Articles

Apple Pay, Bitcoin, and Consumers: The ABCs of Future Public Payments Law

MARK EDWIN BURGE*

As technology rolls out ongoing and competing streams of payments innovation, exemplified by Apple Pay (mobile payments) and Bitcoin (cryptocurrency), the law governing these payments appears hopelessly behind the curve. The patchwork of state, federal, and private legal rules seems more worthy of condemnation than emulation. This Article argues, however, that the legal and market developments of the last several decades in payment systems provide compelling evidence of the most realistic and socially beneficial future for payments law. The paradigm of a comprehensive public law regulatory scheme for payment systems—exemplified by Articles 3 and 4 of the Uniform Commercial Code—has faded in relevance, while federal law has grown in a specialized consumer protection role. Meanwhile, private contract law has expanded to fill gaps where payment technology has exceeded the scope of public law.

The evidence of the successes and failures of payments law in the face of rapid technological development shows that the field is not best governed by comprehensive public regulation on the Uniform Commercial Code model, but that public law still has an important—albeit narrower—role for the future. The most beneficial paradigm for governance of payment systems is a division between (1) private law handling systemic matters of operation, and (2) public law focused on protecting payment system end-users from oppression, fraud, and mistake. This demarcation of lawmaking responsibilities has the greatest track record of success and is the most capable of dealing with a foreseeable future of unforeseeable innovations.

* Associate Professor of Law, Texas A&M University School of Law. Both this Article and its Author have benefitted greatly from Connell Alsup, Dan Barnhizer, Bryan Camp, Catherine Christopher, Erin Fonté, Bill Henning, Sally Henry, Julie Hill, Sarah Jane Hughes, Jason Korosec, Fred Miller, Peter Van Valkenburgh, Angela Walch, and Jane Winn for topical conversations, comments on sundry drafts, or—in some instances—both. Particular thanks go to Dean Andrew Morriss, Associate Dean for Faculty Research Huyen Pham, and Texas A&M University School of Law for providing substantial institutional support to the eclectic stream of research from which sprang this Article. Notwithstanding those debts of gratitude, however, the opinions expressed in this Article are entirely the responsibility of the Author.

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INTRODUCTION

A half-century ago, checks held an overwhelmingly dominant role in facilitating payments without cash.[1] As recently as a decade ago, the status quo for an end-user making noncash payments in the United States could be summarized in two statements: (1) "No personal checks, please;" and (2) "Will that be debit or credit?"[2] Paper checks were still important, but clearly in decline, and payment-by-plastic was ascendant in its chocolate-or-vanilla flavors. The world of cashless payments today is not so easily categorized. Mobile payment platforms like Apple Pay, Android Pay, and Samsung Pay seek to displace physical wallets.[3]

1. *See, e.g.*, *Personal Money Orders and Teller's Checks: Mavericks Under the UCC*, 85 BANKING L.J. 95, 95 (1968) (asserting "the emergence of the personal check as the standard means for paying debts" in the post-World War II era).

2. *See, e.g.*, Oren Bar-Gill, *Seduction by Plastic*, 98 NW. U. L. REV. 1373, 1373 (2004) (finding in the mid-2000s that "[c]redit cards present a significant socio-economic phenomenon."); *see also* Mary Elizabeth Matthews, *Credit Cards—Authorized and Unauthorized Use*, 13 ANN. REV. BANKING L. 233, 233 (1994) (observing in the mid-1990s that the "use of credit cards has expanded so rapidly in the last few decades as to resemble a 'plastic revolution.'").

3. *See, e.g.*, Erin F. Fonté, *Mobile Payments in the United States: How Disintermediation May Affect Delivery of Payment Functions, Financial Inclusion and Anti-Money Laundering Issues*, 8 WASH.

Cryptocurrencies like Bitcoin seek to use digital tokens that not only displace cash, but also displace the role of banks and other financial institutions whose systems were once thought indispensable to noncash transactions.[4] It is no exaggeration to say that the Internet and its associated technologies have changed—and are continuing to change—everything in the realm of payments. So, what is the most beneficial legal framework to deal with a foreseeable evolution of payments in the future? This Article seeks, and finds, an answer to that question out of both the successes and the wreckage of the past century of payments law.

Payments law stands at an unusual juncture. One can rarely say that a field exists with "no law," as the common law jurisprudential system prevents even the most exotic and unexpected developments from occurring in a legal vacuum. Payments law is no exception here—courts, regulators, and the general law of contracts will ultimately fill in legal gaps where they must, perhaps by analogizing to or stretching a previous generation of established law. A place where payments law is arguably special is in its current existence as a devolved patchwork of rules that have sprung up in place of a tightly planned comprehensive regime. Electronic payments now permeate business and commerce. The uninformed might accordingly think the signature legislative achievement in the field of commercial law—the Uniform Commercial Code ("UCC")—would comprehensively address developing electronic payments, but as observers of the UCC know, it does not. The high-water mark of the 1960s-era, state legislative enactments of UCC Articles 3 and 4 created comprehensive governance in the field of commercial paper, including checks.[5] This enactment has largely been followed by decades of declining significance, as private law has grown to dominate more recent payment technologies.

Public law has grown in one particular area of payments, that of consumer protection, largely at the federal level, where the Truth in

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J.L. TECH. & ARTS 419, 421 (2013) ("Mobile payments technology is poised to create a globally dramatic shift in how individuals pay for goods and services, track spending, and manage personal finances."); M. MacRae Robinson, Note, *Easing the Burden on Mobile Payments: Resolving Current Deficiencies in Money Transmitter Regulation*, 18 N.C. BANKING INST. 553, 553 (2014) ("The use of mobile payment systems is rapidly expanding both at home and abroad, replacing traditional forms of payment.").

4. *See, e.g.*, Omri Marian, *A Conceptual Framework for the Regulation of Cryptocurrencies*, 82 U. CHI. L. REV. DIALOGUE 53, 55 (2015) ("[C]ryptocurrencies are essentially protocols that allow for the validation of transactions without the need for a trusted third party such as a bank, credit card company, escrow agent, or recording agency.").

5. *See generally* Henry Gabriel, *The Revision of the Uniform Commercial Code—How Successful Has It Been?*, 52 HASTINGS L.J. 653, 654–55 (2001); Mark Edwin Burge, *Too Clever by Half: Reflections on Perception, Legitimacy, and Choice of Law Under Revised Article 1 of the Uniform Commercial Code*, 6 WM. & MARY BUS. L. REV. 357, 360–61 (2015) (describing breadth of the original enactment of, and revisions to, the UCC generally).

Lending Act ("TILA") and the Electronic Funds Transfer Act ("EFTA") represent a different approach to payments regulation. These statutes eschew overarching codes in favor of targeted protections, such as the fifty dollar liability limit for credit cards[6] and debit cards.[7] The impact of this consumer-protective regime that facially imposes costs on the issuance of payment cards has been phenomenal growth for the industry.[8] Consistent limitation of liability for fraudulent and erroneous card transactions has created an atmosphere in which payment cards are trusted more than they are feared. The cards accordingly have been empowered to displace inefficient paper checks in consumer practices. No card issuer could, by shifting fraud liability to its customers, harm other card issuers by inspiring fear and reticence in the marketplace, and the payment card system prospered as a result. The success of TILA and EFTA thus stands as a successful model for targeted end-user protection, and must be accounted for in mapping a future for payments law.

Private contract law, in contrast, dominates the operational side of newer payment systems. Apart from TILA and EFTA, payment cards function through a web of private contracts, stretching from user to merchant with the card network in between. Increasing numbers of payments without card networks occur through banks via the automated clearing house ("ACH") system. Collective self-governance through the National Automated Clearing House Association ("NACHA")[9] and its regional affiliates[10] is a model of private law operated as a public-private partnership. The private rules of NACHA, in cooperation with the quasi-public Federal Reserve System, have created a highly successful system of payments that, like payment cards before it, are also rapidly displacing checks.[11] Every time a user receives a direct deposit paycheck or chooses to use online bill payment services through a bank, an ACH transaction has supplanted a check. Private law has been a tremendous success for electronic payment systems in handling the operational side of payments absent a comprehensive regulatory regime. If history is to hold any lessons for the future of payments, the legal paradigm must include a prominent place for private law.

Payment systems now stand in an era where technological innovation in operations exceeds the regulatory capacity of public legal institutions.

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6. *See* Truth in Lending Act, 15 U.S.C. § 1643(a)(1)(B) (West 2016).

7. *See* Electronic Funds Transfer Act, 15 U.S.C. § 1693g(a)(1) (West 2016).

8. *See infra* text accompanying notes 62–67; FED. RESERVE SYS., THE 2013 FEDERAL RESERVE PAYMENTS STUDY: RECENT AND LONG-TERM TRENDS IN THE UNITED STATES: 2000–2012 (2014).

9. *See generally About NACHA*, NACHA, THE ELEC. PAYMENTS ASS'N, https://www.nacha.org/about (last visited Aug. 5, 2016) (describing NACHA's role in the payments industry).

10. *See generally Regional Payments Associations*, NACHA, THE ELEC. PAYMENTS ASS'N, https://www.nacha.org/members/regional-payments-associations (last visited Aug. 5, 2016) (providing guidance on how to join Regional Payments Associations).

11. *See infra* text accompanying notes 145–150.

Public law protection of the end-user has nevertheless proven so successful and facilitated such industry growth[12] that complete privatization of payments law is not the best response either. Legal inaction is not an attractive option as innovation is stretching the capacity of public law to function in areas of proven success. This Article argues that emerging payment systems should be subject to a division between private law and public law in which private law is predominant, but not exclusive.

Part I of this Article considers the role of Articles 3 and 4 of the UCC as the ultimate regulatory embodiment of the common law of noncash payments, particularly in the checking system.[13] Part II then establishes how the UCC's high-water mark of comprehensive public regulation has eroded over a several-decade period coinciding with the rise of payment card networks and the ACH system. Both of these systems are predominantly—but not exclusively—governed by private contract law. This growth of private-law governance of payments has coincided with a general marginalization of the original UCC regime.[14]

With this background established, Part III of this Article then considers two major strands of current innovation in payment systems: mobile payments and cryptocurrency.[15] The Apple Pay exemplar of mobile payments illustrates the legal challenges arising from integration of a new payment system into a pre-existing public law framework that did not contemplate it. The Bitcoin exemplar of cryptocurrency shows a very different challenge for payments law, the establishment of a system that completely bypasses the previously unavoidable role of the banking system as the trusted intermediary for noncash payments. Part IV integrates lessons drawn from both payment systems history and recent developments to suggest a governing framework in which public law and private law are divided in a manner to maximize the overall socially-beneficial effects.[16] The Article concludes that the paradigm for governance of payment systems going forward should be a division between: (1) private law and public-private partnerships that handle systemic matters of operation; and (2) public law focused on protecting payment system end-users from oppression, fraud, and mistake. This general demarcation of lawmaking responsibilities has the greatest track record of success and is most capable of dealing with a foreseeable future of payments that is filled with unforeseeable innovations.

12. *See* LEWIS MANDELL, THE CREDIT CARD INDUSTRY: A HISTORY 69 (1990) (observing that by the end of the 1970s, a "wide array of laws and regulations" that protected consumers served the function of "stabilizing the industry," priming it for subsequent growth).

13. *See infra* Part I and text accompanying notes 17–60.

14. *See infra* Part II and text accompanying notes 62–184.

15. *See infra* Part III and text accompanying notes 185–244.

16. *See infra* Part IV and text accompanying notes 245–278.

I. The Uniform Commercial Code as the Payments Law Paradigm

The weed-strewn landscape of payments law overall cannot be explained without reference to the comparatively manicured lawn occupied by Articles 3 and 4 of the UCC. Yet, as critics of the payment articles frequently note, this portion of the UCC was hardly innovative, arising as it did from a musty law of negotiable instruments dating back to Lord Mansfield's day.[17] The payment articles cannot even claim to be the first major attempt at codification of the common law of bills and notes, having been preceded by the turn-of-the-century Uniform Negotiable Instruments Law. In a sense, the UCC payment articles represent not only themselves, but centuries of history. As a result, any understanding of the challenges to current payments law must include at least a thumbnail sketch of its foundations.

Although the need for payments in commerce is as old as commerce itself, we can, as did Grant Gilmore, reasonably trace the present UCC law of checks to the last half of the eighteenth century.[18] Commerce of the industrial revolution age required a means of payment that did not involve hauling around bags of metallic specie, and the solution developed by merchants and bankers was the bill of exchange, the instrument out of which bank checks developed.[19] A bill of exchange was simply a written instruction by one person, perhaps a merchant, to an agent with whom the merchant had deposited money or credit.[20] The money was payable upon presentation of the bill to the agent, but the bill could itself circulate in commerce.[21] In international transactions, bills of exchange allowed the transfer of value—the right to obtain payment from the agent—despite the existence of great distances and different national coinage, as the agent could ultimately pay the bill of exchange in the agent's local currency.[22] The UCC today uses the term "draft" to describe this kind of three-party financial instrument, and checks are

17. *See, e.g.*, James Steven Rogers, The End of Negotiable Instruments: Bringing Payment Systems Law out of the Past 19 n. 1 (2012) (finding a "puzzling persistence" of the antiquated law of bills and notes in modern commerce); Neil B. Cohen, *The Calamitous Law of Notes*, 68 Ohio St. L.J. 161, 161 (2007) ("The law of negotiable instruments is hemmed in on one side by its own antiquity and on the other by the emergence of electronic communications.").

18. Grant Gilmore, *Formalism and the Law of Negotiable Instruments*, 13 Creighton L. Rev. 441, 448 (1979).

19. *Id.* at 447.

20. *See* Dale A. Whitman, *Reforming the Law: The Payment Rule as a Paradigm*, 1998 BYU L. Rev. 1169, 1170 n.5 (1998) ("The original negotiable instruments were 'inland bills of exchange,' typically issued by merchants, but the concept was extended to promissory notes by the end of the eighteenth century.").

21. *Id.*

22. For a more detailed description of bills of exchange, which is beyond the scope of this Article, *see* Rogers, *supra* note 17, at 26–31.

accordingly a "draft" that is drawn upon a bank, which thus occupies the position of the merchant agent in the example above.[23]

Although bills of exchange initially arose in international commerce, buyers and sellers in industrial England began using them in purely domestic transactions as well.[24] As such bills never necessarily left the shores of Britain, they came to be known as *inland* bills of exchange. In 1764, Lord Mansfield held these bills of exchange to be negotiable and thus capable of coming into possession of a "good faith purchaser" who took free of claimed defects in the underlying transaction.[25] A good faith purchaser ultimately became known as a "holder in due course" under the English Bills of Exchange Act of 1882[26] As for checks as a species of commercial paper, they came into general use in England in approximately 1780.[27] The English terminology eventually made its way across the Atlantic, such that American courts used it as well. For example, the Michigan Supreme Court explained in an 1889 criminal case involving the forged indorsement of a check that, "[a]ll checks come within the meaning and definition of a bill of exchange, but all bills of exchange are not checks. . . . They are commercial paper, and are governed by the same rules as to presentment and notice of non-payment as inland bills of exchange . . . ."[28] The characteristics separating a check from other bills of exchange were that it was drawn on a bank and was payable to the bearer on demand.[29] The fact that checks are a species of the inland bill of exchange has been declared by no less an authority than the U.S. Supreme Court,[30] albeit in the pre-*Erie* days where it actually heard cases of domestic commercial law.[31]

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23. *See* U.C.C. § 3-104(e) & (f) (AM. LAW INST. & UNIF. LAW COMM'N 2015) (defining "draft" and "check" respectively).

24. *See generally* Frederick K. Beutel, *The Development of Negotiable Instruments in Early English Law*, 51 HARV. L. REV. 813 (1938) (discussing the origin and development of early English law governing negotiable paper).

25. Grant v. Vaughan (1764) 96 Eng. Rep. 281 (K.B.); *see* M.B.W. Sinclair, *Codification of Negotiable Instruments Law: A Tale of Reiterated Anachronism*, 21 U. TOL. L. REV. 625, 632–33 (1990) (describing Lord Mansfield's application of the 1704 Statute of Anne in the *Grant* case).

26. Gilmore, *supra* note 18, at 449 n.14.

27. HENRY J. BAILEY & RICHARD B. HAGEDORN, BRADY ON BANK CHECKS: THE LAW OF BANK CHECKS ¶ 1.1 (7th ed. 1992).

28. People v. Kemp, 76 Mich. 410, 416 (1889); *see* Merchants' Bank v. State Bank, 77 U.S. 604, 647 (1870) ("Bank checks are not inland bills of exchange, but have many of the properties of such commercial paper; and many of the rules of the law merchant are alike applicable to both.").

29. BAILEY & HAGEDORN, *supra* note 27, at ¶ 1.1.

30. Rogers v. Durant, 140 U.S. 298, 303 (1891) ("According to all the text writers on bills and notes, as well as in numerous decisions, a check is denominated a species of inland bill of exchange, not with all the incidents of an ordinary bill of exchange . . . .") (quoting approvingly Moses v. Franklin Bank, 34 Md. 574 (1871)).

31. J. Benton Hurst, *De Facto Supremacy: Supreme Court Control of State Commercial Law*, 98 VA. L. REV. 691, 693 (2012) (noting that a pre-1938 "willingness of state courts to follow the Supreme Court on questions of commercial law created a de facto supremacy for the Supreme Court, even where it could not directly review cases."); *see* William A. Fletcher, *The General Common Law and Section 34 of the*

The late 1700s were thus the era in which "the courts, English and American, put together, in not much more than half a century, the law of negotiable instruments almost exactly as we know it today."[32] Under the English common law as developed in the late 1700s, "private negotiable instruments were legally recognized and thus became more widely used by ordinary people."[33] On the eve of the twentieth century, the law of negotiable instruments stood much as it does now. Eighteenth century concepts[34]—such as indorsements and allonges—remain in the UCC law of checking to this very day.[35]

Despite its common law pedigree, the law of checks and other negotiable instruments also has the distinction of being the first major success at being moved out of the common law through codification by the National Conference of Commissioners on Uniform State Laws.[36] The Uniform Negotiable Instruments Law ("NIL") was promulgated by the Commission in 1896.[37] The NIL was heavily influenced by the English Bills of Exchange Act, as the lead drafter, attorney J.J. Crawford of New York City, had a mandate from the Commission to follow the English statute "as much as he thought it applicable to American conditions."[38] The NIL was also notable for its more expansive unification of commercial paper on the rubric of "negotiable instruments," and on that count seems to have drawn on an 1876 codification in California.[39] By

Judiciary Act of 1789: The Example of Marine Insurance, 97 HARV. L. REV. 1513, 1513 (1984) (recounting that in 1842 "the Supreme Court held in *Swift v. Tyson* that it was not bound . . . to follow state court decisions on matters of general commercial law."). *Swift*, interestingly, was a case involving the law of negotiable instruments. *See id.* at 1514 (citing Swift v. Tyson, 41 U.S. 1 (1842)).

32. Gilmore, *supra* note 18, at 448.

33. Alvin C. Harrell, *Book Review and Commentary: James Steven Rogers, the End of Negotiable Instruments*, 66 CONSUMER FIN. L.Q. REP. 220, 222 (2012).

34. Gilmore, *supra* note 18, at 448 n.13 (citing Peacock v. Rhodes (1781) 99 Eng. Rep. 402, 402 (K.B.) and Robertson v. Kensington, 128 Eng. Rep. 238, 239 (Ex. 1811)).

35. *See* U.C.C. § 3-204(a) (AM. LAW INST. & UNIF. LAW COMM'N 2015) (defining "indorsement" and, in consideration of the possibility of signatures placed on an allonge, providing that "a paper affixed to the instrument is part of the instrument"); *see also* Sinclair, *supra* note 25, at 676 (criticizing the 1990 revision of Article 3 because it "would be more in accord with present realities to have allowed for indorsements on paper only loosely attached, or separable allonges, provided that there is no doubt as to the chain of title.").

36. In 2006, NCCUSL amended its constitution to provide that it may also be known as the "Uniform Law Commission" or "ULC." ROBERT A. STEIN, FORMING A MORE PERFECT UNION: A HISTORY OF THE UNIFORM LAW COMMISSION 20–21 (2013). For consistency's sake, this Article will tend to refer to NCCUSL and the ULC simply as "the Commission," unless context requires otherwise.

37. *Id.* at 9.

38. Frederick K. Beutel, *The Development of State Statutes on Negotiable Paper Prior to the Negotiable Instruments Law*, 40 COLUM. L. REV. 836, 852 (1940); *see* STEIN, *supra* note 36, at 9.

39. Beutel, *supra* note 38, at 851; *see* WILLIAM E. BRITTON, HANDBOOK OF THE LAW OF BILLS AND NOTES (2d ed. 1961) ("The Conference had as its model [for the NIL] the English Bills of Exchange Act. This Act deals only with the law of bills of exchange, with separate sections dealing with promissory notes and checks. The draftsmen of the American Act departed from this policy and drafted an act applicable to negotiable instruments generally.").

1924, the NIL had the distinction of having been adopted by every American state,[40] a first for the uniform laws drafting process.[41] The NIL provisions on bank checks, however, trace back to the 1882 English Act, and ultimately to the same needs of commerce that Lord Mansfield sought to address in the mid-1700s.[42]

The 1940s began with the NIL in a position of overwhelming legislative acceptance, but in the midst of dissatisfaction with the state of commercial law as a whole.[43] Between 1906 and 1908, the Commission had promulgated several other commercial statutes, such as the Uniform Sales Act, the Uniform Warehouse Receipts Act, and the Uniform Stock Transfer Act, all of which achieved widespread adoption.[44] Many thought that provisions of these acts "had become, if not obsolete, at least not suitable to govern the business practices of the day."[45] With that perspective, Commission President William Schnader proposed the creation of a comprehensive commercial code in his 1940 address.[46] At first, that project advanced largely as a function of Karl Llewellyn's existing effort at drafting a Revised Uniform Sales Act—the genesis of what became UCC Article 2.[47] The project gained heft and momentum after 1944, when the American Law Institute ("ALI") signed a formal agreement with the Commission to prepare the UCC as a joint undertaking.[48] The "real work" on organization and drafting began on January 1, 1945, with Karl Llewellyn at the helm as Chief Reporter.[49]

The initial promulgated version of the UCC came about in late 1951,[50] but Article 4, concerning bank deposits and collections, almost did not make the cut. In May 1951, the ALI decided to eliminate Article 4. President Schnader, who was also an original drafting committee

40. William E. Britton, *Transfers and Negotiations Under the Negotiable Instruments Law and Article 3 of the Uniform Commercial Code*, 32 TEX. L. REV. 153, 153–54 (1953).

41. *See* William A. Schnader, *A Short History of the Preparation and Enactment of the Uniform Commercial Code*, 22 U. MIAMI L. REV. 1, 2 (1967); STEIN, *supra* note 36, at 9.

42. *Cf.* Gilmore, *supra* note 18, at 448 ("Indeed anyone who has mastered the current American formulation of . . . Article 3 of the Uniform Commercial Code will have a startling sense of *déjà vu*—I suppose this is *déjà vu* in reverse—if he then goes back to the mid-nineteenth century treatises[.]"); BRITTON, *supra* note 39, at 13 ("[T]he law with respect to bills and notes was essentially the common law found in the decisions of English Courts from 1600 to the date of enactment of the English Bills of Exchange Act in 1882 and in the decisions of the state and federal courts of the United States.").

43. *See generally* Robert Braucher, *The Legislative History of the Uniform Commercial Code*, 58 COLUM. L. REV. 798, 799 (1958) (describing the legislative history and drafting of the UCC).

44. *Id.*

45. Schnader, *supra* note 41, at 2.

46. *Id.*

47. *See generally* Allen R. Kamp, *Uptown Act: A History of the Uniform Commercial Code: 1940-49*, 51 S.M.U. L. REV. 275, 299–313 (1998) (describing progress of the 1941–44 drafts of the Revised Uniform Sales Act).

48. *Id.* at 313; Schnader, *supra* note 41, at 3.

49. Schnader, *supra* note 41, at 5.

50. *Id.* at 7.

member, later attributed the saving of Article 4 to an eleventh hour rewrite and lobbying efforts by Walter Malcolm, "one of the nation's outstanding bank lawyers" and also Chair of the American Bar Association Committee on the Commercial Code.[51] Not everyone was so complimentary of the product produced by a lawyer for banking interests. Critics ranged from prominent negotiable instruments scholar Frederick Beutel—who declared that the entire UCC should be rejected[52]—to Article 9 architect Grant Gilmore, who wrote a vigorous defense of the UCC as a whole in the *Yale Law Journal*, but simultaneously admitted he would be happy to see Article 4 dropped.[53] Gilmore later analogized the entrusting of Article 4 to a committee of bank counsel "as tantamount to appointing a committee of dogs to draw up a protective ordinance for cats."[54] Critics of Article 4 have also criticized it as nothing more than a "refurbished version of the Bank Collection Code,"[55] a statute drafted by the American Bankers Association that was relatively unsuccessful in achieving enactment, at least in comparison to the NIL.[56]

A principal point of contention regarding Article 4 was an issue that looms large today: Where should the divide be between flexible, but open to abuse, private law, and rigid, but intentionally protective, public law? The banking and business interests favored private law[57] and "freedom of contract,"[58] and UCC section 4-103, as ultimately adopted, did as well, with the effect that private law supplanted public regulation far more than many wanted. To this very day, Article 4 reflects a significant role for private law[59] even in the midst of a comprehensive public law structure:

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51. *Id.*

52. Frederick K. Beutel, *The Proposed Uniform [?] Commercial Code Should Not Be Adopted*, 61 YALE L.J. 334, 363 (1952) ("The existence of Article 4 alone is enough to condemn in its entirety the adoption of [the Uniform Commercial Code].").

53. Grant Gilmore, *The Uniform Commercial Code: A Reply to Professor Beutel*, 61 YALE L.J. 364, 374 (1952) ("While I do not agree with many of the details of Beutel's criticism of Article 4, I do not care to urge enactment of the present text of the Article.").

54. Allen R. Kamp, *Downtown Code: A History of the Uniform Commercial Code 1949-1954*, 49 BUFF. L. REV. 359, 452 (2001) (quoting Letter from Grant Gilmore to Donald J. Rapson (Oct. 8, 1980)).

55. Edward Rubin, *Efficiency, Equity and the Proposed Revision of Articles 3 and 4*, 42 ALA. L. REV. 551, 555 (1991).

56. *Id.* at 553 (observing that the pre-UCC Bank Collection Code "did not meet with a positive reception, for the most part . . . .").

57. Kamp *supra*, note 54, at 406–11 (describing debates in the UCC drafting process over whether its statutory terms should be predominantly mandatory or predominantly permissive).

58. *Id.* at 453 (quoting Walter Malcom).

59. *Accord* Gregory E. Maggs, *A Complaint About Payment Law Under the U.C.C.: What You See Is Often Not What You Get*, 68 OHIO ST. L.J. 201, 211 (2007) (observing that some UCC rules "do not apply because the parties routinely waive them by contract.").

> *The effect of the provisions of this Article may be varied by agreement* except that no agreement can disclaim a bank's responsibility for its lack of good faith or failure to exercise ordinary care or limit the measure of damages for the lack or failure; but *the parties may by agreement determine the standards by which such responsibility is to be measured* if such standards are not manifestly unreasonable.[60]

Section 4-103 of the UCC also, by political and practical necessity, contained concession to public regulation at the federal level. Regulations and operating circulars of the Federal Reserve also supersede provisions of Article 4.[61] The 1951 redraft of Article 4 was accepted, but its near-death experience and the aftermath were a harbinger of structural difficulties still to come. For the most part, Article 3 did not arouse widespread feelings for or against it,[62] though it admittedly was caught up in criticism of the UCC as a whole.

The ultimate enactment of Articles 3 and 4 was more of a triumph for continuity than for reform. Payments by check were subject to statutory regulation, but the regulation was on terms acceptable to the bankers in the business of collecting checks, so long as such terms were acquiesced to by the Federal Reserve System.[63] Despite disagreement on particular nuances as against its predecessors, the UCC in fact "went to great lengths to recreate and codify the earlier Negotiable Instruments Law and Bank Collections Code."[64]

By 1967, all articles of the UCC had been enacted in forty-nine states, the District of Columbia, and the U.S. Virgin Islands.[65] The fiftieth state, civil law Louisiana, ultimately adopted parts of the UCC, including the payment articles.[66] Despite the hints shown during the Article 4 controversies over the role of private contract, the future looked bright for the existence and growth of payments law as public law at the state level. Lord Mansfield's negotiable instruments system was intact, with the bank check as the lineal descendant of the original three-party inland

60. U.C.C. § 4-103(a) (AM. LAW INST. & UNIF. LAW COMM'N 2015) (emphasis added).

61. *Id.* § 4-103(b)–(c).

62. *See, e.g.*, Britton, *supra* note 40, at 171 ("Some changes [from the NIL to UCC Article 3] are thought to be improvements and some are thought not to be. But whichever of two competing rules is in force will make little or no difference to the man in the street and, for that matter, little difference even to bankers.").

63. Henry J. Bailey, *New 1990 Uniform Commercial Code: Article 3, Negotiable Instruments, and Article 4, Bank Deposits and Collections*, 29 WILLAMETTE L. REV. 409, 413 (1993) (observing that UCC section 3-102(c) adds a provision that Federal Reserve Regulations and Federal Reserve Bank operating circulars govern any inconsistent Article 3 provision).

64. Edward J. Janger, *Predicting When the Uniform Law Process Will Fail: Article 9, Capture, and the Race to the Bottom*, 83 IOWA L. REV. 569, 571 n.5 (1998).

65. Schnader, *supra* note 41, at 9–10; Burge, *supra* note 5, at 360–61 (describing successes in the original enactment of and revisions to the UCC).

66. Agustín Parise, *A Constant Give and Take: Tracing Legal Borrowings in the Louisiana Civil Law Experience*, 35 SETON HALL LEGIS. J. 1, 29 (2010) (recounting "the gradual adoption of the Uniform Commercial Code in Louisiana, with the exception of articles 2 (sales) and 6 (bulk sales).").

bill of exchange.[67] Looks can be deceiving, however. Electronics, plastic, and institutional inertia were already setting the stage to marginalize the UCC paradigm for governing payments.

II. The Long, Inconsistent Decline of Public Payments Law

Following the late-1960s triumph of the UCC in state legislatures, one might have believed that the future governance of payment transactions rested securely in comprehensive state law. Yet even in an era dominated by checks for noncash payments, innovations were already afoot outside of the known and settled legal framework. "In most fields of law," James Rogers has observed, "developments of that sort would be reflected by changes or additions to the basic structure of the legal rules. Payment systems law has been different."[68] Indeed it has. The new noncash systems for payment arose in comparative disregard of the legal milieu of the UCC. While payment cards and automated clearing house payments have been impacted by public law, the outstanding commonality of these innovations was and remains the dominant role of private law, particularly the law of assent to contractual obligations.

A. Payment Cards and Private Contracts

The shift in noncash payments away from checks since the dawn of the twenty-first century has been dramatic, as statistics from the 2013 Federal Reserve Payments Study demonstrate.[69] In 2000, 41.9 billion checks were paid in the United States, accounting for a solid fifty-eight percent of all noncash payments.[70] By 2012, the number of paid checks had declined to 18.3 billion, representing only fifteen percent of noncash payments.[71] The overwhelming majority of the lost check volume in that twelve-year period is attributable to increased use of credit cards and debit cards. Back in 2000, these two types of payment cards accounted for 21.7 billion payments—roughly one-third of all noncash payments in the United States.[72] For 2012, credit and debit card use collectively had ballooned to 73.2 billion payments, that constituted fifty-nine percent of all noncash payments in the country.[73] Credit and debit cards today thus occupy the majority payment systems role held by checks as little as fifteen years ago.

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67. *See* Ronald J. Mann, *Making Sense of Payments Policy in the Information Age*, 93 Geo. L.J. 633, 641 (2005) ("The negotiable instrument, of course, has been superseded by . . . its main surviving descendant, the check . . . .").

68. Rogers, *supra* note 17, at xiv.

69. Fed. Reserve Sys., *supra* note 8, at 16.

70. *Id.* at 15.

71. *Id.*

72. *Id.*

73. *Id.* at 7. Most of the remaining noncash payments unaccounted for in this summary were by automated clearinghouse ("ACH"), a payment system discussed at more length later in this Article. *See infra* Part II.B.

This transition away from checks did not occur overnight. Private-issue credit cards—a mechanism by which retailers extended credit to their customers—date back to the early twentieth century, as the cards were issued by hotels, large department stores, and gas station chains.[74] As is true with such cards today, they could be used only with the issuing retailer, and thus represented more of a form of revolving customer credit than a payment system. Most trace the creation of the third-party universal credit card to Diners Club in 1949, which developed a network of travel and entertainment retailers who accepted the card for payment.[75] The typical end-user was "the salesman who could charge meals at restaurants while entertaining clients on the road."[76] Traveler's check giant American Express entered the universal card market in 1958, as did a number of large banks, including California-based Bank of America. Its "BankAmericard" was able to expand greatly outside of its California home in the mid-1960s with a licensing structure allowing other banks to issue the branded card.[77] With widespread branding and merchant acceptance, a card issued by a network of banks could achieve much greater market penetration with merchants and end-users than could a single bank's card, as attested to by the failure of bank credit cards in the 1960s, when even the enormous Chase Manhattan folded its operations.[78] Following shortly behind Bank of America's expansion, a group of large banks—generally centered more in the eastern half of the country—formed the Interbank Card Association, thus creating a second large, multibank card network built around the "Master Charge" card.[79] Bank Americard changed its name to Visa in 1976 "to develop a more international image" that was not tied to the name of a particular bank.[80] Master Charge followed suit in 1980, changing its name to MasterCard.[81]

While Visa and MasterCard grew on the credit-issuing side of the market, American Express came to eclipse Diners Club in the travel-and-entertainment ("T&E") charge card market. Today, the distinction between corporate T&E charge card brands (like American Express) and general-purpose credit cards (like MasterCard and Visa) has faded, with American Express crossing over into the general use and credit market while MasterCard and Visa have cultivated corporate accounts.[82] The last

74. Gillian Garcia, *Credit Cards: An Interdisciplinary Survey*, 6 J. CONSUMER RES. 327, 327 (1980).

75. MANDELL, *supra* note 12, at XIII.

76. *Id.* at XIV.

77. Eric E. Bergsten, *Credit Cards—A Prelude to the Cashless Society*, 8 B.C. INDUS. & COM. L. REV. 485, 486 n.3 (1967).

78. MANDELL, *supra* note 12, at XIV.

79. *Id.*

80. *Id.* at XV.

81. *Id.*

82. Adam J. Levitin, *Payment Wars: The Merchant-Bank Struggle for Control of Payment Systems*, 12 STAN. J.L. BUS. & FIN. 425, 430 (2007) ("American Express and Discover are independent

of today's four major American payment card brands—Discover—was launched by Sears in 1986.[83] Discover sought a general use customer base like MasterCard and Visa, but like American Express, began as a direct-issue card rather than a brand licensed through banks.[84]

General purpose payment card transactions are thus typically conducted through one of the four major card networks: MasterCard, Visa, American Express, and Discover.[85] The networks are functionally either open or closed. MasterCard and Visa are the prototypical open networks, allowing many banks to participate as card issuers if they contract to license the brand.[86] American Express and Discover, in contrast, began life as closed card networks, cutting out the licensing banks, though today they also operate open networks on the MasterCard and Visa model.[87] In an open network purchase transaction, one bank acts as the card issuer to the buyer, while another bank acts as the acquirer—the seller's bank that processes payments for that seller.[88] In a consumer transaction with a merchant, for example, the issuer bank transfers funds to the acquirer bank. The merchant can then access the funds at the acquirer bank, and the consumer receives a bill from the issuer bank for the transferred funds.[89] Banks issuing branded cards and processing merchant payments may act as either the issuer or acquirer in a given card transaction, conceivably even acting as both.[90] In the middle of the transaction—between the issuer bank and the acquirer bank—is the card network. In a closed payment network, such as American Express and Discover, the card issuer is also the merchant acquirer and also operates the card network.[91]

The card networks are, of course, not providing their services for free. The most visible cost to the end-user of a credit card is interest

financial institutions, which both traditionally performed all three roles: issuer, acquirer, and network itself. Recently, these networks began to allow other banks to issue cards with their brands, and Discover has also begun to outsource its acquirer functions.").

83. MANDELL, *supra* note 12, at XXII.

84. *See generally Our History*, DISCOVER FIN. SERVS., https://www.discover.com/company/our-company/our-history/ (providing a timeline of major developments since the first issuance of a Discover card in the mid-1980s).

85. Adam J. Levitin, *The Antitrust Super Bowl: America's Payment Systems, No-Surcharge Rules, and the Hidden Costs of Credit*, 3 BERKELEY BUS. L.J. 265, 275 (2005).

86. Andrew P. Morriss & Jason Korosec, *Private Dispute Resolution in the Card Context: Structure, Reputation, and Incentives*, 1 J.L. ECON. & POL'Y 393, 424 (2005) ("An open system is a payment system where an association or third-party company maintains a contractual relationship with both the card issuer and the merchant acquirer . . . . Open systems include associations such as VISA and MasterCard.").

87. *Id.* at 425 ("Closed systems include programs such as department store cards, American Express, and Discover.").

88. Levitin, *supra* note 85, at 275.

89. *Id.*

90. *Id.*

91. *Id.* at 276.

accruing on a carried balance, but that profit goes to the card issuing bank, which took on the risk of extending credit to an end-user who might default. On the acquirer side of the transaction, however, the source of profit is the merchant discount. For example, on a card purchase of $100, the merchant will only receive between $97 and $98.50.[92] The remaining $1.50 to three dollars is ultimately split between the acquirer and the interchange fee charged by one of the open card networks. In the case of a closed network, the entire discount amount goes to the acquirer. For merchants, certainty of prompt payment and customer convenience are the largest incentives for them to accept payment cards and less than 100 cents on the dollar.[93]

The same networks built to handle credit card transactions can also handle debit card transactions. The payment experience for the merchant—fast payment certainty in exchange for accepting the merchant discount—is largely the same as for a credit card, though the amount and allocation of interchange fees has been a point of contention.[94] The original debit cards were issued by regional automated teller machine ("ATM") networks in the late 1970s, adding point-of-sale functionality to their initial ability to withdraw cash at ATMs.[95] From the end-user's perspective, the main distinction between debit and credit is the source of payment, with the former being a direct withdrawal from the user's bank account instead of an extension of credit on an open account.

Unlike twentieth century bank checks, which came into being with both the benefit and burden of centuries of the public law of negotiable instruments behind them, payment cards began life exclusively as creatures of private contract. For example, a 1967 survey of cases on the apportionment of liability between credit card issuers and cardholders for unauthorized use carried an enormous caveat about drawing conclusions from the cases: "Because of this reliance on private agreement rather than public law, *any* analysis of the reported decisions must be made in light of the type of agreement involved in each case."[96] In particular, analogy to the public law of negotiable instruments was wholly inapt.[97]

Growth in the use of credit cards eventually piqued the interest of Congress, resulting in federal public law on point, but not a comprehensive regulatory scheme. The 1970 amendments to TILA upended some parts of the existing web of contracts by shifting liability for fraud losses from the

92. *Cf.* Morriss & Korosec, *supra* note 86, at 421 ("[T]ypical merchant acquirers in the United States charge merchants a discount rate of between 1.5% and 3% of the purchase price.").

93. *Id.*

94. David A. Balto, *Creating a Payment System Network: The Tie That Binds or an Honorable Peace?*, 55 BUS. LAW. 1391, 1392 (2000).

95. *Id.*

96. Bergsten, *supra* note 77, at 488 (emphasis added).

97. *Id.* at 488–89 (citing Lit Bros. v. Haines, 121 A. 131 (N.J. 1923)).

cardholder to the card issuer.[98] The amended TILA, as is still the law today, limited the liability of a cardholder for unauthorized use to fifty dollars.[99] The protective definition of "unauthorized use" covers "use of a credit card by a person other than the cardholder who does not have actual, implied, or apparent authority for such use and from which the cardholder receives no benefit."[100]

TILA further required the card issuer to notify the cardholder of the potential liability,[101] to provide the cardholder a means of notifying the issuer of loss or theft of the card,[102] and to provide the cardholder a security method for identifying the user as the person authorized to use the card.[103] It also imposed procedural protections on card issuance, such as by prohibiting the mailing of unsolicited credit cards.[104] These changes, while significant in their own right, also represented a new trend in payments law—non-comprehensive federal intervention. The TILA is largely a consumer protection statute, as it does not apply to "[c]redit transactions involving extensions of credit primarily for business, commercial, or agricultural purposes, or to government . . . or to organizations."[105] Regulation Z, implementing the TILA,[106] likewise affirms that this body of law is not all-encompassing governance of the type that UCC Articles 3 and 4 attempt to provide for checks.[107] The targeted consumer protection role of TILA and Regulation Z has existed for decades, but the focus became clearer with the passage of the 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act, as it transferred authority over Regulation Z from the Board of Governors of the Federal Reserve System to the newly established Bureau of *Consumer* Financial Protection.[108]

The TILA also creates a right for credit card holders that, while properly characterized as a consumer protection right, has nothing to do with protection within the payment system itself. Within certain limitations, TILA makes a credit card issuer "subject to all claims (other than tort claims) and defenses arising out of any transaction in which the

98. Matthews, *supra* note 2, at 249–50.

99. 15 U.S.C. § 1643(a)(1)(B) (West 2012).

100. *Id.* § 1602(o).

101. *Id.* § 1643(a)(1)(C).

102. *Id.* § 1643(a)(1)(D).

103. *Id.* § 1643(a)(1)(F); *see* Matthews, *supra* note 2, at 250.

104. 15 U.S.C. § 1642 (West 2012) ("No credit card shall be issued except in response to a request or application therefor.").

105. 15 U.S.C. § 1603(1).

106. *See* 12 C.F.R. § 1026.1 (2014).

107. *See generally Id.* § 1026.3 (listing transactions that are exempt from Regulation Z).

108. *See generally* Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 1376 (2010) (mandating reform in the American financial regulatory environment); *see also* 12 C.F.R. § 1026.1 (2014).

credit card is used as a method of payment."[109] The consumer user of a credit card thus has a right to withhold payment on a charge that is the basis of an unresolved dispute with the merchant who charged the credit account.[110] Note that the right to withhold payment arises from a dispute in an underlying purchase transaction, and not from a problem with the card issuer or the payment network. In effect, the payment network is here being used for a nonpayment purpose—to shift the general balance of power away from merchants and toward consumers by granting consumers a self-help remedy that would not exist apart from the use of a credit card. The payment card networks have adapted to this requirement by operating chargeback systems by which transactions can be reversed and the price charged back to the seller (through its merchant acquirer) and credited to the consumer's account through the network.[111] None of this activity resolves the actual merchant-consumer dispute, but it changes who gets to hold the money pending resolution. In a small-value claim, the consumer may win by default.

TILA provided protections for consumers, but only for consumers using payment cards for extensions of credit—namely, credit card users[112] The defining feature of a debit card, in contrast, is that it does not involve an extension of credit.[113] The card is instead a means by which the end-user can spend her own money. In the face of growth of consumer ATM transactions and the small-but-growing consumer use of other electronic means to transfer money, the 1978 Congress passed the Electronic Funds Transfer Act ("EFTA").[114] The EFTA is effective where there is "a card, code, or other means of access to a consumer's account for the purpose of initiating electronic fund transfers," and covers, among other things, ATM cards and general use debit cards.[115] The regulations implementing the EFTA, known as Regulation E, were originally promulgated by the Federal Reserve Board, but—just as occurred with TILA and Regulation Z—authority for implementing the EFTA was transferred to the new Bureau of Consumer Financial Protection by the 2010 Dodd-Frank Wall Street Reform and Consumer

109. 15 U.S.C. § 1666i(a) (West 2012).

110. *Id.*

111. Arnold S. Rosenberg, *Better Than Cash? Global Proliferation of Payment Cards and Consumer Protection Policy*, 44 COLUM. J. TRANSNAT'L L. 520, 534–35 (2006).

112. David Smith & Gregg Stevens, *The Impact of TILA on the Debtor-Creditor Relationship*, 61 CONSUMER FIN. L.Q. REP. 296, 307 (2007) ("Of course, the TILA applies only to credit transactions entered into primarily for personal, family, or household purposes.").

113. Rosenberg, *supra* note 111, at 520 (describing debit cards as "payment cards that do not require consumers to qualify for credit").

114. *See generally* Financial Institutions Regulatory and Interest Rate Control Act of 1978, Pub. L. No. 95-630, Title XX, 92 Stat. 3641 (1978) (codified as 15 U.S.C. §§ 1693–1693r (West 2010)).

115. 15 U.S.C. § 1693a(1) (West 2010) (defining "accepted card or other means of access").

Protection Act.[116] Like its older TILA sibling, the EFTA is fundamentally a consumer protection statute that does not on its face apply to electronic funds transfers by businesses.[117]

The EFTA and Regulation E govern the issuance and operation of electronic funds transfer "access devices" like debit cards.[118] The law also limits the liability of consumers for unauthorized electronic funds transfers, thus placing the risk of excess liability on the issuer of the debit card or other access device. Consumers who notify the issuer within two business days of learning of the loss or theft of their device have their liability capped at fifty dollars, thus matching the TILA limit for credit cards.[119] Unlike the credit card limit, however, the EFTA contains two additional tiers of potential consumer liability.[120] A consumer who fails to notify the issuer within two business days faces an increased liability limit of $500.[121] Beyond that, a consumer faces unlimited liability for use beginning sixty days after a statement of account showing the original unauthorized use, if such losses would not have occurred "but for" the consumers failure to contact her financial institution.[122] In many circumstances, the $500 and unlimited tiers of liability cannot occur because of greater customer protections in her contract with the bank. As banks have sought to promote the use of debit cards in lieu of paper checks, many contractually capped customer liability at fifty dollars.[123] Contractually providing for zero liability for unauthorized use is also a practice that evens the legal playing field between debit and credit cards.[124] Such a system allows the banks issuing debit cards to state, relatively truthfully, that their customers' accounts are no more at risk

116. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No 111–203, 124 Stat. 1376 (2010) (transferring authority to the CFPB in section 1011).

117. C. Bradford Biddle, *Misplaced Priorities: The Utah Digital Signature Act and Liability Allocation in a Public Key Infrastructure*, 33 SAN DIEGO L. REV. 1143, 1170 (1996) (describing both the EFTA and TILA as "consumer-protection statutes").

118. 12 C.F.R. § 1005.4–1005.8 (2015).

119. *Id.* § 1005.6(b)(2).

120. *See generally* Jane Kaufman Winn, *Clash of the Titans: Regulating the Competition between Established and Emerging Electronic Payment Systems*, 14 BERKELEY TECH. L.J. 675, 688 (1999) ("In marked contrast to the flat $50 limit on consumer liability under Regulation Z, Regulation E contemplates that a consumer who completely fails to notify a financial institution after losing the card may be exposed to losses without any statutory cap.").

121. 12 C.F.R. § 1005.6(b)(2) (2015).

122. *Id.* § 1005.6(b)(3).

123. *See* RONALD J. MANN, PAYMENT SYSTEMS AND OTHER FINANCIAL TRANSACTIONS 70 (6th ed. 2016).

124. *See, e.g.*, *Visa Debit/Check Card FAQ*, VISA, https://www.visa.com/chip/personal/security/zero-liability.jsp (last visited Aug. 5, 2016) ("Visa's Zero Liability Policy is our guarantee that you won't be held responsible for unauthorized charges made with your account or account information. You're protected if your Visa credit or debit card is lost, stolen or fraudulently used, online or offline." (footnote omitted)).

using a debit card with direct access to their bank accounts than they would be using a completely unconnected credit card.[125]

In the decades since enactment of the TILA and EFTA payment card provisions, the payments law under these statutes has been relatively stable, but with one substantial exception on the credit side. In 2009, Congress enacted the Credit Card Accountability, Responsibility, and Disclosure Act ("CARD Act").[126] The CARD Act—like the provisions of its TILA predecessor—aimed squarely at consumer protection by reigning in certain terms in issuer-consumer credit card contracts. The CARD Act placed limits on the timing and ability of issuers to increase interest rates.[127] It also mandated a variety of plain language disclosures[128] and restricted the means and method by which card issuers could enroll younger adults, like college students.[129] The general goal of the CARD Act was to empower consumer decision making through information and by increasing the number of avenues where consumers could exercise that decisionmaking ability.[130]

The rise and widespread success of payment cards and their networks, generally to the detriment of checks, demonstrated beyond all doubt that a robust payment system can exist absent a comprehensive public law scheme. The payment card systems are instead built on a collection of private contracts, including those between card issuers and users, card issuers and the card network, the card network and merchant-bank acquirers, and acquirers and their accepting merchants. Yet, this system dominated by private law has—perhaps as an unwitting cost to sustaining operational private governance—lived with consumer protection law at the federal level for several decades. The TILA (affecting credit cards) and the EFTA (affecting debit cards) have taken many of the rough edges off the victimization of card users by oppression, fraud, and mistake. The success of this approach, while certainly not a success of the

125. *See, e.g.*, *Zero Liability Protection*, MASTERCARD, https://www.mastercard.us/en-us/about-mastercard/what-we-do/terms-of-use/zero-liability-terms-conditions.html (last visited Aug. 5, 2016) ("As a MasterCard cardholder, Zero Liability applies to your purchases made in the store, over the telephone, online, or via a mobile device and ATM transactions. As a cardholder, you will not be held responsible for unauthorized transactions . . . .").

126. Credit Card Accountability Responsibility and Disclosure Act of 2009, Pub. L. No. 111-203, 124 Stat. 1734 (2010).

127. *See, e.g.*, 15 U.S.C. § 1637(i) (West 2016) ("Advance notice of rate increase and other charges required"); 15 U.S.C. § 1666i-1 (West 2016) ("Limits on interest rate, fee, and finance charge increases applicable to outstanding balances").

128. *See, e.g.*, 15 U.S.C. § 1637(a) (West 2016) ("Disclosure requirements for open end consumer credit plans secured by consumer's principal dwelling"); 15 U.S.C. § 1638(a) (West 2016) ("Required disclosures by creditor").

129. *See, e.g.*, 15 U.S.C. § 1637(r) (West 2016) ("College card agreements").

130. Joseph U. Schorer, *The Credit Card Act of 2009: Credit Card Reform and the Uneasy Case for Disclosure*, 127 BANKING L.J. 924, 925 (2010) ("[T]he CARD Act also contains an array of features that can be loosely described as efforts to improve consumer 'disclosure' so that consumers, rather than legislators or regulators, can decide whether and how to use their credit cards.").

coordinated design that characterizes the UCC, certainly must be a major factor in any evaluation of the future of the law of payments, including the evaluation in this Article.

B. Automated Clearing House Payments—Law as a Public-Private Partnership

While payment card systems arose in a manner highly visible to the end-user of the system, automated clearing house payments generally arose behind the scenes on the operational side of the banking industry. A typical consumer on the street is likely aware of such services as direct deposit or on-line bill pay, but he is just as likely not familiar with the term "automated clearing house." Nonetheless, expansion into public awareness will likely increase exponentially with the phasing in of "Same Day ACH," which is tentatively scheduled to begin in September 2016.[131] A system once principally of concern to the back rooms of banks will be front and center to a growing number of end-users. The development and governance of the ACH system must also be a part of any conversation on the future of payment systems. For present purposes, its structure as a public-private partnership is of particular importance, as is the scope of its rules outside of the public law sector.

The original innovation of an *automated* clearing house, which settles transactions among banks, suggests a manual predecessor as indeed there was. "A clearing house," said a 1915 treatise, "may be described as a place where the representatives of various member banks meet and, under the supervision of a competent committee or officer selected by them, make or receive payment of balances and so 'clear' the transactions of the day upon which the settlement is made."[132] Thus, the purpose of the manual clearing house was centralized coordination as to delivery and receipt of paper checks, along with settling the related bank-customer accounts.

In the United States, an association of over fifty New York banks organized the New York Clearing House in 1853.[133] Before the establishment of a centralized clearing house, bank checks were settled on an individual bank-to-bank basis, a process that at the time involved porters carrying actual bags of money amongst the banks.[134] This process

131. *NACHA Membership Approves Same Day ACH*, NACHA (May 19, 2015), https://www.nacha.org/news/nacha-membership-approves-same-day-ach (stating that "Same Day ACH will be implemented in a phased approach" with the first phase supporting uses like "hourly payroll, person-to-person (P2P) payments and same-day bill pay.").

132. John Edson Brady, The Law of Bank Checks 331 (1915).

133. *About TCH: A Look Back*, The Clearing House, https://www.theclearinghouse.org/about-tch/a-look-back. The New York Clearing House, while still based in New York, is now known as "The Clearing House." *Id.*

134. Albert R. Barrett, Modern Banking Methods and Practical Bank Bookkeeping 246 (1903).

was becoming increasingly cumbersome—not to mention risky—for the nation's growing financial capital, hence the idea that the area banks would benefit from the efficiency of clearing their transactions centrally.[135] Other regions eventually followed New York's example for processing local paper checks.[136] The establishment of the Federal Reserve in 1913 provided the basis for a national framework for clearing checks across regions.[137]

An ACH is essentially the extension of the paper check processing function of the original manual clearing houses into the realm of nonpaper payments.[138] The ACH concept first originated in California in 1968, when the Los Angeles and San Francisco Clearing House Associations established the Special Committee on Paperless Entries ("SCOPE"), with a charge to study the possibility of reducing the need for banks to handle paper checks.[139] By 1972, SCOPE had developed a computer software package and operational rules that became the basis for the California Automated Clearing House Association, a membership association made up of California banks.[140] Similar regional associations organized shortly thereafter in Georgia, the Upper Midwest, and New England, all enabling their members to handle batched electronic payments within their respective regions.[141]

In 1974, these four regional ACH Associations formed NACHA initially as a unit within the American Bankers Association.[142] Both NACHA and the Federal Reserve Bank licensed the existing SCOPE software as the basis for a unified payments platform.[143] Other regions soon joined in, such that by 1978, financial institutions located anywhere in the United States had the ability to exchange ACH payments within the framework of a common set of rules promulgated by NACHA.[144]

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135. *Id.* ("The annoyance of this was so great that it necessitated the organization of a clearing-house.").

136. *Id.* at 246–48 (describing early twentieth century clearing house processes in Boston, Philadelphia, Chicago, and Minneapolis).

137. The Federal Reserve Act provides that "[e]very Federal reserve bank shall receive on deposit at par from depository institutions or from Federal reserve banks checks and . . . drafts drawn upon any of its depositors . . ." Federal Reserve Act, Pub. L. No. 114-94 § 16, 38 Stat. 251 (codified as amended at 12 U.S.C. § 221 (West 2015)); *see generally* Farmers' & Merchs' Bank of Monroe, N. C. v. Fed. Reserve Bank of Richmond, VA., 262 U.S. 649 (1923) (describing the check-clearing function of the regional Federal Reserve Banks); Hal S. Scott, *The Risk Fixers*, 91 HARV. L. REV. 737, 792 (1978).

138. Fredric H. Karr, *Automated Clearing Houses: The Case for Barring Thrift Institutions*, 95 BANKING L.J. 823, 827 (1978) ("[A]n ACH is functionally similar to a traditional paper-based clearing house . . . .").

139. NAT'L COMM'N ON ELEC. FUND TRANSFERS, EFT AND THE PUBLIC INTEREST, 65–66 (1977).

140. *Id.* at 66.

141. *NACHA at 40*, NACHA, https://www.nacha.org/s/timeline/index.html (last visited Aug. 5, 2016).

142. *History and Network Statistics*, NACHA, https://www.nacha.org/ach-network/timeline (last visited Aug. 5, 2016).

143. *NACHA at 40*, *supra* note 141.

144. *History and Network Statistics*, *supra* note 142.

The NACHA payments network has grown substantially over the last several decades, with the volume of ACH processed payments expanding from just over one billion in 1988,[145] to nearly twenty-three billion payments in 2014, with 2014 itself reflecting an increase of one billion payment transactions over 2013.[146] This growth not only includes payments that originate electronically—like direct deposit payroll and on-line bill pay—but it also includes the conversion of check payments into ACH payments, which then never enter the check-collection system. In 2006, for example, about eight percent of all checks written were converted to ACH payments, dramatic growth when compared with less than one percent of such checks three years earlier in 2003.[147] In 2013, these Point-of-Purchase ("POP") entries converted from checks accounted for over 406 million ACH transactions, albeit dropping to under 359 million in 2014.[148] Interestingly, that forty-seven million decrease in volume of POP transactions, originating from paper, coincided with an increase of more than one *billion* ACH transactions during the same period,[149] suggesting no resurgence in check-writing, but instead an increase in payment formats that do not involve checks at all.[150]

NACHA's rulemaking and governance process is formally private, with ultimate approval of new and revised rules in the hands of its members.[151] The ACH system may, however, be more accurately characterized as a public-private partnership. The input, influence, and acquiescence of affected government agencies is clearly necessary to the success of the private system. Federal government participation is necessary and significant for at least two reasons. First, one of the largest and most longstanding uses of the ACH payment structure is for federal payments, such as employee payroll direct deposit, entitlement and benefits program payments, and federal income tax refunds.[152] A system

145. *Id.*

146. *Id.*

147. Amelia H. Boss, *Convergence in Electronic Banking: Technological Convergence, Systems Convergence, Legal Convergence*, 2 DREXEL L. REV. 63, 67–68 (2009).

148. *History and Network Statics*, *supra* note 142.

149. *Id.*

150. The smaller ACH transaction category for re-presented check entries ("RCK") is used for checks that were first processed through the check collection system but were returned due to insufficient funds. RCK, like POP, similarly reflected a category decline in the face of overall ACH expansion, also suggesting lessened initial use of checks for payment. *Id.* (stating a 15.8% decline in RCK-coded ACH transactions from 4,573,791 in 2013 to 3,850,934 in 2014). The same point holds true for back-office conversion (BOC), an ACH type where the check is converted after the point of sale, as it declined from 178,262,806 transactions in 2013 to 163,654,206 in 2014, also during otherwise substantial growth in use of the ACH network. *Id.*

151. *About NACHA*, NACHA, https://www.nacha.org/about (last visited Aug. 5, 2016) ("NACHA administers and facilitates *private-sector* operating rules for ACH payments, which define the roles and responsibilities of financial institutions and other ACH Network participants." (emphasis added)).

152. NAT'L COMM'N ON ELEC. FUND TRANSFERS, *supra* note 139, at 65–66.

that did not meet the needs of and incorporate the input of agencies like the U.S. Treasury Department and the Social Security Administration would soon find itself displaced, either by a private competitor or—perhaps more likely—a fully public law governance and regulatory structure. The second reason that federal government participation rises to the level of a partnership (albeit with public agencies filling a nominally junior role) is that the Federal Reserve System and its constituent regional banks are a critical and indispensable component of the current U.S. banking system. The Federal Reserve provides the infrastructure and trusted intermediary by which payment processing could grow from being merely locally effective and consistent to being a truly national system of commerce.

A recent major rulemaking helps illustrate the players and process in NACHA's governance, including its structural role in a public-private partnership with the Federal Reserve. On May 19, 2015, NACHA announced the adoption of its same day ACH rules, an action NACHA intends to create "a building block for a variety of products and services" by providing for rapid and comparatively inexpensive movement of money,[153] bringing many electronic payment transactions closer to the instantaneous nature of cash. The rule anticipates three phases of implementation, each adding additional use cases for which the service will be available.[154] Same day ACH certainly has the potential to be a payment systems game changer and a major means for expanding the role of the ACH system as a whole.

NACHA's process of getting to a final private rule is one that would be familiar to any student of administrative laws notice-and-comment rulemaking,[155] with NACHA playing the role of the administrative agency. An idea for a rule proposal must come in the first instance from an "eligible party," which includes NACHA officers and staff, direct member organizations (such as regional ACH associations), ACH operators, and government agencies.[156] Stated examples of the important governmental category include the Treasury Department, the Federal

153. *NACHA Membership Approves Same Day ACH*, NACHA (last visited Aug. 5, 2016), https://www.nacha.org/news/nacha-membership-approves-same-day-ach (quoting Janet O. Estep, President and CEO of NACHA).

154. *Id.* ("In Phase 1, ACH credit transactions will be eligible for same day processing, supporting use cases such as hourly payroll, person-to-person (P2P) payments and same-day bill pay. In Phase 2, same-day ACH debits will be added, allowing for a wide variety of consumer bill payment use cases like utility, mortgage, loan and credit card payments. Phase 3 introduces faster ACH credit funds availability requirements for RDFIs; funds from Same Day ACH credit transactions will need to be available to customers by 5 p.m. RDFI local time. Phase 1 is scheduled to begin September 23, 2016.").

155. *See generally* 5 U.S.C. § 553 (West 2012) (stating legal requirements of federal agency rulemaking processes).

156. *How the Rules Are Made*, NACHA, https://www.nacha.org/content/how-rules-are-made (last visited Aug. 5, 2016).

Reserve Board, and the Social Security Administration.[157] An eligible proposal then goes to NACHA's Rules and Operations Committee, "which consists of industry representatives from ACH Network users."[158] The Rules and Operations Committee can either reject the proposal or let it continue in the process, which includes assigning the proposed rule to a Standing Rules Group appointed from ACH network users, such as businesses and financial institutions.[159] For a major rulemaking such as Same Day ACH, the Committee will develop a Request for Comment ("RFC") or Request for Information ("RFI") with assistance from the Group. These requests are then submitted to the NACHA membership, ultimately resulting in staff-drafted language of a proposed rule.[160]

The Same Day ACH process resulted in an RFC in December 2014. Within a two-month comment period, NACHA received 214 responses to the request, either in the form of member surveys or comment letters.[161] Individual financial institutions provided the bulk of the survey responses (141), while more prosaic comment letters most often came from multi-member associations (24).[162] Based on the RFC responses, NACHA modified the proposal to account for operational concerns.[163] To become effective, a proposed NACHA rule must gain the approval of one of two alternative types of supermajority: (1) three-quarters of the total membership; or (2) two-thirds of the "weighted" vote based on the ACH volume of a member organization and the number of financial institutions represented by the organization. Additionally, if two-thirds of any one particular member category (such as Regional Payments Associations or Direct Financial Institutions) oppose a proposed rule, it cannot pass.[164] In sum, a proposed rule impacting the technical operations of the institutions affected by the proposal cannot come into force unless it has extraordinarily broad support. Such a governance timetable and

157. *Id.*

158. *Id.*

159. *Id.*

160. *Id.*

161. *Same Day ACH RFC Summary*, NACHA, https://www.nacha.org/content/same-day-ach-rfc-summary (last visited Aug. 5, 2016).

162. *See id.* (describing the RFC respondent demographics).

163. *NACHA Membership Approves Same Day ACH*, NACHA (May 19, 2015), https://www.nacha.org/news/nacha-membership-approves-same-day-ach (last visited Aug. 5, 2016) ("The final rule closely mirrors the proposal outlined in the industry Request for Comment (RFC). With broad ACH Network user support for that proposal, modifications to the final rule were predominantly technical and operational in nature. Specifically, there were three key changes, reflecting feedback from the RFC process. First, the morning same-day window was modified to allow for more time to process transactions, with settlement occurring at 1:00 p.m. ET. This new settlement time would become effective in Phase 1 instead of Phase 3, as originally proposed. Secondly, the rule creates an option for an additional method for ODFIs to use, at their discretion, with their Originators to determine intent for same-day settlement. Finally, there was an adjustment to the methodology for calculating the Same Day Entry fee to exclude opportunity costs from its calculation.").

164. *How the Rules Are Made*, *supra* note 156.

restrictions would be unthinkable for a state legislature or the U.S. Congress which—even at their most dysfunctional—are obligated to accomplish some minimal amounts of discrete activity, such as authorizing budget appropriations. For a private membership organization with particular shared functional goals, however, the process is appropriate and effective. In this case, NACHA announced approval of the Same Day ACH rule on May 19, 2015.[165] The major change had clear and overwhelming support.

With the ACH payment system, private governance creates private law on matters of operational concern to the functioning of the system. The Federal Reserve and other government agencies are such a necessary and looming presence that one may best describe the ACH system as a public-private partnership, perhaps analogous to the private governance of stock exchanges in the midst of public regulation by the federal Securities and Exchange Commission. The governance and phenomenal growth of the ACH system is a data point that anyone seeking a future for public payments law must consider, right alongside the rise of the card systems. The rise of the ACH system proves that private operations governance, even when conducted as a public-private partnership, is able to respond to technological change in a way that a public law code like the UCC cannot. Nonetheless, the ACH system shares with the card system a contrasting lesson about the need for public law, as all consumer ACH transactions are subject to the Electronic Funds Transfer Act just like their debit card cousins. The lesson here, again, is that once basic and bright-line end-user protections are in place, payment system operators will have sufficient incentive to improve and upgrade the technology and security of their operations, absent a comprehensive public regulatory scheme. A modest amount of user protection goes a long way. ACH stands as another compelling example that the UCC paradigm of a comprehensive regulatory structure has faded, and the fading has come with little or no ill effect.

C. UCC Comeback? Updating (and Not Updating) the Payment Articles

The rise and ongoing expansion of card-based and automated clearing house payment systems would, on first thought, seem to be a situation ripe for lawmaking by the same uniform laws process that brought about the Uniform Commercial Code. And indeed, that thought has been acted upon many times since the original promulgation of UCC Articles 3 and 4. The high-water mark for ambitious reform of state payments law was the proposed Uniform New Payments Code ("NPC") of the late 1970s and early 1980s. The ultimate demise of the NPC project

165. *Same Day ACH RFC Summary*, *supra* note 161.

in 1985 was the beginning of a new era for the public law of payment systems: an era of occasional advances—such as the enactment of Article 4A—was overshadowed by marginalization enabled by the combination of technology and private contract law. Articles 3 and 4 never actually lost their places; instead, the real-world activity of payments moved elsewhere, resulting in the legal cacophony that exists today. This Part reviews briefly how these events came to pass because—like the rise of the payment card and ACH systems—they reveal lessons for the future of public payments law.

The Permanent Editorial Board ("PEB") for the UCC created a committee in 1974 called the "3-4-8 Committee," and charged it with studying and updating the three articles enumerated in its name in light of the impact of electronic systems.[166] Following a comparatively swift and noncontroversial modernization of Article 8 on investment securities, attention then turned to the payment articles.

"The New Payments Code project," recounted Commission Executive Director Fred Miller shortly after the project's demise, "began with the belief that certain technological advances necessitated various amendments to Uniform Commercial Code articles 3 and 4, which govern commercial paper and bank deposits and collections."[167] That belief in the inadequacy of Articles 3 and 4 was widely shared, even in the 1970s when the technological disconnect was far less pronounced than it is today. Credit cards and electronic funds transfers were not only becoming more prominent, but even payments involving checks were affected by technology and were not well reflected in a UCC principally drafted in the 1940s and 1950s.[168] Though the New Payments Code ("NPC") would have diminished the UCC proper by causing the repeal of Article 4 and the removal of checks and drafts from Article 3,[169] it was nonetheless inspired by the scope and scale of the UCC. The NPC, as project Reporter Hal S. Scott stated, was "intended to provide a *comprehensive legal framework* for all types of noncash payments."[170] Karl Llewellyn and the original UCC drafters would have felt right at home with this "ambitious" effort to craft an all-encompassing code.[171] The NPC even

166. Fred H. Miller, *U.C.C. Articles 3, 4 and 4A. A Study in Process and Scope*, 42 ALA. L. REV. 405, 407 (1991). Article 8 on securities law was updated comparatively quickly to account for the uncertificated securities and other then-recent developments, and it was finally approved by both NCCUSL and the ALI in 1977. *Id.*

167. Fred H. Miller, *Report on the New Payments Code*, 41 BUS. LAW. 1007, 1007–08 (1986) (describing the background of the New Payments Code project).

168. *Id.*

169. *See* Uniform New Payments Code P.E.B. Draft 3, § 2 ("Applicability of Code"), cmt. 2. P.E.B. Draft 3 is generally considered to be the most widely-disseminated version of the NPC.

170. Hal S. Scott, *Corporate Wire Transfers and the Uniform New Payments Code*, 83 COLUM. L. REV. 1664, 1665–66 (1983) (emphasis added).

171. Roland E. Brandel & Anne Geary, *Electronic Fund Transfers and the New Payments Code*, 37 BUS. LAW. 1065, 1074 (1982); *see* Peter A. Alces, *A Jurisprudential Perspective for the True Codification*

contemplated displacement of the federal EFTA.[172] "The basic rationale of the NPC is that the legal rights defined for parties to payment transactions ought to be as similar for each payment system as is possible[,]" and that "any dissimilar principles should be based on a clear technological or other necessity, and not on historic accident or the ability of special interests to wrest concessions."[173] All types of payments were accordingly reduced to only two categories, draw orders and pay orders, with payments in each category treated the same as all other payments within the category.[174] This goal of consistency across payment systems was a worthy one, and the need to address electronic payments was undeniable. What went wrong?

The consistency goal turned out to be problematic and at times "tended to represent a somewhat extreme position," at least insofar as payment system stakeholders were concerned.[175] Objections to early drafts, for example, arose from eradication of the holder-in-due-course concept, and the importation from TILA's credit card provisions[176] of a right of reversibility for all consumer payment orders.[177] By the time of Permanent Editorial Board Draft No. 3 in 1983, consistency was losing out to process expediency, with the holder-in-due-course doctrine revived, except as against original consumer drawers.[178] The right of reversibility was removed from payments by check, and, perhaps more critically, became subject to contractual waiver.[179]

Opposition was churning among interested parties to the plan for a comprehensive payments code even before completion of the NPC's first draft, and some issues raised at the outset continued to plague the NPC throughout the entire drafting process. What aspects of payment systems governance, for example, should be left to private contract? A 1978 meeting on the topic in Williamsburg, Virginia had sought input from "practicing attorneys, law professors, consumer representatives, representatives of industry, and state and federal regulators of payments

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of Payments Law, 53 FORDHAM L. REV. 83, 90 (1984) (likewise describing the NPC drafting effort as "ambitious").

172. Scott, *supra* note 170, at 1665–66.

173. Brandel & Geary, *supra* note 171, at 1074.

174. *See* Fairfax Leary, Jr. & J. Stephen Pitcairn, *The Uniform New Payments Code: The Essential Identity of "Pay" Orders and "Draw" Orders*, 12 HOFSTRA L. REV. 913, 913–14 (1984) ("The draftsmen of the proposed UNPC have apparently perceived an important difference between the 'draw' order (basically, a draft, check or other message given a creditor to present to a payor account institution) and the 'pay' order (a payment order presented directly to an account institution by its own customer).").

175. Fred H. Miller, *A Report on the New Payments Code*, 39 BUS. LAW. 1215, 1217 (1984).

176. *See infra* Part II.C, text accompanying notes 86–99.

177. Miller, *supra* note 175, at 1217.

178. *Id.* at 1218.

179. *Id.*

systems."[180] Arguments against the NPC included the assertion that "areas where there was no law could be covered adequately by agreement" and that "the flexibility afforded by the lack of regulation was, if not necessary, at least highly desirable given ongoing system development."[181] The subsequent success of the payment card and ACH systems suggests not only that these arguments against the NPC had merit in 1978, but that these considerations should inform payments policy today, as well.

Another NPC drafting difficulty with resonance in the present day lay in determining the appropriate role for consumer protection provisions. The effort to standardize payments law across checks, credit cards, and electronic fund transfers had—at least initially—resulted in the imposition of "consumer protection features" of the federal TILA and EFTA onto the checking system, much to the displeasure of banks.[182] Five years after the original conference, a second conference was held in Williamsburg in 1983, and it led to a decision by the 3-4-8 Committee to reorganize the NPC (existing at that time in PEB Draft No. 3) "along functional lines without the special consumer provisions."[183]

The decision to delete the consumer-specific protections "was made primarily because no consensus on the consumer provisions seemed likely."[184] The Permanent Editorial Board decided that these matters were "better left to the federal government and the states" outside of the uniform laws drafting process.[185] The revision plan also called for a substantial reorganization that subdivided draw orders and pay orders into further categories of written, electronic, and prearranged orders.[186] The removal of consumer protection provisions, however, cost the NPC the support of consumer interests, while the banking interests who opposed it initially never came around to support the NPC in a merely functional version.[187] By 1985, the NPC project was no more, and the UCC's PEB instead turned its attention to less ambitious goals.[188] While the NPC itself perished, the entire decade-spanning episode still survives

180. *Id*. at 1217.

181. *Id.*

182. Rubin, *supra* note 55, at 557–58 (asserting reasons for the demise of the NPC project).

183. Miller, *supra* note 175, at 1220.

184. *Id.*

185. Miller, *supra* note 167, at 1008.

186. *Id.* at 1221–22.

187. Rubin, *supra* note 55, at 557–58; *see* Alces, *supra* note 171, at 101–02 (detailing points of opposition to the NPC raised by the New York Clearing House).

188. Miller, *supra* note 167, at 1008; *see* Miller, *supra* note 166, at 409 ("The attempted 'fix' [of the NPC] was not successful. Even with it, there was little support for the NPC and active opposition continued. As a result, in mid-1985 the NCCUSL and the ALI terminated the NPC project, and instead created two new projects to proceed in tandem . . . .").

as a data point for those suggesting and criticizing special-interest "capture" of the uniform law drafting process.[189]

Two projects born in the demise of the NPC were much more successful in achieving promulgation and legislative adoption, but they ultimately did not stem the fragmentation of public payments law. First, the drafters created a new Article 4A to govern commercial funds transfers, particularly wholesale wire transfers, an area that had been largely void of governing law.[190] Commercial funds transfers were notably also in no need of consumer protection, since consumer transactions subject to the EFTA were excluded from the article.[191] Article 4A was promulgated in 1989.[192] Second, the drafters sought to modernize Articles 3 and 4, so that those parts of the UCC could at least deal with the late 1980's technology in the check processing system, including the possibility of "truncating" checks—that is, converting checks to digital form and facilitating the (once unfathomable) act of destroying the original paper documents.[193] Revised Articles 3 and 4 were promulgated in 1990.[194]

The "strongest legacy" of the defunct NPC was the "exclusion, consistent with the traditional UCC approach, of affirmative consumer protection" from the three payment articles.[195] Justification for this approach included the fact that consumer law (both state and federal) had developed non-uniformly and outside of the UCC, making an attempt at uniform consumer protection provisions undesirable to jurisdictions that had both more-protective and less-protective existing policies.[196] Furthermore, consumer protection law cannot be made

189. Janger, *supra* note 64, at 586–87 (asserting that the New Payments Code illustrates how "actual capture of the ALI/NCCUSL process is a real concern when a uniform enactment has the potential to benefit an organized group at the expense of a diffuse and disorganized group.").

190. *See, e.g.*, Scott, *supra* note 170, at 1675 ("Unlike contracts in the check system, for example, which are broadly legitimized by the U.C.C., these private contracts do not operate within any statutory framework and may be unenforceable on grounds such as adhesion or unconscionability.").

191. *See* U.C.C. § 4-108 (West 2014) (stating exclusions from the scope of Article 4A).

192. *UCC Article 4A, Funds Transfers (1989) Summary*, NAT'L CONFERENCE OF COMMISSIONERS ON UNIFORM STATE LAWS, http://www.uniformlaws.org/ActSummary.aspx?title=UCC%20Article%204A%2C%20Funds%20Transfers%20(1989) (last visited Aug. 5, 2016).

193. *See generally Id.* § 4-406, cmt. 3 (referencing truncation as an alternative to check return or retention).

194. Bruce A. Campbell, *The Proposed Revision of Articles 3 and 4 of the Uniform Commercial Code*, 70 MICH. B.J. 296, 296 (1991) ("In mid-1990, both the ALI and the [Uniform Law Commission] approved a revised Article 3, with conforming miscellaneous amendments to Articles 1 and 4, for submission to the states.").

195. Miller, *supra* note 166, at 412–13.

196. *Id.* at 414 (asserting that a uniform payments act addressing consumer protection "would likely be unacceptable in lieu of established provisions in the states where extensive provisions already had been negotiated").

variable by agreement, and accordingly was inconsistent with the flexibility needed in an infrequently amended code.[197]

Articles 3 and 4 were subject to another set of revisions in 2002, but these revisions were even more modest than the 1990 rewrite. After some consideration of harmonizing Articles 3 and 4 with the Federal Reserve's Regulation CC, which implements the Expedited Funds Availability Act, the 2002 amendments ultimately consisted of primarily technical updates.[198] The most robust changes in the amendments package affected—not payments as such—but the law of guarantors, harmonizing the UCC with the Restatement (Third) of Suretyship and Guaranty.[199] The project did not go farther, as there was "little interest on the part of the Federal Reserve Board and the banking industry to redraft Articles 3 and 4 to comport with Regulation CC."[200] Public payments law would remain fragmented and increasingly marginalized. In many observers' opinions, Articles 3 and 4 now "do little work" in the payments arena.[201]

Despite some important updating of Articles 3 and 4 and with the addition of Article 4A to cover a category of small-volume but high-dollar amount business wire transfers, the UCC today covers largely the same consumer-payments territory that it did in the 1960s—checks as negotiable instruments.[202] This limited coverage in the face of checks being overtaken by other payment options is certainly not for lack of effort and vision on the drafters' side, as reflected in the NPC. The dominant lesson of the marginalization of the UCC payment articles is that their scope is difficult to expand, even when circumstances call for expansion. Payments is an area of rapidly evolving technology, and the necessarily time-consuming task of drafting, promulgating, and achieving acceptance of a uniform act is difficult in such a field—and the difficulty increases a whole order of magnitude when payments law is wedded to consumer protection. Despite the sea change in technology, updates to the UCC payment articles have tended toward minimalism. In the meantime, the success of debit and credit cards has proven that payment systems can function quite well without a comprehensive code.

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197. *Id.*

198. Robert K. Rasmussen, *The Uneasy Case Against the Uniform Commercial Code*, 62 LA. L. REV. 1097, 1141–42 (2002) (recounting that in the process leading up to the 2002 revisions, neither the banking industry nor the Federal Reserve Board expressed interest in redrafting Articles 3 and 4 to comport with Regulation CC).

199. *See, e.g.*, U.C.C. § 3-605 cmt. 1 (AM. LAW INST. & UNIF. LAW COMM'N 2014).

200. Rasmussen, *supra* note 198, at 1142.

201. *See, e.g.*, *id.*

202. *Cf.* Daryl B. Robertson, *Report of the Commercial Code Committee of the Section of Business Law of the State Bar of Texas on Revised UCC Articles 3 and 4*, 47 BAYLOR L. REV. 425, 429 (1995) ("Revised UCC Article 3 could be regarded as further codification of the common law of negotiable instruments that began in the United States with the Uniform Negotiable Instruments Law promulgated by the Commissioners in 1896.").

III. Emerging Payments Technology and Its Legal Framework—or Lack Thereof

Law lagging behind societal and technological developments is unsurprising,[203] but in the case of payments law, the lag has not prevented innovation, despite the existence of considerable challenges.[204] Indeed, the framework of constant innovation is ultimately the norm to which the law must comply, even more so than the practices of consumers and businesses. This Part will describe exemplars of two major streams of innovation, and position them in the current scheme of payments law. First, the development of mobile payment innovation, exemplified here by Apple Pay, creating new means of payment through existing financial channels, frequently stretching their application far beyond their originally attended arenas. Second, the development of decentralized virtual currency or "cryptocurrency," exemplified here by Bitcoin, represents a complete bypassing of existing financial channels, completely defying most existing legal frameworks. Both of these instances of emerging payment practice and technology represent the next types of challenge to the public law paradigm for payment systems. These challenges must be accounted for when conceptualizing the future of payments law.

A. Apple Pay and Other Mobile Payments

What exactly are mobile payments? In a March 2015 report, the Federal Reserve Board's Division of Consumer and Community Affairs broadly defined mobile payments as "purchases, bill payments, charitable donations, payments to another person, or any other payments made using a mobile phone."[205] The means of access could be by a web page through the web browser on a mobile device, by sending a text message ("SMS"), or by using a downloadable app on a mobile device.[206] The rapid development of mobile payments is, unsurprisingly, following in the wake of developments in smartphone technology.

Major players in the smartphone market—particularly Apple, Samsung, and Google—are all seeking to establish dominant positions in the mobile payments space with their respective payment platforms: Apple Pay, Samsung Pay, and Android Pay. These platforms do not—at least not yet—have market potential as large as their brand acceptance

203. *See, e.g.*, Lawrence M. Friedman & Jack Ladinsky, *Social Change and the Law of Industrial Accidents*, 67 Colum. L. Rev. 50, 73 (1967) ("In popular parlance, this or that aspect of the law is often said to 'lag behind the times.'"); Lyria Bennett Moses, *Recurring Dilemmas: The Law's Race to Keep Up with Technological Change*, 2007 U. Ill. J.L. Tech. & Pol'y 239, 239 (2007) ("It is often stated that the law lags behind technology.").

204. *See* Winn, *supra* note 120, at 695 ("Novel services are finding it difficult to fulfill the conditions required to make a modern payment system function in any environment.").

205. Bd. of Governors of the Fed. Reserve Sys., Consumers and Mobile Financial Services 2015 14 (2015).

206. *Id.*

because the platforms work on only more recent devices. For example, Samsung Pay, which launched at the end of September 2015, is only compatible with the 2014 Galaxy S6 phone series and subsequent high-end Samsung devices.[207] Google released Android Pay in mid-September 2015, but it will work only on phones running Android version 4.4 ("Kit Kat") or higher.[208] Apple Pay similarly requires a 2014 iPhone 6 series or later.[209] Notably, all of the qualifying devices have built-in near-field communication ("NFC") capability, which enables a contactless swipe of the phone for point-of-sale payments.[210] Lag in new technology adoption is thus a challenge for all three of these payment platforms, but the challenge is one that should diminish over time. Because Apple Pay is the most established of these three mobile payment platforms, this article will use Apple Pay as the exemplar of methods and issues typical of mobile payments in general.

Mobile payment systems tend, unlike the cryptocurrency discussed below, to be built upon the existing legal framework for electronic payments—payment cards and ACH debits. Indeed, the term "digital wallet" is particularly appropriate for systems like Apple Pay because it uses the same payment devices that would be located in a physical wallet—credit cards and debit cards.[211] Accordingly, the initial hurdle to user adoption of mobile payments is getting the user to input their payment card data, an idea that seems risky at first blush. Payment cards have, from their inception, had to deal with the problem of unauthorized payments, such as those made using a lost or stolen card.

Unauthorized use can be a particular problem with debit and credit cards that do not require use of personal identification number ("PIN") codes for their use (typical of the MasterCard and Visa networks). Apple Pay has two principal ways of preventing unauthorized payments. One is simply to introduce the PIN to what would be PIN-less transactions with

207. Samsung states that its payment product works with Samsung Galaxy S6 Edge+, Samsung Galaxy Note5, Samsung Galaxy S6 Edge, and the Samsung Galaxy S6, all released in 2014 and later. *See Samsung Pay: Compatibility*, SAMSUNG, http://www.samsung.com/us/support/owners/app/samsung-pay (last visited Aug. 5, 2016).

208. *See Get Started with Android Pay*, GOOGLE, https://support.google.com/androidpay/answer/6224811?hl=en (last visited Aug. 5, 2016). The "Kit Kat" version of the Android operating system was released in October 2013. *Id.*

209. *See Secure, Simple, and Even More Useful*, APPLE, http://www.apple.com/apple-pay/ (listing devices that are Apple Pay enabled).

210. Jessica M. Gray, Note, *How Apple Pay Coincides with the Consumer Financial Protection Act: Will Apple Become a Regulated Entity?*, 16 J. HIGH TECH. L. 170, 181 (2015) ("Apple Pay's technology uses a near field communication ('NFC') to allow customers to pay at a checkout counter with fingerprint authentication.").

211. *See Secure, Simple, and Even More Useful*, *supra* note 209 (describing the usage of Apple's Wallet app).

the actual card.[212] While that method adds beneficial security in the event of the loss or theft of an iPhone, it also adds friction to the payments process beyond what would occur with a physical payment card. Friction in the payment process is a substantial concern for card-accepting merchants. Even the long-planned shift from magnetic stripe to EMV[213] embedded-chip cards has been slower to implement than expected, based in part on merchant fears of losing point-of-sale business.[214] The more innovative solution in new mobile devices is a fingerprint or other biometric sensor, which is not only a more secure method for determining individual authorization, but is also less intrusive in the payments process than even the use of a plastic payment card.

The key technology in overcoming both actual and perceived risks of unauthorized mobile payments—and what stands to make mobile payments more secure than plastic cards—is the process of tokenization. When a user makes a payment with Apple Pay, the system does not transmit the user's actual credit or debit card numbers. Instead, a unique "device account number" is assigned, encrypted and securely stored (in the case of Apple Pay) in a "Secure Element" chip built into the hardware.[215] Every payment then generates a transaction-specific data token—a "dynamic security code."[216] This token represents one-time authority to make one specific payment for a specific amount to a specific merchant.[217] Because a particular token will not be used more than once, the risk exposure from the token being intercepted is minimal. No card counterfeiting akin to fraudulent "skimming" of the magnetic strip on

212. *Id.* (allowing for either use of a passcode number or a physical fingerprint for each transaction using the Wallet app).

213. EMV stands for "Europay, MasterCard, and Visa," after the originator of the technical specifications for the chip system. Tracy Kitten, *The History of EMW: An EMW Forefather Explains Why Chip Is the Future*, BANK INFO SECURITY (Jan. 11, 2011), http://www.bankinfosecurity.com/interviews/history-emv-i-933 (last visited Aug. 5, 2016). Despite the origin of this acronym, EMV chips are now used across most cards, including American Express and Discover, for example. *EMVCO Members*, EMVCO, http://www.emvco.com/about_emvco.aspx?id=156 (last visited Aug. 5, 2016).

214. *See The Consumer ABCs of EMV*, PYMNTS.COM (Aug. 20, 2015), http://www.pymnts.com/in-depth/2015/the-consumer-abcs-of-emv/ (advising retailers to understand "common problems that could arise during the transaction, including potential lag times in card authentication.").

215. David Narkiewicz, *Apple Pay: Beginning of the End of Plastic Credit Cards?*, 36 PA. LAW. 60 (2014). Other mobile payment systems do not necessarily store the underlying payments data in hardware, instead keeping this data in software installed on the mobile device. *Id.*

216. Press Release, MasterCard, Apple Pay Available to MasterCard Customers in the UK from Today (July 14, 2015) (on file with author), http://newsroom.mastercard.com/press-releases/apple-pay-available-to-mastercard-customers-in-the-uk-from-today/.

217. *See* Lydia Segal et al., *Credit Card Fraud: A New Perspective on Tackling an Intransigent Problem*, 16 FORDHAM J. CORP. & FIN. L. 743, 766 (2011) ("With tokenization, the substitution of the credit card number with a string of other numbers called a token, merchants store the token, not the credit card number or other data on the card's magnetic stripe. Rather, the payment processor or bank keeps the credit card number and associated data in a secure server or "vault," and is able to map tokens to their corresponding credit card numbers.").

the back of a payment card should be possible.[218] Mobile payment security exceeds that of a plastic card because the end-user does not have to show an actual credit or debit card, or reveal her name, card number, or security code to the cashier when paying in-store.[219]

A mobile payment transaction reflects innovation that partially involves existing tried-and-true payment systems—debit and credit cards. To the extent mobile payments ride the rails of existing systems, the case for applying existing law—such as TILA and EFTA—is strongest. The new electronic overlay, however, creates some degree of legal uncertainty. In the case of our Apple Pay example, Apple has complete control over the entire authorization and tokenization processes. If the fingerprint reader or the Secure Element chip in an iPhone fails, the failure comes from Apple hardware, not from the credit card issuing bank or card network ultimately authorized by the device. If a user's Wallet App is hacked so as to allow fraudulent or unauthorized access, the exploited weakness was in Apple software rather than in any operations of a merchant's acquirer bank or in the card network itself. Past determinations of which party was in the best position to prevent unauthorized use tended to center around only two parties on the purchaser's side—the card issuer and the card user.[220] The mobile system operator is now unquestionably a third factor in the process, and the public law of payments generally does not account for this third role. Google and Samsung are in the same position as Apple in grafting a new payment platform onto existing systems.[221]

Mobile payments represent a significant challenge in reaching outside the existing contours of the allocations of liability in payments law for fraud and unauthorized use. That challenge is important for future public payments law, but the scope of the challenge pales in comparison to that raised by cryptocurrency.

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218. *See* Adam J. Levitin, *Private Disordering? Payment Card Fraud Liability Rules*, 5 BROOK. J. CORP. FIN. & COM. L. 1, 9 (2010) (asserting long before the launch of Apple Pay that greater use of "tokenization and end-to-end encryption" would discourage skimming and other forms of credit card fraud).

219. Narkiewicz, *supra* note 215, at 60.

220. *See* Francis J. Facciolo, *Unauthorized Payment Transactions and Who Should Bear the Losses*, 83 CHI.-KENT L. REV. 605, 607 (2008) (describing traditional payment system risk analysis as considering who, among "either customers or financial institutions" could take precautions against loss so as to "place the obligation on the party who can avoid the loss at the lowest cost.").

221. *See, e.g.*, Press Release, MasterCard, MasterCard Powers Android Pay, Bringing Mobile Payments to Android Device Owners (May 28, 2015) (on file with author).

B. Bitcoin and Other Cryptocurrency

While Apple Pay and other mobile payment innovations generally function through existing financial channels, and thus substantially implicate current law in those systems, so-called "cryptocurrency" is built on a radically different approach. These virtual currencies—most prominently Bitcoin—use technology to bypass existing financial channels, up to and including government central banks like the Federal Reserve.[222] As a consequence of this rejection of existing financial structures, cryptocurrencies raise a more diverse set of issues for payments law. Because Bitcoin represents the most established form of cryptocurrency in circulation today, this Article will use it as the exemplar for this stream of payments technology.

Navigating the arena of cryptocurrency requires navigating shifting terminology. The United States Financial Crimes Enforcement Network ("FinCEN") defined "virtual currency" as "a medium of exchange that operates like a currency in some environments, but does not have all the attributes of real currency. In particular, virtual currency does not have legal tender status in any jurisdiction."[223] In its broadest sense, the term "virtual currency" could encompass a variety of stores of value, ranging from physical to digital in form and from centralized to decentralized in control.[224] All virtual currencies exist in contrast to government-issued fiat currency like the U.S. dollar or the European Union ("EU") Euro. As its name implies, "fiat currency" initially derives its value by governmental fiat, a directive that the currency is legal tender[225] within its issuing jurisdiction.[226] Fiat currency does not have any intrinsic value[227]

222. *See* Daniela Sonderegger, *A Regulatory and Economic Perplexity: Bitcoin Needs Just a Bit of Regulation*, 47 Wash. U. J.L. & Pol'y 175, 177 (2015) (observing that Bitcoin has been "[h]ailed the ultimate alternative to the global banking system" and that it "seeks to separate money from the state's regulatory power.").

223. Fin. Crimes Enf't Network, Dep't of Treasury, Guidance: Application of FinCEN's Regulations to Persons Administering, Exchanging, or Using Virtual Currencies 1 (Mar. 18, 2013); *see* Julie Andersen Hill, *Virtual Currencies and Federal Law*, 18 J. Consumer & Com. L. 65, 67 (2014) (describing the FinCEN guidance).

224. Danton Bryans, Note, *Bitcoin and Money Laundering: Mining for an Effective Solution*, 89 Ind. L.J. 441, 442–44 (2014).

225. Or, to quote the ubiquitous statement on the upper-right face of the U.S. one dollar bill (and elsewhere): "THIS NOTE IS LEGAL TENDER FOR ALL DEBTS, PUBLIC AND PRIVATE."

226. *See, e.g.*, 31 U.S.C. § 5103 (West 2016) (providing that U.S. coins and currency, "including Federal reserve notes" are legal tender "for all debts, public charges, taxes, and dues.").

227. At various points in its history, the American dollar was also a "commodity currency" when the dollar was pegged to a commitment by the United States to buy and sell gold at a fixed price of dollars per ounce. *See* Michael Abramowicz, *Cryptocurrency-Based Law* 2 (George Wash. Univ. Law Sch., Working Paper No. 9, 2015). The last abandonment of any vestiges of a gold standard occurred in 1971, when "President Nixon announced that the United States would no longer honor its pledge to buy and sell gold, not just at thirty-five dollars per ounce but at any price." Kenneth W. Dam, *From the* Gold Clause Cases *to the Gold Commission: A Half Century of American Monetary Law*, 50 U. Chi. L. Rev. 504, 528 (1983); *see* Peter C. Tucker, Note, *The Digital Currency Doppelganger:*

based on the paper on which it is printed or in its digital representation in a bank account. Rather, the value of fiat currency is ultimately based on trust—faith in the creditworthiness of the issuing entity.

"Cryptocurrency" here specifically refers to a digital form of virtual currency that is typically—but not necessarily—decentralized.[228] Bitcoin is a paradigmatic cryptocurrency in that it is: (1) digital; (2) largely decentralized; and (3) not backed by the fiat of any government issuer. Despite the potential nuances in meaning, "virtual currency," "digital currency,"[229] and "cryptocurrency" are often used as fully synonymous terms,[230] but this Article will use the term cryptocurrency to refer to digital virtual currencies that utilize cryptography, enabling its use without a centralized authority governing it.

Bitcoin itself is the brainchild of a programmer (or possibly a group of programmers) who went under the moniker "Satoshi Nakamoto," who developed the programming between 2007 and 2009.[231] Nakamoto's name is widely considered to be a pseudonym and determining the identity underlying the name has become something of a parlor game, with controversy surrounding the claims of Australian tech personality Craig Wright being one of the latest episodes.[232] At least one translation of "Satoshi Nakamoto" from Japanese to English renders it meaning "thinking clearly outside the foundation."[233] Programming technology

Regulatory Challenge or Harbinger of the New Economy?, 17 CARDOZO J. INT'L & COMP. L. 589, 623–24 (2009) ("The advantages of gold-backed currency versus fiat currency have been the subject of debate for centuries.").

228. Kevin V. Tu & Michael W. Meredith, *Rethinking Virtual Currency Regulation in the Bitcoin Age*, 90 WASH. L. REV. 271, 278–79 (2015) ("Bitcoin is a type of virtual currency. More specifically, Bitcoin is a crypto-currency, a form of money that relies on encryption or cryptography (instead of a central authority such as a national bank or government) to control its creation.") (internal footnotes omitted).

229. *See, e.g.*, Reuben Grinberg, *Bitcoin: An Innovative Alternative Digital Currency*, 4 HASTINGS SCI. & TECH. L.J. 159, 160 (2012) (categorizing Bitcoin as "a digital, decentralized, partially anonymous currency").

230. *See, e.g.*, Judith Lee et al., *Bitcoin Basics: A Primer on Virtual Currencies*, 16 BUS. L. INT'L 21, 21 (2015) ("In the past five years, virtual currencies, or 'cryptocurrencies' have evolved tremendously and are quickly establishing themselves as a payment system.").

231. Shawn Bayern, *Of Bitcoins, Independently Wealthy Software, and the Zero-Member LLC*, 108 NW. U. L. REV. 1485, 1488 (2014); *see* Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System* (2008), www.bitcoin.org/bitcoin.pdf.

232. *See* Thomas Fox-Brewster, *Craig Wright Claims He's Bitcoin Creator Satoshi—Experts Fear an Epic Scam*, FORBES (May 2, 2016), http://www.forbes.com/forbes/welcome/#10625d5a708f ("We may never know the true identity of the real Satoshi Nakamoto. Australian academic Craig Wright has reportedly confirmed himself as the Bitcoin creator, signing messages with cryptographic keys said to solely belong to Satoshi in private sessions with a handful of media organizations and community luminaries. But within minutes of Wright's claims being published, encryption experts have expressed doubt.").

233. *See* Alec Liu, *Who Is Satoshi Nakamoto, the Creator of Bitcoin?*, MOTHERBOARD (May 22, 2013, 10:45 AM), http://motherboard.vice.com/blog/who-is-satoshi-nakamoto-the-creator-of-bitcoin; Eric P. Pacy, Note, *Tales from the Cryptocurrency: On Bitcoin, Square Pegs, and Round Holes*, 49 NEW ENG. L. REV. 121, 124 n.14 (2014).

enabling verifiable digital signatures existed well before Bitcoin, and these already allowed for electronic exchanges of currency, both fiat and virtual. These exchanges, however, required the participation of a trusted third-party—such as a bank or a payment card network—to manage the transactions. Only a trusted third-party could prevent the "double-spending problem," which is the ability of a digitally-signing party to spend the same money more than once.[234] Any currency susceptible to such electronic counterfeiting would inevitably lose its value, just as widely counterfeited paper currency would lose its value. A merchant is unlikely to accept someone else's dollars as value in exchange for goods if she can readily print her own dollars *and* keep the goods at the same time. Electronic payments are not viable if they do not transmit a data token that either represents scarce currency (as do traditional electronic payments) or else is itself the scarce currency (as Bitcoins are). Trust in the third-party controller of an electronic payment system plays an integral and irreplaceable part in any viable electronic transmission system for fiat currency.

Bitcoin, in contrast, was revolutionary because its programming accomplished something never done before: It eliminated the need for a trusted third-party in a digital currency transaction, and did so in a manner that, for the moment, has ensured the measured growth and scarcity of the digital commodity.[235] Bitcoin eliminated the trusted third-party in favor of a decentralized, peer-to-peer network, and its infrastructure allows it to be effectively resistant to both first-party fraud and third-party hackers.[236]

The core innovation of Bitcoin enabling decentralized verification functionality is the "blockchain," which creates a transaction leger that, within an acceptably small margin of error, enables the peer-to-peer network to verify that a transaction transferring Bitcoins is legitimate—that is, not a duplicate.[237] Each Bitcoin transaction requires authorization by the owner's private encrypted key, which then creates an entry on the public encrypted key for the Bitcoin address and creates a new and unique programming block on the blockchain whose authenticity is verifiable in the public Bitcoin leger. Crafting a blockchain of fake transfers that could withstand verification against the public leger would be, for all practical purposes, impossible.[238] If blocks are not properly linked together in the blockchain, then the distributed software

234. Nakamoto, *supra* note 231, at 1; *see* Bayern, *supra* note 231, at 1489 ("Consider how easy it would be, relatively speaking, to design an Internet-based currency if the design permitted a party that everyone trusts to coordinate its operation: the trusted party would issue the digital money according to generally accepted criteria, verify its authenticity, manage its exchange, and so on.").

235. Bayern, *supra* note 231, at 1489.

236. Bryans, *supra* note 224, at 442–44.

237. Abramowicz, *supra* note 227, at 15–16.

238. *Id.*

will recognize an attempted transaction as a fake.[239] Nakamoto's system also provides a mechanism for eventually truncating each blockchain while maintaining its transactional integrity, thus preventing individual Bitcoins from surpassing functional size parameters.[240] In sum, Bitcoin's blockchain structure proved that a trusted third-party was not necessary for the prevention of duplicate transactions because "decentralized software could reliably agree upon a single, authoritative sequence of records so that each potential recipient of funds could know that he or she is the only recipient of those funds."[241]

While the blockchain technology provides for transactional integrity, it does not create the relative scarcity and managed growth necessary for a functional money supply.[242] The process of "mining" Bitcoins has, to date, accomplished both of these goals, while simultaneously creating an incentive for decentralized Bitcoin users to provide the computing power necessary for the operation of the public leger system. Mining is the process by which computers running the Bitcoin software lend their processing power to the distributed Bitcoin network to perform the complex cryptographic equations to generate new blockchain blocks to document Bitcoin transactions in the public register, and to run the register itself.[243] In exchange for this computing work, owners of the individual computers are eventually compensated with newly-minted Bitcoins.[244] Mining is the only process by which new Bitcoins enter the system, and the difficulty of the computing function is automatically adjusted by the Bitcoin software to achieve a predetermined rate of production of Bitcoins to control for inflation.[245] The predetermined rate

239. *Id.*

240. Nakamoto, *supra* note 231, at 4 (describing the process for discarding spent transactions to conserve disk space).

241. Bayern, *supra* note 231, at 1490.

242. Lewis D. Solomon, *Local Currency: A Legal and Policy Analysis*, 5 KAN. J.L. & PUB. POL'Y 59, 65 (1996) (noting that the "scarcity of money, relative to its demand, fixes its value" and that part of the Federal Reserve's charge as to the supply of U.S. dollars is managed growth).

243. JERRY BRITO & ANDREA CASTILLO, BITCOIN: A PRIMER FOR POLICYMAKERS 7 (2013) ("This process of mining bitcoins will not continue forever . . . . The arbitrary number chosen to be the cap is 21 million bitcoins."). At first blush, twenty-one million may seem like a small number for a currency with transnational aspirations, but Bitcoins can be spent fractionally up to eight decimal places. *See id.* ("Miners are projected to painstakingly harvest the last 'satoshi,' or 0.00000001 of a bitcoin, in the year 2140."). Such fractions are necessary for small purchases given that the exchange value of one Bitcoin (denominated "1 BTC") has ranged from approximately $200 U.S. dollars to $700 U.S. dollars during the research and writing of this Article, and Bitcoin has been notoriously volatile at times. *See, e.g.*, Bitcoin Price (USD), COINBASE, https://www.coinbase.com/charts?locale=en (last visited Aug. 5, 2016) (charting the price of Bitcoin from its inception to the present day as against U.S. dollars). In any event, the ultimate number of separable currency units permitted by Bitcoin is actually 2,100,000,000,000,000—or 2.1 quadrillion, certainly a number allowing for more potential widespread distribution and adoption than a mere twenty-one million units.

244. *Id.*

245. *See* Grinberg, *supra* note 229, at 163–64 (describing the declining rate of issuance of Bitcoins over time); *see also* Jonathan B. Turpin, Note, *Bitcoin: The Economic Case for a Global, Virtual*

at which new Bitcoins are generated is halved approximately every four years, and new production will cease once a total of twenty-one million Bitcoins are in circulation, roughly the year 2140.[246] At that point, miners who support the network will be able to charge transaction fees, albeit relatively small ones given a larger size of the network and significantly greater computing processor power expected under Moore's law.[247]

For present technical purposes, one may fairly assume that Bitcoin works; that is, the technology has a track record since 2008 of doing precisely what it purports to do. Indeed, the blockchain technology behind Bitcoin has proven robust enough to attract the interest of mainstream financial institutions, even if outside of its application as currency.[248] Mainstream commentary has slowly warmed to the concept of cryptocurrency and the technology it represents. "Bitcoin's strength[,]" noted a representative of the U.S. Chamber of Commerce Foundation, "is as a decentralized platform that mimics, and improves upon, the traditional debit-credit leger function of banks. This virtue is not—not yet, anyway—matched by the other virtues of a truly useful money: as a medium of exchange, unit of account, and store of value."[249]

The proponents of Bitcoin may have revolutionary aspirations, but Bitcoin as a currency ultimately faces the same problem as any other nascent payment system—achieving a critical mass of marketplace acceptance.[250] Another lingering difficulty for Bitcoin is volatility in its value reminiscent of distressed fiat currencies.[251] This volatility risk could, in turn, further hinder prospects for its acceptance. On the flipside,

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Currency Operating in an Unexplored Legal Framework, 21 IND. J. GLOBAL LEGAL STUD. 335, 341 (2014).

246. *See* Turpin, *supra* note 245, at 341.

247. *Moore's Law*, MERRIAM-WEBSTER'S DICTIONARY, http://www.merriam-webster.com/dictionary/moore's%20law (Moore's law is "an axiom of microprocessor development usually holding that processing power doubles about every 18 months especially relative to cost or size."). Moore's Law is named after and attributed to Intel Corporation co-founder Gordon E. Moore.

248. Ian Allison, *Codename Citicoin: Banking Giant Built Three Internal Blockchains to Test Bitcoin Technology*, INT'L BUS. TIMES (July 1, 2015, 9:56 AM), http://www.ibtimes.co.uk/codename-citicoin-banking-giant-built-three-internal-blockchains-test-bitcoin-technology-1508759 (last visited Aug. 5, 2016) (reporting that Citibank is "talking to governments and regulators . . . [regarding] the potential of either a blockchain distributed ledger network . . . or even 'the opportunity to create state-backed digital currency . . . .'").

249. Bret Swanson, *Bitcoin, Teenage Travel and the Future of Money*, CHICAGO TRIBUNE (July 17, 2015, 8:00 AM), http://www.chicagotribune.com/bluesky/hub/ct-us-chamber-bitcoin-currency-bsi-hub-20150717-story.html (last visited Aug. 5, 2016).

250. *See* Grinberg, *supra* note 229, at 175 (observing that Bitcoin is "susceptible to irrational bubbles and also irrational or rational loss of confidence").

251. *See* Jonathan Todd Barker, *Why Is Bitcoin's Value So Volatile?*, INVESTOPEDIA (May 27, 2014), http://www.investopedia.com/articles/investing/052014/why-bitcoins-value-so-volatile.asp#ixzz3gO19qg2t ("Volatility in Bitcoin does not yet have a generally accepted index since cryptocurrency as an asset class is still in its nascent stages, but with moves in the past year from around $100 to $1,240 at the peak in December 2013 . . . Bitcoin is capable of volatility in the form of 10x changes in price versus the U.S. dollar in a relatively short period of time.").

volatility—or potential volatility—of fiat currencies may have provided opportunities for Bitcoin expansion in countries in economic crisis, such as Greece and Argentina.[252] This phenomenon is not confined to basket-case economies, either. Spikes in Bitcoin's value reflecting uncertainty over the British pound likewise occurred immediately following the United Kingdom's vote for a "Brexit" from the European Union.[253]

Regardless of whether Bitcoin itself can achieve acceptance akin to a widely accepted currency, the existence of cryptocurrency raises a host of legal questions about its categorization. The IRS has issued a determination that, for federal tax purposes, virtual currency—including Bitcoin—is property, rather than currency.[254] A taxpayer who receives payment in virtual currency must thus include "the fair market value of the virtual currency" in U.S. dollars on the date of receipt when computing gross income.[255] In short, a sale of goods or services in exchange for Bitcoins is a barter transaction, at least for American tax purposes. While the IRS approach is not innately hostile to virtual currency, it could make life difficult for end-users who, rather than holding Bitcoins as an investment, actually use it as a currency for daily purchases. Bitcoins presumably have a tax basis set at their acquisition price in dollars, and produce realized income (or loss) at the time they are spent.[256] Purchases and sales of securities take place in a setting and with an established expectation of the need to compute taxable income. But who is equipped and who reasonably expects to contemplate taxable income every time she purchases groceries or a cup of coffee? "The bottom line is that there is not currently an easy mechanism for assessing and collecting taxes on virtual currencies."[257] But tax laws, like payment systems, are regularly subject to change.

On another tax front, the European Court of Justice recently addressed whether transactions involving the buying and selling of

252. *See, e.g.*, Jemima Kelly, *REFILE—Fearing Return to Drachma, Some Greeks Use Bitcoin to Dodge Capital Controls*, REUTERS, July 3, 2015, http://www.reuters.com/article/eurozone-greece-bitcoin-idUSL8N0ZG1RZ20150703 (last visited Aug. 5, 2016); Elliot Maras, *Bitcoin Growth More Than Doubles in Economically Ravaged Argentina*, CCN (July 20, 2015), https://www.cryptocoinsnews.com/bitcoin-growth-doubles-economically-ravaged-argentina/ (last visited Aug. 5, 2016) (suggesting that Bitcoin has become an attractive alternative to the Argentine peso); *see also* Editorial Board, *Argentina's Economic Crisis*, WASH. POST (Jan. 30, 2014), https://www.washingtonpost.com/opinions/argentinas-economic-crisis/2014/01/30/a35d1818-878f-11e3-833c-33098f9e5267_story.html (last visited Aug. 5, 2016).

253. *See* Alexandra Mosher, *Bitcoin Surges After Brexit Sinks Pound*, USA TODAY (June 24, 2016), http://www.usatoday.com/story/tech/news/2016/06/24/bitcoin-surges-after-brexit-sinks-pound/86340450/ ("The latest gains can be chalked up to a flight to alternative currencies after U.K. voters shocked global markets by choosing to leave the European Union.").

254. *See* Notice 2014–2, IRS (Mar. 25, 2014), https://www.irs.gov/pub/irs-drop/n-14-21.pdf (last visited Aug. 5, 2016).

255. *Id.*

256. Hill, *supra* note 223, at 67.

257. *Id.*

Bitcoins are subject to value-added tax ("VAT") in the EU.[258] The Advocate General of the Court opined that Bitcoin operations should be exempt from the VAT, strengthening the case, at least in Europe, for treating virtual currency more like fiat currency.[259] Several EU member states that have addressed the issue have reached this same conclusion.[260]

With tax treatment as personal property and a critical mass of investors who hold Bitcoins seeking profit rather than day-to-day use, cryptocurrency faces the possibility of being regulated by the Securities and Exchange Commission ("SEC").[261] The SEC has thus far avoided taking a bright line approach, with the SEC Chairman suggesting that SEC regulation of virtual currency would be "dependent on the particular facts and circumstances at issue," noting also that "interests issued by entities owning virtual currencies or providing returns based on assets such as virtual currencies likely would be securities and therefore subject to our regulation."[262] Bitcoin may not be a security inherently, but the more it is used like one, the more likely it is that the SEC would step in to regulate it. Meanwhile, the Commodity Futures Trading Commission ("CFTC") has decided that Bitcoin and other virtual currencies fall under the definition of "commodity" such that the sale of put and call options on cryptocurrency are subject to CFTC regulation under the Commodity Exchange Act.[263]

Despite these fundamental legal uncertainties, cryptocurrencies have thus far avoided being regulated out of existence. In July 2014, New York State's Department of Financial Services proposed substantial regulations impacting virtual currency,[264] adopting its final rules in June

258. *Bitcoin Should Be Exempt from VAT-Top EU Court Adviser*, REUTERS (July 16, 2015), http://www.reuters.com/article/eu-bitcoin-tax-idUSL5N0ZW3VF20150716 ("Digital currencies like bitcoin should be exempt from value-added tax (VAT), the legal adviser to the European Union's highest court said on Thursday [July 16, 2015], in a case that could set a rule across the bloc.").

259. Yessi Bello Perez, *European Court of Justice Official Proposes Bitcoin VAT Exemption*, COINDESK (July 16, 2015, 5:30 PM), http://www.coindesk.com/european-court-of-justice-official-proposes-bitcoin-vat-exemption/ (last visited Aug. 5, 2016).

260. *Id.* (listing Sweden, Spain, Belgium, and Switzerland as countries not applying the VAT to Bitcoin transactions); *see* Chris Grundy, *Why the Future of Bitcoin Lies in Europe*, COINDESK (Sept. 6, 2015, 12:22 PM), http://www.coindesk.com/why-the-future-of-bitcoin-lies-in-europe/ (last visited Aug. 5, 2016) (opining that VAT determinations and other aspects of the legal landscape make Europe a more attractive market for Bitcoin than the United States).

261. Hill, *supra* note 223, at 68.

262. Letter from Mary Jo White, Chair, SEC to the Honorable Thomas R. Carper, Chairman, Committee on Homeland Security and Governmental Affairs (Aug. 30, 2013), http://online.wsj.com/public/resources/documents/VCurrenty111813.pdf; *see* Hill, *supra* note 223, at 68.

263. Press Release, CFTC Orders Bitcoin Options Trading Platform and Its CEO to Cease Illegally Offering Bitcoin Options and to Cease Operating a Facility for Trading or Processing Swaps Without Registering, U.S. Commodity Futures Trading Comm'n (Sept. 17, 2015) (on file with author), http://www.cftc.gov/PressRoom/PressReleases/pr7231-15.

264. Sarah Jane Hughes, *Did New York State Just Anoint Virtual Currencies by Proposing to Regulate Them, or Will Regulation Spoil Them for Some*, 71 WASH. & LEE L. REV. 51, 54–55 (2014).

2015. The rules create a "Bitlicense" required for financial intermediaries who buy and sell virtual currency on an exchange.[265] Notably, these rules "would not apply to software developers, individual users, customer loyalty programs and gift cards, currency miners, nor to merchants accepting [Bitcoin] as a payment."[266] The New York regime thus does not regulate end-users and merchants any more than they would be regulated in a cash transaction. While this approach does not endorse cryptocurrency,[267] it certainly avoids end-user inconvenience that could retard its development as a viable payment system.

Despite the technological viability of Bitcoin and other cryptocurrencies, the possibility of them being regulated out of practical existence as a payment system is quite real over the next several years. The reason, ironically enough, is that among digital payment systems, cryptocurrency is the one that most effectively replicates cash. The features it replicates, however, are those that have traditionally made cash attractive for criminal transactions and associated money laundering.[268] The passage of value in the payment process is virtually instantaneous and irreversible. Payment through Bitcoin's distributed leger system, while not completely anonymous, is pseudo-anonymous, not leaving behind the easily traceable digital exhaust accompanying payments processed through the banking system.[269] The most infamous criminal use of Bitcoin to date was the Silk Road digital marketplace.[270] Until the arrest of Silk Road founder Ross Ulbricht in October 2013, the site facilitated illegal drug transactions in the shady and less-readily

265. Karen Freifeld & Gertrude Chavez-Dreyfuss, *New York Regulator Issues Final Bitcoin Rules*, REUTERS (June 3, 2015), http://www.reuters.com/article/bitcoin-regulation-new-york-idUSL1NoYP1ES 20150603.

266. *Id.*

267. *But see* Hughes, *supra* note 264, at 51 (suggesting that one possible outcome of regulation of virtual currency could be its legitimization with a broader spectrum of the general public).

268. Nathan M. Crystal, *Ethics Watch: Accepting Bitcoin?*, SC LAWYER (2014), http://www.nathancrystal.com/pdf/ethicswatch_0914.pdf (last visited Aug. 5, 2016) ("The cash-like quality of bitcoins means that they are attractive to criminals who want to hide their activities and identities."); Tyler T. Buckner, *Rocky Mountain High: The Impact of Federal Guidance to Banks on the Marijuana Industry*, 19 N.C. BANKING INST. 165, 181 (2015) ("All-cash income streams inevitably attract criminal activity . . . .").

269. Jason Luu & Edward J. Imwinkelried, *The Challenge of Bitcoin Pseudo-Anonymity to Computer Forensics*, 52 CRIM. L. BULLETIN Art. 8, nn.51–52 (winter 2016) ("Many commentators in the public, media, and policy circles are aware of Bitcoin only from the notorious examples of its misuse by criminals, notably the two Silk Road prosecutions. These commentators are impressed by the danger arising from Bitcoin's pseudo-anonymity, which makes it difficult to track financial transactions." (internal footnotes omitted)).

270. Lawrence Trautman, *Virtual Currencies; Bitcoin & What Now After Liberty Reserve, Silk Road, and Mt. Gox?*, 20 RICH. J.L. & TECH. 1, 12 (2014) ("Silk Road, described as the 'Amazon for Drugs,' is perhaps the most significant example of a site reported to have been responsible for major sales . . . .").

accessible "dark web" corners of the Internet.[271] The cash-like qualities of Bitcoin made it the currency of the criminal's choice on Silk Road. In May 2015, Ulbricht was sentenced to life in prison, and the Bitcoins seized by federal authorities became subject to civil forfeiture.[272] As of September 2015, the U.S. Marshals Service was still in the process of auctioning off the Bitcoins.[273]

While the endorsement by criminal elements is not a welcome one, the existence of such attraction to Bitcoin transactions is considerable evidence that cryptocurrency has succeeded as a payment system, albeit one requiring new creativity on the part of law enforcement. The ultimate story of Silk Road, after all, is one where law enforcement prevailed over the criminal enterprise.

A generation ago, an assertion that "the essential function" of all noncash payment systems is "to affect a transfer of *deposit institution* credit from a debtor to a creditor" was difficult to dispute.[274] Cryptocurrency now makes the assertion quite disputable by technology that substantially replicates cash and enables removal of depositary institutions and other "trusted intermediaries" from the payments mix.[275] Mobile payment systems like Apple Pay are operating—albeit not always comfortably—on top of the existing law of payments, but Bitcoin and others in the virtual currency space have leaped beyond that law. Both streams of development, however, represent the breadth of the moving challenge facing the law of payments. Where, if anywhere, is the public better served by the regulation of payment systems? What should be the source of that regulation? Is the legal management of payments an appropriate means to achieve policy goals beyond the mere functioning of the system? The successes, failures, and developments of the last seventy years provide some answers to these questions and show that we need not lament the marginalization of public payments law. Instead, we need to apply these lessons of the past to identify public law's role for the future.

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271. Bernice B. Donald & N. Chase Teeples, *Not Your Father's Legal Profession: Technology, Globalization, Diversity, and the Future of Law Practice in the United States*, 44 U. MEM. L. REV. 645, 653 (2014) (describing the dark web as "an area of the Internet that regular users cannot access without special software or unique information known only to 'dark Web' users").

272. *See* Kate Vinton, *Silk Road Creator Ross Ulbricht Sentenced to Life In Prison*, FORBES (May 29, 2015, 4:16 PM), http://www.forbes.com/sites/katevinton/2015/05/29/ulbricht-sentencing-silk-road/ ("In addition to life in prison, Ulbricht also owes the government almost $200 million . . . . The $183,961,921 accounts for all illegal drug and fake ID sales in Bitcoin on the Silk Road.").

273. Pete Rizzo, *US Marshals: Final Silk Road Bitcoin Auction Likely for 2015*, COINDESK (Sept. 4, 2015, 4:20 PM), http://www.coindesk.com/us-marshals-bitcoin-auction-2015/ (last visited Aug. 5, 2016).

274. Leary, Jr. & Pitcairn, *supra* note 174, at 914 (emphasis added).

275. Nakamoto, *supra* note 231, at 1–3.

IV. A Path Forward for Payments Law

Payments law history—right up to its most recent developments—has much to teach about systemic competencies for public law and private law in fields of rapid technological innovation. Areas traditionally thought to require the treatment of a comprehensive code can have innovation stifled by such treatment. This Article does not seek to criticize public regulatory law as such, but it instead calls for recognition of public law's limits. "Efforts to create a unified body of law for all payment systems have so far been unsuccessful."[276] The role of private contract law has expanded to fill the vacuum. This Article suggests that the lack of successes in answering past calls for creating unified and comprehensive regulation[277] has, albeit unintentionally, been a good thing for payments. We know what works, and can accordingly apply the lessons of experience. The most beneficial paradigm for governance of payment systems going forward is a division between (1) private law and public-private partnerships that handle systemic matters of operation, and (2) public law focused on protecting payment system end-users from oppression, fraud, and mistake. Such an allocation of legal responsibilities is most capable of dealing with a foreseeable future of payments—a future that includes unforeseeable innovations. Accordingly, this Part of the Article explores features of that allocation.

A. The Divide Between Public Law and Private Law

The default mechanism for governing payment systems should be private contract law, a category that for present purposes includes the output of public-private partnerships, such as the operating rules of NACHA. Put differently, public law should presumptively *not* be the governing device for payments, although the presumption is a rebuttable one. Indeed, and as shown below, the private law presumption certainly is rebutted in some specific instances, particularly regarding end-user protection.[278] Setting aside those exceptions, however, raises the question of why private law is worthy of such a presumption. Experience provides three interrelated reasons to err on the side of private governance. First, private law is more capable of adapting to technological change in a meaningful timeframe. Second, after bright-line public law protections of system users are in place, the remaining incentives will be for system operators to conduct themselves in a manner that produces the most social benefit. Finally, the parties operating a payment system are in the

276. Rogers, *supra* note 17, at xiv.

277. *See, e.g.*, Alces, *supra* note 171, at 89 (arguing at the time of consideration of the New Payments Code that "only a 'true code' . . . will improve payments law. To achieve that goal a payments code must be comprehensive; that is, it must be pervasive in scope, codifying the general law of payments systems, paper-based as well as electronic.").

278. *See infra* Part IV.B.

best position to determine allocation of risks unaccounted for by limited public law, and also to handle a limited collection of risks that public law should impose.

The first reason for a general preference of private contract law is that the public legislative or regulatory process is not nimble enough to keep up with the times. That fact is not a design flaw in deliberative democracy; it is an intentional feature where the intention dates at least as far back as the U.S. Constitution.[279] Obtaining passage of legislation in Congress is a difficult proposition in most cases, and speed is a rarity, particularly in the absence of a national emergency. For even the most admirable work of the Uniform Law Commission ("Commission"), the enactment goal is multiplied times fifty states—plus U.S. territories.[280] Such deliberative processes are a benefit and result in greater stakeholder inclusion. The operational side of payment systems, however, suffers from the worst in such a process. Beyond the end-user experiences, there is little public interest apart from the operators in the system.

The complexities of enactment would not be an overwhelming problem in the one-time or once-a-generation affair that describes much public legislation. An area of rapid technological advancement, in contrast, requires frequent updates to micro-level rules of system operation. That requires returning to the legislative well more often than is realistically feasible, given the transaction costs. Moreover, these frequent appeals have diminishing returns concomitant to the diminishing political interest. MasterCard and Visa can change their operational rules with considerably less effort. Even an association like NACHA, with its vast membership and deliberative notice-and-comment rulemaking process, is capable of turning out rule updates on an annual basis. Public law cannot compete here. Absent a matter of public concern, efficiency weighs heavily in favor of private law in a field of swift technological changes, as is the case with developing electronic payment systems.

Private law is also presumptively the superior regulatory system because system operators are, assuming a baseline of general legal protections against oppression of end-users, naturally incentivized to conduct themselves in a manner tending toward the most efficient system. Both the payment card systems and the ACH system suggest this result based upon decades of growth (at least as to consumers) within bright-line protective regimes under TILA and the EFTA. Ironically, this lesson of commercial law history is analogous to Karl Llewellyn's claim

279. *Cf.* THE FEDERALIST NO. 10 (James Madison).

280. *See generally About the ULC*, NAT'L CONFERENCE OF COMM'RS ON UNIF. STATE LAWS, http://uniformlaws.org/Narrative.aspx?title=About%the%20ULC (last visited Aug. 5, 2016) ("The state uniform law commissioners come together as the Uniform Law Commission for one purpose—to study and review the law of the states to determine which areas of law should be uniform.").

about the impact of trade association rules. The leading architect of UCC regulation claimed that "trade association rules are presumptively efficient when all affected parties participate in creating the rules."[281] Llewellyn believed, however, that the limits of the desirability of trade association self-governance were reached when they dealt with the unorganized public. At that point, "they engage in exploitation," and their rules "no longer deserve the presumption of desirability."[282] Put in the payment systems context, this concept means that the commercial actors should be trusted to run their own affairs—provided that the law prevents the actors from exploiting the public, hence the public law aspect of this framework described in the next Part.

The third of these interrelated reasons for the presumptive deference to private contract law is because of the superior information position held by stakeholders in technologically developing payment systems. Simply put, the system players are in the best position to know what works. NACHA and its members, for example, are in the best position to decide when same-day ACH transactions are financially and technologically feasible. Credit card network owners, for example, have the most technical ability to process payments over their networks. Operating stakeholders in any technologically advanced payment system have the best knowledge to prevent fraudulent abuses of their system. Targeted public law need only protect end-users from fraud and mistake by shifting the risk of loss to the party operating the technology. At that point, the means of prevention should shift to the operator unless and until the means are harming the public.

Accepting a presumptive role of private governance of payment systems, the question arises as to when rebuttal of the presumption is appropriate. The short-but-unhelpful answer is that the presumption may be rebutted whenever society benefits by doing so. One longer and more helpful answer is this: With operational systems issues in the hands of contract law and private consortia operating in a public-private partnership, the remaining principal matter of public concern is protection of the end-users of payment systems—individuals and small businesses that do not have the leverage or the expertise to protect themselves from oppression, fraud, and mistake in the various payment networks. End-user protection should be the principal focus of public payments law because that is the area where systemic and market incentives will not, standing alone, tend to reach the most societally desirable result while facing the challenge of achieving a critical mass in the payments marketplace.

281. Alan Schwartz, *The Still Questionable Role of Private Legislatures*, 62 LA. L. REV. 1147, 1151 (2002) (describing Llewellyn's position).

282. *Id.*

The assertion that market forces will retard technological innovations achieving critical mass in the marketplace sounds counterintuitive, but history suggests it to be true. Credit card systems existed before they were subject to the bright-line TILA fifty dollar limit for consumer losses due to unauthorized use, yet the full flourishing and consumer acceptance of the credit card payment mechanism did not occur until afterward. Why? An important part of the answer is the across-the-board fifty dollar loss limit. It was easy to communicate as an assurance to potential credit card customers, and the confidence of customers was bolstered by the legally mandated lack of deviation from the bright-line rule. No single outlier could generate a persistent stream of unauthorized-use horror stories that would have the effect of retarding the entire market for adoption of and habitual use of a then-unfamiliar payment system.[283] Credit card payments became ubiquitous in part because a user-protective legal environment facilitated their being so. Debit cards and consumer use markets for ACH payments (like online bill pay) have similarly benefitted from the user protections of the Electronic Funds Transfer Act. User protections, rather than operational rules, must be the focus of public payments law. Indeed, decades of payment systems development teaches us—rather surprisingly—that payment innovators should *want* some level of bright-line and user-protective public law because those protections stimulate marketplace acceptance.

If one accepts, as this Article does, the propriety and advisability of a division between matters of private concern and matters of public concern in payments law, a question necessarily arises whether public law should be enacted at the state or federal level. Given the past accomplishments of the UCC and its drafters,[284] uniform state law would generally be an attractive option. In fact, as of the time of publication of this Article, the Commission is in the process of drafting a uniform act governing virtual currency businesses.[285] History suggests, however, that taking on a role involving user protection will be a formidable challenge. From the New Payments Code project of the 1970s and 1980s[286] to the Article 2 revision project of the 1990s and 2000s,[287] the veto of opponents

283. *See* Winn, *supra* note 120, at 709 ("Consumers may migrate toward regulated systems because they provide these incidental benefits without regard to how well systemic risk issues are managed.").

284. *See generally* STEIN, *supra* note 36 (detailing accomplishments in the uniform laws drafting process over the preceding 120 years).

285. *See* FREDERICK H. MILLER & SARAH JANE HUGHES, FINAL STUDY COMMITTEE ON ALTERNATIVE AND MOBILE PAYMENT SYSTEMS REPORT 1–2 (2014) (recommending expedited development of a uniform act regulating certain aspects of virtual currencies).

286. *See supra* text accompanying notes 150–183.

287. *See generally* William H. Henning, *Amended Article 2: What Went Wrong?*, 11 DUQ. BUS. L.J. 131 (2009) (exploring the problems likely to arise as a result of amended Article 2); Fred H. Miller, *What Can We Learn from the Failed 2003–2005 Amendments to UCC Article 2?*, 52 S. TEX. L. REV. 471 (2011) (discussing the failure of UCC Article 2 amendments).

of protective legislation has been consistently effective. The UCC revision process in particular can be the graveyard where consumer protection initiatives go to die, and that challenge would have to be overcome to enact appropriate protective legislation. The idea of establishing consumer protective legislation through the UCC payment articles has even been called a "fantasy" for academics arising from (pun thoroughly intended) "substance abuse."[288] The current effort by the Commission does not involve the UCC, however. Moreover, players in the nascent realm of cryptocurrencies in particular have incentive to support some level of user protection legislation.[289] Protection creates an environment for widespread market acceptance, as the credit card industry can attest.

Moreover, an additional incentive exists for savvy players in the payments industry to be amenable to action by the Commission and proposals like the Conference of State Bank Supervisors' ("CSBS") Model Regulatory Framework for Virtual Currency Activities, discussed below. The alternative to uniform state law is far-reaching—and perhaps overreaching—regulation by the federal Consumer Financial Protection Bureau ("CFPB"). The CFPB has suggested that it is poised to act in the area of emerging payment systems.[290] The technology and financial sectors might have an incentive to work out bright-line protections for payment end-users from oppression, fraud, and mistake, unlike in the 1970s and 1980s. The incentives to participating in the process are thus both positive and negative. The positive incentive is to create a legal environment that facilitates broad market acceptance of new payment technologies; the negative incentive is to avoid innovation-retarding over-regulation.

With this public-private dividing line in mind, and having set forth reasons why public protection law for payment systems users could be more successful now than in the past, we turn to application. How would we evaluate regulatory proposals in light of the public-private divide? This Subpart of the Article will use proposals from the federal CFPB and from the CSBS to illustrate. Numerous other proposals are out there, to be sure, including individual state legislation and the Commission's pending virtual currency project. The two evaluated here are sufficiently representative for present purposes: The CFPB effort implicates federal

288. Norman I. Silber, *Substance Abuse at UCC Drafting Sessions*, 75 WASH. U. L. Q. 225, 239 (1997) (describing this outcome as "the most preposterous" of three improbable UCC-drafting fantasies).

289. *See, e.g.*, PETER VAN VALKENBURGH & JERRY BRITO, STATE DIGITAL CURRENCY PRINCIPLES AND FRAMEWORK: VERSION 1.3 4 (2015) (acknowledging that trusted digital currency intermediaries "so long as they walk and quack like a money transmitting duck, offer the same case for regulation as traditional financial services" but that such regulations should not retard innovation).

290. *See generally* CONSUMER FIN. PROT. BUREAU, CONSUMER PROTECTION PRINCIPLES: CFPB'S VISION OF CONSUMER PROTECTION IN NEW FASTER PAYMENT SYSTEMS (2015) (describing new CFPB protection principles in light of new payment systems).

law and the mobile payments strand of innovation along with other payments built on existing system rails; the CSBS framework, in contrast, specifically implicates state law and the cryptocurrency strand of innovation.

B. Applying the Divide: The Consumer Financial Protection Bureau

The federal CFPB was created under the 2010 Dodd-Frank Act, and as its name suggests, the agency is focused on protection of consumers specifically, rather than payment systems users more broadly, such as small businesses. Coinciding with the eve of implementation of same-day ACH payments, the CFPB released "CFPB's Vision of Consumer Protection in New Faster Payment Systems," a list of nine "Principles" for future system development.[291] The CFPB's aspirational "vision" does not have the force of law, nor does it seek to micromanage or displace the private players in banking. The CFPB is "not specifying" how the Principles "must be achieved," but instead recognizes "that a variety of system components, including system architecture, operator covenants and warranties, requirements for participants and intermediaries, rules, and other mechanisms" are a critical part of "providing consumer protection, utility, and value."[292] The Principles do, however, represent a potential path for federal regulation of payments.

The Principles do not precisely coincide with the categories of oppression, fraud, and mistake advocated in this Article, but many of the Principles fit within them. In brief paraphrase,[293] the CFPB Principles are:

> (1) **Consumer Control over Payments.** Payment consumers should have clear control over when, how, and under what terms the consumer has authorized a payment.
>
> (2) **Data and Privacy.** Consumers should be informed how their data are being transferred and used, and systems should prevent misuse of the data.
>
> (3) **Fraud and Error Resolution Protections.** Payment systems should protect consumers against mistaken, fraudulent, and unauthorized, or otherwise erroneous transactions.[294]
>
> (4) **Transparency.** Payment systems should be transparent to consumers, including disclosure of costs, risks, funds availability, and security of payments; and should also include real-time access to the status of transactions.

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291. *Id.*

292. *Id.*

293. The bold titles in this list are the exact titles used by the CFPB. For brevity's sake, the text following each title is the Author's paraphrase of the CFPB's description of each applicable principle.

294. Under this third item, the CFPB cites Regulation E (electronic fund transfers) and Regulation Z (credit card payments) as examples of "appropriate safeguards" now existing. *See* Consumer Fin. Prot. Bureau, *supra* note 290.

> (5) **Cost.** Payment systems should be affordable, using fee structures that do not obscure the full cost of making a payment.
>
> (6) **Access.** Payment systems should be broadly accessible to consumers and widely accepted by businesses and other consumers.
>
> (7) **Funds Availability.** Faster payment systems should promote faster guaranteed access to funds by consumers, not only to financial institutions and merchants.
>
> (8) **Security and Payment Credential Value.** Payment systems should include strong security and a limitation on the value of consumer payment credentials, minimizing the worth of such credentials to fraudsters.
>
> (9) **Strong Accountability Mechanisms that Effectively Curtail System Misuse.** The mechanisms of any faster payment system should collectively incentivize operators, participants, and end-users against misuse of the system.[295]

The CFPB Principles provide a useful framework for further discussion of the best role for public law in future governance of payment systems, regardless of whether the CFPB is the appropriate agency to handle such matters. Because this Article calls for a robust, but tightly limited protective regime for end-users, the CFPB Principles are a good vehicle for evaluating protection goals that, given the agency mandate, will tend to err on the side of more regulation. For present purposes, the CFPB Principles fall generally into three categories: (1) those where protective regulation is inadvisable or unnecessary due to existing market incentives; (2) those where protective regulation is arguably useful due to conflicting market incentives; and (3) those where protective regulation should be a priority because of the clear public benefit of legally protecting users from oppression, fraud, and mistake.

The first category of Principles are those where regulation is either unnecessary or ill-advised. Items six, eight, and nine above (high access, credential security, and accountability against misuse) are outcomes that, at least in centralized private payment networks, are likely adequately protected by the impact of market forces on the private sector. On these points, federal regulation is not only unnecessary, but would lag painfully behind fast-developing technology. A payment mechanism with limited market access or that has poor security and is susceptible to in-the-system misuse would ultimately not survive in the face of a viable market alternative. In the case of cryptocurrency, these classes of protections are actually off-point, just as they would be for payment in cash itself. The intended cash-usability of Bitcoin and the like are a feature of its design.

The second category is a mixed bag, raising issues that could be appropriate for public law protection, but are not necessarily so absent evidence of end-user protection through a given payment system. Items

295. *See id.*

two and seven (data privacy and faster funds availability) face both encouragement and discouragement incentives in the private market. While some end-users will be drawn to, and place a premium on, personal privacy and expedited funds availability, payment system providers have financial incentives to mine and repackage user data for sale and to gain float time off aggregated withheld funds.[296] Both end-user privacy and faster funds availability are significant concerns and raise the potential for abuses, but they are also matters where consumer choice should ultimately prevail over the risks of abuse. In particular, the privacy of customer data has become a selling point for both merchants and payment providers.[297] Though not centrally marketed, Bitcoin and other cryptocurrency do tend to be touted as an alternative for their transactional privacy—a quality which has been of public concern to law enforcement.[298] For all developing payment systems, items two and seven on the CFPB list are thus potential points of regulation, but are now better left alone as the market may solve these problems most effectively. If that does not happen, public law regulation looms nearby.

The core matters of end-user protection where public law protecting the end-user is called for is under items one, three, four, and five, dealing respectively with unauthorized payments, fraudulent or erroneous payments, and, taking four and five together, clear disclosure of system costs and user-relevant operations (such as funds availability). These are areas where, despite the regulatory cost, payment systems innovation would be encouraged by bright-line protective legislation that fosters confidence in emerging payment systems. The goal here is to facilitate duplication of the successes of the payments card industry under TILA and EFTA. Such legislation could come at the state level, but the CFPB—and the risk of over-regulation—stands waiting in the wings if it does not.

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296. *See generally* Steve Kroft, *The Data Brokers: Selling Your Personal Information*, CBS NEWS 60 MINUTES (Aug. 24, 2014) (describing the resale value of personal information); Jonathan R. Macey & Geoffrey P. Miller, *Nondeposit Deposits and the Future of Bank Regulation*, 91 MICH. L. REV. 237, 247 (1992) (describing how holders of payment funds "enjoy the benefit of the float between the time the instrument is issued and the time of payment").

297. *See, e.g.*, Jeremy Kahn, *Amazon's Pitch to Europe: Your Data Is Safe from American Spies*, BLOOMBERG BUS., Jan. 6, 2016, http://www.bloomberg.com/news/articles/2016-01-07/amazon-s-pitch-to-europe-your-data-is-safe-from-american-spies; *Apple's Commitment to Your Privacy*, APPLE, http://www.apple.com/privacy/ (last visited Aug. 5, 2016) ("At Apple, your trust means everything to us. That's why we respect your privacy and protect it with strong encryption, plus strict policies that govern how all data is handled.").

298. *See, e.g.*, Evan Perez, *Holder: Bitcoin Raises Law Enforcement Concerns*, CNN MONEY (Apr. 8, 2014, 2:06 PM), http://money.cnn.com/2014/04/08/technology/bitcoin-holder/ (last visited Aug. 5, 2016) (describing Congressional testimony by then-Attorney General, Eric Holder, about Justice Department concerns with "bad actors who use digital currencies to buy drugs, weapons, and other illegal goods and services.").

C. Applying the Divide: The Conference of State Bank Supervisors

At the state level, a significant effort to guide regulatory efforts regarding licensure and supervision of activities in the cryptocurrency stream of payments innovation—under the name of "virtual currency" in this instance—has come from the CSBS. The CSBS is a nationwide organization of financial regulators from all fifty states and certain U.S. territories dating back to 1902.[299] The stated mission of the CSBS is to support state regulators "in advancing the system of state financial supervision by ensuring safety, soundness and consumer protection; promoting economic growth; and fostering innovative, responsive supervision."[300] Coming from a state regulator perspective, the CSBS formed an Emerging Payments Task Force "to identify areas for consistent regulatory approaches among the states" with regard to developing payment systems.[301] The task force concluded that "activities involving third party control of virtual currency, including for the purposes of transmitting, exchanging, holding, or otherwise controlling virtual currency" should be regulated at the state level.[302] The eventual product arising from this conclusion is a Model Regulatory Framework released by the CSBS on September 15, 2015 ("CSBS Framework").[303] The Framework—unsurprisingly, given its source—focuses on payment intermediaries in many areas associated with the safety-and-soundness and anti-money laundering regulation of banks.[304] As this Article is focused on the governance of payment systems as such, its review of the CSBS Framework will be restricted accordingly, with one exception.

The banking-style focus of the CSBS Framework is noteworthy because it is representative of the state law responses to Bitcoin. The Framework is less interested in the operation of cryptocurrencies as payment systems than it is in the licensure of intermediaries "involved in third party control of virtual currency."[305] The same can also be said of the finalized New York "Bitlicense" regulations and, as of this writing, of the pending Uniform Law Commission project to regulate virtual

299. *See About the Conference of State Bank Supervisors*, Conference of State Bank Supervisors, https://www.csbs.org/about/what/Pages/default.aspx (last visited Aug. 5, 2016).

300. *Id.*

301. Conference of State Bank Supervisors, State Regulatory Requirements for Virtual Currency Activities: CSBS Model Regulatory Framework 1 (2015).

302. *Id.*

303. *Id.*

304. *See, e.g.*, *id.* at 12–13 (including "Licensing Requirements," "Financial Strength and Stability," and "Bank Secrecy Act/Anti-Money Laundering" regulation as components of the CSBS Framework). While these are certainly important topics, they are beyond the payments-focus of this Article, just as general banking regulation was beyond the scope of earlier discussions of checks and credit cards.

305. *Id*. at 11.

currency businesses.[306] This Article asserts that decades of payments law experience shows that a comprehensive code would not be a productive approach for governance of an emerging payment system. The CSBS Framework is, in that regard, consistent with this Article.

The "Consumer Protection" branch of the CSBS Framework, however, is heavy on information gathering while light on specific protections that facilitated success of the credit and debit card systems. The Framework recommends, in outline form:

> (1)Required consumer protection of policies and documentation of such policies;
>
> (2) Holding an actual amount of virtual currency in trust for customers and ensuring that amount is identifiable separately from any other customer or virtual currency business entity holdings;
>
> (3) Required policies and documentation of complaints and error resolution;
>
> (4) Required receipt to consumers with disclosures regarding exchange rates;
>
> (5) Required disclosures to consumers about risks that are particular to virtual currency;
>
> (6) Required disclosure of virtual currency insurance coverage, which at a minimum includes notice that virtual currency is not insured or otherwise guaranteed against loss by any government agency; and
>
> (7) Public disclosure of licensing information and agency contact information.[307]

Consumer protection items in the Framework are generally divisible into two categories: documentation and disclosure. As for documentation, items (1) and (3) in the Framework encourage states to mandate that regulated virtual currency businesses keep consumer protection policies, including policies on the critical payment systems issue of error resolution. They do not, however, specify any scope of the policies, but merely that they be reduced to "documentation." Item (2) suggests the need for bank-account-like records that separately identify virtual currency that is "held" for customers. This requirement, while well-intentioned, is problematic in its inconsistency with the actual technology used in the transmittal of value represented by virtual currency. Bitcoin policy advocates Peter Van Valkenburgh and Jerry Brito have explained this disconnect between concepts of traditional money and its newer digital cousin:

306. *See generally* NAT'L CONFERENCE OF COMM'RS ON UNIF. STATE LAWS, PROJECT DESCRIPTION FOR THE REGULATION OF VIRTUAL CURRENCIES ACT: DRAFTING COMMITTEE MEETING (Oct. 9–11, 2015) (describing the scope of the Commission drafting project and providing additional resources).

307. CONFERENCE OF STATE BANK SUPERVISORS, *supra* note 301, at 13.

> Digital or "virtual" currency is not, by definition, something that is capable of being held in the literal sense. Moreover, while we talk of "storing" digital files, perhaps in a cloud service like Dropbox, we cannot talk of storing Bitcoins. Bitcoins are not files; they are assignments of value made to pseudonymous addresses and listed on a public ledger called the blockchain. ***No one holds or stores bitcoins; one holds or stores the cryptographic keys that grants one permission on the network to sign for transactions involving particular addresses***. To the extent anyone ever *holds* or *stores*, or simply *has* bitcoins, it will be because they have control over these cryptographic keys.[308]

In any event, when a regulated non-owner of Bitcoins has the capability of spending them unilaterally,[309] the protection contemplated in item (2) may need to be framed around the generation of monthly account statements, akin to those associated with checking and credit card accounts.[310] Item (4) addresses both documentation and disclosure, with the documentation being the required issuance of a "receipt" (which could be digital) for a cryptocurrency transmission between an intermediary and its customer.

The heavy reliance on disclosures contained in items (4) through (7) is of concern. This is because excessive disclosure risks are overwhelming and thus ineffective, with the disclosure costs not outweighed by measurable benefits.[311] The result truly could be, in the words of Omri Ben-Shahar and Carl Schneider, "more than you wanted to know."[312] The category of "risks that are particular to virtual currency" seems particularly vague and over-inclusive. Some disclosures—like the fact that virtual currency businesses offer no protection analogous to that provided by the Federal Deposit Insurance Corporation for bank accounts—could nonetheless be made as easily digestible oneliners.[313] The CSBS Framework has already been criticized for vagueness that could cover unintended parties and hinder innovation in the cryptocurrency arena.[314]

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308. VAN VALKENBURGH & BRITO, *supra* note 289, at 6 n.21.

309. *Id.* at 7 (advocating the characteristic of unilateral control over digital currency transmission as the appropriate trigger for consumer protection legislation).

310. *See* U.C.C. § 4-406 (AM. LAW INST. & UNIF. LAW COMM'N 2015) (allocating bank and customer responsibilities for fraud and error monitoring where the bank issues a statement of account to its customer).

311. *See generally* Omri Ben-Shahar & Carl E. Schneider, *The Futility of Cost-Benefit Analysis in Financial Disclosure Regulation*, 43 J. LEGAL STUD. S253 (2014) (asserting that consumer disclosure laws do not deliver their anticipated benefits).

312. OMRI BEN-SHAHAR & CARL E. SCHNEIDER, MORE THAN YOU WANTED TO KNOW: THE FAILURE OF MANDATED DISCLOSURE (2014) (describing and documenting supporting research on the ineffectiveness of excessive mandated disclosure).

313. Jeremy Papp, *A Medium of Exchange for an Internet Age: How to Regulate Bitcoin for the Growth of E-Commerce*, 15 U. PITT. J. TECH. L. POL'Y 33, 39 (2014) (observing that Bitcoin exchanges create "a credit risk similar to depositing money into a bank account, only without the government protection of the Federal Deposit Insurance Corporation (FDIC).").

314. *See, e.g.*, Peter Van Valkenburgh, *Freshly Unveiled CSBS Model Regs: Good Goals, Poor Execution*, COIN CENTER (Sept. 15, 2015), https://coincenter.org/2015/09/freshly-unveiled-csbs-model-regs-

Of particular interest here is what the CSBS Framework does *not* contain. The CFPB Principles point in a direction that too readily exceeds bright-line protection of system users against oppression, fraud, and mistake. The CSBS Framework, in contrast, is too amorphous and hesitant, focused on disclosure and documentation. The end-users of emerging payment systems would benefit from a middle ground. The system proponents would as well. That, if anything, is the legal lesson from the success of credit cards and debit cards. That lesson speaks to payments law going forward.

Experience with public law governing older payment systems also aids in identifying what aspects belong in the future of payments and what should fade. Consumer use of the ACH system is subject to the EFTA and Regulation E, but those protections should be extended to all users. Such a bright-line rule is not prevented by "any inherent technological limitation on the ACH system."[315] An example of existing end-user protection that is outside the framework proposed here is the ability to withhold payment on a credit card. That should not be replicated as it is not a protection against problems in the payments system. Regulating payments is not an appropriate way to shift (on an inconsistent basis, no less) the balance of power between merchants and their consumers. Legal protections in payment systems should relate to the payment process, not the underlying transaction.

Experience with technological development further suggests rules from the checking system that ought not to be duplicated in the future. Technology, coinciding with the Expedited Funds Availability Act,[316] has made payment "float"—a delay in the actual debit of a payment that is most frequently associated with checks—something that should not be treated as a right. Another aspect of the checking process that should fall by the wayside in an era of faster payments is the stop payment right, which is inconsistent with technology that replicates the expediency of cash.

Taken as a whole, our decades of experience with the decline of the checking system and the rise of other systems should inform our payments policy decisions. Both the CFPB approach and the CSBS approach have some merit, but neither—from the standpoint of payments governance—hits the sweet spot. Protecting users outside of the payment system from oppression, fraud, and mistake—all of which can occur inside the payment system—is an important public law

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good-goals-poor-execution/ (last visited Aug. 5, 2016) ("Who needs to be licensed? Who should state regulators worry about? None of this is made any clearer by the work unveiled by the CSBS today, and—indeed—the suggestion that mere facilitation of transmission gives rise to an obligation to license only muddies these already cloudy waters.").

315. HAL S. SCOTT, THE IMPORTANCE OF THE RETAIL PAYMENT SYSTEM 36 (2014).

316. *See* 12 U.S.C. §§ 4001–10 (West 2012).

function. Most other operational concerns are appropriately left to private contract law. At a minimum, private law deserves the presumption of primacy for system operations until clear circumstances show otherwise.

CONCLUSION

A code, as Robert Scott has defined it, is "a preemptive, systematic, and comprehensive enactment of a whole field of law" that, by design, "purports to give the answers to all relevant questions" in its field.[317] Decades of experience suggest that a public law code, whether at the state or federal level, is not a desirable mechanism for governing the operational side of payment systems in an era of rapidly advancing technology. The field of payments needs legal protections for end-users against oppression, fraud, and mistake. It does not need a comprehensive code. Indeed, to the extent that our existing codes in UCC Articles 3 and 4 are intended to facilitate payment transaction processes, we could easily live without them.[318] Present developments certainly do not call for replicating them.

Payment card networks and the ACH systems have, by their massive marketplace successes, shown the potential of largely private law governance atop targeted public-protective law. Two major strands of current innovation in payments represent different challenges for legal structures of payment systems. The Apple Pay exemplar of mobile payments illustrates the problems of integration of a new payment system into a pre-existing public law framework. The Bitcoin exemplar of cryptocurrency shows the establishment of a system that completely bypasses the previously unavoidable role of the banking system as the trusted intermediary for noncash payments. The overarching challenge under these circumstances is to define the most socially beneficial roles to assign to public law and private law, respectively.

The public law of payments is best limited to the prevention of oppression, fraud, and mistake victimizing system end-users, yet public law should be robust in those arenas. Beyond protection of end-users, private contract law has proven itself to be a superior method of governance in payment card and ACH transactions. This facilitation of private ordering should aid development of non-fiat currencies, as well.

The need to address constantly evolving technology requires an approach where matters of minimal public concern can be dealt with through private law, while public law can govern with respect to matters

317. Robert E. Scott, *The Uniformity Norm in Commercial Law: A Comparative Analysis of Common Law and Code Methodologies*, *in* THE JURISPRUDENTIAL FOUNDATIONS OF CORPORATE AND COMMERCIAL LAW 171 (Jody S. Kraus & Steven D. Walt eds., 2000).

318. Rasmussen, *supra* note 198, at 1146 ("We could easily live without Articles 3 and 4.").

of public concern—protecting the public from oppression, fraud, and mistake. This framework maximizes the benefits of private lawmaking in its area of strongest institutional competence, while assigning to public law the task of protection of end-users who have comparatively little protective and bargaining power.

Centuries of noncash systems of payment are, in a sense, approaching full circle. The inland bill of exchange that Lord Mansfield held to be negotiable was a creature of private ordering, not government design. The English Bills of Exchange Act, the Uniform Negotiable Instruments Law, and ultimately UCC Articles 3 and 4 were all a result of decisions to take a private practice and subject it to comprehensive public law regulation. That era is coming to a close in the law of payments. Future payments law will, as befitting its origins, best be primarily the result of private ordering, with bright-line public law protections for end-users preventing the rougher edges of earlier eras. We are by no means doomed to repeat the history of payments law, but we would do well to take heed of its lessons in this age of emerging payments.

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