

# PROPERTY, AGENCY, AND THE BLOCKCHAIN: NEW TECHNOLOGY AND LONGSTANDING LEGAL PARADIGMS

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## ABSTRACT

This essay expands on the keynote address I prepared for the Symposium sponsored by Wayne State University Law School and the *Wayne Law Review*. The focus of the Symposium was how private and public actors explore blockchain technology against a backdrop of traditional functions used or performed by both sets of actors. My address focused on the agency questions that coding, commonly known as “smart contracts,” enabled by blockchain technology raise. In this broader essay, I look at longstanding questions about property and agency, and how those two legal concepts can work with and be affected by uses of blockchain technology. This essay concludes that, as uses of blockchains expand, we may need to undertake repetitive examinations of how their uses affect our traditional thinking about property and agency law and how that thinking may affect other bodies of law. We should not dispose of traditional norms in evaluating the legal responsibilities among counter-parties that use new technologies, however, just because they are using new technologies to assist in their dealings. In fact, it may be that well-tested norms of property and agency law may matter more when new technologies are used.

## I. INTRODUCTION

Virtual currencies challenge longstanding legal paradigms as well as roles played by many legacy providers and intermediaries in marketplaces. Virtual currencies also may be able to help us satisfy other longstanding legal expectations. In the former case, virtual currencies and blockchain technologies challenge legacy participants in many forms of daily transactions. We can have real-time or near-real-time payments using virtual currencies, and, as virtual-currency advocates say, we can make payments much less expensive by cutting out legacy intermediaries, particularly banks. However, we may not have enough information to know, with payments for example, whether a payment sent off is reversible or the terms on which a payment system allows one to reverse a payment or how one can redeem the value placed with a third-party provider such as a depository or custodian.

Many readers may think that the issues pertaining to uses of blockchain technology began with the introduction (if it can be called that fairly) of Bitcoin in 2009.<sup>1</sup> I think that is inaccurate. We can trace the technology back to somewhat earlier experiments with “virtual

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1. Satoshi Nakamoto, *A Peer-to-Peer Electronic Cash System*, BITCOIN (2008), <https://bitcoin.org/bitcoin.pdf>.

currencies” that emerged in the 1980s through the mid-1990s, including the brilliant but ill-fated e-cash system created by a group of cryptographers led by David Chaum.<sup>2</sup> I have been following developments in “virtual currencies” since 1995 and have been writing about them almost as long.

This essay is organized into four parts. In Part II, I look at “property” concepts generally and attempt to associate them with contemporary “virtual currencies” that depend on blockchain technologies. Next, in Part III, I look at agency concepts and how we are beginning to tolerate agents that are robotic or blockchain-based, as well as those that are human. Part IV looks at issues I perceive over the use of blockchain technology to perform contracts via so-called “smart contracts.” It does not address two of the other uses of blockchain technology, as record-keeping and data-security devices, because other presenters at this Symposium focused on those applications. In Part V, I give a few conclusions about how we arrived at this state and issues we will continue to face as we deploy blockchain technologies more widely.

## II. PROPERTY, VIRTUAL CURRENCY, AND BLOCKCHAIN TECHNOLOGY

“Property” is one of the oldest legal concepts. The Oxford Universal Dictionary refers to its origins in Middle English and includes specific uses as early as 16<sup>th</sup> Century English.<sup>3</sup>

The term is not restricted to real estate or personal property—things that lawyers formerly called personalty or chattels. Property concepts now extend to a range of intangibles, such as intellectual property—rights in patents, copyrights, and trademarks; rights to collect debts or performance obligations and personal information; and these new-fangled forms of exchange called “virtual currencies.” We talk about what we own or would like to own, what we have owned, and how to protect these assets from other claimants to it in property terms. “Property” also represents stores of value, which exist today in many forms including intangible property, which I discuss later in this essay and which has potential uses for blockchain technologies.

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2. See *How Digicash Blew Everything*, SATOSHI WATCH, <https://satoshiwatch.com/hall-of-fame/dr-david-chaum/in-depth/digicash-blew-everything-david-chaums/> (last visited Feb. 4, 2019). For a 1994 view of e-money, its history, and issues surrounding it, see Steven Levy, *E-Money (That's What I Want)*, WIRED (Dec. 1, 1994, 12:00 PM), <https://www.wired.com/1994/12/emoney> (containing a lengthy article worth reading on the work of David Chaum and the history of Digicash and other e-money initiatives).

3. *Property*, THE OXFORD UNIVERSAL DICTIONARY 1600 (2d ed. 1955).

“Currency” is a form of “property.” Depending on one’s age and experience with technology, one may think of currency in terms of the paper money and coins we have on hand. We certainly think of both as “property” and as our property. The term “currency” also connotes evidence of obligations we can enforce, in cases of currency circulating in the United States, as these are obligations against the Federal Reserve.<sup>4</sup> What differentiates this traditional, physical type of currency—paper money or coin—is that it is backed by a government agency or by a government directly.<sup>5</sup> In contemporary parlance, this type of currency is also called sovereign currency or fiat currency.<sup>6</sup> We also call this currency “legal tender,” a method of paying taxes or discharging debts approved by a government.<sup>7</sup>

Other forms of “currency” exist. Some currency has been commodity currency—that which is specifically backed by, and linked to, a store of a commodity, such as gold or silver.<sup>8</sup> Bank credits operate as currency even if, in the United States at least, once we deposit funds to an account at a bank or a credit union, we no longer own those funds as a legal proposition.<sup>9</sup> Rather, we have the bank’s obligation to repay or allow us to redeem those funds in a debtor-creditor relationship.<sup>10</sup>

Prepaid access, sometimes called stored access or prepaid cards, are other forms of value-storage that we consider property, and our own property if we receive them as a gift or instruct an employer or government agency to deposit funds into the underlying accounts for our

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4. 31 U.S.C. § 5103 (2019) (defining the term legal tender from the Coinage Act of 1965, “United States coins and currency (including Federal Reserve notes and circulating notes of Federal reserve banks and national banks) are legal tender for all debts, public charges, taxes, and dues.”); see also *Legal Tender Status*, U.S. DEP’T OF TREAS., <https://www.treasury.gov/resource-center/faqs/currency/pages/legal-tender.aspx> (last visited Feb. 4, 2019). Federal Reserve notes are not backed by any commodity. *Id.* They are obligations of the Federal Reserve System and the United States backed by gold certificates and United States securities held by the Federal Reserve bank that originally received the Notes from the Bureau of Engraving and Printing. *Id.*

5. *Legal Tender Status*, *supra* note 4.

6. See J.D. Alt, *The Strange Reality of Fiat Money*, NEW ECONOMIC PERSPECTIVES (Jan. 2, 2013), <https://neweconomicperspectives.org/2013/01/the-strange-reality-of-fiat-money.html>.

7. 31 U.S.C. § 5103.

8. See *Commodity-Backed Money Versus Fiat Money*, RENEGADE INC. <https://renegadeinc.com/commodity-backed-money-versus-fiat-money/> (last visited June 19, 2019).

9. See *Types of Bank Credits*, IEDUNOTE, <https://iedunote.com/types-of-bank-credits> (last visited June 19, 2019).

10. *Id.*

benefit.<sup>11</sup> We have not yet come to categorize prepaid access as currency.<sup>12</sup>

Regardless of how we conceive a currency's status, we want to know if it is ours or not and how we can enforce our right to it if it is ours.

If we assume that "virtual currency" is "property," and I do, then it matters, for many purposes, what kind of property it is—or whether it might be treated as more than one form of property, depending on the uses to which it may be put. I mention that this is a question for reasons I explain below.

A. IS "VIRTUAL CURRENCY" IN ONE CATEGORY OF "PROPERTY" OR  
COULD IT BE IN MANY CATEGORIES?

Many regulators here and abroad have been thinking about the proper characterization of "virtual currencies."<sup>13</sup> I also have been grappling with this question; I predict regulators will defer characterizing blockchain-based property, including virtual currencies and what are called tokens. Are they currencies, money, commodities, securities, or should all the above characterizations potentially fall into one class of "property"? That sounds like lots of possible characterizations, which could be good for the virtual currency community and their innovation potential.

We have had regulators and courts announce that, for the issue or controversy in front of them, "virtual currencies" fall into one of these property categories.<sup>14</sup> In one bankruptcy proceeding, the virtual currency community commentators expected that the judge would rule on the question of whether bitcoin is "property" or "currency."<sup>15</sup> In this case, HashFast Technologies LLC (HashFast) filed for Chapter 11 reorganization, and the trustee asked the court to avoid and recover 3,000 bitcoin paid to a vendor from HashFast that had been worth \$363,861 when paid to the vendor, but that were worth \$1.3 million at the time of

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11. See *FinCen's Prepaid Access Rule*, LEXOLOGY: NEWSFEED (Aug. 5, 2011), <https://www.lexology.com/library/detail.aspx?g=69dd040f-44d0-49ca-9620-2d96df4c7f1d>.

12. *Id.*

13. See, e.g., M. Todd Henderson & Max Raskin, *A Regulatory Classification of Digital Assets*, HARV. L. SCH. FORUM ON CORP. GOVERNANCE AND FIN. REG. (Jan. 9, 2019), <https://corpgov.law.harvard.edu/2019/01/09/a-regulatory-classification-of-digital-assets/>.

14. See, e.g., Stan Higgins, *US Bankruptcy Court Set to Weigh in on Bitcoin's Currency Status*, COINDESK (Feb. 9, 2016, 4:46 PM), <http://www.coindesk.com/bankrupt-bitcoin-mining-firm-trustee-seeks-return-of-funds-from-former-promoter/>.

15. See *id.*

the trustee's filing.<sup>16</sup> The trustee moved the court to treat these bitcoin as "property" because that would have resulted in recovery of the bitcoin and its higher value at the time of recovery.<sup>17</sup> A decision that these bitcoin were "commodities" would have limited the recovery to the number of bitcoin, at the value on the day of the recovery—presumably a lower amount by a great deal.<sup>18</sup> The court, however, punted.<sup>19</sup> The court postponed deciding whether the specific bitcoin paid to the vendor were "currency" or "commodities."<sup>20</sup>

Choosing characterizations is hard because we trigger different legal or regulatory regimes, at least in the United States and Canada.<sup>21</sup> The consequence of not getting the taxonomy of this property right could cause vastly different tax treatments, criminal sanctions, or civil remedies to apply.

Mistakes in this type of property taxonomy evaluation also will complicate how lawyers, particularly those who advise lenders and borrowers, advise clients. A taxonomy mistake will make a huge difference in the settled rights of counter-parties in commercial transactions. Using an example based on recent publicly available works from regulators and legislators in different States, if virtual currency is money<sup>22</sup> then, using the current version of Uniform Commercial Code article 9 (article 9), perfection and priority of a security interest in money depends on whether the secured party has possession of it, directly or indirectly; if possession is broken, perfection and priority is lost.<sup>23</sup>

On the other hand, in current article 9 speak, virtual currency currently would be classified as a general intangible.<sup>24</sup> To perfect and

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16. Memorandum of Points and Authorities in Support of Motion for Partial Summary Judgment at 1, *Kasolas v. Lowe (In re HashFast Techs, LLC)*, No. 14-bk-30725-DM (Bankr. N.D. Cal. Jan. 22, 2016).

17. *Id.*

18. *Id.*

19. *HashFast Techs., LLC v. Lowe (In re Hashfast Techs., LLC)*, No. 14-bk-30725-DM (Bankr. N.D. Cal. Feb. 22, 2016) (order).

20. *Id.*

21. See generally Jeff Desjardins, *A Tale of Two Banking Sectors*, VISUAL CAPITALIST (May 16, 2018), <https://www.visualcapitalist.com/canada-u-s-banking-differences/>.

22. U.C.C. § 1-201(b)(24) (AM. LAW INST. & UNIF. LAW COMM'N 1998) ("Money means a medium of exchange currently authorized or adopted by a domestic or foreign government. The term includes a monetary unit of account established by an intergovernmental organization or by agreement between two or more countries.").

23. U.C.C. §§ 9-312(b)(3), 9-313(a)–(c) (AM. LAW INST. & UNIF. LAW COMM'N 1998).

24. U.C.C. § 9-102(42) (AM. LAW INST. & UNIF. LAW COMM'N 1998) ("General intangible means any personal property, including things in action, other than accounts, chattel paper, commercial tort claims, deposit accounts, documents, goods, instruments, investment property, letter-of-credit rights, letters of credit, money, and oil, gas, or other

achieve priority over other potential claimants, the secured party will need to work harder. The secured party needs to have her borrower grant her a security interest in a writing or a record<sup>25</sup> and file a financing statement<sup>26</sup> in the proper public office,<sup>27</sup> in the proper state,<sup>28</sup> under the *legally correct name* of the borrower, as prescribed by article 9.<sup>29</sup>

If this secured-transaction-semantics exercise seems far-fetched to you, I can assure you it is not. If the audience for this essay did not include lawyers and law students, I would hesitate to bring up such an inside-baseball type example. But you are and so I can.

In January 2019, the Wyoming Legislature introduced a bicameral bill, Wyoming SF 0125.<sup>30</sup> It created a new chapter of the Wyoming Statutes, Chapter 29, that would recognize digital assets as “property,”<sup>31</sup> and would classify digital assets into three sub-classes, depending on uses.<sup>32</sup> For example, it would deem digital consumer assets<sup>33</sup> as general intangibles but “only for purposes of article 9 of the Uniform Commercial Code, title 34.1, Wyoming statutes.”<sup>34</sup>

This Wyoming legislation also deems “virtual currency” to be money as “intangible personal property . . . only for purposes of article 9” in Wyoming.<sup>35</sup> This money designation is expressly “notwithstanding W.S. 34.1-1-201(b)(xxiv),” which defines the term “money” for all other UCC

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minerals before extraction. The term includes payment intangibles and software.”). For reasons that I detail in a later section of this essay, classifying virtual currencies as general intangibles does not offer the optimal solution to the issue of creating, perfecting, or maintaining perfection in virtual currencies. The Uniform Law Commission has approved a uniform act that offers a tidier and less work-and-cost-intensive approach. See *Unif. Supp. Comm. Law for the Unif. Reg. of Virtual-Currency Bus. Act*, UNIF. LAW COMM’N (2018), <https://www.uniformlaws.org/viewdocument/final-act-with-comments-86?CommunityKey=fc398fb5-2885-4efb-a3bb-508650106f95&tab=librarydocuments>.

25. U.C.C. §§ 1-201(b)(43), 9-201(70), 9-203(b)(3) (AM. LAW INST. & UNIF. LAW COMM’N 1998).

26. U.C.C. § 9-201(39) (AM. LAW INST. & UNIF. LAW COMM’N 1998).

27. U.C.C. § 9-501 (AM. LAW INST. & UNIF. LAW COMM’N 1998).

28. U.C.C. §§ 9-301, 9-307 (AM. LAW INST. & UNIF. LAW COMM’N 1998).

29. U.C.C. § 9-503(a) (AM. LAW INST. & UNIF. LAW COMM’N 1998).

30. SF0125, 65th Leg., Gen. Sess. § 34-29-102 (Wyo. 2019)

31. *Id.* (classifying digital assets as property; applicability to Uniform Commercial Code).

32. Wyo. SF0125 § 34-29-102(a).

33. Compare Wyo. SF0125 § 34-29-102(a)(i), with U.C.C. § 9-102(23) (AM. LAW INST. & UNIF. LAW COMM’N 1998) (applying to “goods that are used or bought for use primarily for personal, family, or household purposes”). Under article 9, purchase-money security interests are eligible for automatic perfection pursuant to U.C.C. § 9-309(1) (security interests perfected upon attachment) to the extent that they are not subject to U.C.C. § 9-311(b) because they are subject to other statutory or treaty requirements.

34. Wyo. SF0125 § 34-29-102(a)(i).

35. Wyo. SF0125 § 34-29-102(a)(iii).

purposes in Wyoming.<sup>36</sup> To be more direct, “virtual currency” in Wyoming’s Uniform Commercial Code is money except when it is not money. That means it is not money under UCC article 2, for sales transactions, and it is not money for UCC article 3 purposes.

A third classification—“digital securities”—is defined in the Wyoming bill as intangible personal property and is deemed to be securities and investment property for purposes of articles 8 and 9 of the Wyoming UCC.<sup>37</sup>

Wyoming’s bill provides that secured parties may perfect security interests in digital assets by executing a control agreement with the debtor,<sup>38</sup> in a manner presumably analogous to provisions of the current UCC 9-314. The bill also provides that a secured party may file a financing statement “to perfect a security interest in proceeds from a digital asset . . . .”<sup>39</sup>

This means that the potential secured creditor will have to make the correct taxonomy determinations for purposes of article 9 for debtors situated in Wyoming and probably other determinations for debtors whose locations are not in Wyoming—or risk not being perfected, not having priority, and possibly not having an attached security interest that leaves it vulnerable to even more potentially adverse claimants, such as losing to its debtor, to purchasers from its debtor, and to other creditors of its debtor,<sup>40</sup> including the trustee, in a proceeding under the federal Bankruptcy Code.<sup>41</sup> Following Wyoming SF 0125’s enactment, creditors whose debtors are located for article 9 purposes in Wyoming will have to parse the UCC in their home states and the new Wyoming provisions to the extent that their collateral involves digital assets. Creditors, whose debtors are not located in Wyoming, will have to review the choice-of-law provision in Wyoming’s legislation against the choice-of-law rules in other states’ enactments of article 9.

The *Uniform Law Commission’s (ULC) 2018 Uniform Supplemental Commercial Law for the Regulation of Virtual-Currency Businesses Act*

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36. Wyo. SF0125 § 34-29-102(a)(iii).

37. Wyo. SF0125 § 34-29-102(a)(ii).

38. Wyo. SF0125 § 34-29-103(a).

39. Wyo. SF0125 § 34-29-103(c); *see also* U.C.C. § 9-315(d) (AM. LAW INST. & UNIF. LAW COMM’N 1998).

40. U.C.C. § 9-201 (AM. LAW INST. & UNIF. LAW COMM’N 1998) (providing that a security interest “is effective according to its terms between the parties, against purchasers of the collateral, and against creditors.”); U.C.C. § 9-203(a)–(b) (AM. LAW INST. & UNIF. LAW COMM’N 1998) (governing attachment and enforceability of security agreements). Michigan’s enactment of this provision is at MCLA § 440.9102 and § 440.9203. *See* MICH. COMP. LAWS ANN. §§ 440.9102, 440.9203 (West 2019).

41. 11 U.S.C. §§ 501, 506(a) (2019).



(Supplemental Commercial Law),<sup>42</sup> which was approved by the ULC in 2018 and the American Bar Association in late January 2019 for enactment by the states, reveals another approach for the treatment of digital assets, while adding important user protections and clarifying treatment under article 9. For purposes of this essay, I will highlight only the aspects of the Supplemental Commercial Law that focus on classification of the type of property that virtual-currency assets may be, some locational or choice-of-law features that streamline and clarify rights and duties of users, providers, and potential secured lenders.

The Supplemental Commercial Law takes a more time-tested approach than the approach the Wyoming legislation took. The Supplemental Commercial Law relies on principles set forth in another ULC product, article 8 of the UCC, particularly part 5 of that article. Each state in the United States has enacted UCC article 8 in substantially similar forms.<sup>43</sup> The Supplement Commercial Law opts providers, who have control over their customers' virtual-currency assets,<sup>44</sup> into article 8, part 5 protections for users and providers. It treats virtual-currency assets as financial assets,<sup>45</sup> and thus renders them subject to the provisions of UCC articles 8 and 9, accordingly, as investment property.<sup>46</sup> For persons considering taking article 9 security interests in virtual-currency assets, the designation of these assets as investment property leads to one-step creation and perfection of that security interest through the vehicle of a control agreement.<sup>47</sup> Control agreements are not required to be filed in any public records system to be perfected, do not expire on the five-year schedule set for article 9 financing statements in UCC § 9-513, and do not need to be monitored for changes in the debtor's location needed to maintain perfection of security interests by financing statements.<sup>48</sup> They also solve a problem where secured lenders expressed concern—whether courts will recognize their interests as

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42. *Unif. Supp. Comm. Law*, *supra* note 24.

43. *U.C.C. Art. 8, Investment Securities*, UNIF. LAW COMM'N (1994), <https://www.uniformlaws.org/committees/community-home?CommunityKey=f93a92b2-020f-4bfa-880b-5f80d24d018d> (displaying a map showing enactments by all 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands with additional chart showing dates of enactments).

44. *Unif. Supp. Comm. Law*, *supra* note 24, at § 4 and Official Cmt. 1.1 to § 4.

45. *Id.*

46. U.C.C. § 9-102(a)(49) (AM. LAW INST. & UNIF. LAW COMM'N 1998).

47. U.C.C. § 9-106 (Control of Investment Property); U.C.C. § 9-305 (Law Governing Perfection and Priority of Security Interests in Investment Property); U.C.C. § 9-314(a), (c) (Perfection by Control).

48. U.C.C. § 9-305(a)(3) (providing that the local law of the security intermediary's jurisdiction governs perfection or non-perfection, and the priority of the security interest).

properly perfected security interests, entitling them to priority over other claimants to the same property.

The Supplemental Commercial Law also responds to an issue that virtual currency custody service providers could impose: a choice-of-law provision that would not satisfy the requirements of the *Convention on the Law Applicable to Certain Rights in Respect of Securities Held with an Intermediary*, (Hague Securities Convention), concluded 5 July 2006,<sup>49</sup> that entered into force in the United States in April 1, 2017.<sup>50</sup> The Supplemental Commercial Law also resolves a question that otherwise arises—providers with control over their customers' virtual-currency assets only need to have one office in the United States, not one office in every state in which they may have customers.<sup>51</sup>

*B. Should We Designate "Virtual Currency" as "Money" for Some or All Purposes?*

"Virtual currency" might be called "money" in some circles or under some national or state laws. Money is not the same as legal tender, as I explained earlier in this essay. Whether virtual currency is treated as "money" can make a big difference in which laws apply to its use and how they apply.

In the United States, we have at least two different legal regimes for determining what is "money" and a related reason in federal criminal law for caring whether we have relied on the correct definition. I discuss these regimes and the federal criminal law issue briefly.

The first, which I mentioned earlier, is the Uniform Commercial Code definition of "money" that applies across the articles of the UCC. This defines money as: "[A] medium of exchange currently authorized or adopted by a domestic or foreign government. The term includes a

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49. Hague Convention on the Law Applicable to Certain Rights in Respect of Securities Held with an Intermediary, July 5, 2006, 17 U.S.T. 401, 46 I.L.M. 649 (entered into force Apr. 1, 2017).

50. *Status Table, Home Instruments Conventions, Protocols and Principles 36: Convention of 5 July 2006 on the Law Applicable to Certain Rights in Respect of Securities Held with an Intermediary*, HAGUE CONF. ON PRIV. INT'L L. (2006), <https://www.hcch.net/en/instruments/conventions/status-table/?cid=72>. For additional information on the Hague Securities Convention, see Charles W. Mooney, Jr., *Model Provisions on Secured Transactions for Intermediated Securities*, INT'L INSOLVENCY INST. (Nov. 12, 2017), <https://www.iiiglobal.org/sites/default/files/media/IMSModProv2017v6.pdf>.

51. UNIFORM SUPPLEMENTAL COMMERCIAL LAW FOR THE UNIFORM REGULATION OF VIRTUAL-CURRENCY BUSINESSES ACT, §4, cmt. 3.b., § 5 & cmt. (UNIF. LAW. COMM'N 2018), <https://www.uniformlaws.org/viewdocument/final-act-with-comments-86?CommunityKey=fc398fb5-2885-4efb-a3bb-508650106f95&tab=librarydocuments>.

monetary unit of account established by an intergovernmental organization or by agreement between one or more countries.”<sup>52</sup> This definition has been in place for some years. It closely follows the prior definition, as the comment to this definition states:

Substantively identical to former Section 1-201. The test is that of sanction of government, whether by authorization before issue or adoption afterward, which recognized the circulating medium as par of the official currency of that government. The narrow view that money is limited to legal tender is rejected.<sup>53</sup>

Under article 9, money can be perfected only by possession, and its transfer to a third party other than one acting in collusion with the debtor is free of the otherwise attached security interest.<sup>54</sup> Thus, under the versions of article 9 enacted prior to 2019, debtors and secured parties and transferees from debtors know what the term “money” means and how to perfect those security interests, and how quickly their perfection in money can be lost to a non-colluding third-party transferee.

Non-uniform treatment of “money” will raise risks and costs for secured parties (and risks for their lawyers) trying to ensure that security interests are perfected in the first instance and remain perfected for priority over third-party claimants, including trustees in bankruptcy.<sup>55</sup> Thus, with Wyoming SF 0125 in place, these new risks will arise in any transaction arguably governed by Wyoming law.

The second commonly used definition of “money” is found in state laws that govern money transmission. Even money transmission may reach different transactions in different states—that fact enhances our taxonomy problems. Pennsylvania’s money transmitter statute defines “money” expansively as: “currency or legal tender or any other product that is generally recognized as a medium of exchange.”<sup>56</sup> But, another Pennsylvania law defines “money” as “[l]awful money of the United States” and “[a] medium of exchange currently authorized or adopted by a domestic or foreign government.”<sup>57</sup> In its January 23, 2019, Money Transmitter Act Guidance for Virtual Currency Businesses, the Pennsylvania Department of Banking and Securities concluded, “Thus, only fiat currency, or currency issued by the United States government,

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52. U.C.C. § 1-201(b)(24) (AM. LAW INST. & UNIF. LAW COMM’N 2016).

53. U.C.C. § 1-201(b)(24) cmt. 24 (AM. LAW INST. & UNIF. LAW COMM’N 2016).

54. U.C.C. § 9-332(a) (AM. LAW INST. & UNIF. LAW COMM’N 2016).

55. U.C.C. § 9-317(a) (AM. LAW INST. & UNIF. LAW COMM’N 2016).

56. 7 PA. CONS. STAT. § 6101 (2019).

57. *Id.*; see also 1 PA. CONS. STAT. § 1991 (2019); 13 PA. CONS. STAT. § 1201(b)(24) (2019).

is ‘money’ in Pennsylvania. Virtual currency, including Bitcoin, is not considered ‘money’ under the MTA.”<sup>58</sup>

So far in 2019, state agencies in Texas and Pennsylvania have opined that virtual currencies such as bitcoins are not “money”<sup>59</sup> and, therefore, exchanges dealing in virtual currencies are not engaged in money transmission in those states.<sup>60</sup> If exchanges are not engaged in money transmission, they do not require advance permission to operate in those states—including licenses issued by those state agencies—and, as a further result, they generally do not need to register with the Department of Treasury’s Financial Crimes Enforcement Network (FinCEN) as a money service business.<sup>61</sup>

But the devil is in the details—in Texas, at least. The Texas Department of Banking’s January 2, 2019, guidance takes the position that stablecoins—virtual currencies, such as Tether, that are pegged to a specific fiat currency, such as the United State Dollar,<sup>62</sup> and that can be converted back to fiat currency—are governed by and trigger the licensure requirements of Texas law.<sup>63</sup> Stablecoins, thus, under Texas’ 2019 guidance are “money or monetary value” because, as one commentator explained, “they represent claims that can be redeemed for currency.”<sup>64</sup> Texas issued guidance in 2014 that declared that its money

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58. *Money Transmitter Act Guidance for Virtual Currency Businesses*, PA. DEP’T OF BANKING AND SEC. (Jan. 23, 2019), <https://www.dobs.pa.gov/Documents/Securities%20Resources/MTA%20Guidance%20for%20Virtual%20Currency%20Businesses.pdf>.

59. *See id.*; *Supervisory Memorandum–1037*, TEX. DEP’T. OF BANKING 5 (Jan. 2, 2019), <https://www.dob.texas.gov/public/uploads/files/Laws-Regulations/New-Actions/sml1037.pdf> (revising a policy issued on April 3, 2014).

60. *See* PA. DEP’T OF BANKING AND SEC., *supra* note 58, at 1; TEX. DEP’T. OF BANKING, *supra* note 59, at 5.

61. 31 U.S.C. § 5330 (2018). Operating as an unlicensed money transmitter in a state that punishes the failure to be licensed as a misdemeanor or felony and failing to register with FinCEN as a money services business constitute separate violations of 18 U.S.C. § 1960.

62. *See* Gareth Jenkinson, *Untethered: The History of Stablecoin Tether and How It Has Lost Its \$1 Peg*, COINTELEGRAPH (Oct. 17, 2018), <https://cointelegraph.com/news/untethered-the-history-of-stablecoin-tether-and-how-it-has-lost-its-1-peg> (“[E]very Tether token that was minted had to be backed by a US Dollar.”).

63. *See* TEX. DEP’T. OF BANKING, *supra* note 59, at 3–4 (explaining if the virtual currency is a “sovereign-backed stablecoin” and describing that stablecoins are covered because they may be “considered a claim that can be converted into currency and thus fall within the definition of money or monetary value . . .”).

64. Steven D. Merriman, *Blockchain Week in Review: U.S. Developments, Regulatory Updates, Texas Clarifies that Stablecoins Backed by Sovereign Currency Qualify as*

transmission statute required the transmittal of money or monetary value and that virtual currencies were not “money” or monetary value under that statute.<sup>65</sup>

Other states’ money transmitter or money service businesses licensure statutes do not limit their reach to persons dealing in money. Among these are the states that enacted the Uniform Law Commission’s Money Services Act.<sup>66</sup> Under that uniform act, the jurisdictional hook depends not on the bare term “money,” but on the more flexible phrase “money” or “money substitute.”<sup>67</sup>

Money service businesses, including money transmitters, that should hold state licenses but do not have them, or that may hold required state licenses but fail to register with FinCEN, are chargeable under 18 U.S.C. § 1960.<sup>68</sup> Significant criminal penalties attach to unregistered or unlicensed money services businesses under this federal criminal statute.<sup>69</sup> Accordingly, the definitions of money transmission and money services—and the definitions of “money”—set a Maginot line: if the product is not “money” then it is not a covered transaction and no federal criminal prosecution will succeed.

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“Money” Under Money Transmission Statute, PERKINS COIE VIRTUAL CURRENCY REP. (Jan. 14, 2019), <https://www.virtualcurrencyreport.com/2019/01/blockchain-week-in-review-week-of-january-7-11-2019/#more-3832>.

65. See generally TEX. DEP’T OF BANKING, *supra* note 59. The 2014 Supervisory Memorandum is included in an April 2018 document prepared for public testimony before the Texas House Investments and Financial Services Committee on cryptocurrency generally.

66. UNIF. MONEY SERVICES ACT (UNIF. LAW COMM’N 2004), <https://www.uniformlaws.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=4ddb7fd0-891f-7140-4ce4-680c84bde71d&forceDialog=0> (showing amendments to the 2000 final version and 2004 proposed amendments). The Money Services Act has been enacted by ten states, Puerto Rico, and the US Virgin Islands. *Id.*

67. UNIF. MONEY SERVICES ACT § 102(11) (UNIF. LAW COMM’N 2004) (monetary value), § 102(12) (money), § 102(14) (money transmission).

68. For discussion of criminal prosecutions of bitcoin users under 18 U.S.C. § 1960, see Stephen T. Middlebrook, Tom Kierner, & Sarah Jane Hughes, *Developments in the Law Affecting Electronic Payments and Financial Services*, 72 BUS. LAW. 255, 259–260 (Winter 2016–17); Sarah Jane Hughes & Stephen T. Middlebrook, *Developments in the Law Affecting Electronic Payments and Financial Services*, 71 BUS. LAW. 361, 362–364 (2015).

69. See 18 U.S.C. § 1960 (2019).

*C. Are There Other Reasons Why We Might Care How an Asset Such as "Virtual Currency" is Classified under Federal or State Law?*

Why else might we care about how virtual currencies are characterized in property terms? Well, historically, positions in currencies or foreign currencies are not subject to capital gains taxes,<sup>70</sup> but sales or exchanges of virtual currency are "taxable" as "property," since April 2014.<sup>71</sup> The dichotomy in capital gains treatment between currency and property alone is worth many billions of United States dollars in actual taxes and requires a lot of tracking and legal or accounting services to make accurate reports<sup>72</sup>—for those persons or institutional investors that bought bitcoins early for pennies or low-dollar values and sell even at values of around \$3,500 at the time of the Symposium, and for those who took virtual currencies as part of sales or services transactions when the values were below \$3,500.

Another big dispute in the United States is whether virtual currencies are "commodities," subject to regulation and enforcement by the Commodity Futures Trading Commission (CFTC),<sup>73</sup> or "securities,"<sup>74</sup> subject to regulation and enforcement by the Securities and Exchange Commission (SEC), or by states' blue sky regulators. They can be and are characterized as both forms of property, depending on how and by whom they are offered to the public. On occasion, the SEC and CFTC have taken enforcement action under their organic authorities against both an international securities dealer and its principal.<sup>75</sup> The CFTC filed

70. I.R.S. Notice 14-21, 2014-16 I.R.B. 938 (declaring virtual currencies as "property" subject to capital-gains treatment).

71. *Id.*

72. *Id.*

73. 7 U.S.C. §§ 1a(9), 1b (2019) (defining "commodity" and limiting the Commodity Futures Trading Commission to "transactions in interstate commerce"). Trading in financial instruments, including those with U.S. and foreign currencies that are traded as futures contracts, can qualify as commodities futures contracts. *See Commodities: What Are Commodities?*, U.S. SEC. & EXCH. COMM'N, <https://www.investor.gov/introduction-investing/basics/investment-products/commodities> (last visited Feb. 4, 2019).

74. *See Two ICO Issuers Settle SEC Registration Charges, Agree to Register Tokens as Securities*, U.S. SEC. & EXCH. COMM'N (Nov. 16, 2018), <https://www.sec.gov/news/press-release/2018-264>.

75. *See Complaint, Sec. & Exch. Comm'n v. 1pool Ltd., a.k.a. 1Broker, and Patrick Brunner*, No. 1:18-cv-02244 (D.C.D.C. Sept. 27, 2018), <https://www.sec.gov/litigation/complaints/2018/comp-pr2018-218.pdf>. For a discussion of why the offering involved securities subject to the SEC's jurisdiction and the precise violations of federal securities laws, why the offering violated both the Securities Act and the Exchange Act, and why the company and its principal allegedly violated federal securities laws by failing to register the offering and to register as a broker, see *id.* □□ 3, 4-26.

parallel actions in its own name in the same court on the same date, citing a failure to register with the CFTC as a futures commission merchant and a failure to implement required anti-money-laundering and know-your-customer procedures.<sup>76</sup> These enforcement actions serve as reminders that if a security or commodity is offered in the United States, federal securities or commodity trading statutes and regulations will apply.

The other federal position that may affect how virtual currencies are regulated began with FinCEN's March 2013 guidance on what activities related to virtual currencies fall under FinCEN's regulation of prepaid access.<sup>77</sup> FinCEN continues to issue guidance about what activities related to virtual currencies are covered by the federal Bank Secrecy Act.<sup>78</sup>

Working against the backdrop of FinCEN's guidance since March 2013, as mentioned above, some states have amended their money transmitter statutes to cover virtual currencies, some have decided not to do so, and others have created new regulatory schemes for issuers of or providers of virtual currency products and services. New York State was the first state to promulgate virtual-currency-specific prudential regulation and licensure.<sup>79</sup>

#### *D. Are There Reasons to Leave Some of the Possible Property Classification Decisions Open for a While Longer?*

There is no single right answer to what virtual currency is in property terms. It may be that the same unit of currency may be characterized correctly under more than one of these categories, depending on precisely how it is being offered to the public. This would be a form of functional regulation. Alternatively, it might depend on the character of

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76. Complaint for Injunctive and Other Equitable Relief and for Civil Money Penalties under the Commodity Futures Trading Act and Commission Regulations, Commodity Futures Trading Comm'n v. 1pool Ltd., and Patrick Brunner TRUST Co. Complex, No. 1:18-cv-02243 (D.C.D.C. Sept. 27, 2018), <https://www.cftc.gov/sites/default/files/2018-09/enf1poolpatrickajeltakecomplaint092718.pdf>.

77. *Application of FinCEN's Regulations to Persons Administering, Exchanging, or Using Virtual Currencies*, FIN. CRIMES ENF'T. NETWORK, U.S. DEP'T OF TREAS. (Mar. 18, 2013), <https://www.fincen.gov/resources/statutes-regulations/guidance/application-fincens-regulations-persons-administering>.

78. 31 U.S.C. §§ 5311–5332 (2018).

79. N.Y. COMP. CODES R. & REGS. tit. 23, pt. 200 (2019). This regulation was published on June 24, 2015 and became effective on August 8, 2015.

the provider.<sup>80</sup> This approach could complicate tax collection but might help the virtual-currency community continue with its important innovations.

A final factor with efforts to characterize virtual currency in unitary property terms is that it might shift jurisdiction to a single federal regulator, or from one regulator to another, without regard to the underlying nature of the transaction involved. One risk—occasionally mentioned by members of the virtual-currency community—is that the single federal regulator could be FinCEN and not one or more regulators with authority more focused on functional, transactional approaches.

### III. AGENCY AND BLOCKCHAIN TECHNOLOGY

Agency is another old legal concept. In ancient times, kings sent emissaries to collect taxes and manage their domains. The Oxford Universal Dictionary dates the term “agent” from the 16th Century,<sup>81</sup> the same period in which we found the definition of the term “property” above, but we know that, as concepts, both are far older.

Agents include persons who “do the actual work as opposed to the employer,”<sup>82</sup> and include deputies, stewards, and emissaries.<sup>83</sup> Whether we are running our personal affairs or our businesses, nonprofits, or governments, we use agents all the time. And we have since Biblical times at least.

The law of agency has been studied a great deal—here in the United States, in Canada, and in the United Kingdom.<sup>84</sup> The American Law Institute published its *Restatement of the Law of Agency* in 1933.<sup>85</sup>

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80. For some discussion of a functional approach, see Sarah Jane Hughes, *Conceptualizing the Regulation of Virtual Currencies and Providers: Friction Points in State and Federal Approaches to Regulating Providers of Payments Execution and Custody Services and Products in the United States*, 67 CLEV. ST. L. REV. 43 (2019). The Commodity Futures Trading Commission appears to be a far more important and influential adherent to the facts and circumstances approach to characterizing virtual currencies; for the Commission’s statement confirming this approach, see *A Primer on Smart Contracts*, COMMODITY FUTURES TRADING COMM’N: LABCFTC (Nov. 27, 2018), [https://www.cftc.gov/sites/default/files/2018-11/LabCFTC\\_PrimerSmartContracts112718.pdf](https://www.cftc.gov/sites/default/files/2018-11/LabCFTC_PrimerSmartContracts112718.pdf).

81. *Agent*, THE OXFORD UNIVERSAL DICTIONARY 34 (2d ed. 1955).

82. *Id.*

83. *Id.*

84. See F.E. Dowrick, *The Relationship of Principal and Agent*, 17 MOD. L. REV. 24 (1954) (reviewing the main rules of English law and citing in n. 5 early works on the law of agency in the United States and Canada).

85. RESTATEMENT OF AGENCY (AM. LAW INST. 1933).



Until quite recently, most attendees at this Symposium at Wayne State University Law School probably assumed that our agents would be human—because agents traditionally have been humans. We could not have conceived of a time when agents could be electronic or blockchain-based. Now, we increasingly contemplate agents that are robots or that include electronic processes, including the unfortunately labeled “smart contracts.” Legend attributes this term to the work of cryptographer Nick Szabo, who in 1994 thought that one should be able to record contracts as code.<sup>86</sup>

Governments, legislatures, regulators, the general public, enterprises, and, yes, academics, are busy exploring all manner of ways to describe “virtual currencies” because the manner in which we describe a thing often has profound consequences for the manner in which we regulate that thing, the persons that hold the power to regulate it, and the persons that may claim property interests in it to exclude uses by others.

As a result, the current debates about how to characterize virtual currencies and the technology that underlies them—the blockchain—and for what purposes we are characterizing them also encompass the three legal and operational issues that the organizers of this Symposium identified for examination: (1) how contracts may be enforced via technology rather than via judicial processes in the courts, arbitration, or other alternative dispute systems; (2) uses of blockchain technologies by local governments; and (3) use of blockchain technologies to perform ordinary functions in business, such as supply chains or product integrity, extending to decentralizing corporate management. I will focus on the issues related to the first of these three issues next, including issues related to “smart contracts” in terms of contract performance or enforcement.

As I mentioned above, this essay only looks at the use of blockchain-based technologies for contract enforcement, which in this context is limited to using “smart contracts” to perform executory aspects of contracts. The underlying transactions may involve sales of real estate, motor vehicles, or just about anything else, including goods that are exclusively in virtual forms.

First, in a simple example, the buyer and seller will set up a smart contract and pay the fee associated with that set up. When the buyer

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86. Vitalik Buterin, *A Next Generation Smart Contract & Decentralized Application Platform*, ETHEREUM WHITE PAPER,

<http://web.archive.org/web/20140723210954/https://www.ethereum.org/pdfs/EthereumWhitePaper.pdf> (last visited May 8, 2019). For a user-friendly introduction to the Ethereum blockchain, see Ray King, *What is a Smart Contract and How Does it Work*, BITDEGREE 2 (Aug. 7, 2018), <https://www.bitdegree.org/tutorials/what-is-a-smart-contract/>.

completes the payment, the codes advise the seller to provide the goods to the buyer. The smart contract enables this transaction to be arranged and, to a large extent, completed without intermediaries, such as brokers, lawyers, or banks. It also is likely that the transaction can be completed faster using “smart contracts” than through traditional intermediaries. The “smart contract” functions in place of the intermediaries. Some sources, including the Ethereum white paper,<sup>87</sup> refer to this process as one using autonomous agents.<sup>88</sup> Thus, in the most basic “smart contract” case, key performance features of the transaction are coded so that if condition 1 built into the “smart contract” occurs, then the agreed-upon performance follows.

For reference for readers who could not attend this Symposium in person, a “smart contract” is a set of coded computer functions. Because other presenters at the Symposium, including my friend Carla Reyes, focused on what “smart contracts” are and how they work, I will limit my presentation on this subject to general issues pertaining to “smart contracts.” I also will not address various potential operational risks, technical risks, cybersecurity risks, and other risks of fraud or manipulation that need to be addressed other than, in this latter case, those mentioned in the next section of this essay. Such risks are the subject of others’ attention.<sup>89</sup>

Why might a buyer and seller seek to do their transaction via “smart contracts”? One reason to substitute “smart contract” technologies into contract performance or enforcement relates to longstanding uses of intermediaries, that is because the parties are not well acquainted with each other and the technology helps bridge the gap of low acquaintance, or the technology facilitates a multi-party transaction or multi-party-approval-process that allows funds to be spent only when the requisite number of participants agree. This type of use has a lot of transactional appeal—particularly if the price for this service is low compared to traditional agents’ services for comparable transactions. This is the 21st century story in which many people prefer faster and cheaper via technology over working with accustomed intermediaries.

Another reason to substitute or rely on “smart contract” technologies is that the contract’s value is not high enough in dollar terms to justify a human agent instead of a technology agent in its performance. Adoption of “smart contracts” for transactions such as these also rely on the

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87. Alyssa Hertig, *How Do Ethereum Smart Contracts Work?* COINDESK, <https://www.coindesk.com/information/ethereum-smart-contracts-work> (last visited Feb. 1, 2019) (citing and linking to the Ethereum White Paper).

88. *Id.*

89. *See, e.g.,* LABCFTC, *supra* note 80.

pricing: if pricing rises, then the users' technological expectations may not be met.

In connection with the use of blockchain for contract enforcement, we might ask two types of questions: what events might warrant relief from the operation of the smart contract; and what happens if the agent does not perform as expected?

*A. What Events Might Warrant Relief from the Operation of the "Smart Contract"—Assuming that Relief is Possible?*

This general question breaks down into two sub-questions: Why might a party to a "smart contract" obligation seek relief from that obligation? Will relief be available? We can consider real-world examples of contract-external or contract-relevant performance issues that could cause one or the other of the parties to a "smart contract" to look for relief from their performance of their smart contract obligations.

"Smart contracts" are coded so that they operate based on coded events—if condition 1 occurs, then performance 1 follows. Because of the coding, the ability to halt the operation of the code is likely limited or impossible. So, if a buyer sends her price, the "smart contract" causes the seller to perform the delivery.

But what happens if something changes that makes it unlawful for the seller to perform despite receiving the price or makes it unlawful for the buyer to deal with the seller at all? Or makes it unlawful for the buyer to send the price in the first instance? I can offer several examples of situations in which proceeding after formation or performance of a "smart contract" might be ill-advised or illegal. These situations fall into two categories—contract-external events that the parties cannot control caused either by intervening government action or private action, and contract-relevant events that affect quality assurances on which the willingness of parties to continue with the contract depend.

1. Examples in the contract-external category would include:

- ☐ A contract-external event in the United States includes the snap back order issued by President Trump in 2018<sup>90</sup> that caused

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90. President Donald J. Trump, Remarks on the Joint Comprehensive Plan of Action (May 8, 2018), <https://www.whitehouse.gov/briefings-statements/remarks-president-trump-joint-comprehensive-plan-action/> (announcing the decision to withdraw the United States from the 2015 Joint Comprehensive Plan of Action). For a thorough analysis of the effects of the withdrawal from the agreement, see generally Paul K. Kerr & Kenneth Katzman, *Iran Nuclear Agreement and U.S. Exit*, CONG. RESEARCH SERV. 7-5700-R4333

the re-imposition of the U.S.-imposed economic sanctions on dealing with Iran—its banks, government agencies, and residents. If a subsidiary of a U.S.-based company had entered into a “smart contract” with a buyer in Iran, which was authorized specifically under the Joint Comprehensive Plan of Action formalized in 2015,<sup>91</sup> how does the seller override the performance or enforcement of the contract once it again becomes illegal for the seller to engage with its counter-party or to pay or perform?

□ A contract-external event caused by a foreign government includes the payment embargoes (often suddenly) imposed by Argentina, Mexico, Costa Rica, and the Philippines over the last 40 years<sup>92</sup> that made it illegal for the person in the affected country, or its bank, to complete the payment or performance of the underlying obligation. In transactions otherwise governed by article 2 of the UCC, such a payment embargo or other government action interrupting the payment would require the buyer to comply with UCC § 2-614.<sup>93</sup>

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(July 20, 2018), <https://www.whitehouse.gov/briefings-statements/remarks-president-trump-joint-comprehensive-plan-action/>.

91. Joint Comprehensive Plan of Action, Vienna, China-Fr.-Ger.-Russ.-U.K-U.S.-Iran (July 14, 2015), <https://www.state.gov/documents/organization/245317.pdf>. For an overview of sanctions enforced by the United States as of January 11, 2019, see Michael S. Casey, Zachary S. Brez, & Marcus Thompson, *INSIGHT: A Review of U.S. Economic Sanctions in 2018*, BLOOMBERGLAW (Jan. 11, 2019, 4:01 AM), <https://news.bloomberglaw.com/bnking-law/insight-a-review-of-us-economic-sanctions-in-2018?usertype=External&bwid=00000168-1683-d002-adece>.

92. See, e.g., *Citibank, N.A. v. Wells Fargo Asia Ltd.*, 495 U.S. 660, 665 (1990) (describing Government of the Philippines, Memorandum to Authorized Agent Banks, MAAB 47 (1983) providing that “[a]ny remittance of foreign exchange for repayment of principal on all foreign obligations due to foreign banks and/or financial institutions, irrespective of maturity, shall be submitted to the Central Bank [of the Philippines] thru the Management of External Debt and Investment Accounts Department (MEDIAD) for prior approval.”); *Allied Bank Int’l v. Banco Credito Agricola de Cartago*, 757 F.2d 516 (2d Cir. 1985) (describing regulations issued by the Central Bank of Costa Rica that suspended all external debt repayments in 1981 by requiring prior approval and refusing to allow any foreign debt repayments in U.S. dollars).

93. U.C.C. § 2-614 (substitute performance) (AM. LAW INST. & UNIF. LAW COMM’N 1977). Subsection (b) provides:

If the agreed means or manner of payment fails because of domestic or foreign governmental regulation, the seller may withhold or stop delivery unless the buyer provides a means or manner of payment which is commercially a substantial equivalent. If delivery has already been taken, payment by the

Will one or both parties be able to avoid the executory obligations that would be illegal for them to perform if they used “smart contracts”?

An example of a contract-external event caused by a private entity would include:

☐ A contract-external event by a separate private entity that interrupts one party’s ability to access crypto or bank credits in which the price is designated to be paid. A recent example from Canada suggests that this could occur if, as alleged in a court filing on January 31, 2019, by the widow of the founder of Canadian crypto exchange QuadrigaCX, which had been Canada’s largest crypto-exchange—others in that company cannot access cold storage to meet obligations to as many as 115,000 customers worth USD 190 million in fiat and crypto, and that at least one bank account is frozen in a dispute with a bank.<sup>94</sup> In this example, the obligor’s ability to pay is held up by a contract-external event, if the “smart contract” is conditioned upon receipt of a payment from a source, such as QuadrigaCX, that is not permitting redemptions of virtual currencies from its custody. Of course, the affected party could substitute another form of payment if allowed under the “smart contract” or by its counter-party.

2. Examples of contract-relevant, performance-related events that might cause a buyer to seek to leave the deal include:

☐ A contract-relevant event—such as a report of contamination of foodstuffs, clothing, or toys—might make a buyer unwilling to have a payment made to the seller. If the buyer has agreed to a “smart contract,” there may be no way to cancel the deal—a remedy under the UCC for a counter-party’s breach of contract or tender of non-complying goods—because the obligation is not supposed to be alterable.

☐ A contract-relevant event—such as the seller’s presentation of a draft for payment that reveals non-performance by the seller, such as a deal for 100 cartons of goods, in which the payments

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means or in the manner provided by the regulation discharges the buyer’s obligation unless the regulation is discriminatory, oppressive or predatory.

*Id.*

94. Nikhilesch De, *QuadrigaCX Owes Customers \$190 Million USD, Court Filing Shows*, COINDESK (Feb. 1, 2019, 6:02 PM), <https://www.coindesk.com/quadriga-creditor-protection-filing>.

draft is accompanied by documents of title that cover only ten cartons of goods. This example might justify a resort to remedies provided for transactions governed by article 5 of the UCC, where the presentation includes a required document that is materially fraudulent (a high standard), forged, or where honor of the draft by the issuer would facilitate a material fraud by the beneficiary on the issuer or applicant under limited circumstances.<sup>95</sup>

In the second of these contract-relevant, performance-related events, UCC article 5 allows a temporary or permanent injunction against the issuer from honoring the presentation, or a grant of similar relief, but only if four strict conditions are met.<sup>96</sup>

How does the buyer stop the “smart contract” from obeying the coded instructions to follow condition 1 with performance 1? How would a court approach such a request from the buyer for some relief? How, in other words, do we as counter-parties, human agents, governments, or courts prevent the operation of the code in the “smart contract” in one or the other of these contract-relevant situations? Does this suggest that persons entering contracts or advising persons entering them must decide whether a smart contract is the right choice for the particular transaction?

#### *B. What Happens When the Agent Does Not Perform as Expected?*

There is another aspect to agency and blockchain technology that I have not yet mentioned in this essay—and that is the agency and duties of those who offer intermediary services to the general public. Virtual currencies, such as Bitcoin, were developed to permit person-to-person (P2P) transactions so that intermediaries were unnecessary, but P2P is not the way that many owners of bitcoins handle their digital assets. Increasingly, they use a variety of new-age intermediaries—providers of wallets and operators of exchanges—to execute transactions or to hold custody of the digital assets. This re-introduces risks into transactions that P2P virtual-currency transactions were designed to avoid. These risks might include hacking of the “smart contract” involved.

Our traditional notions of agents and intermediaries is that they were chosen by the principals to perform tasks (what we asked them to do) within a scope of authority that we set. We also know that principals bear the risk of choosing the wrong agents, defalcating agents, who embezzle their property or who do not take good care of it in other ways.

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95. U.C.C. § 5-109 (AM. LAW INST. & UNIF. LAW COMM'N 1977) (fraud and forgery).

96. U.C.C. § 5-109(b) (AM. LAW INST. & UNIF. LAW COMM'N 1977).

## V. CONCLUSIONS

Persons attending the Wayne State University Symposium or readers of this essay may have inferred that I am not persuaded that blockchain technologies are the answer to every contract-performance, data storage, or recordation problem we have. That would be accurate, but it does not make me an opponent or Luddite. I believe that despite the promise that blockchain technologies present, it is still early days in this field and a dose of caution is in order.

These technologies have huge potential to help governments and private actors engage in transactions and handle the massive amounts of data that they need to store safely and access reliably. To this end, we can expect continuing efforts to deploy blockchain-based technologies to help us manage transactions and the volume and reliability of data related to transaction execution, contract performance, and records storage.

We also can expect that the states, if not the federal government, will be following developments closely and enacting legislation that is aimed at protecting the enacting state's interests<sup>97</sup> or at making the state a more favorable place to situate a new blockchain-based business, as Wyoming SF0125 appears to have done.

Despite legislatures' interests in these subjects, lawyers will be asked in increasing frequency to opine on how to classify what is "property" and who is an "agent," or what system is in an agency relationship with a person or other system, which remains an important challenge in deciding how to deploy blockchain-based technologies. This is going to be a continuing challenge.

Let's not rush to conclude that one characterization of virtual currency, or one characterization of a blockchain use, fits all situations. That will be as harmful to future innovations in virtual currencies and associated blockchain technologies as the occasional push by virtual currency and blockchain companies to have a single federal regulator has been. Not forcing a single characterization also will help innovators fit their innovations into the best classification, or use case, that they can.

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97. *Blockchain State Legislation—2018 Legislative Session*, NAT'L CONF. OF STATE LEG., <http://www.ncsl.org/research/financial-services-and-commerce/the-fundamentals-of-risk-management-and-insurance-viewed-through-the-laws-of-emerging> (last visited Feb. 4, 2019). This report shows two bills in Arizona that passed and were signed by the Governor, one in Colorado, bills from California that passed one house of the legislature, and bills that were introduced that would govern potential uses of blockchain technology or approve studies of blockchain technologies for future legislative purposes. Note that many of the bills reported through the end of 2018 are for the purpose of authorizing studies of how or whether to regulate virtual currencies or blockchain technologies.

We should not assume that blockchain technologies are always better than existing database technologies for every purpose or that the transfers of existing records to blockchain technologies are necessarily worth the costs associated with acquiring, moving, checking the transferred data in the new system, temporary redundancy of records while the transfer is in progress, and training personnel in the uses of the blockchain. Many important issues remain to be addressed, including:

- Who owns the information that is dedicated to the blockchain?
- To the extent that this information includes non-public personally identifiable information, what protections are in place to ensure that this data cannot be stolen or tampered with? If theft or tampering occurs, who will bear the liability that is likely to follow? If the blockchain holds more than one provider's own experiences with consumer payment, employment, or insurance histories, how will we prevent uses of that data not governed by specific consent from the consumer or by permissible purposes under the federal Fair Credit Reporting Act?
- How do we achieve the right balance between providers, their customers, and governments?

For the past 25 years, the emergence of the Internet as a force for e-commerce and developments in specific applications of technology, to facilitate it or replace legacy systems, has challenged both legacy providers and the legal paradigms under which they operated. It has produced some remarkable efficiencies and inclusion in commerce.

New technologies should not get free rides from laws that have been in place for the legacy services and providers they challenge. Rather, we should assume, as lawyers, that extant laws apply—whether they are payments laws, anti-money-laundering laws, or laws governing secured transactions—and especially laws that have to this point helped us define what is “property” and who owns it, or who is an “agent” and what their duties and rights are.