Shadow Digital Money

McAndrews, James and Menand, lev

Wharton Financial Institutions Center, Columbia Law School

March 2020

Shadow Digital Money

James McAndrews and Lev Menand[1]
March 2020

Abstract

Promises by media platforms to provide digital transaction services will likely lead to a flood of new money. While these developments are potentially valuable, under current law the money created is unsound. It is not insured by the government, nor is it backed by safe assets. We should not yoke good technology to unsound money. Federal regulation is needed to guarantee safety and soundness, to restore monetary control to the Federal Reserve, and to prevent a race to the bottom between competing state regulatory regimes. With modest changes to the U.S. Code, innovation in payments will be just that—innovation in payments—and not also unsupervised and unsound money issuance.

[1] McAndrews: TNB USA Inc. and Wharton Financial Institutions Center, jamesjmcandrews@gmail.com; Menand: Columbia Law School, lmenand@law.columbia.edu.

Section 1. Introduction.

Money changes form with every age; from commodity money to credit money, the diversity in this most social of technologies has been vast. Today, digital media platforms with billions of users are leading efforts to transform money once again by incorporating convenient ways to make payments into their platforms. New digital moneys offer more than just speed: they allow their customers to package payments with other communications such as humorous emojis or to publicize their transactions to their family and friends.

These innovative services are growing quickly. PayPal, which, when you include its subsidiary Venmo, already boasts 300 million users, has been joined by Google Wallet, Apple Pay, Popmoney, Snapcash, Squarecash, Alipay, and Transferwise. And even more ambitious digital moneys are afoot, from Libra, a new "global currency" proposed by a consortium of businesses led by Facebook, to Saga, a similar effort, to a plan by the People's Bank of China for a virtual yuan.

But whatever its form and packaging, money is money. And money and its provision are regulated for good reasons. Governments depend on monetary systems to function, using them to tax and spend. Households and businesses are similarly reliant on money, using it, and the exchanges it fosters, to order their economic lives. Excesses of money, shortages of money, and unsound money are extremely harmful and disruptive. Panics, inflation, and sudden declines in the value of money can trigger macroeconomic catastrophes like the Great Depression and the Great Recession (Bernanke 2018) as well as acute, localized runs such as those following the failure of state-sponsored private insurance funds in Ohio in the 1980s.

Accordingly, the maintenance of a stable monetary system has long been a critical aspect of statecraft (Desan 2014; Hockett 2018) and a core government responsibility (Friedman 1960, Friedman 1992). In the United States, the Constitution gives the power "to coin money," "regulate the value thereof," and regulate "foreign coin" to Congress.[2] And Congress has used these powers, alongside its other authorities, to establish the Federal Reserve System and a nationwide network of chartered banks.

The activities of these banks are carefully monitored and controlled. The Federal Reserve promulgates reserve requirements, which govern the ability of banks to expand the money supply. And most bank monetary liabilities are explicitly insured by the Federal Deposit Insurance Corporation

[2] U.S. Constitution, Art. 1, § 8. Available at https://www.archives.gov/founding-docs/constitution-transcript

(FDIC). When banks get into trouble, the government operates special facilities, such as the Discount Window, to provide banks with liquidity.

Banks are also regulated and supervised by some combination of the states, the FDIC, the Office of the Comptroller of the Currency (OCC) (a bureau within the Treasury Department), and the Federal Reserve. They are subject to portfolio constraints, restricting the sorts of assets they can hold, and leverage limits, restricting the amount of debt they can use. Special government officials carefully monitor their financial and operational risks. When government agencies are concerned about excessive risk, they can issue cease and desist orders, halt dividend payments, remove bank executives, and levy civil money penalties (Menand 2019).

Therefore, the first question policymakers must ask when facing a new monetary technology is how does this fit in with the existing regime? Unfortunately, they have often skipped this step. A famous example is the expansion of checks as a method of money transfer in the second half of the nineteenth century. For decades, regulators did not recognize that checks written on deposit accounts had become the most widely used money, displacing bank notes, which were, at the time, carefully regulated (Gorton 1985; Ricks 2016; Menand 2019). One result was recurring banking panics, as regulation designed to stabilize the value of bank notes proved inadequate to protect depositors. A similar pattern unfolded in the run up to 2008, as wholesale deposit substitutes, particularly repurchase agreements and money market mutual funds, proliferated outside of the regulatory umbrella (Ricks 2016).

Today, the debate over digital money is showing signs of the same myopia. Many economists and public policy analysts have examined the economics, industrial organization, and monetary consequences of digital money services.[3] But they have not looked closely at who is issuing the new digital money. Nor have they considered who is regulating the issuers, or whether the answers to these questions are satisfactory given the potential of digital moneys to multiply substantially in the coming years.[4]

If all digital money services were organized as banks, then perhaps this would be of little concern. The new products would be deposits and could be analyzed as something akin to digital checks.

[3] *See, e.g.*, Brunnermeier, James, Landau (2019, NBER 26300, and 2019 VoxEU); Adrian and Mancini-Griffoli (2019, IMF Fintech Notes); Brunnermeier and Niepelt (2019 JME); CPMI report (2018); Fernandez-Villaverde and Sanches (2019 JME).

[4] A recent exception is a paper posted by Dan Awrey last month. See *Bad Money* (Feb. 19, 2020). We discuss Awrey's important contributions below. For an analysis of the relationship between developments in "financial technology" and the existing regulatory regime see Omarova (2019).

Importantly, the monetary and safety considerations of new digital moneys would be incorporated into the existing regime of regulation and supervision. But, as it turns out, most digital money issuers are *not* organized as banks. They are "Money Services Businesses" (MSBs), sometimes called "money transmitters."[5] And although MSBs must register with the federal government's Financial Crimes Enforcement Network (FinCEN), a bureau of the Treasury Department, they are subject neither to federal prudential oversight nor to the Fed's reserve requirements. Instead, MSBs are licensed and regulated by the states. And, a review of the relevant state requirements reveals that MSBs are permitted to engage in money creation.[6] Thus, many of the new digital money services operate outside of the existing system of monetary control. In other words, they issue "shadow" digital money.[7]

With the understanding that many current and future digital money service providers are, or will be, MSBs without banking licenses (and thus shadow money issuers), we contend that the current regulatory approach to these services is inadequate. While Lo (2016) points out that multi-state licensing is burdensome for potentially innovative MSB services, our objection is more fundamental: any business that, like a bank, augments the money supply should be subject to the U.S. government's monetary regime.

This does not mean that digital money providers must either become banks or be regulated as banks. Instead, we propose that Congress amend federal law to require that MSBs back their monetary liabilities one-for-one with commercial bank deposits, insured or otherwise fully backed by deposits at the Federal Reserve Banks.[8] We think this change in the MSB licensing regime would be cost efficient for MSBs, feasible, and would prevent abuses of current practices by prospective shadow digital money providers who could become very large given the size of the platforms that are associated with them. Society could be better assured that an expansion of MSBs and their activity would reflect beneficial

[5] Some digital money issuers, such as many "stablecoin" and digital token issuers, are not organized as banks or MSBs, but our analysis applies to them as well.
[6] See Awrey (2020); Chris Daniel, Steve Stone, Sherri DiMarco, *Money Transmission: The Legal Landscape, a Quandary and a Proposed Solution*, 1 J. PAYMENT SYS. L. 305 (2005); Benjamin Lo, *Fatal Fragments: The Effect of Money Transmission Regulation on Payments Innovation*, 18 YALE J.L. & TECH. 111 (2016).
[7] Awrey (2020), making a similar point, calls the money they issue "bad money." Bob Hockett (2019), considering cryptocurrencies, analogizes to "wildcat" banknotes, a comparison we think is apt in the case of money issued by firms like PayPal as well.
[8] It is an irony that many knowledgeable analysts believe incorrectly that MSB liabilities are currently backed, one for one, by deposits at banks. For example, Kaminska (2019) writes: "The reason this is noteworthy is because this would turn Libra either into a conventional PayPal type operator — which as a money transmitter is obliged to back all PayPal dollar liabilities it issues (or any other currencies it operates in) with one-for-one dollar deposits — or a glorified money-market fund (MMF), a.k.a. the original iteration of the stablecoin concept."

activity and innovations and not reflect digital money issuers choosing a weaker regulatory regime to offer otherwise indifferent services, relative to banks.

This paper proceeds in four sections. Section 2 provides a new typology distinguishing between three types of MSB business models and summarizes the existing regulatory framework governing their activities. Section 3 reviews how some types of MSBs augment the money supply. Section 4 explores the ways in which the existing regulatory framework is inadequate given the ability of some MSBs to create deposit-like money. Section 5 recommends how policymakers can address these shortcomings.

Section 2. What are MSBs?

Federal law defines MSBs to include money transmitters, currency dealers, check cashers, issuers and sellers of traveler's checks and other money orders, and the United States Postal Service.[9] Persons meeting this definition must register with the Treasury Department (specifically with FinCEN), but they are not licensed or regulated by the Treasury Department or any other United States agency. Instead they are licensed and regulated by the states and territories.[10]

The federal definition, which excludes banks and persons functionally regulated or examined by the Securities and Exchange Commission (SEC) or the Commodity Futures Trading Commission (CFTC),[11] encompasses over 25,000 entities, all licensed and prudentially regulated by the states. The largest of these MSBs process hundreds of billions of dollars of payments per year and maintain relatively sizeable balance sheets. These balance sheets are not limited to cash and bank deposits or even to cash equivalents like money market mutual fund shares. State law is remarkably permissive. For example, the Uniform Money Services Act authorizes MSBs to invest in agency mortgage backed securities, state and municipal bonds, and even interest-bearing debt instruments issued by companies whose equity shares are traded on a national securities exchange or on national over-the-counter markets, if certain other conditions are met. The statute also authorizes state licensing officials to permit, in their discretion, "any other investment."[12]

[9] 31 C.F.R. § 1010.100(ff).
[10] The Uniform Money Services Act—which serves as a model statute for state MSB licensing and regulation—defines "money services" as "money transmission, check cashing, or currency exchange," and defines "money transmission" as "selling or issuing payment instruments, stored value, or receiving money or monetary value for transmission." Uniform Money Services Act, National Conference of Commissioners on Uniform State Laws (July 6, 2001) at § 102(13)-(14).
[11] 31 C.F.R. § 1010.100(ff)(8). Federal law also excludes natural persons engaged in some of the relevant activities provided they are so engaged on an "infrequent basis and not for gain or profit." *Id.* at § 1010.100(ff)(8)(iii).
[12] Section 702.

Yet, despite their ability to offset bank-like liabilities with longer-term investments, MSBs are not subject to state or federal banking laws. Nor do they participate in the federal deposit insurance program or have access to the Federal Reserve's emergency lending facilities.

Until recently, this has not had a large or negative effect on the dollar system because most MSBs have issued a very particular type of monetary liability and the amount of their non-cash assets has remained small. But we take no comfort in the size of MSBs historically. New companies like Venmo pursue a very different business model, which existing regulations do little to limit.

In order to understand the future risks posed by MSBs, it is helpful to distinguish between three types of MSB business models: "front end" MSBs, which facilitate access to the bank and credit card accounts of their customers; "classic" MSBs, such as Western Union and MoneyGram, which issue monetary liabilities to facilitate one-off payments; and "modern" MSBs, such as PayPal and Venmo, which issue multi-purpose monetary liabilities that resemble bank deposits.[13]

Front-end MSBs are sometimes referred to as "wallets"; they are communication systems, in which the monetary liability of a customer remains with the customer's bank. Front-end MSBs facilitate transfers of money from the payer's to the payee's account without issuing money themselves. Such services, like Apple Pay and Google Pay, incorporate digital accessibility to bank accounts or credit cards in which the monetary liabilities are issued by banks.

Classic MSBs such as Western Union and MoneyGram issue monetary liabilities when a customer pays, by a cash transfer, check, or some other means, money to the MSB, and, in exchange receives a liability of the MSB. That liability often consists not of a general-purpose monetary claim, but rather a claim to redemption of the liability by a specific payee, often in a different location. The monetary liability is outstanding during the period before the claim to payment is extinguished by the payee receiving the payment from the MSB.

Modern MSBs issue monetary liabilities of a more general-purpose nature that are quite similar to deposits and are used for multiple payments and receipts by customers. As with classic MSBs, Modern MSBs create monetary liabilities when customer pay money to the MSB. But, unlike with classic MSBs, the customer can make payments utilizing the MSB's facilities, receive payments, and maintain monetary balances at the MSB without ever having to "cash out" into a bank account. The accounts of

[13] See Ehrentraud, Ocamp, Garzoni, and Piccolo (2019) and CPMI (2014) for a similar categorization, where, our "front end" MSBs are classified as "front-end" service providers, and instead of "classic or modern MSBs" the category is called "end-to-end" payment service providers. Awrey (2020) also distinguishes between Western Union's business model and PayPal's.

the MSB, then, are functionally equivalent to demand deposit accounts at banks. Examples include Venmo, WeChat Pay, and Alipay; we would also analyze stablecoins and other digital tokens as this type of monetary facility.

Although the largest classic MSBs have sizeable balance sheets, they pale in comparison to the sort of balance sheets modern MSBs might one day maintain. And the sorts of assets these MSBs invest in has already begun to differ substantially. For example, as of the third quarter of 2019, Western Union held around $1.2 billion in state and municipal debt securities and $50 million in corporate debt securities.[14] PayPal, by contrast, held billions of government securities, over $3 billion in corporate debt securities, nearly $1.3 billion in marketable equity securities, and over $500 million in nonmarketable equity securities against its $24.5 billion in monetary liabilities.[15]

PayPal is covering the bank-like nature of its subsidiary Venmo with little more than a fig leaf. For example, PayPal describes its monetary liabilities as "[f]unds payable and amounts due to customers." In its terms of service, Venmo explains that "Any money sent to you on Venmo that has not yet been transferred represents an unsecured claim against us . . . We combine this money with the Venmo money of other Venmo users and invest the money in liquid investments in accordance with state money transmitter laws. We own the interest or other earnings on these investments . . . and you do not have any ownership interest (either legal or beneficial) in these investments."

Modern MSBs like PayPal are growing fast and are likely to scale their businesses to take on more deposits. As their market share grows, their investment activities will expand since users will have less and less need to "cash" out their balances.

Section 3. Money augmentation and MSBs

Money creation takes place whenever a dollar of deposits is created via a loan or some other asset expansion by a bank. This is often explained as the working of the "money multiplier." In the simple case, a "monopoly bank" banking system may expand deposits (by extending credit) up to the inverse of the required reserve ratio, assuming all other constraints on bank lending are slack.

MSBs also augment monetary liabilities. As discussed above, MSBs may invest a large percentage of their monetary liabilities in a variety of debt and equity securities. Monetary expansion can therefore occur when an MSB extends credit by purchasing a security or depositing funds in a bank.

[14] U.S. S.E.C., Form 10-Q, The Western Union Company (Sept. 30, 2019).
[15] U.S. S.E.C., Form 10-K, PayPal Holdings (Feb. 6, 2020).
https://www.sec.gov/ix?doc=/Archives/edgar/data/1633917/000163391720000028/pypl201910-k.htm

Consider the following example. Suppose there are $100 in demand deposits in the economy, and that bank customers withdraw these deposits in cash to acquire MSB liabilities. Further, suppose that the MSB places the cash in a vault. In that case, the overall level of money stays the same, even if, as in the case of a modern MSB, the MSB liabilities themselves act as money. On net, no money is created because bank deposits are reduced by $100, while MSB liabilities are increased by $100.

At the other extreme, suppose that the MSB purchases debt securities, stock, and other investments with the $100. Then, the cash will be redeposited in banks, and the expansion of the money supply will equal $100. Bank deposits first fell by $100, but later rebounded by $100, and the monetary liabilities of MSBs expanded by $100.

In the intermediate case, suppose the MSB deposits $50 in a bank and purchases $50 of a newly issued debt security of a bank customer. The economy now has $100 in bank deposits and $100 in monetary liabilities at the MSB, a doubling of the amount of transferable monetary liabilities. If one treats the $50 deposit of the MSB as a required reserve, immobilized in the bank, much like cash in a vault, and not used for transfers, but instead intended as a stock of liquid balances to support its monetary liabilities, then the stock of generally transferable monetary liabilities has increased from $100 in deposits to $150—$50 in deposits in banks owned by third parties and $100 at the MSB.[16]

The recipient of a loan from an MSB—that is the issuer of a debt security purchased by the MSB—does not receive the loan as monetary liabilities of the MSB itself. The recipient receives bank deposits. Accordingly, the "money multiplier" of MSBs therefore is more constrained than that of banks. Nonetheless, the MSB's issuance of liabilities is an expansion of the money supply whenever the MSB decides not to match its money with deposits at a bank, either at a commercial bank or the central bank.[17] (Where an MSB does match its liabilities with deposits at a bank, the issuance of MSB liabilities is therefore offset one-for-one with a decrease in transferable deposits at bank or the central bank.)

[16] As the MSB does not make loans to its own customers, its money creation is more constrained than that of banks. Specifically, the total amount of money created from a deposit D into an MSB is equal to $[D - r_{MSB}D]$, where r_{MSB} is the "required reserve ratio" of MSBs. In the example, the MSB held 50 percent of their monetary liabilities as deposits in banks and that was treated as a "required" reserve ratio. As a consequence, in this example the deposit into the MSB halves the potential monetary expansion of the deposit that was placed in the MSB. As the proportion of bank deposits required to be maintained by MSBs, r_{MSB}, falls, MSBs' money creation potential approaches the amount of the initial deposit into MSBs. This analysis assumes that the deposit by the MSB into a commercial bank is immobilized by the bank, and always remains in fixed proportion to the monetary liabilities of the MSB.

[17] An immobilized deposit cannot be used for general payments, but must match one-for-one, the liabilities of the MSB. In this sense, the immobilized deposit itself is taken out of circulation and does not play a monetary role, but rather acts as a reserve for the MSB. As the MSB receives transferable deposits from customers, transferable

Even when the MSB does invest in deposits that are immobilized at a bank, they are often not maintained as insured deposits or their equivalent, and therefore may be unsound. For example, in a worksheet for MSBs from the state of Washington, there is a limit of 50 percent of investments to be made in notes or debentures, or equity, of firms whose shares are listed on a national exchange, demand borrowing agreements of firms that are subsidiaries of firms whose shares are listed on a national exchange, or any other investment approved by the director of the [department of banking]. Regarding the other 50 percent—the monetary "reserve" of the MSB—there is *no* definite portion that must be invested in insured deposits. Instead, an MSB may invest in time deposits or certificates of deposits of FDIC insured banks, debt securities of firms with one of the three highest ratings from nationally recognized ratings agencies, receivables financing, investment securities that are obligations of the federal government, and shares in open-ended management companies.[18] Consequently, any monetary reserve of the MSB may be both illiquid and uncreditworthy, depending on market conditions.

Understanding that MSBs are "money augmenters" is important. Unfortunately, it is not clear, given the patchwork of state MSB statutes, and the limited reporting, just how much monetary augmentation is possible via MSBs. Nor is the money they issue, even when partially backed by bank deposits, sound. This issue is vital to understand given the potential scale of MSBs in issuing digital money.

Section 4. Regulatory Shortcomings

Modern MSBs present a range of policy challenges. The money they issue is unsound; they are highly susceptible to dangerous runs and panics; their issuance is not subject to control by the Federal Reserve; and, as their market share grows, they are likely to precipitate "a race to the bottom," weakening bank regulation at the state and federal level.

4.1 *Soundness*

The liabilities of Modern MSBs are unsound.[19] Gorton, Lewellen, and Metrick (2010) outline the two primary ways of creating safe financial liabilities in the private sector. One approach relies on a credible and well-designed *government guarantee*, such as the guarantee provided by the U.S. FDIC

deposits decline in the exact amount of the increase in MSB liabilities, which fund an increase in the immobile "reserve" deposits of the MSB.

[18] See https://dfi.wa.gov/sites/default/files/forms/permissible-investment-worksheet.pdf

[19] *See* Menand 2019 (defining "sound" bank money as money that trades at par with dollars issued by the U.S. Mint). Awrey calls the unsound money issued by MSBs "bad money."

deposit insurance program. The second method is technological—a safe liability can be created by a private agent using a safe asset, such as a government bond, as backing. For example, investment banks and dealer firms issue monetary liabilities structured as repurchase agreements in which the cash provided buys a Treasury security and agrees to resell it at a prearranged time for a prearranged price.[20]

MSBs satisfy neither requirement. They enjoy no government guarantees, nor are their liabilities backed by safe assets like U.S. Treasury securities. To the contrary, modern MSBs like Venmo invest in stocks including illiquid equity securities issued by private companies. Such portfolios, which are susceptible to sharp losses, are recipes for unsound money. Even banks, which are subject to careful government supervision and benefit from access to emergency lending facilities like the Fed's discount window, are not permitted to invest in such volatile assets.

4.2 *Safety*

Because MSB liabilities are uninsured, they are highly susceptible to runs and panics. Users have no incentive to continue to maintain account balances at firms like PayPal if they suspect that PayPal will be unable to redeem their balances on demand. And users have an incentive to redeem their balances if they think others will redeem, as mass redemptions themselves may trigger fire sales and insolvency (Diamond and Dybvig, 1983). Rumors alone, or account outages such as the ones experienced recently by stock trading platform Robinhood,[21] could be enough to cripple modern MSB payment environments (Ricks, 2016).

4.3 *Monetary Control*

Because MSBs are not "banks," their monetary augmentation activities are not subject to control by the Federal Reserve. Under current law, reserve requirements – rules setting a minimum ratio of cash and cash equivalent assets – are set by the Fed and apply to transaction accounts and time deposits issued by "depository institutions."[22] Congress defines "depository institution" to include banks eligible to apply for deposit insurance and defines "bank" to mean "any insured or noninsured bank, as defined in section 3 of the Federal Deposit Insurance Act." The FDIA, in turn, defines bank to mean "any national bank and State bank" and defines "State bank" to mean "any bank, banking association, trust

[20] This means of providing safety, while credit-risk free, is still subject to systemic liquidity risk, again, see Gorton, Lewellen, and Metrick (2010).
[21] Richard Henderson, "Robinhood Faces Third Outage Since Start of Last Week," FINANCIAL TIMES (Mar. 9, 2020).
[22] 12 U.S.C. § 461(b)(2). See also 12 C.F.R. § 204.1(c).

company, savings bank, industrial bank (or similar depository institution which the Board of Directors finds to be operating substantially in the same manner as an industrial bank), or other banking institution which . . . is engaged in the business of receiving deposits." While MSBs, especially modern MSBs, are plainly engaged in the business of receiving deposits,[23] they are not "banks" under state law. A similar definitional problem involving the term "financial institution" permits MSBs to exist in the first place, since Section 21(a) of the Banking Act of 1933 otherwise prohibits unregulated persons from engaging in the deposit business.[24]

Although it was likely not the intent of Congress to exclude MSB monetary liabilities from Fed control,[25] absent changes in the law, they could grow to trigger unwelcome inflation in the future. Furthermore, growth in similar types of money augmentation, specifically, stablecoins and other digital tokens that seek to circulate as money, pose risks to monetary control in the same way that MSBs do, and our recommendations apply to those "shadow MSBs" as well.

4.4. *Competitive Deregulation*

The proliferation of MSBs, and especially modern MSBs, also inaugurates a new and troubling schism between state and federal regulation of money augmentation.

The current consolidated regime, in which nearly all banks are subject to a consistent set of portfolio constraints and oversight by the federal government, was hard won. Congress's first attempt to occupy the field in money augmentation came in the 1860s when it created the national banking system and imposed a prohibitive tax on state bank notes (Menand, 2019). This worked at first, and state banks nearly disappeared. But as banks began to substitute checking accounts for notes, state banks made a comeback (James, 1978). The result was a massive panic in 1907. Congress tried to

[23] The law defines "deposit" to include an "outstanding draft . . . , cashier's check, money order, or other officer's check issued in the usual course of business for any purpose" and, subject to certain exclusions, "such other obligations of a bank or savings association as the [FDIC], after consultation with the Comptroller of the Currency, and the [Fed], shall find and prescribe by regulation to be deposit liabilities by general usage." 12 U.S.C. § 1813(l).
[24] Section 21 of the Glass Steagall Act, codified today at 12 U.S.C. § 387, prohibit persons, "other than financial institution[s] or private banker[s] subject to examination and regulation under State or Federal law" from "engag[ing] to any extent whatever in the business of receiving deposits subject to . . . repayment . . . upon request" unless they comply with certain regulatory requirements including supervision by the OCC or the Fed. MSBs, however, are arguably "financial institutions . . . subject to examination and regulation under State . . . law" even though the regulatory regime states apply to MSBs are more permissive than those that apply to state banks.
[25] For example, Congress empowered the Fed to "determine what types of obligations . . . shall be deemed a deposit" and "to prescribe such regulations as it may deem necessary to effectuate [its reserve requirements] and to prevent evasions thereof." 12 U.S.C. § 461(a).

federalize banking again in 1913, offering access to emergency loans from a new system of Federal Reserve Banks (FRBs). But the FRBs were too generous, accommodating state banks without requiring them to become members of the Federal Reserve System, allowing state banks to continue to avoid federal regulation and supervision (Benston, 1978). Another collapse ensued.

Congress finally succeeded in federalizing money augmentation in 1933 when it created the FDIC. As more and more state banks applied for deposit insurance and subjected themselves to federal oversight, it became very difficult for hold outs to take advantage of lax state regulations and stay in business.

Inconsistent regulatory regimes for money augmentation are highly destabilizing. As modern MSBs grow market share, states may reduce restrictions further to attract business to their jurisdictions. If the past is any guide, such deregulation will increase pressure on other regulators to weaken their prudential safeguards, potentially even leading to rollbacks in the rules governing portfolios and leverage for national banks.

Section 5. Policy Responses

Modern MSBs demand a quick and comprehensive policy response from Congress. This Section reviews existing approaches adopted by other jurisdictions and recommends changes to federal law to address the shortcomings identified above.

5.1 *Existing Approaches*

The regulation of nonbank payment system providers in other countries offers lessons for U.S. policymakers. In general, countries take a tiered approach, distinguishing between front-end payment service providers and more modern business models.

The Committee on Payments and Market Infrastructures (CPMI) of the Bank for International Settlement (BIS) examined the regulation of non-banks in the retail payment system CPMI in 2014. According to CPMI, regulation directed at non-banks involved in “front-end services” centered on “security, consumer protection, the maintenance of the confidence in the payment system, level playing field concerns, competition, financial inclusion or anti-money laundering.” In addition, non-banks that “have a direct relationship with end users,” in many cases are subject to AML/CTF regulation. For modern MSBs, or what CPMI calls “end-to-end” providers, regulation generally goes further to include “central bank oversight of payment and settlement systems or relevant regulation.”

Ehrentraud et al. show that one type of modern MSB, "e-money service" providers, are subject to two different types of regime. One scheme treats them as "a banking business and subject[s them] to bank-like prudential regulation." In these jurisdictions, "customer balances ("float") are covered by the deposit insurance scheme." Another scheme, for non-bank e-money service providers, requires a dedicated license and includes specific regulatory requirements. For example, "[m]ost jurisdictions require that clients' funds held at least match the outstanding e-money. This 100% reserve requirement is meant to ensure that all redemption requests can be met at all times and that there are sufficient assets available to satisfy e-money holders' claims in case of insolvency of the e-money provider."

Two specific examples of regulations of the second type, that is, regulations that do not treat modern MSBs as banks, deserve mention: the wildly successful M-Pesa product issued by Vodaphone, and the Chinese regime governing Alipay and WeChat Pay.

M-Pesa is subject to a 100 percent backing reserve requirement. The Central Bank of Kenya requires M-Pesa balances be held in a trust account, segregated from Vodaphone's balance sheet, for the benefit of the account holders. As described by Murthiora (2015 pg. 11):

> The business model approved by the CBK allowed Safaricom to issue mobile money in exchange (at par value) for cash held in a trust account under the custody of a trustee. Because the funds held in trust were separated from the funds of the service provider, the service provider was unable to use the funds and the money was safe from claims by creditors in the event of insolvency. Over time, the size of the trust account increased as the M-PESA service grew in popularity, and the trustee, in consultation with the CBK, made a decision to spread the funds across several banks to reduce the risk of a single custodial bank failure.

Alipay and WeChat Pay are also subject to a 100 percent reserve backing requirement adopted by the People's Bank of China (PBC) in early 2019. From PBOC (2019, pg 61):

> <u>Regulation of the payment services market was strengthened in a comprehensive manner</u>
> A centralized depository of provisional funds of clients was implemented and a full amount depository of provisional funds was achieved. It is stipulated that the full amount of provisional funds of the clients of payment agencies must be deposited with the PBC.

While some commentators (Liu (2019), Wildau (2018)) feared that this requirement would stifle the growth of Alipay and WeChat Pay, as it reduced earnings of the two services by more than $1 billion per year, growth has not flagged (Mobile Payments Today (2019)). These simple and stringent regulations clearly differentiate the modern MSBs from banks, while, at the same time, preserving the central bank's prerogatives regarding control over the monetary policy in the country.

The experience of Indian Payment Banks suggests some limits on the desirability of additional bank-like regulations. In 2014, the Reserve Bank of India (RBI) authorized the licensing of "Payment

Banks." RBI stated that "the primary objective of setting up of the new entities would be to further financial inclusion by providing (i) small savings accounts and (ii) payments / remittance services to migrant labour workforce, low income households, small businesses, other unorganised sector entities and other users, by enabling high volume-low value transactions in deposits and payments / remittance services in a secured technology-driven environment" (Reserve Bank of India, 2014).

The RBI restricted Payment Banks to accepting demand and savings deposits, with depositors permitted to make payments and withdrawals through branches, ATMs, mobile banking and internet channels, and at the point of sale. The RBI further required that deposits be insured by the Deposit Insurance and Credit Guarantee Corporation of India. The RBI also prohibited the payment banks from lending. Finally, the RBI required that "Payments Bank should have a leverage ratio of not less than 5 per cent, i.e., its outside liabilities should not exceed 20 times its net-worth / paid-up capital and reserves."

Payments Banks have not caught on. For example, Layak (2019) reports that "[t]he Reserve Bank of India (RBI) had in 2015 issued 11 licenses to entities to start payments banks. Today, there are only three serious players left in the market." According to Layak, commentators have blamed RBI's restrictions for the lackluster uptake. Another commentator notes that the RBI "restrictions do not leave any scope for sufficient earning for the bank or its promoters" (Kalyanasunduram, 2019). While these reports are not definitive, and Payments Banks remain in operation, the experience does suggest that regulating MSBs as banks, with requirements for both deposit insurance and capital requirements similar to, or in excess of, other commercial banks while, in addition, restricting their portfolios to safe assets may burden the payments-only institutions with excessive costs of compliance.

5.2 *Recommendations*

Congress should enact new legislation to address the shortcomings in our existing regulatory framework. Such legislation can be quite simple. Congress need only require that all state chartered MSBs hold 100% money, that is, deposits at commercial banks. To assure the soundness of money issued by MSBs, Congress could further require that the MSBs hold 100% insured deposits, or deposits at a bank that only holds account balances at the Federal Reserve.[26] For digital tokens that are not exchanged for U.S. dollars one-for-one, the requirement could be that the sponsors maintain a deposit of an equivalent value of U.S. dollars in banks, updated daily. In other words, Congress can fix the

[26] Currently, no such banks are in operation; one of the authors has founded such a bank, a "narrow bank," that has filed a complaint in federal court seeking to establish an account at the Federal Reserve Bank of New York. See https://www.tnbusa.com/.

problem of shadow digital money with a minor amendment to the statute defining MSBs and requiring them to register with FinCEN. The amendment would limit the left-hand side of MSB balance sheets to deposits at state or federally chartered banks (including the Federal Reserve Banks).[27]

As stablecoins and other cryptocurrencies backed by assets pose similar risks as MSBs, the new rules should also apply to state chartered "virtual currency businesses." Accordingly, to the extent those businesses are not already captured by the federal definition of MSB, that definition should be updated. In this respect, we agree with Adrian and Mancini-Griffoli (2019c), who suggest a "narrow banking" approach for stablecoin issuers.

Our proposal differs from Awrey (2020), whose complementary paper recommends a bespoke national chartering regime for MSBs modeled after money market mutual fund regulation. Such a regime would preempt far more state law than our proposal, and is likely to be opposed by states that have invested substantial resources in their MSB chartering schemes.[28] Such a regime would also permit MSBs to invest in various money market instruments. While we agree with many of Awrey's conclusions, we do not think MMF regulation is worth emulating. Such a regime would still be subject to runs. Only monetary liabilities 100% backed by insured deposits eliminate run risk and vitiate the need for direct deposit insurance of MSB liabilities. For example, even after post-crisis reforms, money funds today arguably issue unsound money (Gordon and Gandia 2019) and pose problems for monetary control.

Our proposal also differs from Coronado and Potter (2020), who suggest a new national charter "to facilitate only small value retail payments and not engage in fractional reserve lending or wholesale payments." Coronado and Potter suggest that regulatory standards including capital and liquidity requirements should be quite a bit less burdensome for what they call Digital Payment Providers than for depository institutions as deposits would be 100% backed by reserves at the Fed. While we agree that such requirements are not necessary for firms holding 100% money, and are not opposed in principle to a new national chartering regime, we think a simple amendment requiring money transmitters to use 100% money is all that is needed to close the relevant gaps in the existing New Deal framework.

[27] Congress has the power to preempt state banking (and MSBs) through the commerce clause. And Congress can also preempt state banking (and MSBs) through the coinage clause. See Const. Art I. § 8, cl 5; *Veazie v. Fenno*, 75 U.S. 533 (upholding a prohibitive tax on state bank notes); *Norman v. Baltimore and Ohio RR*, 294 U.S. 240 (1935) (upholding demonetization of gold and prohibition of gold clauses on similar grounds).

[28] Dan Awrey (2020) also suggests a new chartering scheme. His would also include a third licensing category for what he calls "lending institutions" like SoFi and Quicken Loans.

Conclusion

A payments revolution has prompted a proliferation of shadow digital money. This money is unsound. It is not insured by the government, nor is it backed by safe assets. Federal regulation is needed to guarantee safety and soundness, to restore full monetary control to the Federal Reserve, and to prevent a race to the bottom between competing state and federal regulatory regimes. Congress should pass new legislation preempting state MSBs, offering federal MSB charters, and authorizing the OCC to establish a special regulatory regime for MSBs that restrict issuers to investing in cash and cash equivalents at banks or the Federal Reserve. With these changes, innovation in payments is just that—innovation in payments—and not also unauthorized and unsound money issuance.

References

Adrian, Tobias, and Tommaso Mancini-Griffoli (2019a). The Rise of Digital Money, IMF Fintech Notes,

July 15.

Adrian, Tobias, and Tommaso Mancini-Griffoli (2019b). The Rise of Digital Currency, Vox CEPR Policy Portal, September 9.

Adrian, Tobias, and Tommaso Mancini-Griffoli (2019c). Central Bank Digital Currencies: 4 Questions and Answers, IMF blog, December.

Awrey, Dan (2020). Bad Money. SSRN working paper.

Benston, George J. (1978). Federal Reserve Membership: Consequences, Costs, Benefits, and Alternatives, Prepared for the Trustees of the Banking Research Fund, Association of Reserve City Bankers.

Bernanke, Ben (2018). The Real Effects of Disrupted Credit: Evidence from the Global Financial Crisis, Brookings Papers on Economic Activity, pp. 251-341.

Brunnermeier, Markus K., Harold James, and Jean-Pierre Landau (2019). The Digitalization of Money, Working Papers.

Brunnermeier, Markus K., Harold James, and Jean-Pierre Landau (2019b). Digital Currency Areas, Vox CEPR Policy Portal, July 3.

Brunnermeier, Markus K., and Dirk Niepelt (2019). On the Equivalence Between Private and Public Money, Journal of Monetary Economics, Volume 106, October 2019, Pages 27-41.

Committee on Payments and Market Infrastructures (CPMI), (2014). Non-banks in retail payments, Bank for International Settlements.

Coronado, Julia and Simon Potter (2020). Back to the Future: How a Federal Reserve Digital Currency Can Secure Macro and Monetary Stability, Macropolicy Perspectives, Public Commentary, January 13.

Desan, Christine (2014). Making Money: Coin, Currency, and the Coming of Capitalism, Oxford University Press

Ehrentraud, Johannes Denise Garcia Ocampo, Lorena Garzoni, Mateo Piccolo (2020). Policy responses to fintech: a cross-country overview, FSI Insights on Policy Implementation, No. 23, Financial Stability Institute, Bank for International Settlements.

Fernandez Villaverde, Jesus, and Daniel Sanches (2018). On the Economics of Digital Currencies, Federal Reserve Bank of Philadelphia Working Paper 18-7, February 7.

Friedman, Milton (1960). A Program for Monetary Stability, Fordham University Press.

Gordon, J., & Gandia, C. (2019). Money Market Funds Run Risk. Columbia Business Law Review, 2014(2), 314-370. https://doi.org/10.7916/cblr.v2014i2.1775Gorton, Gary (1985) Clearinghouses and the Origins of Central Banking in the United States, 45:2 Journal of Economic History 277.

Gorton, Gary, Stefan Lewellen, and Andrew Metrick (2010), "The Safe Asset Share," *American Economic Review*, *Papers and Proceedings* 102, 101–106.

Hockett, Robert (2019). Money's Past is Fintech's Future: Wildcat Crypto, the Digital Dollar, and Citizen Central Banking, 2 Stanford J. Blockchain L. & Policy.

Hockett, Robert (2018). Rousseauvian Money, Cornell Legal Studies Research Paper No. 18-48.

James, John A. (1978). Money and Capital Markets in Postbellum America, Princeton University Press.

Kalyanasunduram, S. (2019). Why are Payments Banks Failing? The Hindu Business Line, October 29.

Kaminska, Izabella (2019). Zuckerberg vs Paypal vs China, The Financial Times, October 25.

Layak, Suman (2019). India's payments bank space: A case of near yet too far. Most big players in the payments bank space have found the going tough and are likely to shut shop. The Economic Times, August 11.

Libra Association (2019). An Introduction to Libra, https://libra.org/en-US/wp-content/uploads/sites/23/2019/06/LibraWhitePaper_en_US.pdf, visited February 17, 2020.

Liu, Andrew (2019). An Analysis of the PBOC's New Mobile Payment Regulation, Cato Journal, February 26.

Menand, Lev (2019). The Monetary Basis of Bank Supervision, SSRN.

Mobile Payments Today (2019) Alipay Mobile Wallet Growth Up 20 Percent in the First Half of 2019, September 24. https://www.mobilepaymentstoday.com/news/alipay-mobile-wallet-growth-up-20-in-first-half-of-2019/ , visited February 19, 2020.

Murthiora, Brian (2015). Enabling Mobile Money Policies in Kenya: Fostering a Digital Financial Revolution, Bill and Melinda Gates Foundation.

Omarova, Saule (2019). New Tech v. New Deal: Fintech as a Systemic Phenomenon, Yale Journal on Regulation, Vol. 36: 735.

People's Bank of China (2019). Annual Report 2018.

Ricks, Morgan (2016), The Money Problem: Rethinking Financial Regulation, University of Chicago Press.

The Western Union Company (2019), Form 10-Q for the Period Ended September 30, 2019.

Wildau, Gabriel (2018) Tencent and Alipay set to lose $1bn in revenue from payment rules, The Financial Times, July 15.