

BANKING ON BLOCKCHAIN

*Lissa L. Broome**

The JOLT Blockchain Symposium held on February 22, 2019, was very informative, especially for someone like me who is trying to learn about blockchain and distributed ledger technology (DLT) and how they might be used in traditional commercial banking. Three articles from the Symposium may be found in Volume 20, Issue 4 of this journal. They provide background on blockchain, discuss the application of securities laws to crypto currency, and consider the need for international coordination in regulating blockchain. I appreciate the opportunity to participate in the Symposium and to offer the comments below based on my talk at the Symposium, but a disclaimer is in order. I am a blockchain neophyte. I'm still confused about some of the things I have learned over the last few months. And, the blockchain ecosystem is constantly evolving so that once I *think* I'm getting it, it changes. I am sure that will also be the case with my musings below.

I was eager to be part of this Symposium because the opportunities to employ blockchain or DLT in the financial services sector are enormous.¹ I will focus on more traditional commercial banking activities that might be affected by blockchain since others have discussed how blockchain and Initial Coin Offerings (ICOs)

* Burton Craige Distinguished Professor of Law; Director, Center for Banking and Finance, University of North Carolina School of Law. Thanks to my research assistants for their help with this article: Noah Ganz, Elyse McNamara, and especially Devon Tucker.

¹ See Robert John Kauffman, Chris Parker & Bruce W. Weber, *On the Fintech Revolution: Interpreting the Forces of Innovation, Disruption and Transformation in Financial Services*, 35 J. MGMT. INFO. SYS. 220, at 24–25 (2018), https://ink.library.smu.edu.sg/sis_research/4274/ [https://perma.cc/9GHQ-ZGG5] (pagination reflects document available through appended URL) (“In the financial markets arena, blockchain technology is perceived as a game changer, as it enables functional improvements, innovations in existing business models or even disruption through the creation of new business models and truly new products and services” (footnote omitted)).

can be used to raise capital for businesses.² But, the banking industry is one of the first industries to leverage the capabilities of blockchain.³

In Part I, I will explore the involvement of banks and others in using blockchain for cross-border payments, the transfer of money from one country to a person or entity in another country—a function previously handled exclusively by banks without blockchain technology. Part II will briefly explore other potential applications of DLT in banking and discuss the involvement of banks with DLT through in-house technology development, forming consortia with other banks, or partnering with or investing in fintech firms. Fintech is the new buzz word that is short for financial technology. Fintech firms use technology to improve efficiencies in finance and financial transactions. In Part III, I will discuss how fintech firms may get involved in financial services in addition to partnerships with banks. Fintech firms may continue to operate independently and hope to reduce their regulatory burden through uniform state licensing requirements or by operating in states that have adopted regulatory sandboxes to encourage innovation. Alternatively, fintech firms may wish to consider the advantages afforded by operating through a bank charter. Several bank charter options are explored: a traditional bank charter, a

² See generally Thomas Lee Hazen, *Tulips, Oranges, Worms, and Coins – Virtual, Digital, or Crypto Currency and the Securities Laws*, 20 N.C. J.L. & TECH. 493 (2019) (examining applicability of federal securities laws to cryptocurrencies and the consequences thereof to transactions that deal in digital currencies).

³ *Blockchain is Reshaping the Banking Sector*, MEDIUM (June 6, 2018), <https://medium.com/universablockchain/blockchain-is-reshaping-the-banking-sector-fd84f2f9c475> [https://perma.cc/Z989-DR9J] (“Universa [develops blockchain solutions for] real sectors of the economy. Banking is one of the most promising spheres to benefit from the advantages of blockchain.”); see also IBM INST. FOR BUS. VALUE, *BLOCKCHAIN REWIRES FINANCIAL MARKETS: TRAILBLAZERS TAKE THE LEAD 1* (2016) [hereinafter IBM, *TRAILBLAZERS TAKE THE LEAD*], <https://www.ibm.com/downloads/cas/AY1QE1PK> [https://perma.cc/9VCG-YBT8] (noting that “financial markets institutions are among the first to leverage the decentralized blockchain platform to define their futures” and that, at the time the survey was taken, 14% of the financial markets institutions surveyed expected to have blockchains in production and in commercial scale in 2017).

special purpose national bank charter, and a state industrial loan company charter. Part IV concludes with a note of caution about how the volume and velocity of financial transactions that may be created through the use of DLT may have systemic risk implications and that this should be considered as we seek to encourage innovation in banking and financial services through blockchain and DLT.

I. CROSS-BORDER PAYMENTS—JPM COIN, RIPPLE XRP, AND OTHERS, INCLUDING FACEBOOK’S LIBRA

Shortly before the JOLT Blockchain Symposium, JPMorgan Chase made a significant announcement on February 14, 2019.⁴ JPMorgan Bank did a test transaction with a digital token called JPM Coin that instantly settles transfers between clients of its cross-border payments business.⁵ The technology uses a private, permissioned blockchain⁶ technology called Quorum, an Ethereum-based ledger.⁷ The bank believes that it will be able to extend the use of JPM Coin to other standard blockchain networks in the future.⁸

Why is this significant? It is the first use of a digital coin using the distributed ledger technology that underlies other

⁴ *J.P. Morgan Creates Digital Coin for Payments*, J.P. MORGAN: NEWS & ANNOUNCEMENTS (Feb. 14, 2019), <https://www.jpmorgan.com/global/news/digital-coin-payments> [<https://perma.cc/B8KX-MQND>].

⁵ Hugh Son, *JP Morgan is Rolling Out the First US Bank-backed Cryptocurrency to Transform Payments Business*, CNBC (Feb. 14, 2019), <https://www.cnbc.com/2019/02/13/jp-morgan-is-rolling-out-the-first-us-bank-backed-cryptocurrency-to-transform-payments-.html> [<https://perma.cc/8ULJ-HC3X>].

⁶ For more on permissioned versus permissionless blockchain, see *infra* notes 49–54 and accompanying text.

⁷ Madhvi Mavadiya, *Stop Calling JPMorgan’s JPM Coin a Cryptocurrency, Because it’s Not*, FORBES (Feb. 17, 2019), <https://www.forbes.com/sites/madhvimavadiya/2019/02/17/jp-morgans-cryptocurrency-jpm-coin-is-not-a-cryptocurrency/#204514e121d1> [<https://perma.cc/XMS5-VPY5>].

⁸ *J.P. Morgan Creates Digital Coin for Payments*, *supra* note 4 (“The JPM Coin will be issued on Quorum Blockchain and subsequently extended to other platforms. JPM Coin will be operable on all standard Blockchain networks.”).

cryptocurrencies, like blockchain, by a major U.S. bank.⁹ And this is after Jamie Dimon, the CEO of JPMorgan Chase, bashed Bitcoin as a “fraud.”¹⁰ Furthermore, JPMorgan is not just any bank; it is our nation’s largest bank holding company¹¹ and the world’s sixth largest banking company.¹² Moreover, according to JPMorgan’s website, the JPM Coin is held in designated accounts at JPMorgan Chase Bank, N.A., the national bank subsidiary of JPMorgan Chase holding company.¹³ A national bank is highly regulated and has the ability to preempt state laws that conflict with its operations pursuant to the National Bank Act.¹⁴ So, a digital coin issued by such a highly regulated entity is a big deal. But even though JPMorgan touts the importance of this new technology, it also describes the JPM Coin as only a “prototype.” And perhaps my conclusion that the regulators had blessed JPM Coin was premature. JPMorgan’s website states, “[a]s we move towards production[,] we will actively engage our regulators to explain its design and solicit their feedback and *any necessary approvals*.”¹⁵ So, it appears that the regulatory regime provided by the Office of the Comptroller of the Currency

⁹ Son, *supra* note 5 (“The first cryptocurrency created by a major U.S. bank is here – and it’s from J.P. Morgan Chase.”).

¹⁰ Paul R. La Monica, *Jamie Dimon Calls Bitcoin a ‘Fraud’*, CNN BUS. (Sept. 12, 2017), <https://money.cnn.com/2017/09/12/investing/jamie-dimon-bitcoin/index.html> [<https://perma.cc/VC22-BC7K>].

¹¹ A bank holding company is “any company which has control over any bank.” 12 U.S.C. § 1841(a)(1) (2012).

¹² *Holding Companies with Assets Greater than \$10 Billion*, NAT’L INFO. CTR., <https://www.ffiec.gov/nicpubweb/nicweb/HCSGreaterThan10B.aspx> [<https://perma.cc/E4UM-HDGM>] (last visited June 23, 2019) (stating J.P. Morgan Chase & Co. is the nation’s largest bank holding company as of March 31, 2019); Kevin B. Johnston, *The 10 Biggest Banks in the World*, INVESTOPEDIA (May 15, 2019), <https://www.investopedia.com/articles/investing/122315/worlds-top-10-banks-jpm-wfc.asp> [<https://perma.cc/ARE3-HNMX>] (stating J.P. Morgan is the world’s sixth largest bank holding company).

¹³ *J.P. Morgan Creates Digital Coin for Payments*, *supra* note 4.

¹⁴ See 12 C.F.R. § 7.4008(d)–(e) (2019) (discussing state laws related to non-real estate lending that *are* preempted by national bank charters in subsection (d), as well as those state laws related to non-real estate lending that are *not* preempted by national banks under *Barnett Bank of Marion County v. Nelson*, 517 U.S. 25 (1996)).

¹⁵ *J.P. Morgan Creates Digital Coin for Payments*, *supra* note 4 (emphasis added).

for the national bank and the Federal Reserve Board for activities that might take place elsewhere in the bank holding company, has not yet blessed this application. I was excited for a while, though, that there might be a *bank*-based digital coin, rather than one issued by a nonbank company named Ripple¹⁶—which, when I was coming of age, was the maker of the cheapest wine you could buy.¹⁷

Also, JPM Coin is significant because, although this was only one small test-case use of JPM Coin, JPMorgan itself moves \$5¹⁸ to \$6 trillion¹⁹ per day for such wholesale cross-border payments. The opportunities for scaling the JPM Coin are significant.

Ripple's XRP²⁰ is a token developed by Ripple Labs and performs a similar function. In fact, it is the “third most valuable cryptocurrency by market value.”²¹ Ripple has a consortium of over 200 banks and payment providers on its RippleNet network.²² One critical difference between JPM Coin and Ripple XRP is that JPM Coin's value is pegged to the dollar²³ and JP Morgan claims that it is “the first U.S. bank to create and successfully test a digital coin

¹⁶ See *Ripple: Our Company*, RIPLE, <https://ripple.com/company/> [<https://perma.cc/C5DQ-Z6JV>] (last visited June 30, 2019) (“Ripple provides one frictionless experience to send money globally using the power of blockchain Banks and payment providers can use the digital asset XRP to further reduce their costs and access new markets.”).

¹⁷ Ripple wine was produced by E&J Gallo Winery and “gained popularity among college students but was pulled from production in the mid 80s with little explanation as to why.” Lauren Eads, *Top 10: Where Are They Now*, DRINKS BUS. (Mar. 31, 2014), <https://www.thedrinksbusiness.com/2014/03/top-10-demised-drinks-brands/5/> [<https://perma.cc/5RG2-8SQT>].

¹⁸ Alastair Marsh, *JPMorgan's Crypto Coin Puts Ripple's Relevance in Question*, BLOOMBERG (Feb. 14, 2019), <https://www.bloomberg.com/news/articles/2019-02-14/jpmorgan-s-crypto-experiment-raises-ripple-relevance-question> [<https://perma.cc/UK2U-JG6N>] (“JPMorgan . . . moves more than \$5 trillion in wholesale payments each day . . .”).

¹⁹ Son, *supra* note 5 (“[JPMorgan] moves more than \$6 trillion around the world every day for corporations in its massive wholesale payments business.”).

²⁰ *XRP: The Digital Asset for Payments*, RIPLE: XRP, <https://ripple.com/xrp/> [<https://perma.cc/C93D-JUP5>] (last visited July 4, 2019).

²¹ Marsh, *supra* note 18 (stating that Ripple XRP's market value is about \$12.6 billion).

²² *Id.*

²³ *Id.*

representing a fiat currency.”²⁴ Over time, JPMorgan believes it can extend JPM Coin to be tied to other currencies.²⁵ Conversely, Ripple’s XRP is not pegged to a currency; as a result, its value fluctuates. For instance, in early 2018 its value was pegged at three dollars, but in mid-February 2019, its value was at about thirty cents.²⁶

JPM Coin is an example not only of a recent change, but also of the contradictions between news reports and the confusion of those trying to understand this brave new world of DLT experience. Is JPM Coin a path-breaking digital coin or is it a database disguised as a coin?²⁷ Is JPM Coin a “direct threat”²⁸ to Ripple’s XRP or does it validate XRP?²⁹ Is JPM Coin “faster, cheaper and more reliable” than SWIFT (Society for Worldwide Institute for Financial Telecommunication)³⁰ and mean the end of the SWIFT wire transfer system or will SWIFT’s GPI (Global Payments Innovation) provide

²⁴ *J.P. Morgan Creates Digital Coin for Payments*, *supra* note 4; *see also* John Detrixhe & Matthew De Silva, *What Does JPMorgan See in Crypto Now That it Didn’t Before?*, QUARTZ (Feb. 14, 2019), <https://qz.com/1550767/what-does-jpmorgan-see-in-crypto-now-that-it-didnt-before/> [https://perma.cc/V6XK-DYSK] (stating that several institutions have previously issued a “fiat-based crypto token,” but JPM Coin is the first issued by an institution of JP Morgan’s reputation).

²⁵ *J.P. Morgan Creates Digital Coin for Payments*, *supra* note 4.

²⁶ Marsh, *supra* note 18.

²⁷ Austin Clark, *Mixed Response to JP Morgan’s Digital Currency Launch*, GLOBAL TREASURER, <https://www.theglobaltreasurer.com/2019/02/18/mixed-response-to-jp-morgans-digital-currency-launch/> [https://perma.cc/4PVF-TYXX] (last visited June 23, 2019) (stating JPM Coin is “not ground breaking in terms of technology” and since it uses a permissioned blockchain network it “is essentially a database managed by” JPMorgan Chase).

²⁸ Marsh, *supra* note 18.

²⁹ Gary McFarlane, *JP Morgan’s Surprise JPM Coin Launch a Threat to Ripple or a Godsend?*, TODAY’S GAZETTE: CRYPTOCURRENCY/BLOCKCHAIN NEWS (Feb. 14, 2019), <https://todaysgazette.com/jpmorgans-surprise-jpm-coin-launch-a-threat-to-ripple-or-a-godsend/> [https://perma.cc/ZUS2-23L6] (stating that JPM Coin “could . . . work to Ripple’s advantage by waking up the skeptics to the blockchain possibilities” and providing an “off-the-peg solution from Ripple”).

³⁰ Penny Crosman, *Can JPMorgan Chase’s JPM Coin Knock Off Ripple and Swift?*, AM. BANKER (Feb. 14, 2019), <https://www.americanbanker.com/news/can-jpmorgan-chases-jpm-coin-knock-off-ripple-and-swift> [https://perma.cc/4XQV-7HLS].

the speed and transparency to make JPM Coin, Ripple's XRP, and other DLT payment systems superfluous?³¹

Following the JOLT Blockchain Symposium, another major bank, Goldman Sachs Group, Inc. announced in June 2019 its intent to follow JPMorgan's lead and introduce a stable coin.³² Stable coins, like JPM Coin, are pegged to a fiat currency or a basket of other assets with lower price volatility than other cryptocurrencies like Bitcoin.³³ Goldman's CEO, David Solomon, told a French newspaper that Goldman Sachs is "'absolutely' looking at digital currencies"³⁴ and that the investment bank "is conducting 'extensive research' on tokenization, the process for transforming currencies or assets into tradeable digital contracts that live on a blockchain."³⁵ Solomon also said that you can "[a]ssume that all major financial institutions around the world are looking at the potential of tokenization, stable coins and frictionless payments."³⁶ He further stated that "blockchain-based stable coins tied to real currencies are 'the direction in which the payments system will go.'"³⁷

On June 17, 2019, Ripple announced a strategic partnership with Money Gram to provide "cross-border payment and foreign

³¹ Jide Idowu, *SWIFT Believes Its GPI Payment Tracker is Outperforming Ripple's Blockchain*, ZYCRYPTO (Feb. 13, 2019), <https://zycrypto.com/swift-believes-its-gpi-payment-tracker-is-outperforming-ripples-blockchain/> [<https://perma.cc/C8HB-9BPQ>].

³² Alastair Marsh, *Goldman Sachs Explores Creating a Digital Coin Like JPMorgan's*, BLOOMBERG L. (June 28, 2019), https://www.bloomberglaw.com/product/blaw/document/X4DFL6Q0000000?bna_news_filter=banking-law&jcsearch=BNA%25200000016b9e57debdab7b9eff80b80000#jcite [<https://perma.cc/J45C-FDX8>] [hereinafter Marsh, *Goldman Sachs Explores Creating a Digital Coin*].

³³ See Olga Kharif, *Why (Almost) Everybody Hates Facebook's Cryptocurrency Libra*, WASH. POST (July 16, 2019), https://www.washingtonpost.com/business/why-almost-everybody-hates-facebooks-cryptocurrency-libra/2019/07/16/53c584ca-a787-11e9-8733-48c87235f396_story.html?noredirect=on&utm_term=.eeca5b88f215 [<https://perma.cc/4PHC-VJGM>] (describing stable coins).

³⁴ Marsh, *Goldman Sachs Explores Creating a Digital Coin*, *supra* note 32.

³⁵ *Id.*

³⁶ *Id.*

³⁷ *Id.*

exchange settlement using digital assets.”³⁸ This new partnership was overshadowed by the blockbuster announcement the very next day, June 18, when Facebook released a White Paper regarding its plans to create a permissioned DLT to issue a stable coin called Libra.³⁹ An “independent, not-for-profit membership organization”⁴⁰ called the Libra Association, will issue “Libra” stable coin tokens backed by a “basket of major government-issued currencies . . . or highly liquid government bonds.”⁴¹ In conjunction with the Libra Association, Facebook also created a new subsidiary, “Calibra,” which is to serve as “a digital wallet to aid transactions.”⁴² The focus of Libra is “billions of people”⁴³ around the globe, rather than sophisticated business customers of large global financial institutions targeted by JPM Coin. Libra, if it comes to pass, has “massive” “potential to disrupt incumbent banking in the developed world.”⁴⁴ Not surprisingly, given the size and power of Facebook and its ability to leverage private information about its users, the Libra announcement has been met with widespread concern.⁴⁵ Among those expressing concern are Federal Reserve Board

³⁸ Robert Kim, *Facebook, FATF, Ripple Push Crypto Regulatory Maturity*, BLOOMBERG L. (June 27, 2019), <https://news.bloomberglaw.com/bloomberg-law-analysis/analysis-facebook-fatf-ripple-push-crypto-regulatory-maturity> [<https://perma.cc/8E8K-U5KL>] (noting that this partnership received relatively little attention but may be of “comparable significance” to Facebook’s Libra announcement).

³⁹ LIBRA ASS’N MEMBERS, AN INTRODUCTION TO LIBRA 8 (2019) [hereinafter LIBRA WHITE PAPER], https://libra.org/en-US/wp-content/uploads/sites/23/2019/07/LibraWhitePaper_en_US-Rev0723.pdf [<https://perma.cc/29QE-D77C>].

⁴⁰ Preston Brewer, *Analysis: Facebook’s Libra Ducks the SEC, Drawing New Attention*, BLOOMBERG L. (June 26, 2019), <https://news.bloomberglaw.com/bloomberg-law-analysis/analysis-facebooks-libra-ducks-the-sec-drawing-new-attention> [<https://perma.cc/R2NS-M9JA>].

⁴¹ Dirk A. Zetsche et al., *Regulating Libra: The Transformative Potential of Facebook’s Cryptocurrency and Possible Regulatory Responses* 4 (European Banking Inst. Working Paper Series 2019/44, Univ. of New S. Wales Law Research Paper Series 19-47, 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3414401 [<https://perma.cc/X98T-EHL7>].

⁴² Brewer, *supra* note 40; *see* LIBRA WHITE PAPER, *supra* note 39, at 3.

⁴³ LIBRA WHITE PAPER, *supra* note 39, at 1.

⁴⁴ Zetsche et al., *supra* note 41.

⁴⁵ Kharif, *supra* note 33.

Chairman Jerome Powell, U.S. Treasury Secretary Steven Mnuchin, and European regulators.⁴⁶

Banks will be affected by cryptocurrency payments with digital tokens either because they are pioneering new DLTs or trying to ensure that their traditional payment systems can compete with DLT payment systems developed by others—banks or nonbanks like Facebook. Who will actually develop these technologies and which will be successful? Stay tuned.

II. BLOCKCHAIN BANKING APPLICATIONS

A. Blockchain Applications

So, what are the banking applications for blockchain? The single most frequently mentioned application is the wholesale payment space like that tackled by JPM Coin and Ripple's XRP.⁴⁷ The hope is that DLT will provide greater speed, reduce costs, and solve the

⁴⁶ *Id.* (stating that Powell has “serious concerns,” Mnuchin is worried about Libra as “national security issue,” and the “European Central Bank, the Bank of England and France’s finance minister all weighted in which worries”).

⁴⁷ IBM, TRAILBLAZERS TAKE THE LEAD, *supra* note 3, at 8 (stating a survey of businesses ranked wholesale payments as the first area to benefit from cost savings from DLT); see also Saifedean Ammous, *Blockchain Technology: What is it Good for?* 1, 2–3 (Leb. Am. Univ., Aug. 8, 2016), <https://ssrn.com/abstract=2832751> [<https://perma.cc/NA82-95SB>] (stating that digital payments, contracts, and database and records management are three applications for DLT); *Blockchain is Reshaping the Banking Sector*, *supra* note 3 (“The main areas in which banks and other financial institutions will be able to implement blockchain technology are reducing costs and making bank-to-bank and international transfers faster.”); Jo Lang, *Three Uses for Blockchain in Banking*, BLOCKCHAIN PULSE: IBM BLOCKCHAIN BLOG (Oct. 23, 2017), <https://www.ibm.com/blogs/blockchain/2017/10/three-uses-for-blockchain-in-banking/> [<https://perma.cc/SJ9D-EUPZ>] (listing payments, customer identification, and trade finance as three crucial DLT applications); Narseen Quibria, *Blockchain Holds Promise for Cross-Border Payments*, AM. BANKER: BANKTHINK (Aug. 7, 2015), <https://www.americanbanker.com/opinion/blockchain-holds-promise-for-cross-border-payments> [<https://perma.cc/9VJ4-W3JS>] (“The blockchain could be particularly effective in improving cross-border payments, more specifically correspondent banking, business-to-business payments and peer-to-peer remittances. Each of these areas involve numerous inefficiencies.”).

double spending problem that is inherent in digital currency.⁴⁸ Libra brings a potential payments application to the consumer space.

I assume (always dangerous) that there is a critical distinction between a permissionless blockchain and a permissioned blockchain.⁴⁹ With banking applications, I again make a dangerous assumption that the applications that have been developed or are being discussed are all permissioned.⁵⁰ I assume this because banks must track transactions and report suspicious activity to federal regulators.⁵¹ Permissioned blockchain, where consortium members control membership, may make this possible.⁵² Permissionless blockchain probably does not accommodate these necessary functions. If that is the case, does the permissioned blockchain solve some of the areas of conflict regarding the supposed advantages of DLT? For instance, some have said that when processing power is considered, the costs and efficiencies of blockchain may not be as great as advertised.⁵³ Others have asked whether these DLT applications can indeed scale given the storage and computational

⁴⁸ PRIMAVERA DE FILIPPI & AARON WRIGHT, *BLOCKCHAIN AND THE LAW: THE RULE OF CODE 63* (2d ed. 2018) (“Bitcoin enabled parties to transfer a digital currency, without the need for a centralized coordinating party and without the risk of double spending.”); Quibria, *supra* note 47 (stating that “[w]ithout middlemen, the fees, transactions times and opacity that have plagued legacy cross-border payments can become a thing of the past” in a system utilizing blockchain technology).

⁴⁹ See DE FILIPPI & WRIGHT, *supra* note 48, at 31–32. A permissioned blockchain requires permission to join; a permissionless blockchain is open to all and participants may maintain their anonymity. Bitcoin and Ethereum are permissionless blockchain.

⁵⁰ See, e.g., STEVE ODELL & JULIA FADZEYeva, *EMERGING TECHNOLOGY PROJECTION: THE TOTAL ECONOMIC IMPACT OF IBM BLOCKCHAIN 31* (Forrester Research, Inc., 2018), <https://www.ibm.com/downloads/cas/QJ4XA0MD> [<https://perma.cc/429W-MC7D>] (reporting findings from study commissioned by IBM).

⁵¹ Crosman, *supra* note 30 (stating that anti-money laundering and know your customer concerns are lessened with a closed network); see DE FILIPPI & WRIGHT, *supra* note 48, at 31.

⁵² Crosman, *supra* note 30; see DE FILIPPI & WRIGHT, *supra* note 48, at 31.

⁵³ Ammous, *supra* note 47, at 4 (“[T]he storage and computational burden on network members will eventually become too large for network members to handle as the network size grows.”).

burdens involved, as well as whether the transactions are at risk of being hacked.⁵⁴ Or, are these issues for any DLT?

Other potential banking applications that have been mentioned in the literature, in addition to those discussed elsewhere in the Symposium, include:

- Smart contracts that run on DLT to:⁵⁵
 - Issue margin calls,
 - Transfer collateral in case of default,
 - Net transactions,
 - Exercise options embedded in derivatives;
- Collecting and sharing data for regulatory purposes;⁵⁶
- Customer identification for know your customer regulations (versus anonymous transactions on the Dark Web with permissionless bitcoin);⁵⁷

⁵⁴ *Id.* at 5 (“[Security] is compromised by operating on a shared ledger which opens up many possibilities for security breaches to take place.”).

⁵⁵ DE FILIPPI & WRIGHT, *supra* note 48, at 74–88; Ammous, *supra* note 47, at 2–3; Alexandros L. Seretakis, *Blockchain, Securities Markets and Central Banking* (manuscript at 10) (July 23, 2017), in *REGULATING BLOCKCHAIN. TECHNO-SOCIAL AND LEGAL CHALLENGES* (Philipp Hacker, Ioannis Lianos, Georgios Dimitropoulos & Stefan Eich eds., Oxford Univ. Press, 2019), <https://ssrn.com/abstract=3007402> [<https://perma.cc/NP69-B99M>].

⁵⁶ Seretakis, *supra* note 55 (manuscript at 16) (“The promise of distributed ledgers lies in their ability to create a record of information that is updated and shared by participants.”); Elizabeth S. Ross, Note, *Nobody Puts Blockchain in a Corner: The Disruptive Role of Blockchain Technology in the Financial Services Industry and Current Regulatory Issues*, 25 CATH. U.J.L. & TECH 353, 376 (2017) (“[A] shared repository with real-time access to data will facilitate transparency between regulators and regulated entities.”).

⁵⁷ *Blockchain is Reshaping the Banking Sector*, *supra* note 3 (“Another field of blockchain application in the banking industry is for the creation of a client identification system based on the distributed ledger technology.”); Lang, *supra* note 47 (stating blockchain technology can assist with know your customer and sharing customer information across the company); Martin Arnold, *Five Ways Banks Are Using Blockchain*, FIN. TIMES (Oct. 16, 2017), <https://www.ft.com/content/615b3bd8-97a9-11e7-a652-cde3f882dd7b> [<https://perma.cc/2UJV-FL2Z>] (“[Many fintech startups are] working on building blockchain systems for customer identification . . .”).

- Syndicated lending;⁵⁸
- A nationwide Uniform Commercial Code Article 9 filing system.⁵⁹

These and other areas are the next frontiers for banks and fintech firms trying to exploit DLT to disrupt traditional banking services.

B. Level of Bank Involvement in Blockchain

Given all these possibilities to explore utilizing DLT in banking, *how* are banks sticking their toes in the blockchain water? Some, like JPMorgan Chase and now Goldman Sachs, are developing their own products in-house. Bank innovation may be enhanced by the Office of the Comptroller of the Currency (OCC), the regulator of nationally chartered banks, which sought comments in April 2019 on an Innovation Pilot Program that would permit national banks, “including those engaging a third-party to offer an innovative activity” to receive “regulatory input early in the development of proposed innovative activities.”⁶⁰ The program’s focus is on “new or unique activities where uncertainty is perceived to be a barrier to development and implementation.”⁶¹ Banks may establish small, short-term pilots “to determine feasibility or consider how a large-scale activity might work in practice.”⁶² Banks are also getting

⁵⁸ IBM, TRAILBLAZERS TAKE THE LEAD, *supra* note 3, at 5; DE FILIPPI & WRIGHT, *supra* note 48, at 92 (noting that settlement times for syndicated loan credits can be nineteen days, creating liquidity concerns and financial risk that could perhaps be ameliorated by DLT); Arnold, *supra* note 57 (stating numerous financial institutions are starting to put syndicated loans on DLT).

⁵⁹ Juan Delacruz & Udit Sharma, *Collateral Damage Over Credits or Security Assets? Try Blockchain*, BLOCKCHAIN PULSE: IBM BLOCKCHAIN BLOG (Dec. 11, 2018), <https://www.ibm.com/blogs/blockchain/2018/12/collateral-damage-over-credits-or-security-assets-try-blockchain/> [https://perma.cc/QP9L-MB66] (suggesting a “blockchain-based UCC platform”).

⁶⁰ OFFICE OF THE COMPTROLLER OF THE CURRENCY, OCC INNOVATION PILOT PROGRAM 2–3 (2019), <https://www.occ.treas.gov/topics/responsible-innovation/occ-innovation-pilot-program.pdf> [https://perma.cc/L9G3-MEJ4].

⁶¹ *Id.* at 3 (“Th[is] program is intended to provide a consistent and transparent framework for eligible entities to engage with the OCC on pilots, which are small-scale, short-term tests to determine feasibility or consider how a large-scale activity might work in practice.”).

⁶² *Id.* at 2.

involved in DLT by joining with other banks in consortia to explore and develop DLT and applications. For instance, R3,⁶³ an enterprise blockchain firm owned by forty large lenders,⁶⁴ is developing a DLT platform for enterprise usage. The most prevalent level of involvement of banks in blockchain is “investing in blockchain solutions” in one form or another with fintech firms, which over ninety-percent of banks are reportedly doing.⁶⁵

III. FINTECH FIRMS ENGAGING IN BANKING ACTIVITIES

Thus far, this paper has addressed banks exploring blockchain applications. This Part explores how fintech firms are using DLT or other financial technology to deliver traditional banking services.⁶⁶ Fintech firms may wish to move forward on their own providing money transmission services. In most states, the fintech firm will need to obtain a license from the state to engage in money transmission or a money services business. Obtaining licenses in every state in which the fintech engages in business can be time-consuming and costly. One solution is uniform state regulation and supervision. For instance, twenty-three states⁶⁷ have already joined

⁶³ *About R3: Who We Are*, R3, <https://www.r3.com/about/> [<https://perma.cc/ZR3R-MEQ7>] (last visited July 3, 2019) (“R3 is an enterprise blockchain software firm working with a broad ecosystem of more than 300 participants across multiple industries from both the private and public sectors to develop on Corda, its open-source block chain platform, and Corda Enterprise, a commercial version of Corda for enterprise usage.”).

⁶⁴ Arnold, *supra* note 57.

⁶⁵ Lang, *supra* note 47 (according to an IBM Institute for Business Value report).

⁶⁶ See U.S. DEP’T OF THE TREASURY, A FINANCIAL SYSTEM THAT CREATES ECONOMIC OPPORTUNITIES: NONBANK FINANCIALS, FINTECH, AND INNOVATION 66–80 (2018) [hereinafter TREASURY REPORT]. Indeed, in its report on nonbank financials, fintech, and innovation, the Treasury noted that “[t]he diversity of U.S. financial services firms requires that any regulatory solution allow for recognition of a broad spectrum of business models,” *id.* at 66, all of which must be considered in the process of modernizing the applicable regulatory framework, *id.* at 67.

⁶⁷ Thus far, the twenty-three states that have joined the Vision 2020 initiative include California, Connecticut, Georgia, Iowa, Idaho, Illinois, Kansas, Kentucky, Louisiana, Massachusetts, Mississippi, North Carolina, North Dakota, Nebraska, Ohio, Rhode Island, South Dakota, Texas, Tennessee, Utah, Vermont, Washington, and Wyoming. 23 States Join Multistate Licensing Agreement for

the Conference of State Bank Supervisors' (CSBS) "Vision 2020," the ultimate goal of which is "to streamline nonbank supervision"⁶⁸ of these money transmission services.

Some states have created so-called regulatory sandboxes to establish (or maintain) an attractive environment for fintechs to experiment and innovate with new products and services without concern regarding compliance with state licensing statutes or other regulations while the fintech is developing its product or service.⁶⁹ These sandboxes are akin to the OCC's Innovation Pilot Program, but are open to any entity, not just to nationally chartered banks regulated by the OCC. On March 25, 2019, Utah followed the lead of Arizona and Wyoming and became the third state to enact regulatory sandbox legislation.⁷⁰ Utah's legislation also expressly includes blockchain technology in its list of permitted activities.⁷¹ Moreover, the Utah State Attorney General has stated that this includes certain cryptocurrencies or cryptocurrency products as well.⁷² There is a chance that this will prove useful to fintech firms seeking to expand into the realm of banking.

Fintech firms may also consider whether it is to their advantage to become banks themselves and provide the technology-enabled services they offer directly to bank customers. Although banks are heavily regulated entities, there are advantages that they enjoy that are not available to regular commercial firms which might induce a

Financial Services Companies, CSBS: PRESS RELEASES (June 24, 2019), <https://www.csbs.org/23-states-join-multistate-licensing-agreement-financial-services-companies> [<https://perma.cc/N3Q8-HZSH>].

⁶⁸ Rachel Witkowski, *State Regulators Expand Multistate Licensing Process for Fintechs*, AM. BANKER (June 25, 2019, 5:46 PM), <https://www.americanbanker.com/news/state-regulators-expand-multistate-licensing-process-for-fintechs> [<https://perma.cc/K4C6-UTXM>].

⁶⁹ Anthony C. Kaye, *Utah's New Regulatory Sandbox*, BALLARD SPAHR LLP (June 11, 2019), <https://www.consumerfinancemonitor.com/2019/06/11/utahs-new-regulatory-sandbox/#> [<https://perma.cc/F3HZ-E6E9>].

⁷⁰ H.B. 378, 63d Leg., 2019 Gen. Sess. (Utah 2019) ("This bill . . . creates a regulatory sandbox program in the Department of Commerce, which allows participants to temporarily test innovative financial products or services on a limited basis without otherwise being licensed or authorized to act under the laws of the state . . ."); Kaye, *supra* note 69.

⁷¹ Kaye, *supra* note 69.

⁷² *Id.*

fintech firm to explore providing its services through a bank charter. These advantages include: access to the federal payments system,⁷³ access to discount window lending from the Federal Reserve Banks,⁷⁴ and federal deposit insurance which allows a bank to raise funds from depositors (with less than \$250,000 on deposit) at a risk-free rate, since the deposits are fully insured by the Federal Deposit Insurance Corporation (FDIC).⁷⁵ Federal law also permits national and state banks to charge interest at the rate allowed in the state where the bank is headquartered irrespective of the interest rate limits in the state where the customer resides, effectively allowing banks to export state usury laws (or the lack thereof) to apply to out-

⁷³ The twelve regional Federal Reserve Banks provide services for banks that include “maintain[ing] accounts for reserve and clearing balances and provid[ing] various payment services, including collecting checks, electronically transferring funds, and distributing and receiving currency and coin.” *Federal Reserve’s Key Policies for the Provision of Financial Services*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.federalreserve.gov/paymentsystems/pfs_about.htm [<https://perma.cc/9X6J-GSAU>] (last updated Oct. 28, 2016).

⁷⁴ The twelve regional Federal Reserve Banks make short-term loans to banks at the discount rate set by the Federal Reserve Board of Governors. Although the discount rate is generally somewhat higher than the interest rate that would be charged by another lender for short-term credit, the Federal Reserve banks’ discount window lending, the Fed is viewed as the “lender of last resort” and discount window lending is thought of as part of the government safety net for banks as an assured source of credit when needed. *The Discount Rate*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., <https://www.federalreserve.gov/monetarypolicy/discountrate.htm> [<https://perma.cc/ST4N-FNDF>] (last updated May 28, 2019).

⁷⁵ *Deposit Insurance FAQs*, FED. DEPOSIT INS. CORP., <https://www.fdic.gov/deposit/deposits/faq.html> [<https://perma.cc/UH7C-3J8H>] (last updated Jan. 31, 2018) (describing deposit insurance for banks). Banks are primarily funded by deposit liabilities, many of which (demand deposits) are repayable upon the customer’s demand. LISSA L. BROOME & JERRY W. MARKHAM, *REGULATION OF BANK FINANCIAL SERVICE ACTIVITIES: CASES AND MATERIALS* 155–57 (5th ed. 2017). However, since the customer (if fully insured) bears no risk of loss, the interest rate paid to deposits is a low, risk-free interest rate. *Id.* Much of the elaborate regulatory structure applicable to banks, including restrictions on their activities, is motivated by a desire to ensure the safe and sound operations of the bank so that the FDIC will not be presented with the costs of a bank failure and payoff of the insured depositors. *Id.*

of-state borrowers.⁷⁶ A nationally chartered bank has an additional benefit: the ability to preempt state consumer financial laws that “prevent or significantly interfere[] with the exercise by the national bank of its powers.”⁷⁷

Fintech firms interested in seeking a bank charter have three different routes.⁷⁸ The first is to seek a state or national bank charter along with deposit insurance from the FDIC. The second is through the OCC’s newly created special purpose national bank charter, which provides all of the advantages of a bank charter, including the ability of a national bank to preempt state laws. The third is a state charter available in only a handful of states which is referred to as an industrial loan company or industrial bank charter. Each option is explored further below.

A. State or National Bank Charter

The most direct way for fintech firms to enter banking is to seek to establish a bank charter. This can be done either pursuant to a state’s bank chartering authority or from the OCC under the National Bank Act.⁷⁹ In addition to receiving a charter, the bank

⁷⁶ 12 U.S.C. §§ 85 (national banks), 1831d (state banks) (2012); *Marquette Nat’l Bank of Minneapolis v. First of Omaha Serv. Corp.*, 439 U.S. 299 (1978) (holding that a national bank is “located” in the state where it is headquartered and not where its customers reside). In many cases, banks that only issue credit cards will locate in a state that has no limit on interest rates, late fees, or other components of interest so they are not bound by the more restrictive interest rate regulations in other states. Lalita Clozel, *Square’s Bid to Be Industrial Bank Inflames ILC Debate*, AM. BANKER (Sept. 6, 2017), <https://www.americanbanker.com/news/square-to-apply-for-industrial-bank-inflaming-ilc-debate> [<https://perma.cc/ZEL9-K34H>]; Rachel Witkowski, *Are Fintechs Better Off Taking the ILC Route to Banking?*, AM. BANKER (Jan. 21, 2019, 10:00 PM), <https://www.americanbanker.com/news/are-fintechs-better-off-taking-the-ilc-route-to-banking> [<https://perma.cc/W2W5-NQ5K>] [hereinafter Witkowski, *Are Fintechs Better Off Taking ILC Route*].

⁷⁷ 12 U.S.C. § 25b (2012) (referencing *Barnett Bank of Marion County v. Nelson*, 517 U.S. 25 (1996), the case that established this preemption standard).

⁷⁸ TREASURY REPORT, *supra* note 66, at 66 (describing these alternative business models).

⁷⁹ The procedures for organizing a national bank are detailed in 12 C.F.R. § 5.20 (2019). Most state chartering authorities follow similar procedures. *See, e.g.*, N.C. GEN. STAT. §§ 53C-3-1 to -7 (2019).

must also be approved by the FDIC to receive deposit insurance before it is permitted to accept deposits.⁸⁰

The main drawback to this straightforward approach is the limitation on the activities the bank may undertake. If a fintech firm becomes a bank, it may only engage in the business of banking, as defined by the chartering authority.⁸¹ Likewise, if a fintech firm owns a bank, it will be considered a bank holding company, and any of its activities or the activities of its nonbanking subsidiaries will be limited to those that have been found to be “closely related to banking” under the Bank Holding Company Act (BHCA).⁸² The BHCA is administered by the Federal Reserve Board, an additional regulator, which focuses on the holding company and its nonbanking subsidiaries.⁸³

To form a bank, either the state chartering authority or the OCC must grant permission for the charter, and the FDIC must authorize deposit insurance. None of these permissions are a foregone conclusion for an entity that is, or is owned by, a fintech company. For instance, one fintech company in 2018, Varo Money, sought to

⁸⁰ See OFFICE OF THE COMPTROLLER OF THE CURRENCY, COMPTROLLER’S LICENSING MANUAL 37 (2016) (stating that the OCC requires FDIC deposit insurance for all national bank charter applications except for certain special purpose charters such as trust companies or trust banks); *see also, e.g.*, N.C. GEN. STAT. § 53C-3-7(a)(3) (stating that North Carolina will not issue a bank charter until the proposed bank has “[s]ecured deposit insurance from the FDIC”).

⁸¹ For national banks, this is defined in 12 U.S.C. § 24 (seventh), and includes “all such incidental powers as shall be necessary to carry on the business of banking” and then lists certain enumerated powers including taking deposits, making loans, and negotiating checks. 12 U.S.C. § 24 (seventh) (2012). The powers of state banks are defined in state statutes. *See, e.g.*, N.C. GEN. STAT. § 53C-5-1 (defining a North Carolina state bank’s powers).

⁸² The BHCA prohibits a bank holding company from owning any company other than a bank. 12 U.S.C. § 1843(a) (2012). There are, however, numerous exemptions to this general prohibition, including 12 U.S.C. § 1843(c)(8), which permits ownership of a company whose activities are “so closely related to banking as to be a proper incident thereto.” *Id.* § 1843(c)(8).

⁸³ National banks are regulated by the OCC. State chartered banks are regulated primarily by their state chartering authority, but are also subject to federal regulation by either the Federal Reserve Board for banks that have elected to become members of the Federal Reserve System by purchasing stock in their regional federal reserve bank, or the FDIC if they are nonmembers of the Federal Reserve System.

form a traditional national bank but now has to refile its application for deposit insurance with the FDIC.⁸⁴ Nonetheless, Thomas Curry, an attorney and a former Comptroller of the Currency, believes that a “full-service, FDIC-insured bank with a fintech business plan”⁸⁵ is the most likely entry point for fintechs into banking.

B. Special Purpose National Bank Charter

There has been a lot of buzz recently about a new option to the traditional state or national bank charter—a special purpose national bank charter (SPNB) for fintechs, which was finalized by the OCC in July 2018.⁸⁶ The OCC issued a Policy Statement detailing the existing statutory and regulatory authorities that it said authorized the OCC to consider issuing a national bank charter to a fintech company that is “engaged in the business of banking but do[es] not take deposits.”⁸⁷ Despite the OCC’s willingness to grant fintechs special purpose national bank charters under this broader construction of the National Bank Act, the Policy Statement noted

⁸⁴ Rachel Witkowski, *Fintechs May Finally Win Charter Chase in 2019*, AM. BANKER (Jan. 9, 2019), <https://www.americanbanker.com/news/fintechs-may-finally-win-charter-chase-in-2019> [<https://perma.cc/UWK7-9B73>].

⁸⁵ *Id.*

⁸⁶ OFFICE OF THE COMPTROLLER OF THE CURRENCY, POLICY STATEMENT ON FINANCIAL TECHNOLOGY COMPANIES’ ELIGIBILITY TO APPLY FOR NATIONAL BANK CHARTERS 1, 1–4 (2018) [hereinafter OCC POLICY STATEMENT], <https://www.occ.gov/news-issuances/news-releases/2018/pub-other-occ-policy-statement-fintech.pdf> [<https://perma.cc/PNF3-3ZLY>] (“It is the policy of the Office of the Comptroller of the Currency (OCC) to consider . . . [A]pplications for special purpose national bank charters from financial technology (fintech) companies that are engaged in the business of banking but do not take deposits The OCC adopts this policy after careful consideration of the extensive stakeholder feedback and public comment received over the past two years.”); see TREASURY REPORT, *supra* note 66, at 70–73.

⁸⁷ OCC POLICY STATEMENT, *supra* note 86, at 1–2. *But see Recent Policy Statement – OCC Allows Fintech Companies to Apply for National Bank Charters*, 132 HARV. L. REV. 1361, 1361–62 (2019) [hereinafter *OCC Allows Fintechs to Apply for National Bank Charters*] (“Though on first blush the OCC announcement seems like a welcome respite from regulation by all fifty states, many fintech companies will lack either eligibility or incentive to apply. However, the OCC’s move may put pressure on state regulators to improve their regulatory schemes and eventually may be a boon to many fintech companies.”).

that the OCC will require SPNB's "to adhere to the same high standards that apply to all national banks."⁸⁸

Even before issuing the Policy Statement, the OCC, and its plan for a special charter to adapt to technological changes in the banking industry,⁸⁹ faced opposition from state regulators who strongly contested the OCC's purported "authority to issue [special purpose national bank] charters to begin with."⁹⁰ Indeed, the OCC was sued in two separate suits by the Conference of State Bank Supervisors⁹¹ and the New York State Department of Financial Services,⁹² charging that a SPNB violates the National Bank Act by providing a federal *bank* charter to an entity that may pay checks, make loans, but *not* accept deposits.⁹³ The argument is that you cannot be a bank unless you do all three.⁹⁴ Further, it is argued that granting a *federal*

⁸⁸ OCC POLICY STATEMENT, *supra* note 86, at 3.

⁸⁹ See OFFICE OF THE COMPTROLLER OF THE CURRENCY, EXPLORING SPECIAL PURPOSE NATIONAL BANK CHARTERS FOR FINTECH COMPANIES 2, 3–15 (2016), <https://www.occ.gov/topics/responsible-innovation/comments/special-purpose-national-bank-charters-for-fintech.pdf> [https://perma.cc/SZ28-ZAG5] (discussing the OCC's potential consideration of fintech companies' applications to become banks through special purpose national charters); see also *OCC Allows Fintechs to Apply for National Bank Charters*, *supra* note 87, at 1367 (discussing suits filed against the OCC for its "plan to charter fintech companies").

⁹⁰ *OCC Allows Fintechs to Apply for National Bank Charters*, *supra* note 87, at 1367.

⁹¹ See *Conference of State Bank Supervisors v. OCC*, 313 F. Supp. 3d 285 (D.D.C. 2018).

⁹² See *Vullo v. OCC (Vullo I)*, No. 17 Civ. 3574, 2017 WL 6512245 (S.D.N.Y. Dec. 12, 2017); J. Preston Carter, *OCC and CSBS File Replies in Suit to Block Fintech Charter*, WOLTERS KLUWER (Feb. 28, 2019), <https://lrus.wolterskluwer.com/news/banking-finance/occ-and-csbs-file-replies-in-suit-to-block-fintech-charter/74306/> [https://perma.cc/FFX4-BRUN]; Rachel Witkowski, *N.Y. State Refiles Suit to Block OCC's 'Reckless' Fintech Charter*, AM. BANKER (Sept. 14, 2018), <https://www.americanbanker.com/news/ny-state-refiles-suit-to-block-occs-reckless-fintech-charter> [https://perma.cc/SB77-QRNO] (stating that the lawsuit calls the OCC charter "lawless, ill-conceived, a destabilizing of the financial markets").

⁹³ *CSBS Sues OCC Over Fintech Charter*, CSBS (Oct. 25, 2018), <https://www.csbs.org/csbs-sues-occ-over-fintech-charter> [https://perma.cc/52Q2-T9XC].

⁹⁴ The National Bank Act defines the business of banking as including "all such incidental powers as shall be necessary to carry on the business of banking; by discounting and negotiating promissory notes, drafts, bills of exchange, and other

charter to an entity that is not a bank would allow the entity to preempt state statutes that conflict with its operations under the National Bank Act, a power that only *banks* with a national charter should have.⁹⁵

These arguments collide with a longstanding OCC regulation which provides that a

national bank . . . may be a special purpose bank that limits its activities to fiduciary activities or to any other activities within the business of banking. A special purpose bank that conducts activities other than fiduciary activities must conduct at least one of the following three core banking functions: Receiving deposits; paying checks; or lending money.⁹⁶

Whether this regulation is consistent with the National Bank Act's definition of banking is the question.⁹⁷

To date, no SPNB charters have been granted, but there is speculation that discussions with potential applicants have

evidences of debt [paying checks]; by *receiving* deposits; . . . by loaning money on personal security . . .” 12 U.S.C. § 24 (seventh) (2012) (emphasis added). The other two express powers listed in this provision are no longer relevant – “buying and selling exchange, coin, and bullion,” and “obtaining, issuing and circulating notes,” which is now done by the Federal Reserve. *CSBS Sues OCC Over Fintech Charter*, *supra* note 93.

⁹⁵ See Lydia Beyoud, *No Takers for Federal Fintech Charter as OCC Tangles with States*, BLOOMBERG L. (Feb. 27, 2019), <https://news.bloomberglaw.com/banking-law/no-takers-for-federal-fintech-charter-as-occ-tangles-with-states?context=article-related> [<https://perma.cc/9MM6-SQUM>].

⁹⁶ 12 C.F.R. § 5.20(e)(1)(i) (2019).

⁹⁷ See *supra* note 94 (discussing definition of “banking” under the National Bank Act); cf. Thomas Curry & Jason Cabral, *It's a Mistake to Block the OCC's Fintech Charter*, AM. BANKER: BANKTHINK (Sept. 24, 2018), <https://www.americanbanker.com/opinion/its-a-mistake-to-block-the-occs-fintech-charter> [<https://perma.cc/BH8Y-ERBD>] (“[F]rom a legal and public policy standpoint, a dynamic rather than static definition of ‘banking’ under a dual fintech system is consistent with the National Bank Act. This view creates healthy regulatory competition that promotes excellence in regulation and benefits all stakeholders and the public.”).

occurred.⁹⁸ There is also an issue as to whether fintech firms would find the charter attractive if it does not guarantee access to the Federal Reserve's payment system.⁹⁹ Right now, since the entity would not collect federally insured deposits, that access is unlikely.

The viability of SPNB charters as an option for fintechs seeking a bank charter remains uncertain for now. Although both lawsuits challenging the OCC's plans for a SPNB charter were initially dismissed for lack of subject matter jurisdiction,¹⁰⁰ the New York State Department of Financial Services has since refiled its lawsuit against the OCC. The OCC then moved to dismiss, and all counts challenging the OCC's authority to issue special purpose national bank charters to fintechs, except for those alleging Tenth Amendment violations, survived the motions to dismiss.¹⁰¹ The

⁹⁸ Beyoud, *supra* note 95 ("Comptroller of the Currency Joseph Otting said in November [of 2018] that the agency expects to announce its first charter applicant by late 2018 or early 2019.").

⁹⁹ *Id.* ("The inability to take deposits and the OCC's significant capital requirements are likely to deter smaller fintech startups from pursuing a charter . . .").

¹⁰⁰ *Conference of State Bank Supervisors v. OCC (CSBS I)*, 313 F. Supp. 3d 285, 301–02 (D.D.C. 2018); *Vullo I*, No. 17 Civ. 3574, 2017 WL 6512245, at *5 (S.D.N.Y. Dec. 12, 2017) (stating that at the time of suit, the OCC had neither determined whether it would in fact consider issuing special purpose national bank charters to fintech companies, nor "received or reviewed any applications for any such charter," and thus, no injuries had yet been suffered to make any claims "ripe for adjudication"); *see also OCC Allows Fintechs to Apply for National Bank Charters*, *supra* note 87, at 1367 ("Both cases were dismissed on jurisdictional grounds."). However, "[t]he suits are almost certain to be revived when the first [special purpose national bank] charter is granted . . ." *OCC Allows Fintechs to Apply for National Bank Charters*, *supra* note 87, at 1367.

¹⁰¹ *Vullo v. OCC (Vullo II)*, No. 18 Civ. 8377 (VM), 378 F. Supp. 3d 271, 278–82 (S.D.N.Y. May 2, 2019). Perhaps significantly, in addition to denying the OCC's motion to dismiss the plaintiffs' claim that issuing special purpose national bank charters to fintechs exceeds its statutory authority under the National Bank Act, the *Vullo II* court noted that

it [was] not aware of the OCC ever having chartered a non-depository entity as a national bank on the strength of the National Bank Act's "business of banking" clause. Rather, on the two occasions that the OCC began issuing national bank charters to a type of non-depository institution, Congress first

Conference of State Bank Supervisors refiled its suit and the OCC's motion to dismiss was granted again based on lack of standing and an unripe claim (since no fintech has applied for a SPNB charter).¹⁰² Even if the OCC is unsuccessful in supporting its ability to charter a SPNB, congressional legislation expanding the OCC's authority remains a possibility.¹⁰³

C. State Industrial Loan Company Charter

Another entry point into banking by a fintech firm is to consider establishing a state-chartered bank through an industrial loan company (ILC) charter.¹⁰⁴ This is a state charter (so there is no federal preemption available),¹⁰⁵ but there are two significant advantages to this point of entry. First, an ILC is considered a bank that has access to the federal payments system, discount window lending by the Federal Reserve, federal deposit insurance, and the ability to export state usury laws to apply to out-of-state borrowers.¹⁰⁶ Second, nonbanking companies may own ILCs, and even though the state ILC charter is a bank charter, the owners of ILCs are excepted from application of the BHCA because an ILC is exempted from the BHCA definition of "bank."¹⁰⁷ The BHCA covers a "company which has control over any bank"¹⁰⁸ and it restricts the activities of the bank holding company and any nonbanking subsidiaries it owns to those that are "closely related to banking"¹⁰⁹ or, in the case of a bank holding company that qualifies to be designated by the Federal Reserve Board as a financial holding

amended the [National Bank Act] explicitly to authorize the OCC to do so.

Id. at 295.

¹⁰² Conference of State Bank Supervisors v. OCC (*CSBS II*), No. 18-cv-2449 (DLF), 2019 WL 4194541, at *1, *3–4 (D.D.C. Sept. 3, 2019).

¹⁰³ See *Vullo II*, 378 F. Supp. 3d at 295.

¹⁰⁴ See Witkowski, *Are Fintechs Better Off Taking ILC Route*, *supra* note 76.

¹⁰⁵ See *id.*

¹⁰⁶ *Id.*; Clozel, *supra* note 76.

¹⁰⁷ 12 U.S.C. § 1841(c)(2)(H) (2012); Witkowski, *Are Fintechs Better Off Taking ILC Route*, *supra* note 76.

¹⁰⁸ 12 U.S.C. § 1841(a)(1).

¹⁰⁹ *Id.* § 1843(c)(8).

company, to activities that are “financial in nature.”¹¹⁰ Without these BHCA activity limitations, a company engaged in nonbanking or nonfinancial business could own an ILC and through the ILC engage in fintech activities as well as enjoy some of the benefits of being a bank provided by the ILC charter.¹¹¹

A substantial limitation exists with this ILC option for fintechs, however, in that it is only available in a handful of states, and other states may not add this charter type because only ILCs organized under the laws of a state which permitted such an entity on March 5, 1987 are excepted from the BHCA definition of ‘bank.’¹¹² Utah is the state of choice for entities seeking to charter an ILC, or what Utah has called in recent years, an “industrial bank.”¹¹³ One prominent ILC based in Utah is the BMW Bank of North America, which provides banking services to BMW customers.¹¹⁴

Indeed, Square, Inc., the payments processing company that uses a small square device attached to a phone to process debit and credit card transactions, has applied for a Utah industrial bank charter, and the FDIC is currently considering its application for deposit insurance.¹¹⁵ As you might imagine, this is not without

¹¹⁰ *Id.* § 1843(k)(1)(A); Dafna Avraham, Patricia Selvaggi & James Vickery, *A Structural View of U.S. Bank Holding Companies*, FRBNY ECON. POL’Y REV. 65, 67 (2012), <https://www.newyorkfed.org/medialibrary/media/research/epr/12v18n2/1207avra.pdf> [<https://perma.cc/6QV9-NHHN>].

¹¹¹ See Clozel, *supra* note 76.

¹¹² 12 U.S.C. § 1841(c)(2)(H)(i) (limiting this option to only those states with a similar statute in effect or under consideration in the state legislature by March 5, 1987); Mindy West, *The FDIC’s Supervision of Industrial Loan Companies: A Historical Perspective*, FDIC, https://www.fdic.gov/regulations/examinations/supervisory/insights/sisum04/industrial_loans.html [<https://perma.cc/EV6R-8UBG>] (last updated June 25, 2004).

¹¹³ *Industrial Banks*, UTAH DEP’T OF FIN. INSTS., <https://dfi.utah.gov/financial-institutions/industrial-banks/> [<https://perma.cc/T8ZD-LVNL>] (last visited June 24, 2019).

¹¹⁴ Becky Yerak, *Wal-Mart Bank Bid Sets Off a Debate*, CHI. TRIB. (Feb. 19, 2006), <https://www.chicagotribune.com/news/ct-xpm-2006-02-19-0602190192-story.html> [<https://perma.cc/BK9T-FPVL>].

¹¹⁵ *Summary of New Deposit Insurance Application Activities*, FED. DEPOSIT INS. CORP., <https://www.fdic.gov/regulations/applications/pending.html> [<https://perma.cc/G9KB-6M4V>] (last updated Aug. 22, 2019); Rachel Witkowski,

controversy.¹¹⁶ The FDIC extended the comment period for those who want to comment on Square's deposit insurance application in early 2019.¹¹⁷ In February 2019, a number of community groups wrote to the FDIC urging it to reject Square's application based on its proposed plan to comply with the Community Reinvestment Act (CRA).¹¹⁸ The CRA requires that deposit-taking institutions meet the credit needs of their "entire community including low- and moderate-income neighborhoods."¹¹⁹ The CRA is sort of a quid pro

Square's Banking Bid Avoids Backlash That Doomed Walmart's, AM. BANKER (Feb. 12, 2019), <https://www.americanbanker.com/news/squares-banking-bid-avoids-backlash-that-doomed-walmarts> [<https://perma.cc/RR76-PUC9>] [hereinafter Witkowski, *Square's Banking Bid Avoids Backlash*].

¹¹⁶ See generally Camden R. Fine, *Square's ILC Bid is a Regulatory End Run*, AM. BANKER (Feb. 28, 2019), <https://www.americanbanker.com/opinion/squares-ilc-bid-is-a-regulatory-end-run> [<https://perma.cc/FL88-F3WD>] (arguing that the exclusion of ILC's from the definition of "bank" in the Bank Holding Company Act is "an unintended and potentially dangerous expansion of the deposit insurance safety net").

¹¹⁷ Rachel Witkowski, *Community Activists Oppose Square's ILC Bid*, AM. BANKER (Feb. 20, 2019), <https://www.americanbanker.com/news/community-activists-oppose-squares-ilc-bid> [<https://perma.cc/VY9A-2MFF>] [hereinafter Witkowski, *Community Activists Oppose Square's ILC Bid*]; see also Christine A. Edwards & Julius L. Loeser, *Public Comments on ILC Application by Square Financial*, WINSTON & STRAWN LLP (Mar. 1, 2019), <https://www.winston.com/en/thought-leadership/public-comments-on-ilc-application-by-square-financial.html> [<https://perma.cc/HF8Z-KAPZ>] (discussing the public comments surrounding ILC application submitted by Square Financial Services, Inc., and noting that as of March 1, 2019, there were a total of seventeen public comments filed with thirteen in favor and four opposed).

¹¹⁸ See generally Letter to Regional Director Kathy Moe & Assistant Regional Director Perissa Ali Clark, FDIC San Francisco Regional Office, from California Reinvestment Coalition, at 1–2 (Feb. 19, 2019) [hereinafter CRC's February Letter to FDIC], <http://src.bna.com/HVX> [<https://perma.cc/2EBZ-2JUZ>] (addressing concern about potential effect of FDIC granting Square, Inc.'s application to receive an ILC charter in a letter signed by thirty-seven California community groups).

¹¹⁹ See 12 U.S.C. § 2901(a)(3) (2012) ("[R]egulated financial institutions have continuing and affirmative obligation to help meet the credit needs of the local communities in which they are chartered to do business . . ."); *id.* § 2903(a)(1) ("In connection with [the institution's] examination . . . , the appropriate Federal Financial supervisory agency shall . . . assess the institution's record of meeting the credit needs of its entire community, including low- and moderate-income

quo for receiving federal deposit insurance.¹²⁰ Square's critics said its CRA plan was too narrow in focusing only on areas around its proposed Salt Lake City headquarters and ignoring its national footprint in general and its parent company's California location in particular.¹²¹ The letter filed by the community groups objecting to Square's application said the "FDIC will risk becoming the agency of choice for questionable fintech firms that seek a pathway to the cheap funding source . . . and other benefits that a bank charter may provide."¹²²

The American Bankers Association and the Bank Policy Institute, trade associations for banking organizations, recently joined together to write a letter to the FDIC opposing an application for deposit insurance filed for Rakuten Bank America, which is seeking a charter as a Utah industrial bank or ILC.¹²³ Their objection is, in part, that the parent is a non-financial business that is not subject to consolidated supervision and activity limitations.¹²⁴ The commenters worry that the bank's business plan is too dependent on the success of its non-financial affiliates in the e-commerce market and that trouble in that non-financial marketplace could lead to the industrial bank's failure to the detriment of the federal deposit insurance fund.¹²⁵

We will be able to watch with interest over the coming months and years as fintech firms attempt to establish banking operations through a bank charter, the special purpose national bank charter, or the ILC route. It is way too early to tell if fintechs will decide to use

neighborhoods, consistent with the safe and sound operation of such institution"); *see also* Witkowski, *Community Activists Oppose Square's ILC Bid*, *supra* note 117.

¹²⁰ *See* Witkowski, *Square's Banking Bid Avoids Backlash*, *supra* note 115.

¹²¹ CRC's February Letter to FDIC, *supra* note 118, at 2.

¹²² *Id.* at 1; Witkowski, *Community Activists Oppose Square's ILC Bid*, *supra* note 117.

¹²³ Letter from the American Bankers Association & the Bank Policy Institute to Kathy Moe, Regional Director of FDIC's San Francisco Regional Office (Aug. 30, 2019) (on file with American Bankers Association), <https://www.aba.com/-/media/documents/comment-letter/aba-bpi-oppose-rakuten-ilc-application-083019.pdf> [<https://perma.cc/3A8E-PMXT>].

¹²⁴ *Id.* at 4.

¹²⁵ *Id.* at 2.

the bank charter option to directly provide DLT or other fintech-enabled financial services or develop applications on their own. Will fintechs be the dominant players? Or will banks develop DLT or other fintech applications on their own, or with fintech partners?

IV. VOLUME, VELOCITY, AND SYSTEMIC RISK

But back to Bitcoin and DLT in banking. This brave new world will arrive soon. There are clearly numerous benefits to DLT-enabled payment systems in terms of speed and cost. There are also drawbacks that we should keep in mind as innovation occurs in this space. In closing, I want to reference a note of caution sounded by Professor Saule Omarova, a former colleague at UNC School of Law and a very well regarded scholar, in a 2019 article.¹²⁶ While she acknowledges that fintech firms emphasize the public benefits of financial inclusion, greater financial autonomy, and increased convenience,¹²⁷ she also notes that the technology permits private actors to synthesize tradable financial claims generating new financial risks on an unprecedented scale, by removing frictions in the system that enable the scaling-up of the volume and velocity of trading activity in the financial markets.¹²⁸ Professor Omarova worries that this will make the markets “more volatile and unstable”¹²⁹ and make it more “difficult, if not impossible, for the public to control, or even track, new technology-driven proliferation of risk in the financial system.”¹³⁰ I believe her cautionary statements should be taken to heart. As we enter this brave new world with technology-enabled enhancements to the financial system, we should consider the unintended consequences of the increase of “volume and velocity”¹³¹ of activity in financial markets and consider the new risks this increase imposes and how they may best be mitigated.

¹²⁶ See Saule T. Omarova, *New Tech v. New Deal: Fintech as a Systemic Phenomenon*, 36 YALE J. ON REG. 735 (2019).

¹²⁷ *Id.* at 791.

¹²⁸ *Id.* at 792–93.

¹²⁹ *Id.* at 792.

¹³⁰ *Id.*

¹³¹ *Id. passim.*

Bitcoin and DLT will surely play a role in banking as we move forward. JPMorgan Chase and Goldman Sachs are leading the charge in exploring using DLT to make payments. Banks may also find other applications that can be enhanced by DLT. Fintech firms are exploring whether they should become a bank and utilize their DLT from a bank charter. In either case, legislatures, regulators, and other policy makers need to carefully consider how these new players and technologies may change the functioning of the markets and be prepared to respond to those changes.