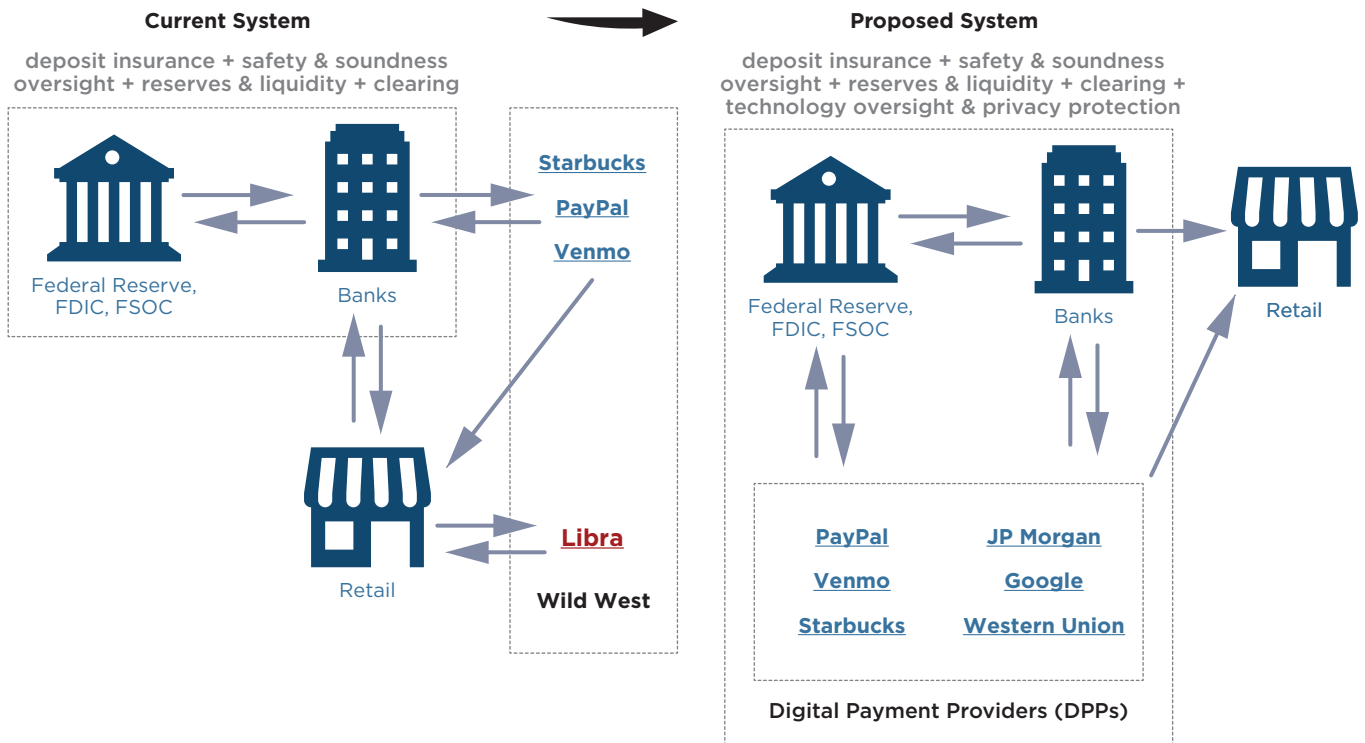
5 See Board of Governors of the Federal Reserve System, "Federal Reserve announces plan to develop a new round-the-clock real-time payment and settlement service to support faster payments," press release, August 5, 2019, www.federalreserve.gov/newsevents/pressreleases/other20190805a.htm.

6 We use the term *providers* to clearly differentiate the responsibilities they have that go beyond those of processors and apps discussed above.

7 There are a number of important public policy questions around the regulation of digital finance and whether federal or state regulators should take the lead. These questions are important for DPPs, but given their use of Fed accounts, we would expect the Fed to be the primary regulator.

8 For a more radical approach to these issues, see the paper by Ricks, Crawford, and Menand (2020). Unlike some other proponents of narrow banking, we do not seek to provide a new safe asset in sufficient size as to remove the need for deposit insurance. The goals we seek are more efficient payments, financial inclusion, and augmentation of the countercyclical toolbox.

Figure 1
Ensuring safety and soundness in a digital world



FDIC = Federal Deposit Insurance Corporation
FSOC = Financial Stability Oversight Council

role of fractional reserve banks, adding a narrow mandate for DPPs to facilitate small-value retail payments, not engage in lending or wholesale payments, which make up the vast majority of payment flows. Our approach is similar to that suggested by Tobias Adrian and Tommaso Mancini-Griffoli (2019), which they call a synthetic digital currency and is essentially a version of a proposal for segregated balance accounts put forward by James McAndrews to the Federal Open Market Committee.⁹

Another advantage of this two-tier system is that it separates the official sector from direct monitoring of individual payment transactions. Versions of central bank digital currency in which accounts are directly held at the central bank by design give the official sector this monitoring power independently of the need to enforce laws and regulations.

Regulatory standards, including capital and liquidity requirements, should be less burdensome for DPPs than for depository institutions; as deposits will be 100 percent backed by reserves at the Fed, there would be no need for deposit insurance. New regulation would be required to ensure both the protection and appropriate property rights of consumer data with a focus on cybersecurity. The know-your-customer (KYC) restrictions on DPPs would have some specific characteristics, as DPPs would be providing account and custody services for

⁹ See page 14 of the October 2014 transcript at www.federalreserve.gov/monetarypolicy/files/FOMC20141029meeting.pdf.

the Treasury and the Fed. DPPs would be responsible for verifying consumer eligibility to receive the deposits/bonds, and each DPP would need to be set up to conduct open market operations with the Fed and transfers from the Treasury.

Low capital and liquidity requirements should encourage competition, even as modern technology and network effects lead to massive economies of scale and concentration. Scale can lower costs and improve efficiency for consumers; however, it will be important to balance the efficiencies from network effects against the risks of concentration. Limits on market share of any institution to 10 percent (similar to the current limit on deposits in the banking system) could help strike that balance. DPPs would likely include new legal entities within bank holding companies, large tech firms and payment companies, and smaller-scale financial technology (fintech) firms with innovative customer interfaces.¹⁰

We propose seeding the digital accounts in the new system with an initial grant of, say, \$500 per resident 16 and over. The seeding would require a Fed balance sheet expansion of about \$130 billion—well under half what the Fed recently expanded its balance sheet by for reserve management purposes but a strong incentive for consumers to take the time and trouble to open an account.¹¹ In order to expand coverage to the unbanked and underbanked, we recommend prohibiting direct account fees and minimum balance requirements but allowing for indirect fees, such as transaction fees paid by merchants.¹²

DPPs would also be compensated through interest on the reserves created with the seed endowment; some of that compensation from the Fed would be intended to subsidize the broadening of access to digital payment services. The lower cost structure and speed of payments would encourage consumers to shift more of their retail transactions to the system. For the system to be viable, it would be important that a large number of consumers use it as their main transaction account. The lower cost structure of the DPPs, and initial incentives for both consumers and DPPs, should create momentum. Many consumers using digital payment processors like Venmo or PayPal would easily transition into the DPP system for secure real-time payment processing. We foresee basic transactions and transfers such as paying bills then being made within the DPP system.

Limiting the size of accounts in the DPP system to \$10,000 would reduce the impact on the banking system. For the vast majority of Americans, an account limit of \$10,000 would not be a binding constraint, and it would place a limit

10 This proposal is different from the original proposal by James McAndrews, in which existing depository institutions would be able to offer segregated balance accounts (see page 14 in www.federalreserve.gov/monetarypolicy/files/FOMC20141029meeting.pdf). Our proposal widens the scope of firms that can have accounts at the Fed and separates DPPs from depository institutions within bank holding companies.

11 The transfer would be implemented by the Fed buying a zero-coupon bond issued by Treasury from consumers through DPPs. The increased liabilities of the Fed would be matched by this zero-coupon bond. At current interest rates, the annual cost of a \$130 billion grant would be under \$2 billion.

12 The number one reason people cite for not having a bank account is not having enough money to keep in it; high, unpredictable fees are also a significant impediment (FDIC 2018). Aaron Klein of the Brookings Institution discusses how the current system penalizes lower-income households (see “Is cash still king? Reviewing the rise of mobile payments,” *Up Front*, January 30, 2020, Brookings Institution, www.brookings.edu/blog/up-front/2020/01/30/is-cash-still-king-reviewing-the-rise-of-mobile-payments/?utm_campaign=Economic%20Studies&utm_source=hs_email&utm_medium=email&utm_content=82869721).

on how much money could flow out of traditional banks into the DPP system in times of stress. For higher-income consumers actively using DPPs, the cap on individual accounts would likely lead to methods to sweep excess funds into other deposit vehicles in the financial system. DPPs would also face competitive pressure from banks on interest rates offered on accounts.

Sustaining the System with a Stablecoin

DPPs would be restricted to receiving interest on reserves only on the initial seed amount. But the holdings of the DPP system are likely to grow beyond the seed amount, because of its attractiveness for many consumers who are currently unbanked and underbanked and the desire by all consumers for a fast, low-cost transaction service. The system of DPPs could also have the right to issue a stablecoin backed by reserves held at the Fed, although not necessary at inception.¹³ Stablecoins use distributed ledger technology (blockchain). In the case of DPPs, they would operate on a permissioned network, similar to the design of the Libra association but with DPPs being the permissioned members. Such a system is different from the open network structure of the original cryptocurrencies, such as Bitcoin. It would allow DPPs to produce a digital token version of the US dollar that could be more widely held than the normal DPP consumer accounts and in larger sizes. It would be within the Fed's control to limit the growth of the new issuance of the stablecoin. (In part 2 of this Policy Brief series, we discuss how increased issuance of the stablecoin might facilitate highly effective QE directly to households.)

Like banks and paper currency, DPPs would need to comply with anti-money laundering (AML) and anti-terrorism laws and KYC rules not only for individual accounts but also for the stablecoin under the oversight of the Fed and other agencies. The DPPs would need to collectively agree on a technical structure to ensure ease of use and widespread ability to hold and transfer the stablecoin while meeting these rules. The maximum aggregate issuance of the coin should be limited in the initial case to an amount similar to the seed amount for the DPP system, about \$130 billion. The Fed would have the right to impose lower limits on the aggregate size of the stablecoin by slowing its growth if demand for the stablecoin was unexpectedly strong, thus safeguarding against either non-US holders using it as a significant global store of value or unintentional disintermediation of the fractional banking system.

Reducing Risks to the Existing Monetary and Banking System from a Central Bank-Backed Digital Currency

The proposed system of DPPs presents two main risks to the current banking system. First, households might shift deposits from the banking system to their DPP accounts, potentially constraining credit intermediation. Second, flight from bank deposits to the Fed-backed digital currency could accelerate in times

¹³ The former chair of the Commodity Futures Trading Commission has advocated for a similar approach. See Christopher Giancarlo and Daniel Gorfine, "We Sent a Man to the Moon. We Can Send the Dollar to Cyberspace," *WSJ Opinion, Wall Street Journal*, October 15, 2019, www.wsj.com/articles/we-sent-a-man-to-the-moon-we-can-send-the-dollar-to-cyberspace-11571179923.

of stress, which could be destabilizing to the banking system. (In our second policy brief, we address this issue in the case in which DPP accounts are used to implement direct payments to consumers.)

Since the initial seed deposits are new money, they would complement, rather than substitute for, bank deposits. In our structure, the central bank balance sheet grows with the addition of the seed bonds on the asset side. The liability side of the balance sheet has a “new” component—the reserves held by DPPs—and the balance sheet of the traditional banking system is unaffected. The common criticism of central bank digital currency that it reduces funding for loans in the private sector would therefore not apply at inception in our system. Furthermore, growth in the DPP accounts for previously unbanked and underbanked households would come mainly from reduced holdings of cash, with no effect on the traditional banking sector.

DPPs would be paid interest only on the amount of the initial seed deposit, not on additional monies, and the cap on individual accounts would rule out their usefulness for wholesale and large-value transactions, which constitute the vast majority of money flows in the US financial system. Most household payments are very small. Indeed, the Fed’s Diary of Consumer Payment Choice (Kumar and O’Brien 2019) finds that US consumers make 21 payments a month that are less than \$25 and only 13 purchases greater than \$50. Another estimate of the size of both firm and household payments using credit cards, prepaid and non-prepaid debit cards, the automated clearinghouse (ACH) system, and checks finds that there were 174.2 billion such payments in 2018, worth more than \$97 trillion, with an average payment size of just over \$500.¹⁴ In comparison, in December 2019 Fedwire funds, the Fed’s large-value payment system, handled \$63 trillion of payment transfers between banks, with an average transfer value of about \$4 million.¹⁵ The structure of DPPs as a narrow institution handling only retail payments means that banks will still be needed for credit intermediation, risk transfer, and investment and wholesale banking.

More evidence suggesting that the DPP system would not threaten the traditional system comes from comparing possible aggregate sizes. The aggregate initial seed amount of \$130 billion is about 1 percent of the total deposits in the traditional banking system of \$13 trillion. Even if the amount held in the accounts doubled from the seed amount and issuance of the stablecoin hit its maximum, the two sources would represent less than 2.5 percent of deposits held in banks and money market mutual funds, which total \$17 trillion.

Another criticism of central bank digital currency is that it would accelerate runs out of traditional bank deposits and money market mutual funds in times of financial market stress. Although it is impossible to refute the idea that such run dynamics are possible, the impact on the traditional banking system would be limited by the lack of institutional access to the accounts, the individual account limit of \$10,000, and limits on the rapid growth in issuance of the stablecoin. The experience of the global financial crisis of 2008, new liquidity regulation for large banks, and money market fund reform in the United States all suggest

14 See the 2019 Federal Reserve Payments Study, www.federalreserve.gov/newsevents/pressreleases/files/2019-payments-study-20191219.pdf.

15 See Federal Reserve, Fedwire Funds Service—Monthly Statistics, www.frbservices.org/resources/financial-services/wires/volume-value-stats/monthly-stats.html.

that it is institutional holders of large deposits, not retail depositors, that are the potential source of destabilizing run dynamics. There is always a tradeoff between providing safety to consumer deposits and the risk of accelerating runs. Our account limit of \$10,000 is well below the Federal Deposit Insurance Corporation (FDIC) limit of \$250,000, which can apply to multiple accounts at different depository institutions.

The banking system is already being disrupted by digital innovation. Our proposal is for the central bank to keep up with developments in the interests of safety and soundness. Failure to establish a regulated system of digital payments means that the banking system will be increasingly disintermediated by entities outside regulatory oversight.

Restricting the activities of DPP accounts to retail payments would focus the regulatory regime on consumer protection, operational resilience, and safeguards around the use of customer data, along with enhanced rules relating to AML and KYC. Regulation and supervision would have a new technology oversight component as part of ensuring safety and soundness in a digital regime, which would also apply to the traditional banking system.¹⁶

Importance of a Timely and Inclusive Payment System for Macroeconomic Stabilization

The proposed system of DPPs would help the Fed ensure that the valuable public good of a stable currency survives the transition to a digital age while using the benefits of lower costs to reach a sizable segment of the population that has not benefited from the payment security offered by the current banking system. Our second policy brief discusses the urgency of providing additional tools for macroeconomic stabilization. These tools center on timely and widespread payments to consumers in a downturn and the unique advantages offered by our proposed system of DPPs.

Claudia Sahm (2019) has outlined some of the difficulties the US government had in producing timely payments to all Americans using fiscal policy and the existing government and private banking infrastructure. One of the obligations of a DPP would be to act as an intermediary to ensure timely payments to all eligible households, removing the burden from the existing government agencies of additional payment responsibilities. The initial seed money can be thought of as a way of counteracting the impact of switching costs to open new accounts and as an investment by the government to ensure that all Americans can receive timely payments. The availability of interest on reserves for DPPs on the initial seed amount is also an investment in infrastructure to enhance macroeconomic stabilization.¹⁷

16 For discussion of some of these issues, see PIIIE event on Data Protection and Digital Finance, November 18, 2019, www.piie.com/events/data-protection-and-digital-finance.

17 For example, in recent weeks Hong Kong announced direct transfers to households to stabilize the economy in response to the novel coronavirus. Since Hong Kong does not have a similar infrastructure in place as we suggest, the payments will be made in the summer. See the Summer Boost section in the March 2, 2020, Bloomberg article, www.bloomberg.com/news/articles/2020-03-02/hong-kong-finance-chief-sees-property-holding-up-despite-turmoil?sref=IFzuH3OC.

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20-5 Reviving the Potency of Monetary Policy with Recession Insurance Bonds

Julia Coronado and Simon M. Potter

April 2020

This Policy Brief is part 2 of a two-part series.

OVERVIEW

There is a growing understanding that in a world of persistently lower interest rates, existing conventional and unconventional monetary policy toolkits may not be sufficient to stabilize the macroeconomy in the event of large negative demand shocks. This recognition has led to calls for more active use of fiscal policy and coordination between fiscal and monetary authorities. This Policy Brief discusses how the system of digital payment providers (DPPs) proposed in our first Policy Brief on this topic (Coronado and Potter 2020) adds a new weapon to the monetary toolkit that could be implemented in a timely, effective, and inclusive manner.

The creation of DPPs allows the Federal Reserve to make direct payments to consumers to stabilize household income and shore up confidence in the event of a recession. We are far from the first to describe such an approach. Our contribution is to describe how a digital currency backed by the Fed could augment automatic fiscal stabilizers and—more importantly—harness the power of “helicopter” money or quantitative easing (QE) directly to consumers in a disciplined manner.

To implement QE directly to consumers, we propose the creation of recession insurance bonds (RIBs)—zero-coupon bonds authorized by Congress and calibrated as a percentage of GDP sufficient to provide meaningful support in a downturn. Congress would create these contingent securities; Treasury would credit households’ digital accounts with them. The Fed could purchase them from households in a downturn after its policy rate hits zero. The Fed’s balance sheet would grow by the value of RIBs purchased; the initial matching liability

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would be deposits into the DPP system. The mechanism is easy for consumers to understand and could boost inflation expectations more than a debt-financed fiscal stimulus could.

Unlike some earlier advocates of a central bank digital currency, we do not attempt to abolish cash or give the Fed the power to set deeply negative rates (Bordo and Levin 2017). Indeed, we believe that our approach would allow the Fed to avoid resorting to negative interest rates as a policy tool. Our focus is on how a Fed-backed digital currency, potentially including the issuance of a stablecoin by the DPPs, backed by reserves held at the Fed, could be used to increase the amount of unremunerated Fed liabilities as its balance sheet expanded, creating a more efficient method of financing direct payments to consumers over the medium term than fiscal policy could. Special features of RIBs would support Fed operational independence and Treasury's right to control the outstanding structure of its debt over the medium term, better aligning incentives for an aggressive response to negative demand shocks at the zero lower bound. But unlike automatic fiscal stabilizers, which need to be fully designed in advance, our approach preserves the nimbleness of monetary policy to adjust the policy response to incoming information about the magnitude of the negative demand shock.

We start this Policy Brief by examining why the existing conventional and unconventional monetary policy toolkits may not be sufficient and describing some of the new thinking on automatic stabilizers, fiscal and monetary coordination, and proposals for monetary-financed fiscal expansion. Turning to our proposal, we then outline the division of responsibility between fiscal and monetary authorities, describe the properties of RIBs, and provide some illustrations of how the system might work in practice.

WHY WE NEED TO UPDATE MONETARY POLICY FOR A MODERN MACROECONOMY NOW

Interest Rates Are Likely to Remain Lower

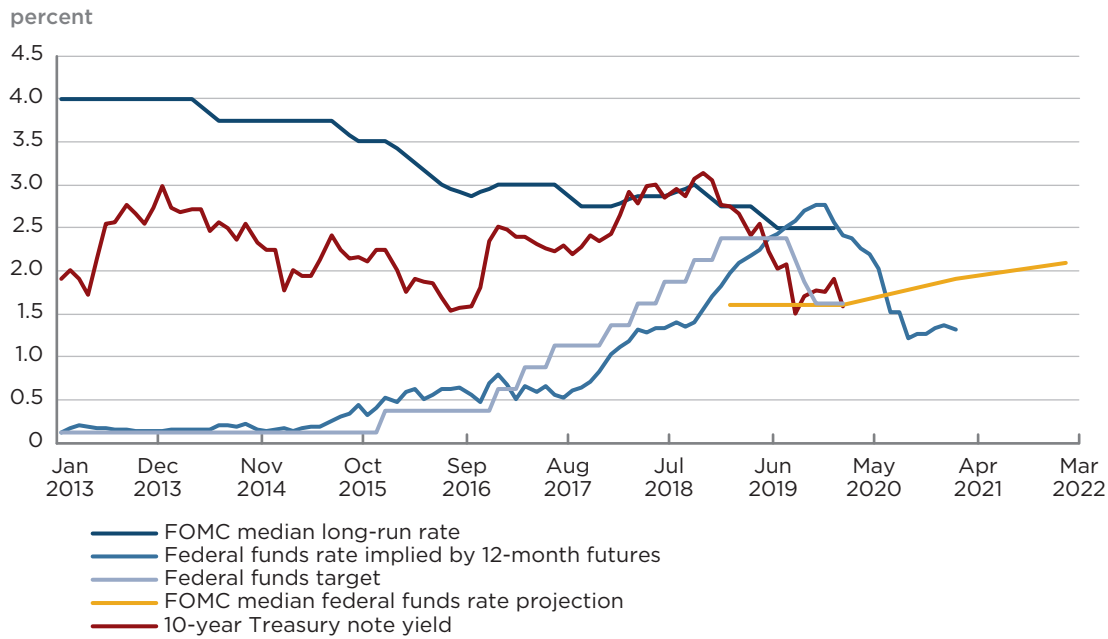
For the foreseeable future, interest rates around the world are likely to remain considerably lower than their historic averages. One workhorse estimate from the Fed's Laubach-Williams model shows that the long-run equilibrium real interest rate dropped from above 2 percent in the 1990s to below 1 percent over the past two years, implying a nominal equilibrium interest rate of less than 3 percent.¹ A recent paper by Michael Kiley (2019) suggests that the equilibrium real interest rate in the United States could be below zero.

The median estimate of the Federal Open Market Committee (FOMC) of the long-run federal funds rate dropped from above 4 percent as recently as 2012 to 2.5 percent at the December 2019 FOMC meeting (figure 1, panel a). Consistently lower rates are of concern because the Fed has cut its policy rate by an average of 5 percentage points in postwar recessions. Such monetary policy ammunition will not be available in the future, as hitting the zero lower bound on interest

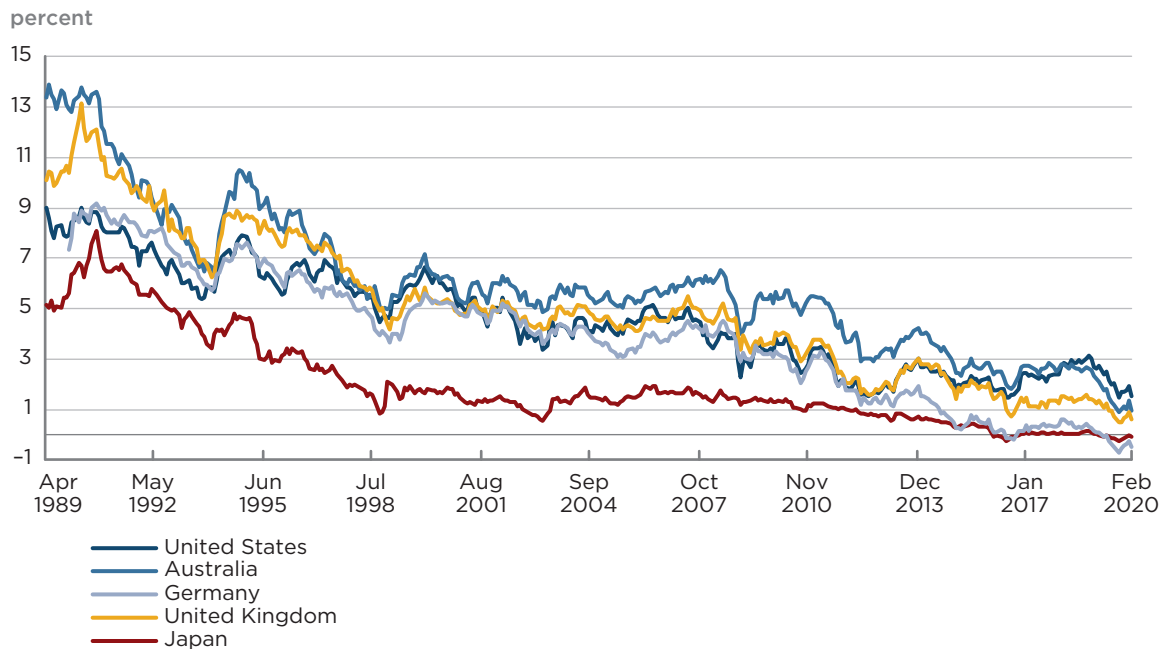
1 See Federal Reserve Bank of New York, "Measuring the Natural Rate of Interest," www.newyorkfed.org/research/policy/rstar (accessed on March 6, 2020).

Figure 1
Interest rates have fallen around the world and are expected to remain low

a. Interest rate expectations in the United States



b. Yields on 10-year government bonds by selected country



FOMC = Federal Open Market Committee
 Sources: Federal Reserve; Haver Analytics.

rates becomes a regular occurrence in downturns.² Market yields on benchmark 10-year sovereign bonds around the world have dropped even lower than central bank estimates of short-term equilibrium rates (figure 1, panel b); \$15 trillion to \$19 trillion of sovereign debt regularly trades with negative yields.

Demographics, High Debt Levels, and Tighter Regulation Reduce Interest Rate Sensitivity

Slower population growth is at the heart of estimates of lower equilibrium growth and interest rates. The aging populations that accompany lower birth rates imply not only slower trend growth but also a reduced sensitivity to interest rates, for several reasons:

- Young, growing societies respond to temporary declines in interest rates by borrowing against future income, opportunistically bringing forward future spending (the substitution effect).
- Older, slower-growing economies have less future growth to borrow against, and older consumers are more likely to be negatively affected by a reduction in interest income from lower interest rates (the income effect).
- The older the society, the less the substitution effect will outweigh the income effect and the more insensitive consumers are to interest rate changes. In addition, as interest rates remain low and stable, even young, growing households and firms will see less of a need to opportunistically borrow when the Fed lowers interest rates.

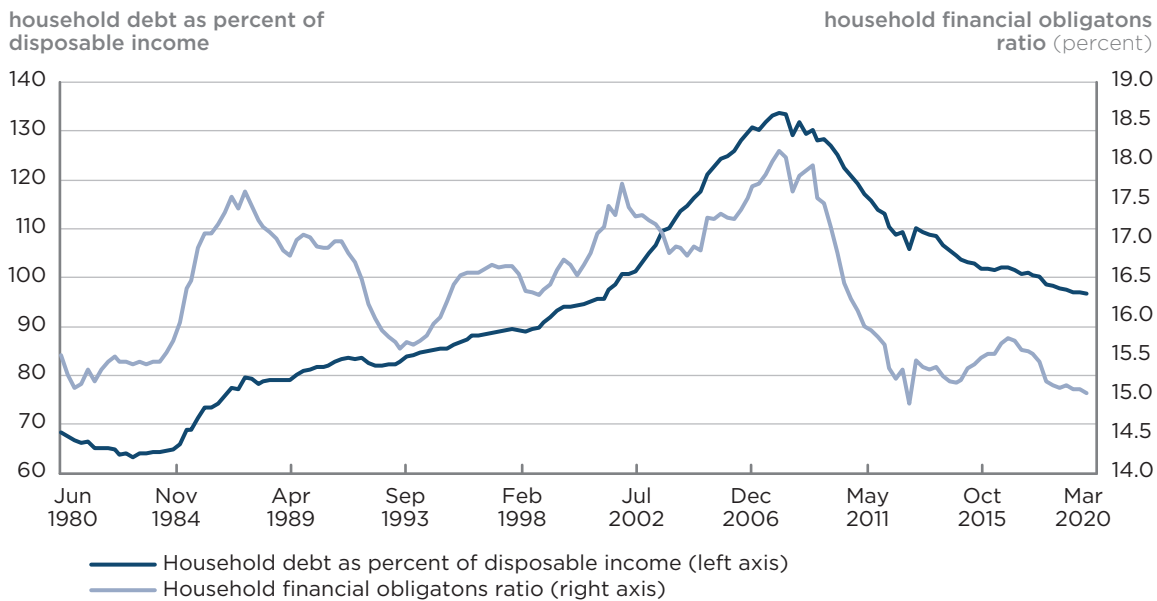
The United States also still carries several legacies from the credit boom and financial crisis that dampen responsiveness to interest rates. Research by the Federal Reserve confirms that high student loan burdens have reduced access to mortgages and homeownership among younger households. Enhanced regulation and supervision of the financial system comes with more prudent but tighter credit standards for households interested in borrowing (Federal Reserve Board 2019). This enhanced safety and soundness are critical from the perspective of long-run stability but further attenuate the credit channel.

The combination of demographic and postcrisis legacies has led the household sector—which powers 70 percent of GDP—to continue reducing debt relative to household income despite low interest rates (figure 2, panel a). Although a record low fraction of income is required to service their debt, households continue to borrow less than they earn. Interest rate policy has not been rendered powerless; lower debt service frees up spending power, keeping consumer spending stable. Housing is again contributing to growth, after contracting for a year and a half in response to the 100 basis point decline in mortgage rates over the past year. But although mortgage demand still responds positively to lower rates, the response will likely be smaller than in previous decades, because of the older, slower-growing population.

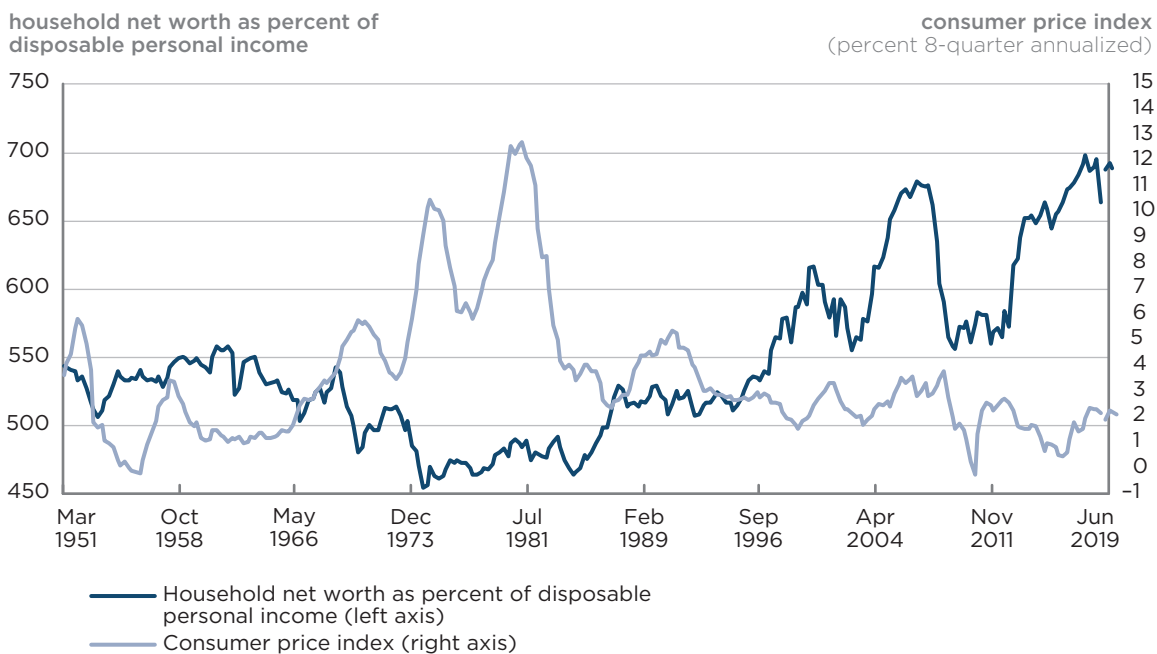
2 For an assessment of the firepower currently available, see Gagnon and Collins (2019). David Reifschneider and David Wilcox (2019) show that changes to the Fed's approach to meeting its inflation goal are unlikely to add much firepower.

Figure 2
Households lowering their debt, less responsive to interest rates and asset prices

a. Household debt, 1980-2020



b. Consumer inflation and household net worth, 1951-2019



Sources: MacroPolicy Perspectives; Federal Reserve Board; Haver Analytics.

The dampened impact of monetary policy through the credit channel has led to greater reliance on the wealth effect from the asset price channel. Lower rates and QE help boost asset valuations, leading to increased spending and investment. But the asset price channel also appears to be less effective than in the past. Households have maintained persistently higher saving rates despite

record highs in net worth from rebounding stock and home prices. Increased wealth concentration likely explains some of the reduction in wealth effects on spending, as wealthy households have lower propensities to consume. Households may also be more risk averse after the last two cycles' booms and busts in asset prices and view asset price booms with greater skepticism. Panel b of figure 2 highlights that as consumer prices have become less cyclical, asset prices have become more cyclical. Households may be more reluctant to borrow and spend against appreciated assets partly in recognition of their increased cyclical.

Calls for Increased Use of Fiscal Policy in Downturns Are Understandable but Problematic

Many observers have concluded that monetary policy is running out of ammunition and that fiscal policy will need to carry more of the burden in stimulating the economy in the next downturn. Lawrence H. Summers revived the notion of secular stagnation in recent years, defining it as “a prolonged period in which satisfactory growth can only be achieved by unsustainable financial conditions.”³ In an essay coauthored with Anna Stansbury (Summers and Stansbury 2019), he urged central bankers to declare monetary policy “impotent,” stressing the need to shift the burden to fiscal policymakers. Persistently low interest rates have led mainstream economic thought leaders like Olivier Blanchard to conclude that deficit spending may not be as problematic as previously thought and caused less orthodox schools of thought, such as Modern Monetary Theory, to gain traction.⁴

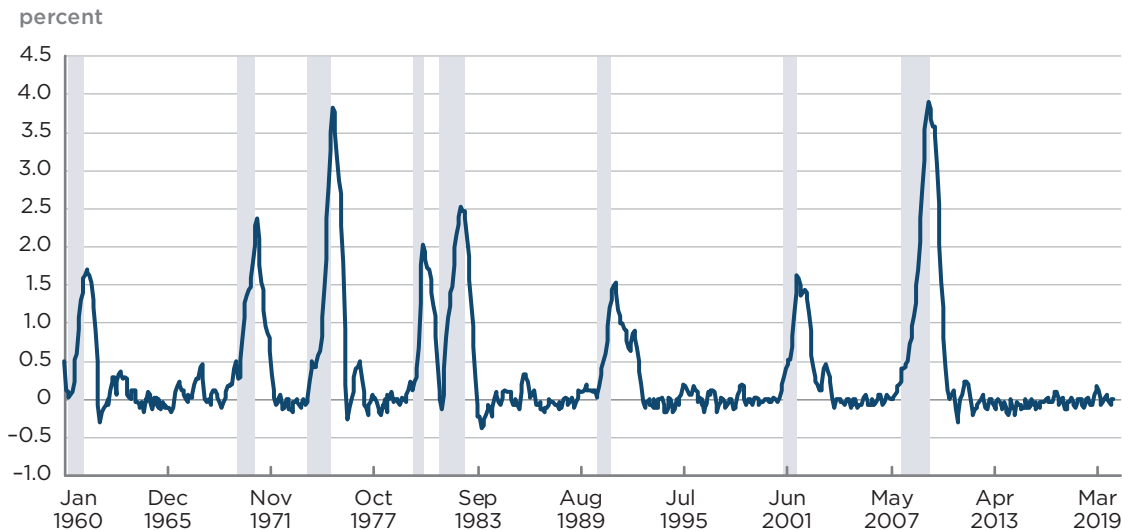
A more forceful, automatic fiscal response during business downturns is indeed a sensible response to an economy characterized by lower equilibrium interest rates and reduced sensitivity to rates and asset prices. One promising approach to the inherent latency involved in legislating stimulus is to expand automatic fiscal stabilizers, which kick in without the delay of a political process. An example is Claudia Sahm's (2019) proposal of a system of direct stimulus payments to individuals when the unemployment rate rises 0.5 percent from the cycle low, a trigger known as the Sahm Rule (figure 3). Sahm provides an accumulation of empirical evidence that shows that consumers respond to direct stimulus payments, particularly during a downturn, confirming that such payments are a potent channel for cyclical policy.

Instrument-independent central banks emerged as stewards of the business cycle in part because they can implement policy in an agile and timely fashion above the political fray, with an eye on medium-term stability. In contrast, a fiscal process can be polarized and slow to react to the specific circumstances of a demand shock. We agree with the conclusion of Elga Bartsch and a bevy of former central bankers affiliated with Blackrock who argue in a recent note that an expansion of the monetary policy toolkit is as important as a reconsideration of fiscal policy (Bartsch et al. 2019).

3 See Lawrence H. Summers' webpage on Secular Stagnation, <http://larrysummers.com/2017/06/07/secular-stagnation/> (accessed on March 6, 2020.)

4 Olivier Blanchard, “Public Debt and Low Interest Rates,” American Economic Association Presidential Address, January 4, 2019, www.piie.com/commentary/speeches-papers/public-debt-and-low-interest-rates.

Figure 3
The Sahm Rule: A 0.5 percent increase in the unemployment rate from the cycle low is coincident with recessions



Note: Vertical grey bars indicate recessions.

Sources: Bureau of Labor Statistics; Haver Analytics.

An important advantage of monetary policy is that the central bank alone can print new money; fiscal policy must go through a budgetary process and relies on debt financing. If monetary expansion is expected to be at least partly a permanent increase in unremunerated central bank liabilities, it can more directly raise expectations of nominal growth. In *The Optimum Quantity of Money*, Milton Friedman referred to this type of monetary expansion as “helicopter money.” The example he used was direct money grants to consumers, with the helicopter aspect allowing the central bank to, in theory, not be concerned about having to make a distributional decision, at least in the flight path of the helicopter.⁵ The challenge for central banks is to harness their powerful instrument independence without making distributional decisions, which are the purview of fiscal policy.

Monetary financing faces another practical challenge in the current system. In the United States and many other monetary areas, control over interest rates is achieved by remunerating some but not all central bank liabilities. Automatic fiscal stabilizers can be linked to monetary financing in a way similar to Ben Bernanke’s idea of a special Treasury account funded by the Fed. Such a link could reduce the independence of the central bank. But, perhaps more importantly, it would not directly address the future fiscal cost of the money-financed fiscal expansion when overnight rates increase from zero. If all central

5 Helicopter money is often described in the context of a central bank-financed fiscal stimulus, as described by Adair Turner (2015), Ben Bernanke (2016), and the recent Blackrock proposal of Bartsch et al. (2019). Bernanke first visited the concept in a 2002 speech that won him the moniker Helicopter Ben (see “Deflation: Making Sure ‘It’ Doesn’t Happen Here,” remarks before the National Economists Club, Washington, November 21, www.federalreserve.gov/boarddocs/Speeches/2002/20021121/default.htm#f8). Frances Coppola (2019) also proposes providing QE directly to consumers. Similar proposals have been put forward for the United Kingdom (Dyson and Hodgson 2016) and for the United States (Hockett 2019).

bank liabilities that support the fiscal expansion are expected to be remunerated in the future, monetary financing is no more than a discussion about the optimal composition of government debt.⁶

We are looking to establish a new tool that preserves the traditional separation of monetary and fiscal authorities, can be activated quickly, and is more effective than existing tools at increasing nominal demand in both the short run and the medium term.

THE PROPOSAL: A FED-BACKED DIGITAL CURRENCY THAT CAN ENHANCE THE CYCLICAL POWER OF MONETARY POLICY

Recession Insurance Bonds: A Direct Helicopter Drop to Consumers

We propose the creation of a new security called recession insurance bonds (RIBs) that would facilitate QE directly to consumers during downturns. RIBs would be zero-coupon bonds authorized by Congress as a percent of nominal GDP and held in custody as a contingent digital asset of the household sector. When the Fed's policy rate has been cut to zero and the FOMC judges that the economy needs additional stimulus, some or all RIBs would be activated by depositing money into consumers' accounts. The more households and firms believe that the new money created will remain in DPP accounts (or in the stablecoin), the more stabilizing the purchases would be over a standard fiscal transfer. Indeed, the presence of the custody accounts and households' familiarity with the initial seeding of the digital account should stabilize expectations and behavior before the need for activation in the face of negative demand shocks.⁷

The structure of the RIBs should maintain the separation of responsibilities and authority between fiscal and monetary authorities. The aggregate size and the way in which the RIBs are distributed across households are decisions for Congress and the administration. The Fed should provide expert advice and analysis on the appropriate aggregate size for successful macroeconomic stabilization against large negative demand shocks.

For the central bank, the responsibility for maintaining stable prices and maximum employment is combined with the ability to act independently and quickly without the explicit consent of the administration or Congress. In the case of activation of RIBs, we suggest a structure similar to the one advocated by Joseph Gagnon (2019) in a *Cato Journal* article. First, the Fed's policy rate should be at zero. Second, the Fed should inform the Treasury secretary of its decision to buy some or all of the RIBs. The secretary would have 24 hours to seek further clarification. As we discuss below, the secretary would have an effective veto if he or she wanted to exercise it.

Ensuring the Stability of the New System

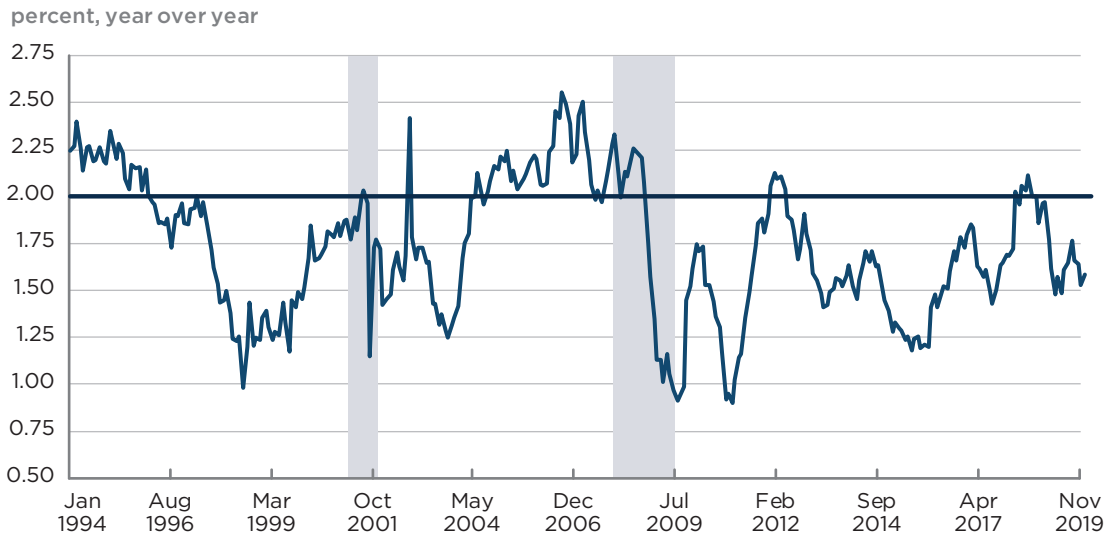
The purchase of RIBs must strike a balance between being large enough to generate confidence in their stabilizing power, on the one hand, and including enough guardrails that they do not produce inflation well above target, lead to unanchored inflation expectations, or threaten the operational independence

6 Claudio Borio, Piti Disyatat, and Anna Zabai (2016) explain the issue in detail.

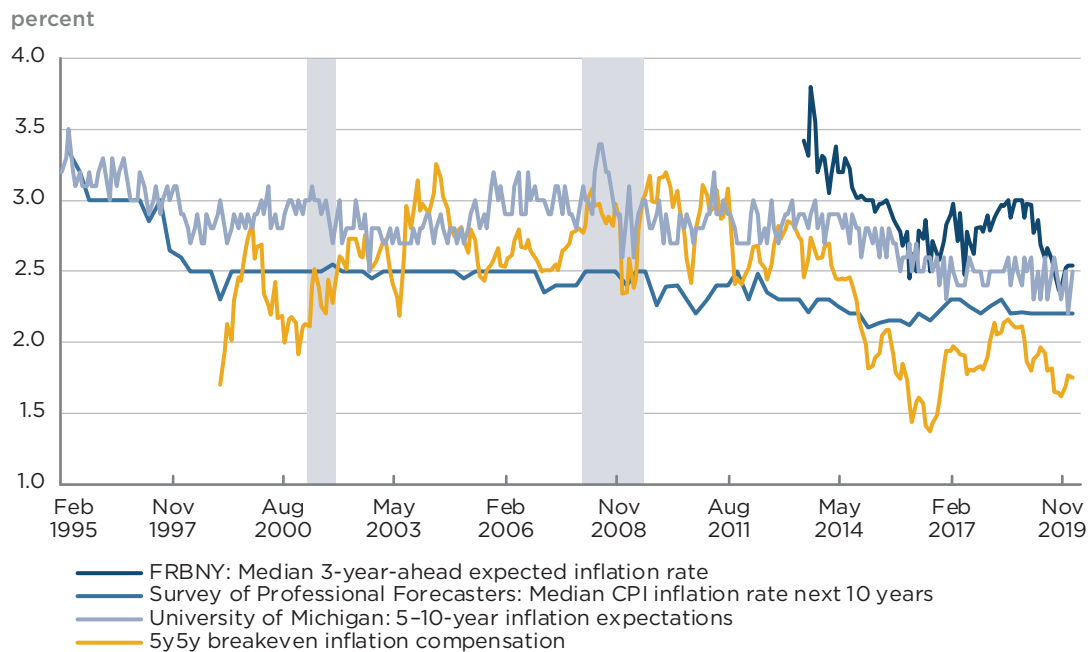
7 One way to maintain this stabilizing effect would be to run small test operations each year (to maintain the real value of the initial seed amount, for example).

Figure 4
The challenge confronting the Fed is inflation and inflation expectations that are too low

a. Core personal consumption expenditure inflation, 1994-2019



b. Measures of inflation expectations, 1995-2019



CPI = consumer price index

Note: Vertical grey bars indicate recessions.

Sources: Bureau of Labor Statistics; Federal Reserve Bank of New York (FRBNY); University of Michigan; Federal Reserve Board; Haver Analytics.

of the central bank, on the other. The challenge facing the United States and other advanced economies is that inflation and inflation expectations are too low (figure 4). In contrast to the beliefs of a number of observers at the time, QE did not lead to runaway inflation or expectations that became unmoored

to the upside on fears that central banks were monetizing debt. The lack of inflation might reflect public confidence in the commitment of the central bank to its objectives, or it may reflect the care and caution exercised by the Fed in planning its exit strategy and ensuring that it had the tools to lift rates even with a large balance sheet. It also may reflect the fact that QE simply did not generate a sufficient demand response because of the attenuated credit and wealth responses to monetary policy described above. Regardless of the reason inflation remained low, we would want to exercise the same degree of prudence in designing the RIB system as processed through the DPPs that was undertaken in designing earlier forms of QE. The proposed system does not affect the Fed's ability to raise rates and has no implications for capital market functioning, but as with QE there may be concern over central bank losses and the usurpation of debt management.⁸

To align the incentives facing the central bank and the fiscal authority, we propose two special features of RIBs. First, the Fed would have the right to put back to the Treasury enough RIBs that the Treasury's income would be nonnegative: If the Fed's interest income is less than its interest expense and operating costs, it would return RIBs to the Treasury to receive funds to cover the operating loss. The goal would be to preserve the Fed's operational independence. Second, the Treasury could call some or all of the RIBs if it viewed the consolidated maturity structure of public debt (including remuneration on Fed liabilities with that of the Treasury) as inefficient. This provision would essentially give the Treasury secretary a veto over the use of the RIB tool if he or she wanted to exercise it.

If either option were exercised, the central bank balance sheet would decline in size; whether the effect would be contractionary would depend on the circumstances. The puttable nature of the RIBs would reduce fears of political backlash against negative income, emboldening the Fed to deploy RIBs and other tools in sufficient size during downturns. The potential for negative income would occur only once rates were lifted from zero and the liabilities of the central bank moved toward reserves in the traditional financial system and away from cash, DPP accounts, and the stablecoin. This scenario is most likely to occur in a world with strong nominal output growth, the goal of the policy intervention.

Treasury's decision to call some of the RIBs preserves its control over the structure of its debt. As short-term rates move up from zero, the assessment of whether to exercise the option could be determined in a manner similar to that outlined in the Treasury Borrowing Advisory Committee (TBAC) presentation to the Treasury in the first quarter of 2020. It will depend critically on how sustainable the increase in non-interest-bearing liabilities has been.⁹

8 It can be argued that QE direct to consumers could enhance capital market functioning, as there would be less need for the Fed to engage in large-scale purchases of marketable securities.

9 See US Department of the Treasury Quarterly Refunding Announcement Q1, 2020, www.treasury.gov/resource-center/data-chart-center/quarterly-refunding/Pages/Latest.aspx.

What might the aggregate size and distribution of RIBs look like?

The fiscal authority would need to approve a sufficient amount of RIBs that households, firms, and market participants would have a high degree of confidence that a robust recovery would take hold. One metric to assess sufficiency could be the Great Recession of 2007–09, during which real GDP fell about 5 percent. The volume of RIBs approved should be able to cushion demand in a shock as large as the Great Recession, although a smaller amount might be deployed in more typical recessions. It is important that the public does not reach the conclusion that the central bank or fiscal authority has run out of policy space. We think a total capacity of 10 percent of current GDP would be sufficient to boost expectations that the Fed has the tools to support growth and inflation even in the face of a very negative demand shock. Such an allocation would currently amount to just over \$2.5 trillion and would be an authorized capacity for money creation rather than new government debt. Ensuring that the aggregate amount of RIBs increased with nominal GDP would maintain their real potency over time.

Central banks should avoid making explicit distributional decisions, which are the purview of fiscal policy. Making RIB deposits equal lump-sum allocations would be easy to administer and be highly progressive, as the deposits would represent a much larger percentage increase in disposable income for lower-income households, which would contribute to effective cyclical policy, as lower-income households have a higher propensity to consume than wealthier households. For example, if RIBs were granted to all 262 million US residents 16 and over, an aggregate capacity of RIBs of 10 percent of nominal GDP would allow for deposits up to \$7,500 per person (in current dollars) in a recession. This sum is substantial—representing almost 25 percent of household income for the median household—but still considerably less than the value of securities purchased by the Fed during the Great Recession. Furthermore, the initial fiscal cost of the purchase of the RIBs would be zero, as no interest would be paid on any of the new reserves created.¹⁰

How might the Fed purchase RIBs?

The Fed would have the option of buying RIBs when its policy rates hit zero. If the public has great confidence that there are sufficient RIBs for the Fed to stabilize the economy, their enactment, along with the active DPP system, should stabilize expectations and reduce amplification of negative demand shocks even before many traditional tools are deployed. If the Fed is confronted with an economic downturn and has already cut rates to zero, it could purchase RIBs at a fixed monthly pace until inflation and unemployment reach particular goals. Another approach might be to put a substantial initial deposit into consumer accounts followed by a state contingent monthly or annual pace as suggested by Sahm. In the structure we propose, these policy choices would be the Fed's alone, reflecting its instrument independence and deep knowledge of the

¹⁰ With the DPP system in place, we view the appropriate effective lower bound setting of interest on reserves and other remunerated accounts as zero.

economy. It is possible that the presence of the large contingent size of RIBs would be sufficient to stabilize the economy against most shocks, with only small actual purchases of RIBs.¹¹

Use of this new stabilization tool would be complementary to existing tools; real interest rates would need to be kept low to incentivize households from saving most of the RIB windfall. In addition to holding the overnight policy target rate at zero for a time, it might also be useful to use large-scale asset purchases to keep longer-term real rates low. We view this system as removing any desire to gain policy space by pushing nominal interest rates into negative territory. If new automatic stabilizers were put in place (similar to Sahm's proposal) that also took advantage of the timely and inclusive implementation capacity of the DPP system, the Fed would be the appropriate institution to assess the impact such stabilizers would have on the outlook and the need for further monetary stimulation.

How might stablecoin increase the capacity of the digital currency and avoid disrupting the traditional banking system?

In our first Policy Brief (Coronado and Potter 2020), we discussed some mitigants to concerns that the issuance of a central bank digital currency might negatively affect the traditional banking system and its credit formation function, particularly in times of stress. The main mitigants are a restriction on the size of individual DPP accounts at \$10,000 and limits on the issuance and growth of the stablecoin. If RIBs are activated, then, as with the initial seed allocation to start the DPP system, the first impact would be growth in the Fed's balance sheet, without any crowding out of the traditional banking system.

With the restriction that RIBs are activated at the zero lower bound on interest, there are two main ways the reserves created might move to the traditional banking system. First, some consumers might run up against the \$10,000 account limit. Allowing them to receive their direct payments in the form of a stablecoin would give them the option of staying within the DPP system. Second, as consumers spend their direct QE transfers, some of that money would likely end up in the traditional banking system. Increased issuance of the stablecoin would allow firms and wealthier households to hold large deposits in the stablecoin. Given banks' reluctance to charge negative rates on consumer deposits, this substitution into the DPP system would reduce the burden for banks and money market funds in a zero-rate environment, where net interest margins on many accounts can be very low or negative.

For the stablecoin to be used in this way, the Fed would have to lift the cap on its total issuance of \$130 billion. It could allow total issuance in some proportion to the amount of RIBs that had been purchased, perhaps with some restrictions on fast growth in stablecoins outstanding.¹² Recall that QE direct to

11 This outcome would be almost ideal, as it implies that most of the existing RIBs would be available for the next recession.

12 Many of the scenarios in which the Fed puts some of the RIBs back to the Treasury involve the movement of reserves from the DPP system to the traditional banking system. In these cases, the DPP account balances or stablecoin holdings will decline, and lowering the cap on total stablecoin issuance proportional to the decline in RIBs on its balance sheet would have no negative effects.

consumers is more effective the stickier the growth in DPP accounts and the stablecoin. As the increase in DPP accounts and stablecoin is accompanied by an increase on the asset side of the Fed's balance sheet with the addition of RIBs, such stickiness has no negative impact on the traditional banking system. Indeed, given that the proposed system would be a more efficient funding of payments to consumers, it would improve the macroeconomy relative to standard fiscal expansions, without the interest costs of servicing the debt. This improvement would benefit all in the economy, including the traditional banking system, where loan growth and net interest margins would be higher.

A Radically Conservative Approach

Disruption is the buzzword of our times; it has become an inevitable part of every industry, thanks to rapid advances in technology. Without radical changes to address the new frontiers of currency and payment processing and the challenges of persistently low interest rates, the stability of the US and global monetary systems is at risk.

Disruption also creates opportunity. The proposal presented in this Policy Brief combines some longstanding and newer ideas into an operationally realistic proposal that can address the key challenges confronting the monetary system and shore up its stability and effectiveness. A Fed-backed digital currency available through a DPP system and the provision of QE direct to consumers through RIBs represents a radical departure from the current system, yet its goal remains to maintain and enhance the stability of the financial system. The proposal is still broad brush in nature; with the right design and implementation, it is eminently feasible.

Extending access to a Fed-backed digital currency through a regulated system of providers could encourage competition and innovation while ensuring safety and soundness. Low-cost DPPs could also reach a segment of the population that has been left behind by the current banking system, extending the benefits of low-cost but secure technology to everyone. Rather than leaving the Fed to struggle to provide support in the next recession or relying on a divided and slow-moving political process, we propose arming the Fed—and, if new automatic stabilizers are enacted, the Treasury as well—with the ability to stimulate consumer demand directly, boosting growth and inflation expectations and taking the risk of negative interest rates off the table. Developed together, a backed digital currency, low-cost accounts and payment processing, and RIBs can provide institutions with the tools necessary to support the monetary and financial system in improving household welfare in the current environment.

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