

Incumbency or Innovation: Why a Collective Agency View of Cross-Border Payments Means Private Blockchains Cannot Prevail

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Introduction

Breakthroughs in our technological age allow the financial sector to experience previously unknown efficiency advancements. ATMs, credit card payments, online and mobile banking, contactless payments, etc., all

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give the impression that every time a consumer, firm, or other entity wants to send a payment to another entity, wherever in the world they may be, it is instant. We have become accustomed to clicking a button and seeing money vanish from our bank accounts. We have become so impatient that firms are competing to create instantaneous payments. In the financial markets, automated algorithmic trading often relies on companies being faster than their competitors are at processing purchases. In a similar vein, firms like Amazon are working on stores where you don't even need to check out and still have your purchases paid for and money debited from your accounts.¹

On a global scale, however, payments are not as instantaneous. Unlike the no-fee domestic payments we are accustomed to, cross-border payments are known to take anywhere between several hours to several days, and are expensive. Responsibility for the global, cross-border payments industry lies with the Society for Worldwide Interbank Financial Telecommunication (SWIFT). Primarily, SWIFT is a message carrier—the “internet for financial services.”² At its most basic level, SWIFT provides the language and technical infrastructure for financial institutions (banks, securities owners, etc.) to communicate with each other. Specifically, SWIFT provides the network, standards, products, and services that allow member institutions to connect and exchange financial information.³ SWIFT plays many roles, but it is not itself *the* payments system, nor is it a clearing house that settles or finalizes transactions. Instead, SWIFT forms just one part of a payment system that comprises “the cultural, political, legal, economic and business practices and arrangements used within a market economy to determine, store, and exchange value or ownership of goods and services.”⁴

Nevertheless, SWIFT does play a far more important role than most. SWIFT is “*the* trusted third-party infrastructure” in the payments sector, a status that “goes largely unchallenged.”⁵ After 50 years in operation, SWIFT has become central to the financial market infrastructure that allows over 64 billion cross-border payments to be made and almost 25 billion cross-border transactions to be settled every year.⁶ The financial industry's revenue from payments is expected to grow to nearly \$2.5 tril-

1. See *Amazon Go*, AMAZON, <https://www.amazon.com/b?ie=UTF8&node=16008589011> [<https://perma.cc/RCA7-HNE5>] (last visited Nov. 30, 2018).

2. SUSAN V. SCOTT & MARKOS ZACHARIADIS, *THE SOCIETY FOR WORLDWIDE INTERBANK FINANCIAL COMMUNICATION (SWIFT) 1* (Thomas G. Weiss ed., 2014) [hereinafter SCOTT & ZACHARIADIS].

3. See *id.* at 2.

4. COMM. ON PAYMENT AND SETTLEMENT SYS., BANK FOR INT'L. SETTLEMENTS, PAYMENT AND SETTLEMENT SYSTEMS IN SELECTED COUNTRIES 321 (2003), <https://www.bis.org/cpmi/publ/d53p11sg.pdf> [<https://perma.cc/K9NV-S2GQ>].

5. SCOTT & ZACHARIADIS, *supra* note 2, at 3.

6. See John Cunliffe, Member, Bank of England Monetary Policy Comm., *Global Pipes - Challenges for Systemic Financial Infrastructure*, Address before the Official Monetary and Financial Institutions Forum (Feb. 22, 2017), <https://www.bis.org/review/r170223e.pdf> [<https://perma.cc/7LYM-5RZT>] at 3. For a brief list of the other major parts of the cross-border financial market infrastructure see *id.* at 4-5 (explaining

lion by 2027, of which SWIFT is responsible for a significant portion.⁷ This cooperative's network is used by over 11,000 financial institutions in over 200 countries worldwide.⁸ In 2017, financial institutions sent over 7 billion messages on the SWIFT platform.⁹ Through August 2018, there had already been over 5 billion messages sent through the network in the preceding eight months.¹⁰ However, despite SWIFT's dominance, "questions about its future do emerge and such challenges have to be proactively addressed."¹¹

Such questions emerge primarily because of how integral the payments system—and therefore SWIFT—is to the global economy. Payments facilitators are not just financial institutions; arguably, they provide a public service. As a result, SWIFT is more important than any single private financial institution.¹² The quality of the payments facilitator matters precisely because payments have an outsized influence on banking and all financial relationships.¹³ Undeniably, payments interactions are a bank's most frequent point of customer engagement.¹⁴ Consequently, payments facilitators such as SWIFT have begun to play a more active role in modern financial systems.¹⁵ The end result is that the payment space will be "increasingly contested over the next decade . . . [leading] to a number of fundamental disruptions."¹⁶

Part I of this Note will explain what SWIFT is and how the payments system works at present (and for the past century or so). Part II will frame how SWIFT is a collective agent, reliant on its constituent members viewing it as both effective and legitimate. Part III will discuss the current political threats SWIFT faces. As is well documented, President Trump and his team have consistently attempted to pressure SWIFT into reversing its policy of allowing Iranian banks to use the network.¹⁷ Before that, SWIFT

CLS, Euroclear, Clearstream, CME Group, Eurex Clearing, LCH SwapClear, and Visa Europe).

7. See MOHAMMAD BADI, ET AL., BOSTON CONSULTING GROUP, *GLOBAL PAYMENTS 2018* at 6 (2018), http://image-src.bcg.com/Images/BCG-Global-Payments-2018-Oct-2018_tcm30-205095.pdf [<https://perma.cc/6AYX-THW6>] [hereinafter *GLOBAL PAYMENTS 2018*].

8. See *Messaging and Standards*, SWIFT, <https://www.swift.com/about-us/discover-swift/messaging-standards> [<https://perma.cc/8A45-GD47>] (last visited Oct. 29, 2018) [hereinafter *SWIFT, Messaging and Standards*].

9. See *Swift in Figures: December 2017 YTD*, SWIFT, <https://www.swift.com/about-us/swift-fin-traffic-figures/monthly-figures?tl=en#topic-tabs-menu> [<https://perma.cc/X3TD-9HMZ>] (last visited Oct. 29, 2018).

10. See *Swift in Figures: August 2018 YTD*, SWIFT, <https://www.swift.com/about-us/swift-fin-traffic-figures/monthly-figures?tl=en#topic-tabs-menu> [<https://perma.cc/XCC3-R7U8>] (last visited Oct. 29, 2018).

11. SCOTT & ZACHARIADIS, *supra* note 2, at 3.

12. Public institutions such as central banks arguably play the most important role.

13. See *GLOBAL PAYMENTS 2018*, *supra* note 7, at 3.

14. See *id.*

15. See *id.*

16. See *id.*

17. See Peter Eavis, *Trump's New Iran Sanctions May Hit Snag With Global Financial Service*, N.Y. TIMES (Oct. 12, 2018), <https://www.nytimes.com/2018/10/12/business/dealbook/swift-sanctions-iran.html> [<https://perma.cc/JTM5-UQN8>] (National Security

came under harsh criticism for allowing almost one billion dollars to be stolen from Bangladesh.¹⁸ Such mishaps not only have caused the wrath the Bangladeshi government, but also are developing into a theme of countries turning against SWIFT. After the EU used SWIFT to enforce sanctions against Iran, Nicolas Veron, senior fellow at the Peterson Institute for International Economics, said that SWIFT's survival depends on its ability to resist such attempts to weaponize it for political ends.¹⁹

SWIFT thus finds itself in a tug-of-war between those who see it as a tool and those who vigorously defend its independence. Ultimately, this Note will show that as SWIFT has grown, major forces have ultimately failed in their attempts to control it. Even so, we seem to have reached a tipping point where the powers that be, perhaps recognizing SWIFT as a threat to their power, are fighting back against the organization with some success.

Part IV will then focus on a second issue SWIFT faces that is even more pressing—competition. Either in response to their views about SWIFT's role in sanctions—a legitimacy issue discussed *infra* in Part II—or merely because they believe they can create a viable competitor from an economic or technological standpoint, several influential figures are calling for their countries to create direct competitors to SWIFT.²⁰ In Russia, for example, the head of the B-C-D bank said that he would consider de-SWIFTing his bank to be an act of economic war,²¹ perhaps paving the way for Russia to set up their own alternative.²² Even some in Germany, a key political and economic ally of the West, have called for the EU to create an alternative payments platform.²³

The biggest threat in the long run may come from China. Although Russian requests to set up a joint payments mechanism have thus far seemingly been rebuffed, China is the pioneer in mobile and cashless pay-

Adviser, John Bolton, told SWIFT executives they needed to ask whether doing business in Iran was “worth the risk”).

18. See Serujal Quadir, *Bangladesh Bank Exposed to Hackers by Cheap Switches, No Firewall: Police*, REUTERS (Apr. 21, 2016, 10:05 AM), <https://www.reuters.com/article/us-usa-fed-bangladesh-idUSKCN0X11UO> [https://perma.cc/SL7L-XAAR].

19. See Michael Peel & Jim Brunnsden, *Swift Shows Impact of Iran Dispute on International Business*, FIN. TIMES (Jun. 6, 2018), <https://www.ft.com/content/9f082a96-63f4-11e8-90c2-9563a0613e56> [https://perma.cc/AF5W-BAD5].

20. Considering the fact that two in three payments sent from the U.S. uses SWIFT, the fact that many of the potential competitors come from hostile countries would pose an enormous threat. See U.S. DEP'T TREASURY, FINANCIAL CRIMES ENFORCEMENT NETWORK, FEASIBILITY OF A CROSS-BORDER ELECTRONIC FUNDS TRANSFER REPORTING SYSTEM UNDER THE BANK SECRECY ACT 75 (2006), https://info.publicintelligence.net/CBFTFS_Complete.pdf [https://perma.cc/EM96-BUHT].

21. See Martin Arnold, *Russian Bank Chief Warns of Growing Risk of Conflict in Europe*, FIN. TIMES (Jan. 23, 2018), <https://www.ft.com/content/501f1490-002f-11e8-9650-9c0ad2d7c5b5> [https://perma.cc/64AH-462E].

22. See Gillian Tett, *The Hidden Cost of Freezing Russia Out of Finance*, FIN. TIMES (Oct. 2, 2014), <https://www.ft.com/content/2adebf9c-48c1-11e4-9f63-00144feab7de> [https://perma.cc/GW7T-2WB5].

23. See Wolfgang Münchau, *Tinkering Will Not Deliver A Stronger Role For the Euro*, FIN. TIMES (Aug. 26, 2018), <https://www.ft.com/content/98be39b2-a79e-11e8-8ecf-a7ae1beff35b> [https://perma.cc/YDH5-2XSB].

ments.²⁴ China is already the largest cashless society in the world by far.²⁵ In early 2018, it seemed like the Chinese government was content to let cashless payments expand organically while they tried to protect their national currency by curtailing it where necessary.²⁶

Nonetheless, there is evidence to suggest that China had begun embracing the cashless revolution in 2018, even if only doing so through private companies.²⁷ Despite this evidence, China initially banned cryptocurrencies yet undertook heavy investment in blockchain research itself.²⁸ More recent efforts have been made by the Chinese government itself. The government has, for example, created a new technology center aimed at connecting the Chinese central bank to other government departments, financial institutions, universities, and other research institutions to research and develop China's proposed digital currency.²⁹ One explanation for the recent impetus is that the Chinese government has recognized that the move to digital currencies is inevitable, but "it is highly unlikely the Chinese government will allow such a crucial shift to be controlled by

24. See Luis Awazu Pereira da Silva, *Fintech in EMEs: Blessing or Curse?* 3 (June 5, 2018), <https://www.bis.org/speeches/sp180620.pdf> [<https://perma.cc/H5YF-4DJC>] ("In China, mobile payments are now used by more than half a billion people, their total value growing almost tenfold to CNY 117 trillion (\$18 trillion) in the two years to 2017.") Other countries embracing cashless payments are Sweden and Norway, as has Poland and indeed Russia. See GLOBAL PAYMENTS 2018, *supra* note 7, at 7.

25. See Jennifer Zhu Scott, *Is China About to Launch its Own Cryptocurrency*, WORLD ECON. F. (Oct. 15, 2018), <https://www.weforum.org/agenda/2018/10/is-china-about-to-launch-its-own-cryptocurrency/> [<https://perma.cc/7HMH-A8EU>] ("In 2017, the US hosted a total of \$337 billion in online payments. In China, it was a whopping \$15.7 trillion, \$3.2 trillion more than Visa and Mastercard's combined global volume.")

26. See Amanda Lee, *As China Goes Increasingly Cashless, PBOC Says Cash Payment is Still Alive*, SOUTH CHINA MORNING POST (Jul. 13, 2018, 8:41 PM), <https://www.scmp.com/business/money/article/2155223/china-goes-increasingly-cashless-pbo-c-says-cash-payment-still-alive> [<https://perma.cc/VA6X-YDMY>] (updated Jul. 19, 2018, 3:43 PM).

27. This is not to say that they haven't already tacitly done so. Indeed, many argue that they already have. See *What we Can Learn From China's Cashless Society*, MOBILE PAYMENTS CONFERENCE, (Mar. 14, 2018), <https://mobilepaymentconference.com/can-learn-chinas-cashless-society/> [<https://perma.cc/36EQ-4666>] ("Much of China's growth is attributed not just to their rapid urbanization, but ultimately the government's push to replace cash with electronic payments."). Others highlight (through experiences rather than studies) that cash is no longer king in China and is incredibly difficult to use. See, e.g., Shelly Banjo, *It's Becoming Harder to Use Cash in China*, BLOOMBERG (Feb. 13, 2018, 7:00 AM), <https://www.bloomberg.com/news/articles/2018-02-13/it-s-becoming-harder-to-use-cash-in-china> [<https://perma.cc/255E-RMFB>] (importantly for SWIFT, Banjo notes that "foreign credit cards aren't accepted at most restaurants or convenience stores" and that at present the main issue is what payment system will become dominant at the front-end of the system, i.e., will consumers be using Alipay and WeChat, or Apple Pay for example, rather than who will run the back-end system).

28. See John McMahon, *China is Still Planning to Launch its Own National Cryptocurrency*, NEWS BTC (Mar. 30, 2018 6:52 AM) <https://www.newsbtc.com/2018/03/30/china-currency-conference-reinforces-confused-crypto-policy/> [<https://perma.cc/U69J-4GZJ>].

29. See Yashu Gola, *PBoC's Digital Currency Unit Opens Research Center in Eastern China*, YAHOO! FINANCE (Sept. 5, 2018), <https://finance.yahoo.com/news/pbo-c-digital-currency-unit-opens-142855563.html> [<https://perma.cc/3EAK-TMHH>].

private companies.”³⁰

However, the most immediate threat comes from blockchain technology or even fintech on a wider scale. Whereas alternative systems in countries such as China and Russia (be they blockchain, digital currencies, or otherwise) are still in the research stages, blockchain platforms such as Ripple and IBM’s new Blockchain World Wire (BWW), are already forcing SWIFT to develop and innovate more than it has in its 50-year history. These companies use blockchain technology (explained *infra* in Part IV) in ways that gives them an advantage over SWIFT’s perceived weaknesses, namely price and speed. Nonetheless, as Part II will make clear, SWIFT is not just a payments company, it is a collective agent. As a result, even if Ripple can compete with SWIFT on a purely technological or mechanical basis, this Note will demonstrate that it should not be allowed to take over as the collective agent.

So far, the literature surrounding what has essentially turned into a battle between SWIFT and Ripple fails to recognize that the payments system is a collective agent.³¹ Therefore, it can be viewed in similar terms to the financial system as a whole, a public good—currently, the financial system cannot function without SWIFT in the same way that the overall economy cannot function without the financial system. By this, I suggest that the battle over global payments must be viewed as more than just a “. . . ‘disruption’ in the prevailing modes of, or institutional channels for, delivery of specific financial services.”³² Instead, we must look at the payments system from a macro viewpoint that requires global cooperation and coordination to function properly, a system coordinated by and reliant on SWIFT as the common agent.

I. SWIFT

A. The Founding

In 1973, 239 banks from 15 countries joined together to solve their common problem: how to communicate about cross-border payments.³³ Before SWIFT, Telex was the main method by which banks communicated

30. Scott, *supra* note 25.

31. Some, like Angela Walch, have importantly argued that blockchain developers are fiduciaries as a result of the operational risks inherent in blockchain systems, but have fallen short of recognizing the collective agency role required of them, specifically in the cross-border context. See, e.g., Angela Walch, *Call Blockchain Developers What They Are: Fiduciaries*, AM. BANKER (Aug. 9, 2016, 12:00 PM), <https://www.americanbanker.com/opinion/call-blockchain-developers-what-they-are-fiduciaries> [<https://perma.cc/LS9A-FN68>]; Angela Walch, *The Bitcoin Blockchain as Financial Market Infrastructure: A Consideration of Operational Risk*, 18 N.Y.U. J. LEGIS. & PUB. POLICY 837, 855 (2015) [hereinafter *Bitcoin’s Operational Risk*].

32. Saule Omarova, *New Tech v. New Deal: Fintech As A Systemic Phenomenon*, 36 YALE J. REG. 735 (2019) (Cornell Law School Legal Studies Research Paper Series No. 18-39 at 5), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3224393## [<https://perma.cc/N32X-QJ77>].

33. See *SWIFT History*, SWIFT, <https://www.swift.com/about-us/history> [<https://perma.cc/5JY2-F9RR>] (last visited Oct. 29, 2018).

about transfers.³⁴ Though Telex was far more efficient than previous communications methods (such as telegrams), it still often required multiple Telex messages to confirm payments instructions and its authentication procedures were based on a system of manually calculating sequential test keys and performing reverse calculations rather than being automated.³⁵ Naturally, this left the messaging system vulnerable to both delays and human error.³⁶

Unlike most technological innovation in the financial sector, SWIFT is not a B2C technology in the normal sense. That is, it is not a business-to-consumer technology. It is, however, still a B2C technology—a business-to-competitor technology. SWIFT is a cooperative society headquartered in Belgium and governed by Belgian law.³⁷ Cooperatives are “autonomous association[s] of persons united to meet common economic, social, and cultural goals. They achieve their objectives through a jointly-owned and democratically-controlled enterprise.”³⁸ Due to its cooperative structure, SWIFT is owned and controlled by its shareholders. The shareholders elect a board of 25 independent directors who control the company and oversee management.³⁹ At present, the board is composed of bankers from the United States, the United Kingdom, China, Russia, Belgium, Germany, France, Luxembourg, Japan, and a host of other countries, representing financial institutions such as Citi, UBS, Russia’s National Settlement Depository (NSD), Santander and the Bank of China.⁴⁰ SWIFT’s shareholders and board members are the very same banks and other financial institutions who both compete daily and at the same time rely not just on SWIFT, but on the fact that their competitors also use SWIFT.⁴¹

B. The Payments Process and SWIFT’s Role

Importantly, SWIFT is not just a telecommunications network. It is a messaging system essential to the transfer of financial assets, whether the

34. See SWIFT, *Messaging & Standards*, *supra* note 8.

35. See SCOTT & ZACHARIADIS, *supra* note 2, at 11-12.

36. See *id.* at 12.

37. See *SWIFT Governance*, SWIFT, <https://www.swift.com/about-us/organisation-governance/governance?tl=en#topic-tabs-menu> [<https://perma.cc/5RJR-LC9G>] (last visited Dec. 14, 2018). Oversight of SWIFT is led by the National Bank of Belgium (NBB). However, the NBB has for many years conducted the oversight of SWIFT in coordination with other central banks, including the Bank of England. See Cunliffe, *supra* note 6, at 9.

38. *Cooperatives*, EUR. COMMISSION, https://ec.europa.eu/growth/sectors/social-economy/cooperatives_en [<https://perma.cc/W7WG-CNZN>] (last visited Dec. 14, 2018).

39. See *SWIFT Governance*, *supra* note 37.

40. See *The SWIFT Board of Directors*, SWIFT, <https://www.swift.com/about-us/organisation-governance/board-members> [<https://perma.cc/P95F-BJBE>] (last visited Dec. 14, 2018).

41. Not all of SWIFT’s users are financial institutions and not all users are eligible to be shareholders. For a detailed explanation of the different user categories, see *User and Shareholder eligibility criteria*, SWIFT, https://www.swift.com/sites/default/files/resources/swift_legal_infopaper_usereligibilitycriteria.pdf [<https://perma.cc/9FHJ-T7E3>]. Each of the different user categories have different access to the SWIFT network. Some categories have full access to send and receive all types of messages, whereas others have limited access either to send or receive, or both. See *generally id.*

asset is money or a security. Payments are not processed instantly, but instead operate through a process by which financial institutions tell each other that they will transfer actual funds in the central bank accounts. Scott & Zachariadis describe the payment process as a three-stage process.⁴²

<i>Payment stage</i>	<i>Description</i>
1. Authorization and initiation of the payment	This stage involves the submission of the payment order by the payer in order for the funds to be transferred.
2. Transmission and exchange of the payment instructions	This involves the transmission and exchange of obligations between the parties involved in the transaction. This process may also include the netting (or offsetting) of the obligations where necessary.
3. Settlement of the payment	This final stage entails the compensation sent from the payer's bank to the payee's bank. A third-party settlement agent is usually involved in this process.

Alternatively, the payment process can be described as (1) messaging, (2) clearing, and (3) settlement.⁴⁴ Whichever description, SWIFT operates in phases (1) and (2). Thus, while SWIFT performs no clearing or settlement functions it still needs to communicate with clearing houses or whichever institution settles the transaction in order to do so.⁴⁵ The messaging (Stage (1)) identifies the payer's and payee's account details and the payment amount.⁴⁶ Clearing (Stage (2)) is "the process of transmitting, reconciling, and in some cases, confirming transactions prior to settlement, potentially including the netting of transactions and the establishment of final positions for settlement."⁴⁷ Finally, settlement (Stage (3)) occurs when the obligation to transfer funds (or securities and other financial instruments) is performed.⁴⁸

42. SCOTT & ZACHARIADIS, *supra* note 2, at 34.

43. *See id.*

44. *See* Bank for International Settlements (BIS), *Cross-Border Retail Payments* 12 (2018), <https://www.bis.org/cpmi/publ/d173.pdf> [<https://perma.cc/9RNG-DX9R>] [hereinafter *Cross-Border Retail Payments*].

45. For a brief explanation of the two main clearinghouses or settlement organizations in the US, *see infra* notes 56-57.

46. *See Cross-Border Retail Payments, supra* note 44, at 12.

47. *See id.* (noting that (without SWIFT) cross-border payments are more complicated than domestic payments due to different message formats, currency and timings).

48. *See id.*

Most transactions take the structure depicted in Figure 1, below.⁴⁹ Such a transaction occurs when the two banks have a bilateral relationship such that the entire transaction can take place with just one message.⁵⁰ Most often, banks use SWIFT's MT 103 messages to send the payment information and the settlement information or confirmation, with both arriving to the receiving bank at the same time.⁵¹ An MT 103 message represents a "Single Customer Credit Transfer," or a transaction conducted by an institution on behalf of a customer rather than itself.⁵²

While most payments at a regional or intra-jurisdictional level normally use central bank clearing technology (or another settlement institution),⁵³ international or cross-border payments are mostly based on bilateral or, more often, corresponding banking relationships—precisely why SWIFT is such an integral part of the process. In other words, although SWIFT is not "just a communication system,"⁵⁴ it also "does not actually provide settlement services SWIFT-directed funds transfers are actually settled through correspondent banking relationships,⁵⁵ Fedwire,⁵⁶ CHIPS,⁵⁷ or other national payment systems."⁵⁸ Also, unlike Fedwire or CHIPS, SWIFT is truly international. Whereas Fedwire and CHIPS both require at least one of the parties to the transaction to be a

49. See SCOTT & ZACHARIADIS, *supra* note 2, at 36, Figure 2.2 V-shaped message flow structure (the full payment message includes information about the payment and about settlement).

50. See Bank of International Settlements (BIS) Committee on Payments and Market Infrastructures, *Correspondent Banking* 33 (2016), <https://www.bis.org/cpmi/publ/d147.pdf> [<https://perma.cc/DVS7-C26R>] [hereinafter *Correspondent Banking*].

51. See *id.* at 37.

52. See U.S. DEP'T TREASURY, *supra* note 20, at 63 n.53.

53. For a fuller explanation of how domestic clearing technology works, see Federal Reserve System, *New Message Format for Fedwire® Funds Service*, 83 FED. REG. 31391 (July 5, 2018), <https://www.govinfo.gov/content/pkg/FR-2018-07-05/pdf/2018-14351.pdf> [<https://perma.cc/SMX2-GLLZ>] [hereinafter *New Message Format for Fedwire*].

54. Barry E. Carter & Ryan Farha, *Overview and Operation of U.S. Financial Sanctions, Including the Example of Iran*, 44 Geo. J. Int'l L. 903, 907 (2013).

55. Corresponding banking is when two (or more) banks open accounts in each other's banks and exchange messages to settle transactions through crediting and debiting each other's accounts. See *Correspondent Banking*, *supra* note 50, at 8. A more detailed description is provided by The Wolfsberg Group in The Wolfsberg Group, *Wolfsberg Anti-Money Laundering Principles for Correspondent Banking* (2014), <https://www.wolfsberg-principles.com/sites/default/files/wb/pdfs/wolfsberg-standards/8.%20Wolfsberg-Correspondent-Banking-Principles-2014.pdf> [<https://perma.cc/YWVG2-FV88>] ("[c]orrespondent Banking is the provision of a current or other liability account, and related services, to another financial institution, including affiliates, used for the execution of third-party payments and trade finance, as well as its own cash clearing, liquidity management and short-term borrowing or investment needs in a particular currency.").

56. In the U.S., domestic transfers are finalized by Fedwire. Owned by the 12 Federal Reserve Banks, Fedwire works by crediting the payment amount to the receiving bank's account with the Federal Reserve. See U.S. DEP'T TREASURY, *supra* note 20, at 59.

57. An alternative to Fedwire is CHIPS. CHIPS is the United States' main electronic funds-transfer system for processing international U.S. dollar funds transfers made among international banks. Similar to Fedwire, CHIPS settles the transactions at the time CHIPS transmits the payment order; meaning that the sender's obligation to pay is discharged at the time CHIPS releases the payment message. See *id.* at 61.

58. Carter & Farha, *supra* note 54, at 907 (2013).

U.S.-based financial institution (or a U.S.-based branch / subsidiary), SWIFT messages may travel directly from a U.S. financial institution to a foreign institution or vice versa, thereby performing a role Fedwire or CHIPS cannot.⁵⁹

Figure 1



In transactions where the relevant banks do not have a correspondent banking relationship—an increasingly common phenomenon—other intermediary banks will have to facilitate the payments.⁶⁰ There are two ways in which transactions can occur in non-bilateral relationships: the serial method and the cover method.⁶¹ The serial method is simply an extension of the standard transaction detailed in Figure 1, with more banks acting as a chain to send the payment message and facilitate the payment.⁶² The cover method, however, separates the information flow about the payment from the settlement function. The payment function in a cover transaction is sent directly from the sending bank to the receiving bank, while the settlement message gets sent as normal through the settlement institution.⁶³

Most payments therefore use both SWIFT, and then CHIPS or Fedwire (for example) as the settlement platform.⁶⁴ As a result, both sets of messaging standards are used.⁶⁵ Both, and potentially all three, sets of message formats can be used concurrently in multi-step domestic and international transfers because the messages can be mapped to and are interoperable with each other.⁶⁶ However, one of SWIFT's great achievements has been its ability to standardize, alongside the International Organization for Standardization (ISO), the payments messaging system. As a result, ISO 20022, a messaging system first published in 2004 and

59. See U.S. DEP'T TREASURY, *supra* note 20, at 63.

60. More than half of transactions take place through correspondent banking agreements. See *Cross-Border Retail Payments*, *supra* note 44, at 23.

61. See *Correspondent Banking*, *supra* note 50, at 34.

62. See *id.* This method uses only MT 103 SWIFT messages.

63. See *id.* This method uses both the MT 103 SWIFT messages for the payment information and MT 202 COV messages for the settlement information. See also U.S. DEP'T TREASURY, *supra* note 20, at 68-69.

64. An estimated 70% of CHIPS payments originate from SWIFT messages. See *id.* at 64.

65. See *id.*

66. *New Message Format for Fedwire*, *supra* note 53, at 31391.

updated in 2013,⁶⁷ has now been adopted domestically in China, Japan, and Switzerland and will soon be adopted by the Eurozone and the United Kingdom (replacing SWIFT MT) as well in the United States.⁶⁸ Therefore, although it is domestic infrastructure which allows both clearing and settlement to take place (such as CHIPS and Fedwire discussed above), there will soon be identical messaging infrastructure for both international and U.S. domestic payments.

Nonetheless, at present, the combination of messages is somewhat complicated. For example, in the case of a dollar denominated payment from a British bank with no U.S. presence to a Spanish bank with a U.S. presence: the British bank will send a SWIFT message through the SWIFT infrastructure that will be one of SWIFT's standard message structures, readable also by Fedwire or CHIPS.⁶⁹ SWIFT's role in this process is to send the instructions from the sending bank to the settlement institution and then from the settlement institution to the receiving bank. Since the message is actually addressed from the sending bank to the receiving bank, not to the settlement institution, the SWIFT network intercepts the message, sends it to the settlement institution (Fedwire or CHIPS), receives approval from the settlement institution and only then forwards the payment message to the receiving institution.⁷⁰ Though the exact timeline and methodology may vary slightly by jurisdiction and for cross-border transactions, the general scheme of events is as follows:⁷¹

- (1) The British bank's customer makes a payment order.
- (2) The British bank (A) sends a SWIFT MT 103 formatted message to an American bank (B) in New York City that both bank (A) and bank (C) have bilateral accounts with (if there are none, this is where the chain of banks links bank (A) and (C)).
- (3) The SWIFT MT 103 is converted into a form readable by Fedwire and sent to the New York Federal Reserve.
- (4) The Federal Reserve Bank in New York debits Bank (B)'s account and credits the Spanish bank (C)'s New York branch's account with the Fed.
- (5) The Fedwire message is sent to Bank C's New York branch telling it about the payment.

67. See ISO 20022 Frequently Asked Questions, <https://www.iso20022.org/faq.page> (last visited Apr. 16, 2019).

68. See SWIFT, *SWIFT ISO 20022 Migration Study*, 9 (Apr. 23, 2018). In the U.S. the plan is to have ISO 20022 first implemented in November 2020 and fully implemented by November 2023. See *New Message Format for Fedwire*, *supra* note 53, at 39394.

69. See U.S. DEP'T TREASURY, *supra* note 20, at 64.

70. See Bank of International Settlements (BIS) Committee on Payment and Settlement Systems, *New Developments in Large-Value Payment Systems* 19 (2005), <https://www.bis.org/cpmi/publ/d67.pdf> [<https://perma.cc/BTZ2-PVBW>].

71. See U.S. DEP'T TREASURY, *supra* note 20, at 65.

- (6) Bank (C) sends an internal message to their home branch in Spain.
- (7) The receiving customer's account is credited with the payment amount.

The SWIFT system knows who to send payments to through a specific SWIFT code associated with each financial institution. By providing both standardized bank identifier codes⁷² and standardized messages and reference data, SWIFT ensures that the data exchanged between institutions is unambiguous and machine-friendly, facilitating automation, reducing costs, and mitigating risks.⁷³ In situations where the sending and receiving banks have no bilateral accounts (or where the settlement will be conducted by an institution that unlike Fedwire doesn't require a U.S. presence) such that a third bank is necessary for the payment, all three of the banks will need to have a SWIFT account number and be connected to the SWIFT network.⁷⁴

Without even mentioning the security benefits SWIFT provides, it is obvious from this simplified chain of events how beneficial SWIFT is to the payments system. Without SWIFT, the sending bank would have to check with the settlement institution itself to ensure that the transaction could take place. The sending bank would, for example, have to alleviate its compliance concerns with multiple jurisdictions, check for fraud, pay the relevant bank fees, FX costs, scheme fees and interchange fees.⁷⁵ Only then would the bank credit and debit the relevant accounts in their own system. Then the sending bank or settlement institution would contact the receiving bank which, without the third-party system, would have to conduct the exact same checks as the sending bank before crediting and debiting the relevant accounts in its system.

One major drawback to the SWIFT system is that despite internalizing all these processes into a far more efficient process, each transaction outlined above still incurs its own bank fees as both parties to the trade have to pay the corresponding bank to run-through their infrastructure (even if using SWIFT), thus causing higher costs for more complex transactions.⁷⁶ Despite this downside, it is unsurprising and undeniable that SWIFT has significantly reduced the human error and inefficiencies present in the previous Telex system discussed *supra*⁷⁷ and that it has been called "the most

72. See John Changiz Vafai, *The New Era of Doing Business with Iran: Iran's International Commercial Transactions and Global Security*, 29 *PAGE INT'L L. REV.* 1, 62 (2017).

73. See SWIFT, *Messaging and Standards*, *supra* note 8.

74. See Vafai, *supra* note 72, at 62. The same holds true when payments are settled via Fedwire.

75. See *Cross-Border Retail Payments*, *supra* note 44, at 20.

76. See RAVINSHANKAR ACHANTA, INFOSYS, *CROSS-BORDER MONEY TRANSFER USING BLOCKCHAIN - ENABLED BY BIG DATA* at 3 (2018), <https://www.infosys.com/industries/cards-and-payments/resources/Documents/cross-border-money-transfer.pdf>.

77. For an in-depth analysis of efficiency and speed in the payments system see Morten Bech, Yuuki Shimizu & Paul Wong, *The Quest for Speed in Payments*, *BIS QUARTERLY*

significant network innovation in the history of international banking.”⁷⁸ SWIFT may not be perfect, but it represents a significant improvement on previous systems.

II. Legitimacy and Effectiveness: A Collective Action Problem

SWIFT as a platform, and the cross-border payments system more generally, only work if they have the trust of their constituent members. That is, like every collective agent, SWIFT, or whoever runs cross-border payments, must be seen as legitimate and effective.⁷⁹ In fact, this is particularly important for SWIFT in that its main users, global banks, all compete with *and* rely on each other to varying degrees. The cross-border payments industry is strangely characterized by intense competition matched only by an intense reliance on each participant’s competitors abiding to the same industry standards. This is different from other financial realms (and non-financial industries) in which the collective agent oversees relationships directly between businesses and consumers or even other business-to-business services that are not characterized by the cross-border payments industry’s interdependence.⁸⁰ The cross-border payments industry’s unique quirk necessitates a global collective agent because individual, profit-seeking firms are ill-suited to ensure the requisite levels of cooperation and coordination on their own.

Aside from the inherent difficulties of managing a cross-border payments industry, one need only recognize that the payments infrastructure is systemically important to prove that this is an industry in need of a collective agent’s guiding hand. More generally, “a safe, efficient, secure and accessible payment system contributes to a nation’s [and by extension, the world’s] financial stability and economic growth. Payments play a vital role in supporting financial transactions, facilitating commerce and enabling the transfer of value between businesses, consumers and financial institutions.”⁸¹ Any failure in the payments system would thus be hugely devastating for the wider society. One way in which this is apparent is by recognizing that the system’s interconnectedness makes all participants

REVIEW 57 (Mar. 2017), https://www.bis.org/publ/qtrpdf/r_qt1703g.pdf [<https://perma.cc/K7MH-9N2B>].

78. SCOTT & ZACHARIADIS, *supra* note 2, at 8.

79. Briefly, the theory of collective action problems and collective agents is that individuals act rationally, but, on some occasions, when everybody acts rationally, an irrational outcome occurs. In such scenarios, a collective agent (normally a government) is required to alter the tradeoffs such that either (1) the irrational outcome doesn’t occur, or (2) it is no longer for individuals to act in the relevant way. For a fuller explanation of what collective agents are and why they are necessary, see Robert Hockett, *Recursive Collective Action Problems: The Structure of Procyclicality in Financial and Monetary Markets, Macroeconomics, and Formally Similar Contexts*, J. FIN. PERSP., July 2015, at 1.

80. Indeed, some scholars have correctly recognized that the interdependence between financial market infrastructures mean that they can function as transmission channels of systemic risk—which is exactly why a collective agent is required to regulate the system. See *Bitcoin’s Operational Risk*, *supra* note 31, at 852.

81. FEDERAL RESERVE SYSTEM, STRATEGIES FOR IMPROVING THE U.S. PAYMENT SYSTEM 6 (2015) [hereinafter STRATEGIES FOR IMPROVING THE U.S. PAYMENT SYSTEM].

vulnerable to any weakness. For example, not only could SWIFT be a victim of cyber-attacks, but the infrastructure could become a channel for spreading cyber-attacks itself—the system could, for illustrative purposes, distribute malware interconnected entities from one financial institution to another.⁸²

Practically, a collective agent is required because an opportunistic bank might, for example,⁸³ rationally believe that they could spread malware through the system to a competitor (supposing for the moment that this would somehow be legal or undetected).⁸⁴ However, if every bank rationally believed this, then there are two alternative outcomes, both of which require a collective agent. In the first instance, all banks realize that this is rational, but that by definition it is also rational for their competitors. As a result, nobody trusts their competitor banks and no cross-border payments can be made. Here you need a collective agent to assure banks of the system's safety. In the second instance, awareness of the collective action problem just outlined may itself fuel paranoia that would undermine mutual trust that underpins the system. In this case, banks actually (and rationally) act on this possibility attempting to be first movers and the whole system grinds to a halt because everyone has corrupted the system and each other with the malware. In this case, a collective agent is required to punish institutions that do this such that it no longer becomes rational for banks to believe they could get away with this.

At its most basic level, the entire system only works when *everyone* uses it—its value is in its efficiency, interoperability, scale, and legitimacy.⁸⁵ The issue, therefore, is that the recent political tug of war over SWIFT has impacted the financial sector's opinion regarding these key characteristics, as have recent technological advances, namely blockchain.

III. Political Pressure and Threats

As SWIFT plays a role in enforcing Western sanctions on Iran, North Korea, and potentially Russia, SWIFT becomes seen in those countries and their allies as an illegitimate quasi-state institution of the West. In fact, one of the biggest criticisms of SWIFT in recent years—even before sanctions—has been about the “undue control of [the] U.S. over the transactions con-

82. See Mircea-Constantin Scheau, *Strategic Management of Critical Infrastructures and Financial Domain*, INT'L. J. INFO. SEC. & CYBERCRIME, June 2017, at 13.

83. Not to mention any criminal non-bank enterprise, individual, or even hostile state such as North Korea.

84. For the purposes of scenario one, it would actually be sufficient merely for each financial institution to rationally and accurately recognize the system's systemic weakness.

85. The Federal Reserve, compiling feedback from the financial services industry concluded that “a collective and collaborative approach to payment system improvement will significantly increase the probability of successful outcomes.” STRATEGIES FOR IMPROVING THE U.S. PAYMENT SYSTEM, *supra* note 81, at 15.

ducted on the network.”⁸⁶ In response, Russia has already started to take steps to replace SWIFT.⁸⁷ As Russia starts to see SWIFT as an illegitimate institution, other states start to question SWIFT’s ability to facilitate global payments. The panicked nations then, rationally, look to alternative means of transacting with Russia and other countries who have reservations about SWIFT. In turn, a self-fulfilling prophecy emerges. By fearing for SWIFT’s effectiveness, firms and countries look for and develop alternatives (such as blockchain platforms) which, potentially, will become better than SWIFT, thereby rendering SWIFT ineffective by comparison anyway. From this reality two key questions emerge: (1) How did this happen; and (2) is there anything SWIFT can do to reverse the trend?

A. Who Controls SWIFT?

SWIFT is no stranger to political gaffs, pressure, or controversy. As early as 2006, SWIFT was embroiled in controversy for allowing the U.S. to access its database in the Bush administration’s quest to locate terrorist financing.⁸⁸ Naturally, this raised questions regarding privacy laws both in the U.S. and in Europe, with several people familiar with the program said to be concerned they were operating in a legal grey area with potential negative connotations for SWIFT if the program were ever disclosed.⁸⁹

More recently, the issue hasn’t been so much permissive data breaches like the events in 2006 but rather criminal breaches perpetrated by governments less politically aligned to SWIFT or indeed using the platform to implement UN or EU sanctions against hostile regimes. Unsurprisingly, these recent mishaps in the public eye could be even more damaging to SWIFT than data breaches.

Effectively, SWIFT’s political issues stem from one awkward fact—SWIFT is both a global regulator for the financial industry, and yet due to a lack of a single global government, is subject to influence from a multitude of legal regimes. Ultimately, SWIFT is a Belgian cooperative, and is therefore subject primarily to Belgian and EU law.⁹⁰ However, as with any other entity, though not a bank and therefore not subject to banking regulation, it is still required to abide by legal instruments such as subpoenas and must respect and abide by the law of almost every country in which it oper-

86. See Faisal Khan, *Cross-border Payment systems: SWIFT, RippleNet or BWW?* DATA DRIVEN INVESTOR (Sept. 19, 2018), <http://www.datadriveninvestor.com/2018/09/19/cross-border-payment-systems-swift-rippletnet-or-bww/> [https://perma.cc/4CGW-F2UC].

87. See Tett, *supra* note 22.

88. See generally Eric Lichtblau & James Risen, *Bank Data is Sifted by U.S. in Secret to Block Terror*, N.Y. TIMES (June 23, 2006), <https://www.nytimes.com/2006/06/23/washington/23intel.html> [https://perma.cc/LT23-H9BV].

89. See *id.*

90. See, e.g., Bruce E. Bechtol, Jr., *North Korean Illicit Activities and Sanctions: A National Security Dilemma*, 51 CORNELL INT’L L.J. 57, 80 (2018) (In September 2016, the U.S. House of Representatives attempted to ban North Korea from using SWIFT. However, because SWIFT’s regulations are controlled out of Belgium, it required European cooperation to execute a ban on North Korean accounts).

ates.⁹¹ Moreover, and perhaps uniquely to SWIFT, its cooperative status and close relationship with U.S. bank executives, many of whom sit on SWIFT's board, makes SWIFT de facto subject to U.S. law regardless of whether a U.S. firm is involved in a transaction. President Trump would be well within his rights (whether wise or not) to threaten the U.S. banks headed by the SWIFT board members if they did not get SWIFT to abide by U.S. sanctions.

Nonetheless, the question of whose regulations SWIFT must abide by is not even the real issue. National regulations will be in place whether SWIFT exists or not. Thus, the real issue is whether SWIFT is better suited to handle these regulations than an alternative, and this Note will suggest the answer is yes. Although this will be discussed in more detail in Part IV, SWIFT's users appear to think it is the best organization for the job. J.P. Morgan, for example, says that "for corporates under stringent regulation (such as Sarbanes-Oxley), using a single process like SWIFT can help satisfy disclosure requirements and ensure operational integrity."⁹² Because using SWIFT requires both less control points and documentation, and also systematically avoids fraud and manual errors,⁹³ the relationship between legitimacy and effectiveness with regard to SWIFT's structure is both cyclical and interdependent, not independent. In terms of regulation, SWIFT is effective and therefore remains legitimate, which further allows it to remain effective.

Moreover, in one sense, the fact that SWIFT is subject—either by law or by political pressure—to competing political wills is a good thing. If, as argued above, SWIFT must retain legitimacy to operate effectively, then unilateral decision-making by the U.S., for example, would only reduce this legitimacy. Multilateral decision-making lies at the heart of SWIFT's role and power. Indeed, the same is true for global finance more generally, with institutions such as the IMF, the Bank of International Settlements (BIS), the OECD and other organizations becoming ever more integrated.⁹⁴ When SWIFT does act, whether by introducing a new messaging standard, or by removing a country from the network, the financial industry knows that the decision to act is consensus-driven. By contrast, unilateral decision-making by the U.S. merely reinforces, arguably to both its own detriment and to the detriment of the financial system at large, that the U.S. still

91. Press Release, SWIFT, SWIFT re-iterates calls for EU-US dialogue on security and data privacy (Oct. 4, 2006), https://www.swift.com/insights/press-releases/eu-parliament-hearing_swift-statement-and-press-release [<https://perma.cc/2H3J-EK3Y>] ("The question today is how society can balance the right to personal privacy with the duty to protect personal security. We strongly subscribe to calls for a renewed political dialogue between Europe and the United States on this issue. Private companies can play their part through upholding the law, but they cannot make policy. Ultimately we are dependent on our governments and elected officials to frame the law.").

92. J.P. Morgan, *Understanding Swift Corporate Access*, J.P. MORGAN 3 (2010), <https://www.jpmorgan.com/jpmpdf/1320716743035.pdf> [<https://perma.cc/83YX-7CA9>].

93. See *id.* at 5.

94. See *History - the BIS in the new financial architecture* (1997-), BIS, https://www.bis.org/about/history_5new_fin_architecture.htm [<https://perma.cc/NW7U-MFY7>] (last visited Feb. 27, 2019).

has a monopoly over global finance.⁹⁵

On the other hand, sanctions imposed by SWIFT are legitimate and effective if, and only if, those sanctions are restricted to those countries whose actions carry negative repercussions for, or abuse of, the global financial system. Fortunately, thus far this has been the case. From a Western perspective, this legitimizes the sanctions because it adds another layer of wrong-doing and is an appropriate tool for imposing the sanctions. More importantly for SWIFT, it also legitimizes the organization as one that protects the global financial system. The clearest example here is North Korea, which is notorious for its financial fraud.⁹⁶ Of course, China, Russia, Syria, Iran, and North Korea, etc. may all argue that such sanctions are still illegitimate and that the sanctions turn SWIFT into a political tool, but the chances of those countries approving of such sanctions are larger for financial reasons than the chances of approval for non-financial reasons.

B. Trump, Iran, North Korea & Russia

SWIFT-effected sanctions against North Korea were not just useful but were also necessary to protect the financial system. Previous sanctions against North Korea had been completely ignored, such as those intended to affect North Korean trade.⁹⁷ Unfortunately, the sanctions had several loopholes that countries like China could exploit.⁹⁸ In addition, many nations trading with North Korea (such as Iran) simply ignore UN sanctions at will.⁹⁹ Undoubtedly, the UN has lost much of its legitimacy by allowing itself to be sidestepped by such regimes.¹⁰⁰ By standing up for the integrity of the financial system, SWIFT can avoid such a fate.

The current problem is that President Trump does not seem to share the view that SWIFT must take multilateral decisions to protect the global financial system and not just be a puppet for U.S. foreign policy. Traditionally, the legitimacy issue was framed as the West trying to protect the financial system's integrity against the actions of rogue states. For example,

95. The most critical way in which the U.S. plays an outsized role in global financial markets is through the hegemonic dollar. See Peter Coy, *The Tyranny of the U.S. Dollar*, BLOOMBERG (Oct. 3, 2018, 5:00 AM), <https://www.bloomberg.com/news/articles/2018-10-03/the-tyranny-of-the-u-s-dollar> [<https://perma.cc/4AJ5-BH9K>] (“The most immediate risk to the dollar is that the U.S. will overplay its hand on financial sanctions, particularly those against Iran and countries that do business with Iran.”).

96. See Bechtol, Jr., *supra* note 90, at 86. See also *id.* at 63-72 (explaining how North Korea gets around these sanctions anyway). Iran was also known to engage in such activities (possibly in conjunction with North Korea). See, e.g., Vafai, *supra* note 72, at 61 (“In some cases, Iran and its buyer of the crude oil have bypassed the banking system by surreptitiously selling oil for gold” and can therefore avoid sanctions).

97. See Bechtol, Jr. *supra* note 90, at 86.

98. See *id.*

99. See *id.*

100. Or in some instances, actually controlled by the very countries violating UN rules, as in the case of the human rights council. See Simon Tisdall, *Why are World's Worst Violators Joining UN Human Rights Council?* GUARDIAN (Oct. 11, 2018, 12:00 AM), <https://www.theguardian.com/politics/2018/oct/11/eritrea-joining-human-rights-council-membership-undermine-work-hrc> [<https://perma.cc/BJ5M-49YS>].

aside from sanctions, since 2010 the European Union and the U.S. have been parties to the international agreement on the “Terrorist Finance Tracking Program.”¹⁰¹ As a result, SWIFT is subject to legally binding requests to provide to the U.S. Treasury Department data located in its EU Operating Center.¹⁰² This is yet another example of the beneficial multi-lateral decision-making mentioned above.

By contrast, the issue today is framed as the U.S., trying to protect its own interests, versus rogue states plus the U.S.’s former allies. For example, from March 2012 through February 2016, the Central Bank of Iran and fifteen other major banks in that country were banned from using SWIFT’s inter-banking communication system.¹⁰³ The banks were only banned after SWIFT was prohibited under EU Regulation 267/2012 from providing financial messaging services to EU-sanctioned Iranian banks because SWIFT has to comply with Belgian law.¹⁰⁴ The EU Regulation was lifted after President Obama secured the nuclear deal with Iran, allowing Iranian banks access to the SWIFT network again.¹⁰⁵

Ever since Iran was allowed back into the SWIFT system, President Trump has repeatedly called for its removal once more. This would delegitimize SWIFT for two reasons. First, the U.S. left the Iran nuclear deal. Iran is still a signatory to the nuclear deal, and thus it would appear to be an arbitrary use of SWIFT’s powers. It would make more sense, for example, for SWIFT to impose sanctions on Russia because it is currently far more threatening to the West’s financial stability than Iran. Ideally, such sanctions would come with the UN’s backing, but a UN mandate is unlikely given Russia’s veto power on the Security Council. If such sanctions were forthcoming, they “would be crippling” to Russia, and yet, as a sign of the U.S. regime’s skewed (or certainly lonely) foreign policy at the moment, most Russian executives view this “nuclear option” that would be far more likely to gather multilateral support as unlikely.¹⁰⁶ By contrast, with no UN mandate (far more likely than in the Russian context), powerful political and financial allies who form part of the global financial system’s core, France, Germany, and the UK, are actively seeking ways to bypass US sanctions against Iran.¹⁰⁷

101. *Compliance*, SWIFT, <https://www.swift.com/about-us/legal/compliance-0> [<https://perma.cc/N262-L9WT>] (last visited Nov. 30, 2018).

102. *Id.*

103. Vafai, *supra* note 72, at 61.

104. *See Swift and Sanctions*, SWIFT, <https://www.swift.com/about-us/legal/compliance/swift-and-sanctions> [<https://perma.cc/GYZ5-CN92>] (last visited Nov. 30, 2018) [hereinafter SWIFT, *Swift and Sanctions*].

105. *See* Jonathan Swan, *The White House’s next Iran fight*, AXIOS (Aug. 13, 2018) <https://www.axios.com/trump-administration-iran-sanctions-swift-financial-messaging-8fae6cd6-11c9-42a8-9d5b-6d3140a7ae83.html> [<https://perma.cc/AD5C-4F7S>].

106. *See* Henry Foy, *Corporate Russia feels insulated from sanctions*, FIN. TIMES (Oct. 10, 2018), <https://www.ft.com/content/174ca9ac-cc5d-11e8-b276-b9069bde0956> [<https://perma.cc/RM8J-KURV>].

107. *See* Mehreen Khan & Henry Foy, *EU, Russia and China agree special payments system for Iran*, FIN. TIMES (Sept. 25, 2018), <https://www.ft.com/content/4aa03678-c0a7-11e8-8d55-54197280d3f7> [<https://perma.cc/H6LA-VMD2>]. Most worryingly for

Secondly, SWIFT claims to be neutral, only operating for the benefit of its shareholders and the financial system.¹⁰⁸ Re-imposing unilateral sanctions with no apparent financial rationale is a direct contradiction of SWIFT's own mission statement.¹⁰⁹ As mentioned, there are far more dangerous countries that SWIFT should be worried about (such as North Korea and Russia). Iran's crime in 2018 is not financial, it is that they are perceived to be an enemy by the Trump regime. SWIFT, at present, should have no business in regulating countries who President Trump singles out, without any multilateral backing and without posing a threat to the financial system.

C. SWIFT Must Stand Its Ground

Despite agreeing with SWIFT in believing that blindly following U.S. sanctions would be an error,¹¹⁰ SWIFT is wrong to remain "neutral" in all settings. SWIFT's role as a collective agent for the financial system is by definition not "neutral." SWIFT must instead take ownership of these semi-judicial roles and disconnect banks from countries that threaten financial stability generally through the SWIFT platform—SWIFT would not have to look at any data it does not already require its members to provide it with or otherwise overreach. In other words, SWIFT must remember its original purpose, to provide "a systematic standardization body coordinating and *managing the needs of the financial services sector for the overall benefit of its community*,"¹¹¹ without becoming a de-facto supra-national democratic organization such as the UN.

Furthermore, it appears that SWIFT misunderstands how much of its success owes to its status as both legitimate and effective. The SWIFT website's compliance page poses the question "Does SWIFT expel banks?"¹¹²

the U.S., this sees two potentially hostile forces combining with allies to bypass U.S. policy. See Michael Peel et al., *EU seeks to bypass US sanctions on Iran with trade finance tool*, FIN. TIMES (Sept. 14, 2018), <https://www.ft.com/content/04ef404e-b826-11e8-b3ef-799c8613f4a1> [https://perma.cc/5Z8Y-9JWK]; see also Katrina Manson, *Europe steps up drive to exempt Swift from Iran sanctions*, FIN. TIMES (Oct. 9, 2018), <https://www.ft.com/content/1db52c7a-ca27-11e8-b276-b9069bde0956> [https://perma.cc/SM7F-KB84] ("Supporters of Swift worry that the international co-operative, whose 25 board directors include two US bankers from Citi and JPMorgan, would find it impossible to comply with US, European and Belgian law at the same time if their instructions diverge.").

108. See SWIFT, *Swift and Sanctions*, *supra* note 104.

109. Although Iran was previously known to commit extreme financial fraud, steps are being made to remedy the situation. See, e.g., Erin Cunningham, *Iran's new anti-corruption courts have begun sending businessmen to the gallows*, WASH. POST (Nov. 30, 2018, 5:00 AM), https://www.washingtonpost.com/world/irans-new-anti-corruption-courts-have-begun-sending-businessmen-to-the-gallows/2018/11/29/c94a56a0-ed09-11e8-8b47-bd0975fd6199_story.html?utm_term=.e4e0c08666c3 [https://perma.cc/QR2B-HFGF]. But see Thomas Erdbrink, David D. Kirkpatrick & Nilo Tabrizy, *How Corruption and Cronyism in Banking Fueled Iran's Protests*, N.Y. TIMES (Jan. 20, 2018), <https://www.nytimes.com/2018/01/20/world/middleeast/iran-protests-corruption-banks.html> [https://perma.cc/PTE5-WLZ5].

110. SWIFT recognizes that it "cannot arbitrarily choose which jurisdiction's sanction regime to follow." See SWIFT, *Swift and Sanctions*, *supra* note 104.

111. SCOTT & ZACHARIADIS, *supra* note 2, at 81 (emphasis added).

112. See SWIFT, *Swift and Sanctions*, *supra* note 104.

The answer is, again, “SWIFT is neutral.”¹¹³ According to Part II’s analysis, this is an error. Any bank or otherwise that risks the reputation of SWIFT harms the system. In the same way that overreacting and imposing illegitimate sanctions delegitimizes and thereby minimizes SWIFT’s effectiveness, so too does any belief that the system harbors risks—this is precisely one of the arguments in favor of moving to a blockchain system discussed in Part IV. SWIFT can, and must, without making “arbitrary” sanctions decisions, police its systems. In fact, it is apparent that SWIFT’s failure to do so is one of the many reasons why President Trump has been so vocal against it. Thus, by taking matters into its own hands, SWIFT would minimize not one but two threats.

IV. Competition

Aside from the threat of being delegitimized, as discussed in Part III, SWIFT faces an increasing threat in the form of competition. SWIFT’s biggest competition comes from new technology. For 50 years, SWIFT has been the dominant, unchallenged cross-border payments mechanism. However, as Hyman Minsky noted over 30 years ago, “any regulatory and intervention system will lose its effectiveness over time. For effectiveness to be sustained the regulatory and intervention systems need to be modernized at intervals to allow for the effects of innovative financial developments.”¹¹⁴ Minsky was of course completely correct, and SWIFT is clearly at such a juncture today.

As the Fed noticed several years ago, “technology is rapidly changing many elements that support the payment process.”¹¹⁵ Not only is information becoming increasingly sophisticated and mobile, but it is also being transmitted more efficiently.¹¹⁶ On these two points, blockchain may hold a competitive advantage over SWIFT. However, payment security and protection of sensitive data, “which are foundational to public confidence in any payment system” are increasingly being threatened by these new technologies.¹¹⁷ It is on this last point that SWIFT has the competitive edge over blockchain, and ultimately its capacity to be a collective agent is the reason why SWIFT cannot allow blockchain technologies to force it out of business.

A. What is Blockchain?

In technical terms, blockchain technology (also known as distributed ledger technology or DLT) is “a set of technological solutions that enables a single, sequenced, standardized and cryptographically-secured record of activity to be safely distributed to, and acted upon by, a network of varied

113. *See id.*

114. Hyman Minsky, *Stabilizing an Unstable Economy* (Hyman. P. Minsky Archive, Paper 144, 1986), https://digitalcommons.bard.edu/cgi/viewcontent.cgi?article=1143&context=hm_archive [<https://perma.cc/Y97C-K5R3>].

115. STRATEGIES FOR IMPROVING THE U.S. PAYMENT SYSTEM, *supra* note 81, at 6.

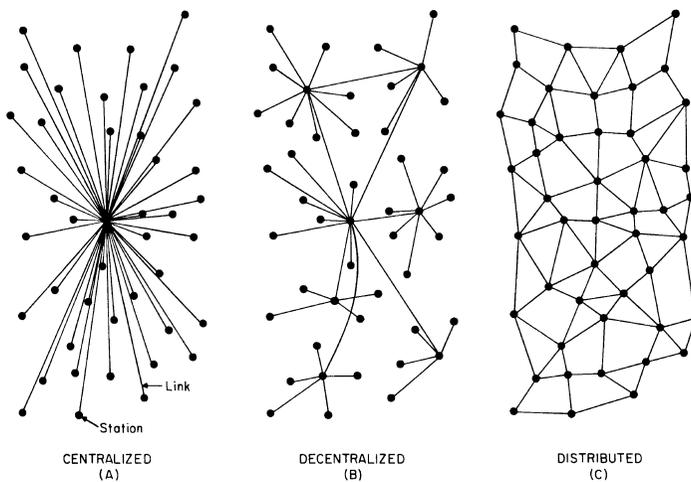
116. *Id.*

117. *Id.*

participants.”¹¹⁸ Most simply, a blockchain is a ledger that can record new information, such as details about a financial transaction (sender, receiver, amount, currency, etc.), but the information already in the ledger, stored in these so-called blocks or hashes, cannot be edited, adjusted or changed in any way.¹¹⁹ Cryptography links the contents of each new block with every block already in the ledger, meaning that all the information becomes inseparable—each bit of data has its own hash, and these data are chained together into blocks with their own unchangeable and unique hash, which are then chained together with other blocks, hence “blockchain.”¹²⁰

Security is ensured by requiring that no single entity controls the ledger, nor can new blocks be uploaded without a complex mathematical proof being solved first.¹²¹ As a result, any attack on the system must attack every single link and every single system user to be effective. By contrast, in a centralized ledger system, one attack on the ledger’s sole source would be enough to bring the whole system down—clearly much more vulnerable both to internal and external threats.

Figure 2¹²²



118. *Discussion Paper on Distributed Ledger Technology* (Fin. Conduct Auth. DP 17/3, Apr. 2017), <https://www.fca.org.uk/publication/discussion/dp17-03.pdf> [<https://perma.cc/4MVD-DURL>].

119. See Arthur Linuma, *What is Blockchain and What Can Businesses Benefit From It?* FORBES (Apr. 5, 2018, 7:00 AM), <https://www.forbes.com/sites/forbesagencycouncil/2018/04/05/what-is-blockchain-and-what-can-businesses-benefit-from-it/#124b6a16675f> [<https://perma.cc/55WQ-3487>]. For a more thorough explanation, see Jean Bacon, Johan David Michels, Christopher Millard & Jatinder Singh, *Blockchain Demystified: A Technical and Legal Introduction to Distributed and Centralised Ledgers*, RICH. J.L. & TECH, Nov. 2018, at 9, 9-12 [hereinafter *Blockchain Demystified*].

120. See Linuma, *supra* note 119. See also, *Blockchain Demystified*, *supra* note 119 at 12-13.

121. See *Blockchain Demystified*, *supra* note 119 at 12-15.

122. Dirk A. Zetsche, Ross P. Buckley & Douglas W. Arner, *The Distributed Liability of Distributed Ledgers: Legal Risks of Blockchain*, 2018 U. ILL. L. REV. 1361, 1371 Fig.1 (2018).

Since at its core, blockchain involves storing information regarding the transfer of an asset from one use to another,¹²³ it could be characterized as a highly technical tool for recording transactions and tracking an asset's movement.¹²⁴ As a result, blockchain makes an obvious solution to some of the transactional costs in the notoriously costly and inefficient cross-border payments system.

B. How Could Blockchain be Used for Cross-Border Payments?

In 2008, Bitcoin was born. A work called *Bitcoin: A Peer-to-Peer Electronic Cash System* written by the pseudonymous Satoshi Nakamoto introduced the world to blockchain's potential as a payments mechanism.¹²⁵ By proposing a system of peer-to-peer transactions using a decentralized payments ledger requiring no central bank authority, Nakamoto single-handedly¹²⁶ paved the way for what has grown into a quarter of a trillion dollar industry, of which Bitcoin's market capital comprises almost half.¹²⁷

Blockchain works for cross-border payments because a payment in our world of credit-money and computerized databases is effectively little more than changing numbers in a computer database. The blockchain therefore replaces manual changes in firm's ledgers by distributing ledgers throughout the entire industry, sending messages to other financial institutions instantly without having to go through multiple correspondent banks to do so (see Part I) and by confirming or validating each modification of the ledger (the changing numbers in the database) instantly and without fear of manipulation due to the cryptography inherent in the system.¹²⁸ The key of these benefits is the exclusion of the correspondent institutions, since in the current system these institutions will often be unknown to both the ultimate sending and receiving institutions, and every new relationship will have an increased cost.¹²⁹

123. Blockchain technology was created by the pseudonymous and so far, unidentified bitcoin creator Satoshi Nakamoto to replace third-parties to transactions such as banks, hence blockchain is often referred to as peer-to-peer technology. See *The great chain of being sure about things*, *ECONOMIST* (Oct. 31, 2015), <https://www.economist.com/briefing/2015/10/31/the-great-chain-of-being-sure-about-things> [<https://perma.cc/JU52-CJFH>].

124. See MANAV GUPTA, *BLOCKCHAIN FOR DUMMIES 6* (2nd IBM Limited Edition) (2018).

125. SATOSHI NAKAMOTO, *BITCOIN: A PEER-TO-PEER ELECTRONIC CASH SYSTEM* (2008), <https://bitcoin.org/bitcoin.pdf> [<https://perma.cc/U7FV-FWLW>].

126. Since nobody actually knows if Nakamoto is a person or a group of people, it may not have actually been "singlehandedly" in the strictest sense. For an excellent documentary explaining Bitcoin's mysterious beginnings, see *BANKING ON BITCOIN* (Periscope Entertainment 2016).

127. Gregor Zupanc, *How big (or small) is the crypto market?*, *SOLIDUM CAPITAL* (Aug. 7, 2018), <https://blog.solidum.capital/how-big-or-small-is-the-crypto-market-5c7976dfdf2b> [<https://perma.cc/44YV-KQ54>].

128. ACHANTA, *supra* note 76, at 3.

129. *Id.* at 4.

C. Is There an Existing and Feasible Technological Threat to SWIFT?

1. *Ripple*

Ripple is SWIFT's biggest and most serious blockchain competitor at present. Though relatively small, it is growing at a non-trivial pace, and it has posed enough of a threat to SWIFT that it could reasonably be considered the main driving force behind SWIFT's GPII developments. Ripple was founded as a company called RipplePay in 2004 by Ryan Fugger, four years before Bitcoin.¹³⁰ After several name changes and technological alterations, the company rebranded as the present Ripple in October 2015.¹³¹

Ripple divides the network into two types of participants—the network users who only send payments, and the network members such as banks who process the actual payments.¹³² The payments are processed using Ripple's currency, xCurrent, which provides real time settlement with bi-directional simultaneous messaging.¹³³ When this is contrasted with the several steps required to communicate between two or more banks outlined in Part I, it should be clear where some of the efficiency gains come from. On top of the bi-directional messaging, each transaction is pre-validated using pre-disclosed information.¹³⁴ This pre-validation and disclosure makes payment certainty and settlement almost instantaneous.¹³⁵ Furthermore, liquidity risks are eliminated through the intra-network availability of another product, xRapid, an on-demand digital asset that works on a series of IOU's within the network, originally between individuals, but now through various "gateways"¹³⁶—in other words, a cryptocurrency (XRP). Finally, using the Ripple interface product, xVia, network participants receive end-to-end visibility, allowing them to check on their payment status in real-time.¹³⁷

From a technological standpoint, Ripple may have the ability to be far more effective as a payments facilitator than SWIFT. Most impressively, Ripple payments are almost instant, taking just four seconds.¹³⁸ As a result, the Ripple system removes credit and liquidity risk from the whole

130. Bitmex Research, *The Ripple Story*, BITMEX (Feb. 6, 2018), <https://blog.bitmex.com/the-ripple-story/> [<https://perma.cc/L3T8-MS4D>]. Mr. Fugger is no longer involved with Ripple, working instead in other blockchain and cryptocurrency spheres.

131. *Id.*

132. *RippleNet*, RIPPLE, <https://ripple.com/rippletnet/> [<https://perma.cc/R73Y-WU4U>] (last visited Dec. 1, 2018).

133. *Id.*

134. *Id.*

135. *Id.*

136. *Id.* See Bitmex Research, *supra* note 130; Ariel Schwartz, *Bitcoin 2.0: Can Ripple Make Digital Currency Mainstream?* (May 14, 2013), <https://www.fastcompany.com/2682032/bitcoin-20-can-ripple-make-digital-currency-mainstream?cid=search> [<https://perma.cc/M4ZE-648J>].

137. See RIPPLE, *supra* note 132.

138. See XRP, RIPPLE, <https://ripple.com/xrp/> [<https://perma.cc/CW5G-QDPT>] (last visited Dec. 1, 2018) (this is quicker than other cryptocurrencies as well as the traditional method).

payments process, allowing the costs to be lowered significantly.¹³⁹ Some commentators even believe that liquidity risk is the defining benefit Ripple has over SWIFT.¹⁴⁰ They may well be right—but as will be explained in subpart D, this is because the commentators fundamentally misunderstand the payment facilitator's role as a collective agent.

Nonetheless, Ripple has one other enormous benefit unique to it over other blockchain companies in that it connects directly to banks rather than to customers.¹⁴¹ Generally speaking, blockchain elicits understandable feelings of apprehension in consumers who hear about cryptocurrency and its wild fluctuations. Though connecting to banks directly does not, and probably cannot, totally insulate Ripple from cryptocurrency's negative connotations, it may be enough to lure some more users than it would have otherwise. Though by no means the most trusted institutions, customers are used to trusting banks, certainly a lot more than cryptocurrency or fintech startups at least. Regulated banks have sophisticated systems and controls for checking compliance, cybercrime, operational and conduct risks. Regulators are comfortable with banks, so at least the regulators may be more permissive with Ripple than they would be with totally non-bank blockchain or other fintech firms.¹⁴²

One major issue, however, is Ripple's size. So far, it only lays claim to around 100 customers,¹⁴³ though it is spread over 40 countries across six continents.¹⁴⁴ Despite the geographical scope, the 100 or so customers are in fact less than the number of firms that have adopted SWIFT's new GPII messaging standards in a much shorter period of time, and far less than the 3,500 SWIFT members that have committed to adopting it.¹⁴⁵ Ultimately, whether Ripple is as scalable, secure, and interoperable with other payment networks as it claims to be is yet to be seen.¹⁴⁶

Ultimately, Ripple's biggest downfall is its single-minded focus on

139. See David Blair, *Ripple vs SWIFT: payment (r)evolution*, <http://treasurytoday.com/2017/07/ripple-vs-swift-payment-r-evolution-ttpv> [<https://perma.cc/36QA-BA4K>] (last visited Dec. 1, 2018).

140. See Nick Mwenda, *Ripple (XRP) V SWIFT - Who will win the battle for control of the multi-trillion cross-border payments market?*, CRYPTO GLOBALIST (July 9, 2018), <https://cryptoglobalist.com/2018/07/09/ripple-xrp-v-swift-who-will-win-the-battle-for-control-of-the-multi-trillion-cross-border-payments-market/> [<https://perma.cc/RTN8-9WZQ>].

141. See Blair, *supra* note 139.

142. See *id.*

143. See *Join RippleNet*, RIPPLE, <https://ripple.com> [<https://perma.cc/642U-N3G6>] (last visited Dec. 1, 2018).

144. See Team Ripple, *Faster Cross-Border Payments Shouldn't Require a Boarding Pass*, RIPPLE (Oct. 30, 2018), <https://ripple.com/insights/faster-cross-border-payments-should-nt-require-a-boarding-pass/> [<https://perma.cc/32K2-6ZXH>].

145. SWIFT claims to have signed up over 150 financial institutions to date. See Press Release, SWIFT, *SWIFT gpi reduces cross-border payment times to minutes, even seconds* (Feb. 28, 2018), https://www.swift.com/news-events/press-releases/swift-gpi-reduces-cross-border-payment-times-to-minutes_even-seconds [<https://perma.cc/H4E9-UMJF>]. See also *Swift gpi brochure*, SWIFT 15 (Mar. 18, 2019), <https://www.swift.com/our-solutions/swift-gpi/swift-gpi-document-centre> [<https://perma.cc/59VG-ZSS2>]. Importantly, it can also be safely assumed that these financial institutions are transacting in far higher values than Ripple's clients are.

146. See RIPPLE, *supra* note 143.

speed and efficiency.¹⁴⁷ While Ripple does have less inputs and therefore is both quicker and less prone to error than SWIFT, Ripple makes the mistake of assuming that speed and efficiency are the be-all and end-all of the payments system, but that cannot be so. In doing so, Ripple's supporters and SWIFT's detractors dismiss some of the most important of SWIFT's gifts, such as ensuring interdependence. David Blair, for example, describes SWIFT's Global Payments Innovation Initiative's (GPII) (described *infra* at subpart (C)(ii)) requirement that partner banks monitor their fellow banks' compliance with the system as nothing more than "a commercial challenge for banks."¹⁴⁸ In fact, requiring banks to monitor their peers' compliance with GPII is imperative to the payment's system's success. Ultimately, peer-to-peer monitoring lends legitimacy to the system and ensures that each participant takes ownership in the system. At present, Ripple has no equivalent mechanism in place, though it could implement one in the future.

In fact, even if we were to take Ripple's focus on costs as the key component of the payment system, "the short term reality is that the cost of [reducing the transaction costs of and inefficiencies in SWIFT] is lower than the migration of operations to an entirely new standard as long as the efficiencies are still present."¹⁴⁹ Thus, in the short-run at least, there is no incentive to migrate to Ripple anyway, and financial institutions notoriously care little for the long run. Ultimately, "for all the attention Ripple and other fintechs in the space have received in recent months, SWIFT's all-rounded end-to-end service remains dominant" and "due to secure that for some time."¹⁵⁰

Also, it is worth noting that Ripple is itself a company. In fact, Ripple doesn't even function very well as a company: it constantly finds itself embattled in law suits with other blockchain companies such as R3.¹⁵¹ But even more worryingly, Ripple's leadership seems completely incapable of being the neutral leadership the payments industry requires. Why? Money—of course. One of the main problems on this front is that Ripple itself has and controls the cryptocurrency, thus giving itself the ability to dictate who potentially earns a fortune from it. When company insiders such as Jed McCaleb, Chris Larsen and Arthur Brito all receive quite literally billions of dollars' worth of Ripple currency, their incentives cannot be those of a collective agent.¹⁵² Destabilizing founders is not even unique to Ripple, but rather appears endemic in the cryptocurrency industry. Ethereum, most notably, has also had to contend with the destabilizing factors of insider fighting (as well as a notable hack), ultimately splitting into a

147. See, e.g., Blair, *supra* note 139.

148. See *id.*

149. SCOTT & ZACHARIADIS, *supra* note 2, at 75.

150. See David Beach, *What the HSBC news means for the SWIFT vs Ripple debate: Why it's not quite David vs Goliath anymore*, BOBS GUIDE (Apr. 24, 2018), <http://www.bobs-guide.com/guide/news/2018/Apr/24/what-the-hsbc-news-means-for-the-swift-vs-ripple-debate/> [https://perma.cc/4JTR-V6LV].

151. Bitmex Research, *supra* note 130.

152. *Id.*

new Ethereum and the aptly dubbed Ethereum Classic.¹⁵³ As a result, much like regular currency, “it is past time to acknowledge that governance of public blockchains is happening, by actual identifiable people, and that these people’s actions impact consumers.”¹⁵⁴ If cryptocurrencies are moneys, then there is a real risk involved with allowing a handful of private founders to regulate them.

Furthermore, as a private cryptocurrency, Ripple has no access to the central bank liquidity swap lines that maintain settlement guarantees and liquidity elasticity in cross-border transactions. Nonetheless, while it could technically be possible for central banks to enter into such liquidity swap lines with cryptocurrencies in the future, at present the only central banks with standing dollar liquidity swap lines¹⁵⁵ are the Bank of Canada, the Bank of England, the European Central Bank, the Bank of Japan, and the Swiss National bank,¹⁵⁶ so such an arrangement seems extremely unlikely.

Finally, Ripple is a company that sells its payment system as a series of products,¹⁵⁷ and no product can be a collective agent. A product is a product, not an agent, and a company selling a group of mutually dependent products for a profit cannot be a collective agent because the profit motive distorts not just the director’s (as mentioned above) but the company as an entity’s role as a public good.¹⁵⁸ Aside from this obvious weakness, being a company as opposed to a cooperative made up of the market participants has one debilitating weakness: insider turnover. When Jed McCaleb left Ripple in 2014, he took with him almost 10 billion XRP, prompting concerns that he could crash the entire system by dumping the cryptocurrency into the market, causing him to agree to lock up agreements not to do so.¹⁵⁹ Such a threat, posed by one disgruntled individual is anomalous to the workings of a collective agent—it is not an effective way to run a system, and far more importantly and clearly in this case, it is wholly illegitimate.

153. Ethereum Classic’s founders in a declaration of independence listed several grievances against the Ethereum platform’s founding members, showing that this flaw is recognized even within the industry. See *The Ethereum Classic Declaration of Independence* (Jul. 2019), <https://etherplan.com/ETC-The-Ethereum-Classic-Declaration-of-Independence-en.pdf> [<https://perma.cc/8P7W-UKZ8>].

154. Angela Walch, *Call Blockchain Developers What They Are: Fiduciaries*, AM. BANKER (Aug. 9, 2016, 12:00 PM), <https://www.americanbanker.com/opinion/call-blockchain-developers-what-they-are-fiduciaries> [<https://perma.cc/5QME-5TP9>].

155. Since the dollar, for better or worse, is still the world’s reserve currency, a dollar swap line gives a central bank enormous power.

156. See Fed. Reserve Bd., *Credit and Liquidity Programs and the Balance Sheet*, FED. RESERVE (Oct. 17, 2018), https://www.federalreserve.gov/monetarypolicy/bst_liquidity_swaps.htm [<https://perma.cc/48QZ-JGW6>].

157. See Victoria Beckett, *Is Ripple a threat to SWIFT gpi’s monopoly on cross-border payments?*, BOBS GUIDE (Apr. 3, 2018), <http://www.bobsguide.com/guide/news/2018/Apr/3/is-ripple-a-threat-to-swift-gpis-monopoly-on-cross-border-payments/> [<https://perma.cc/PS64-RKQE>].

158. See *id.*

159. Bitmex Research, *supra* note 130.

2. SWIFT's Response: GPII

In December 2015, SWIFT announced a global payments initiative to “dramatically improve the customer experience in correspondent banking by increasing the speed, transparency and predictability of cross-border payments.”¹⁶⁰ The initiative has four key features, all of which are answers to detractors and competitors alike: (1) same-day use of funds, (2) transparency and predictability of fees, (3) end-to-end payments tracking, and (4) the transfer of rich payment information.¹⁶¹

Importantly, both the Federal Reserve Banks and CHIPS have joined the new program, allowing U.S. firms and customers to reap the benefits of the initiative.¹⁶² Although not all financial institutions have adopted SWIFT GPII, it is noteworthy that as early as February 2018 SWIFT had announced that more than \$100 billion were being sent through the system on a daily basis.¹⁶³ Furthermore, SWIFT claims that 50% of payments sent through the system are credited in less than 30 minutes and almost 100% within 24 hours.¹⁶⁴ This is an impressive record for a cooperative described just months before that announcement as a facilitator of “slow, expensive and opaque” cross-border payments.¹⁶⁵ In fact, of those payments that take longer than 24 hours, SWIFT says they “typically involve more complex foreign exchange conversions, compliance checks or regulatory authorizations.”¹⁶⁶ As outlined above, SWIFT holds a distinct competitive advantage over new entrants in compliance and regulatory areas, so it is unlikely that Ripple or any other potential competitor could provide any better service in these complex transactions anyway.

D. Blockchain Companies in General as a Collective Agent?

The question answered in Part IV so far has been whether blockchains such as Ripple are viable threats to SWIFT as a payments facilitator—the transactional aspect of a payments system. The question has been answered in the affirmative. The real question, however, must be whether private blockchains can replace SWIFT as a payments facilitator which also plays a role as a collective agent—the systemic dynamic.

One answer may be that blockchain technology might even be too effective from a transactional perspective to perform the role of collective agent. For example, some academics suggest that “in a fully frictionless world of blockchain-powered transaction processing, overtly speculative

160. Press Release, SWIFT announces global payments innovation initiative, SWIFT (Dec. 10, 2015), <https://www.swift.com/news-events/press-releases/swift-announces-global-payments-innovation-initiative> [https://perma.cc/RD4Y-7SXD].

161. *See id.*

162. *See* Press Release, US payment market infrastructures agree to support SWIFT gpi tracking of cross-border payments, SWIFT (Mar. 13, 2017), <https://www.swift.com/news-events/press-releases/us-payment-market-infrastructures-agree-to-support-swift-gpi-tracking-of-cross-border-payments> [https://perma.cc/66SY-YDM9].

163. *See* SWIFT, *supra* note 145.

164. *See id.*

165. *See* Blair, *supra* note 139.

166. SWIFT, *supra* note 145.

trading will also be faster, easier, cheaper, and thus more voluminous.”¹⁶⁷ In this sense, blockchain cannot become a collective agent whose job is to ensure systemic stability precisely because being so good exacerbates the industry’s inherent risk-taking. In such a scenario, there would almost by definition have to be another kind of collective agent, whose form is unimaginable at present.¹⁶⁸ Certainly, if one frames the issue through the proposed legitimacy and effectiveness lenses as this Note does, the answer is still no.

In addition, U.S. headquartered, private blockchain firms (as Ripple and IBM are) cannot be effective as a collective agent for the global payments system. First, it is true that SWIFT’s technical vulnerability of the kind blockchain seeks to remove from the system impinges on its effectiveness via a lack of trust as an institution.¹⁶⁹ Nevertheless, even this problem is one best tackled by a collective agent rather than a private company. In fact, SWIFT’s GPII has developed a way to fix this, requiring name data elements and discrete elements for address information such as country codes that can help banks and other entities meet current and evolving screening regulations.¹⁷⁰ Even if SWIFT had not improved its defenses against external threats, cyber threats against cross-border payments, global by definition, are so “decentralized” and have such “far-reaching ramifications that national rulemaking almost seems redundant,” and as a result, a global collective agent is needed.¹⁷¹ It takes no great leap of logic to believe that a U.S. headquartered firm (like Ripple and IBM) is even more susceptible or attractive a target for a cyber-attack than a Belgian-headquartered cooperative. Although it may be difficult for any blockchain system to be the subject of a so-called “51% attack,” it remains technically possible. Thus, “the system remains vulnerable to a politically motivated 51% attack, for instance from a government.”¹⁷² Although IBM certainly has some of the best cyber-security in the world, proximity to the increasingly isolated U.S. would make an attack on a collective agent all the more attractive to cyber-terrorists in North Korea or Iran.

Second, blockchain companies (wherever they are headquartered) are intimately linked in the popular psyche with the volatility of cryptocurrencies such as Bitcoin¹⁷³ which makes it unlikely that customers will be

167. Omarova, *supra* note 32, at 45.

168. *Id.* at 5.

169. See, e.g., Sawasdee Krub, 21st ASEAN Banking Conference Governor’s Speech: Transforming Financial Services to Meet the Needs of the Growing ASEAN Economic Community (AEC) 3 (2016), <https://www.bis.org/review/r161213f.pdf> [<https://perma.cc/637N-QRSQ>] (In 2016, at least four financial institutions in Bangladesh, Vietnam, Ecuador, and the Philippines became victims of cyber heists involving SWIFT’s systems.).

170. See *New Message Format for Fedwire*, *supra* note 53, at 31393.

171. Danielle Myles, *The Opportunity Cost*, INT’L FIN. L. REV., Oct. 2015, at 4.

172. Bacon et al., *supra* note 119, at 28.

173. Bitcoin itself says on its website, “The price of a bitcoin can unpredictably increase or decrease over a short period of time due to its young economy, novel nature, and sometimes illiquid markets . . . Bitcoin should be seen like a high risk asset, and you should never store money that you cannot afford to lose with Bitcoin.” *Some things*

enamored by the prospect of their funds travelling through a system they view as inseparable from volatile cryptocurrencies. One might reasonably assume that when cryptocurrencies become less volatile, this would cease to be an issue. This is unlikely, however, since Ripple uses its own cryptocurrency to facilitate transactions. The most likely cause of stabilization comes from an external force—regulation. This regulation, of course, as for a U.S. company, will come from the Federal Reserve or the SEC. As a result, Ripple would face the same problems described in Part III, only multiplied because the U.S. would have direct jurisdiction over absolutely everything it did, and not just those transactions involving U.S. customers.

Furthermore, aside from cryptocurrency volatility generally, blockchains have fallen prey to similar security shortcomings as SWIFT anyway.¹⁷⁴ Of course, this argument boils down to saying that society is not ready for Ripple or another private company's payments blockchain yet. Undoubtedly, this is a product not only of cryptocurrency volatility, but also the public's lack of understanding about blockchain. Indeed, "it is now a well-worn joke that one need only throw the word "blockchain" around to raise money or to seem smart."¹⁷⁵

Despite any hesitancy that Ripple or BWW will develop in the near future to overcome SWIFT's monopoly, it is important to note the lessons of how SWIFT developed into its dominant role. SWIFT encountered stiff opposition to its attempts to roll out proprietary standards—nobody likes being told what to do by an ambitious startup.¹⁷⁶ Moreover, SWIFT did not develop into the industry leader by itself, nor did it even develop its major competitive advantage—the SWIFT messaging standards—without enormous assistance from the International Organization for Standardization (ISO) and Euroclear, among others.¹⁷⁷ It is unlikely and unrealistic to assume that any new competitor could usurp SWIFT's position when it has such powerful backers. In fact, the Fed has noted that "despite high levels of innovation in the U.S. payment system, a lack of coordination is creating fragmentation, inhibiting ubiquity and creating confusion."¹⁷⁸ Any new contender to SWIFT's throne would presumably face similar teething problems—probably of the kind the global financial system cannot endure.

Nonetheless, SWIFT developed in the late 1970s and 1980s. The growth was slow, disjointed and stifled by less developed countries' inability to meet the standards required to join by the SWIFT board.¹⁷⁹ In today's technological climate, however, with developing nations around the

you need to know, BITCOIN, <https://bitcoin.org/en/you-need-to-know> [<https://perma.cc/N58G-SN7R>] (last visited Dec. 1, 2018).

174. Zetsche, Buckley & Arner, *supra* note 122, at 1367-69.

175. Nick Paumgarten, *The Prophets of Cryptocurrency Survey the Boom and Bust*, NEW YORKER (Oct. 22, 2018), <https://www.newyorker.com/magazine/2018/10/22/the-prophets-of-cryptocurrency-survey-the-boom-and-bust> [<https://perma.cc/8XDV-LM2N>].

176. See SCOTT & ZACHARIADIS, *supra* note 2, at 69.

177. See *id.* at 68-73.

178. FEDERAL RESERVE SYSTEM, *supra* note 81, at 10.

179. SCOTT & ZACHARIADIS, *supra* note 2, at 100.

globe being amongst the pioneers in payments technology, it is entirely foreseeable that a new, challenger technology could become dominant by focusing on the economies that were slow to join SWIFT in the first instance. If “it was not the technology alone that established SWIFT’s core position but rather the achievement of critical mass,”¹⁸⁰ then by taking advantage of the billions of people in Sub-Saharan Africa, India, and China that SWIFT currently underserves, Ripple and BWW could certainly achieve just that.¹⁸¹ Certainly, Ripple has been quicker than SWIFT to recognize that few financial institutions (including SWIFT) have established global payment reach “that extends into emerging markets or connects seamlessly those who are unbanked with international payments services.”¹⁸²

Conclusion

Despite the push for faster, more efficient payments, at least some people inside SWIFT understand the end game. The end game is not, as Ripple CEO Brad Garlinghouse suggested, a race to the quickest payment.¹⁸³ Instead, the payments industry is more of a synchronized swim event: each participant needs to know their role, their peers’ roles, and how everything fits together. SWIFT’s new updates may have been formed to address challenges of speed and efficiency, but cross-border payments are not a race: “what’s important for corporates is not necessarily having every payment made in real time.”¹⁸⁴ This is even truer for the high-value, complex transactions that SWIFT claims are the only payments currently taking over 24 hours to process. Indeed, industry insiders suggest that for blockchain it is “a little early to try to tackle cross-border payments, particularly high-value cross-border payments where we’re putting millions of dollars at risk.”¹⁸⁵

There is little doubt that at some point in the near future, blockchain will play a role in the cross-border payments industry. The major question is *what* role? As has been outlined in this Note, from a technological stand-

180. *Id.* at 95.

181. SWIFT GPI, for example, only accounts for 25% of the payments traffic between the U.S. and China, indicating that there is a huge untapped market for cross-border payments providers. See SWIFT, *supra* note 145.

182. See RIPLE, BLOCKCHAIN ADOPTION: THE TIPPING POINT IS NEAR. FINDINGS FROM RIPLE’S BLOCKCHAIN IN PAYMENTS REPORT 2018, at 2 (2018).

183. See Penny Crosman, *Ripple vs. Swift rivalry heats up; banking may be ultimate winner*, PAYMENTSSOURCE (Apr. 26, 2017, 12:58 PM), <https://www.paymentssource.com/news/ripple-vs-swift-rivalry-heats-up-banking-may-be-ultimate-winner> [https://perma.cc/9ZDC-QKJD] (Brad Garlinghouse saying “I don’t think you can make a horse and buggy keep up with a race car. You can whip the horse faster to make the buggy go faster, but meanwhile a technology shift has occurred”); see also, Brad Galinghouse (@bgarlinghouse), TWITTER (Jun. 7, 2018, 1:53 AM), <https://twitter.com/bgarlinghouse/status/1004451192154439680> [https://perma.cc/SR74-WR2P] (“Swift GPI is like putting a Ferrari shell on a Model-T engine.”).

184. See Crosman, *supra* note 183 (quoting Stephen Grainger, SWIFT’s head of North America).

185. See *id.* (quoting Tony Brady, managing director and head of global product management for BNY Mellon Treasury Services).

point, companies using blockchain can challenge SWIFT. But then again, SWIFT can also incorporate blockchain, so that is not enough: to be valid alternatives they would also need to enable full connectivity across all countries, currencies and bank accounts worldwide—“a massive undertaking.”¹⁸⁶ A systemic overhaul of this magnitude requires the coordination of the entire industry, not just one segment. Moreover, a collective agent requires both efficiency—which Ripple has so far demonstrated on a small scale but is as yet untested in the number of and size of transaction SWIFT handles on a daily basis—and legitimacy—which it certainly has not achieved. In five years or so, both these conclusions may have to change, but right now, blockchain is just not there. Thus, we must focus for the present on how to improve the collective agent and infrastructure we have—SWIFT.

Finally, by framing SWIFT as a collective agent and not just a technology, there are some questions that still remain unanswered. First, how should SWIFT be regulated? Alternatively, we might ask a more fundamental question, should SWIFT be regulated at all? Perhaps SWIFT would be more effective if it was given the same organizational immunity as its peers the IMF and WTO. Other queries may arise regarding who should even control SWIFT. Most collective agents are governments, especially in the democratic West. If SWIFT plays a similar role to governments or the UN, perhaps decision-making should extend beyond the limited banker-run board. Even further afield, but no less important, we might have to ask more fundamental questions about what type of law is even implicated. For example, is SWIFT to be governed by private law or public international law? These questions are beyond the scope of this Note, but if we frame SWIFT's role in the payments industry as that of a collective agent, these questions should be easier to answer.

186. See Olivier Denecker et al., *Rethinking correspondent banking*, MCKINSEY ON PAYMENTS, June 2016, at 3, 9, <https://www.mckinsey.com/-/media/McKinsey/Industries/Financial%20Services/Our%20Insights/Rethinking%20correspondent%20banking/Rethinking-correspondent-banking.ashx> [https://perma.cc/FNX8-7ZVW].

