Not Your Keys, Not Your Coins: Unpriced Credit Risk in Cryptocurrency

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Cryptocurrency exchanges play a key role in the cryptocurrency ecosystem, serving not only as central marketplaces for buyers and sellers to trade but also as custodians for their customers' cryptocurrency holdings. Exchanges, however, are thinly regulated for safety and soundness and face major insolvency risks from their own proprietary investments as well as hacking. This piece considers what would happen to customers' custodial holdings if a cryptocurrency exchange in the United States were to fail.

Any custodial relationship can potentially be characterized as a debtor–creditor relationship between the custodian and customer, rather than an entrustment or bailment of property. U.S. law gives substantial protection to the custodial holdings of securities, commodities, or cash deposits by securities, commodities brokers, or banks. No such regime exists, however, for custodial holdings of cryptocurrencies. Instead, bankruptcy courts might well deem the custodial holdings to be property of the bankrupt exchange, rather than of its customers. If so, the exchange could use or sell the cryptocurrency, and the customers would merely be general unsecured creditors of the exchange, entitled only to a pro rata distribution of the exchange's residual assets after any secured or priority creditors had been repaid. And even if the holdings were ultimately deemed property of the customers, the customers would still experience extended disruption to their access to their holdings.

Cryptocurrencies are designed to address a problem of transactional credit risk—the possibility of "double-spending." The lesson here is that credit risk can arise not just from active transacting in cryptocurrency but also from passive holding of cryptocurrency. Because this passive holding risk turns on technical details of bankruptcy and commercial law, it is unlikely to be understood, much less priced, by most market participants. The result is a moral hazard in which exchanges are incentivized to engage in even riskier behavior because they capture all of the rewards while the costs are externalized on their customers.

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Introduction

It was hard to miss cryptocurrency exchanges at Superbowl LVI. The game was played in February 2022 at SoFi Stadium, named after cryptocurrency exchange SoFi Technologies, and the broadcast of the game featured ads from cryptocurrency exchanges Coinbase, eToro, FTX, and

Crypto.com.[1] Exchanges like these serve as the central marketplaces for cryptocurrency transactions, enabling buyers and sellers to trade with minimal search costs.

Cryptocurrency exchanges are not only marketplaces but they also act as brokerages, which means they generally hold massive amounts of custodial funds—cryptocurrencies that customers have deposited with them. What would happen if the exchange (or a standalone cryptocurrency brokerage) were to fail?

Suppose, for example, that the exchange is a victim of a massive hacking and finds itself short hundreds of millions of dollars of custodial funds. Or alternatively, suppose that the exchange has made large proprietary bets on cryptocurrency prices that have fared badly. In either scenario, the exchange, rendered insolvent, might decide to cover its own losses by improperly dipping into custodially held funds, planning on restoring those funds from its future retained earnings. As news of the problems leaks out, however, customers start getting antsy and withdrawing funds. Faced with a customer run and inadequate funds, the exchange files for Chapter 11 bankruptcy. What would happen to its customers then? Where would they stand in a bankruptcy?

These are hardly idle questions. While this Article was in the editing process, cryptocurrency brokerage Voyager Digital Holdings, Inc. filed for Chapter 11 bankruptcy,[2] as did exchange platforms Celsius Network LLC,[3] FTX,[4] and BlockFi.[5] Numerous exchanges outside the United States have failed previously, with some filing for bankruptcy protection in other countries,[6] and the cryptocurrency market's downturn in 2022 may have left

1. Jason Notte, *Crypto Believers Try to Recruit You in eToro's Super Bowl Ad*, ADWEEK (Feb. 13, 2022), https://www.adweek.com/brand-marketing/etoro-crypto-super-bowl-ad/ [https://perma.cc/N9LB-WRJR].

2. Voluntary Petition for Non-Individuals Filing for Bankruptcy, *In re* Voyager Digital Holdings, Inc., No. 22-10943 (Bankr. S.D.N.Y. filed July 6, 2022).

3. Voluntary Petition for Non-Individuals Filing for Bankruptcy, *In re* Celsius Network LLC, No. 22-10964 (Bankr. S.D.N.Y. filed July 13, 2022).

4. Voluntary Petition for Non-Individuals Filing for Bankruptcy, *In re* FTX Trading Ltd., No. 22-11068 (Bankr. D. Del. filed Nov. 11, 2022).

5. Voluntary Petition for Non-Individuals Filing for Bankruptcy, *In re* BlockFi Inc., No. 22-19361 (Bankr. D.N.J. filed Nov. 28, 2022).

6. Martin Young, *75 Crypto Exchanges Have Closed Down so Far in 2020*, COINTELEGRAPH (Oct. 7, 2020), https://cointelegraph.com/news/75-crypto-exchanges-have-closed-down-so-far-in-2020 [https://perma.cc/9WA9-9D6R]; Luke Parker & Aditya Das, *Crypto Exchanges Continue to Fail as Hacks and Exit Scams Bite*, BRAVE NEW COIN (May 20, 2022), https://bravenewcoin.com/insights/36-bitcoin-exchanges-that-are-no-longer-with-us [https://perma.cc/BR7S-Q45R]. Mt. Gox filed for bankruptcy in Japan and also commenced an ancillary Chapter 15 case in the United States. Dara Kerr, *Mt. Gox Approved for Chapter 15 Bankruptcy Protection in US*, CNET (June 17, 2014, 5:56 PM), https://www.cnet.com/tech/services-and-software/Bitcoin-exchange-mt-gox-approved-for-chapter-15-bankruptcy-protection-in-us/ [https://perma.cc/82VA-PV3V]. Similarly, Cryptopia

many exchanges insolvent.[7] Exchanges are major targets for hacking,[8] and many of them engage in their own proprietary investments in volatile crypto assets, which could easily leave them insolvent.[9] It is only a matter of time before further U.S. cryptocurrency platforms fail.[10]

This Article argues that the risks cryptocurrency exchanges and similar platforms[11] pose for their customers are both substantial and poorly appreciated by many cryptocurrency investors. Cryptocurrency exchanges enable (and sometimes require) their customers to keep their cryptocurrency in a crypto wallet provided by the exchange. In these arrangements, the exchange, rather than the customer, is the only party with access to the cryptocurrency, and the exchange may in fact commingle the customer's holdings with those of other customers in a single crypto wallet controlled solely by the exchange.[12]

While this sort of arrangement may facilitate transactions with the exchange (as well as the exchange's own use of the cryptocurrency deposited with it), it poses credit risk for the exchange's customers. If the cryptocurrency exchange were to fail, the cryptocurrency that it holds custodially might not be treated as property of the customers, but as property of the exchange.[13] The customers would not "own" the cryptocurrency but would be mere unsecured creditors of the exchange. In bankruptcy, that

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commenced a New Zealand liquidation proceeding, but also commenced an ancillary Chapter 15 case in the United States. *In re* Cryptopia Ltd. (in Liquidation), No. 19-11688 (Bankr. S.D.N.Y. May 24, 2019).

7. *See* Steven Ehrlich, *Bankman-Fried Warns: Some Crypto Exchanges Already "Secretly Insolvent"*, FORBES (June 28, 2022, 4:06 PM), https://www.forbes.com/sites/stevenehrlich/2022/06/28/bankman-fried-some-crypto-exchanges-already-secretly-insolvent/ [https://perma.cc/4BHD-6YFU] (describing the dismal state of the cryptocurrency market, with some predicting that "crypto exchanges will soon fail").

8. Tyler Moore & Nicolas Christin, *Beware the Middleman: Empirical Analysis of Bitcoin-Exchange Risk*, *in* FINANCIAL CRYPTOGRAPHY AND DATA SECURITY 25, 25–27 (Ahmad-Reza Sadeghi ed., 2013).

9. *See, e.g.*, Jamie Crawley, *Coinbase Completed $100M Transaction to Test Proprietary Trading: Report*, COINDESK (Sept. 22, 2022, 1:01 PM), https://www.coindesk.com/business/2022/09/22/coinbase-completed-100m-transaction-to-test-proprietary-trading-report/ [https://perma.cc/7JQE-AKRC] (reporting that the crypto exchange Coinbase hired Wall Street traders "to use the firm's own cash to trade crypto").

10. There are hundreds of cryptocurrency exchanges in existence. For instance, CoinMarketCap listed 295 cryptocurrency exchanges as of July 31, 2022. *Top Cryptocurrency Spot Exchanges*, COINMARKETCAP, https://coinmarketcap.com/rankings/exchanges/ [https://perma.cc/ZZ6U-BRNF].

11. As explained *infra* section I(B)(2), the term "exchange" is imprecise when used in the cryptocurrency context because the precise functionality of different cryptocurrency platforms that might be called an "exchange" varies.

12. *See infra* section I(B)(3).

13. *See infra* subpart II(B).

would put them almost last in line for repayment from the failed exchange's limited pool of assets.[14]

One of the major features of cryptocurrencies is that they are designed to be free of credit risk and therefore informationally insensitive.[15] A payment from a bank, for example, such as a check drawn on a bank account, poses credit risk for the recipient because the recipient cannot tell if the check will be honored. It might be that the payor lacks the funds to pay the check, or it might be that the payor's bank fails and does not honor the check.

The traditional financial system mitigates the risk of the bank failure through regulation and deposit insurance, but any nonreal-time payment system poses the risk of insufficient funds and, in particular, of double-spending problems. For example, suppose that Moe has $1,000 in the bank and writes a check to Curly for $1,000 in exchange for a computer. Curly faces the risk that Moe has also written a $1,000 check to Larry, and that the check to Larry is paid first. If so, Curly has parted with the computer but won't be able to collect payment.

The same problem arises with cryptocurrencies. To wit, let's say Moe has fifty Satoshi (that's the subunit of a bitcoin) associated with an address in a bitcoin wallet. If Moe pays fifty Satoshi to purchase a computer from Curly, what prevents Moe from then paying Larry for a whoopie cushion with the same fifty Satoshi? How does anyone know who actually has the right to those fifty Satoshi?

Cryptocurrency solves the double-spend problem with a distributed ledger called a blockchain to establish ownership of the cryptocurrency through a consensus mechanism of one sort or another.[16] For example, because Bitcoin lacks a central authority through which all transactions are run, a more complex solution is necessary to verify which transaction was the original spend (and hence which would be the later and unsuccessful spend): the mining process.

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14. *See* Hailey Lennon, *Bankrupt Crypto Lender Celsius Could Leave Customers Last in Line to Get Paid*, FORBES (Aug. 1, 2022, 3:14 PM), https://www.forbes.com/sites/haileylennon/2022/08/01/bankrupt-crypto-lender-celsius-could-leave-customers-last-in-line-to-get-paid/ [https://perma.cc/V292-RA8N] (observing that if a crypto exchange treats its customers as unsecured creditors, Chapter 11 bankruptcy rules would prioritize them after secured creditors).

15. *See* Matt Levine, *Crypto, Clearing and Credit*, BLOOMBERG (June 1, 2022, 1:00 PM), https://www.bloomberg.com/opinion/articles/2022-06-01/crypto-clearing-and-credit [https://perma.cc/6UDK-M58K] (explaining that advocates of crypto prefer the "simultaneous" nature of crypto transactions, finding it "safer than trading with delayed settlement and credit risk"); Hossein Nabilou & André Prüm, *Ignorance, Debt, and Cryptocurrencies: The Old and the New in the Law and Economics of Concurrent Currencies*, 5 J. FIN. REGUL. 29, 62 (2019) (describing the "relative information insensitivity" of bitcoin).

16. SATOSHI NAKAMOTO, BITCOIN: A PEER-TO-PEER ELECTRONIC CASH SYSTEM 1 (2008), https://bitcoin.org/bitcoin.pdf [https://perma.cc/6Z5B-WWHF].

When Moe wants to send bitcoins to Curly, he needs to get Curly's Bitcoin blockchain address, which includes a public key.[17] Moe then creates a message signed with his private key that attaches Curly's public key to that amount of bitcoins.[18] When Moe sends the message to Curly, it is also broadcast to the entire Bitcoin network; a transfer of bitcoins is not simply a private affair between the parties to the transfer.[19] The broadcasting of the transfer is done to enable anyone in the network to verify this transaction by solving the associated algorithms.[20] Only if a transaction is successfully verified will it be added to the Bitcoin blockchain, thus indicating a transfer of ownership of bitcoin between the Bitcoin blockchain addresses.[21] Solving the algorithm is known as mining and is incentivized by rewarding the first successful miner with newly issued cryptocurrency.[22]

The verification done through mining should show that Moe sent the bitcoins to Curly before he sent the same coins to Larry so that only Curly's Bitcoin blockchain address's ownership of that fifty Satoshi is verified. The public nature of the blockchain ledger makes it difficult for Moe to double-spend.

The original blockchain design for Bitcoin, the first cryptocurrency, envisioned a peer-to-peer system without centralized, custodial holding.[23] Exchanges are not something that were contemplated in the cryptocurrency universe. Yet without exchanges, cryptocurrency miners cannot readily convert their mining rewards, which are paid in cryptocurrency, into fiat currency, which they must do in order to cover their capital and operating expenditures. Moreover, without exchanges, there would be limited interest in cryptocurrencies as a speculative medium—perhaps the greatest source of interest in them—because high search costs for finding transaction partners would impose substantial market inefficiencies.

Because the blockchain system was envisioned as operating in a peer-to-peer environment, it addresses only the credit risk involved in *transacting* in cryptocurrencies. It does not address the credit risk involved in *holding* cryptocurrencies. Cryptocurrency investors, however, are unlikely to appreciate that they take on the credit risk of the exchange if they use the exchange's crypto wallet services. Few crypto investors know the technical

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17. *Id.* at 2.

18. *Id.*

19. *Id.* at 2–3.

20. *Id.* at 5.

21. *Id.* at 3.

22. NAKAMOTO, *supra* note 16, at 4. Miners are also offered transaction fees to incentivize them to prioritize the validation of particular transactions. Anatol Hooper, *Transaction Fees, Explained*, COINTELEGRAPH (Nov. 2, 2020), https://cointelegraph.com/explained/transaction-fees-explained [https://perma.cc/5AFE-UNJU].

23. *See generally* NAKAMOTO, *supra* note 16 (explaining how crypto transactions work).

details of bankruptcy law, and because they cannot readily gauge the likelihood of a bankruptcy—a black-swan type of event—or estimate its consequences, they are likely to simply ignore the risk.

Moreover, the exchanges lull their customers regarding their credit risk. Many exchanges emphasize that they only hold the cryptocurrency in a custodial capacity, and that the customers continue to "own" the cryptocurrency, suggesting that there would be no risk in the event of an exchange failure.[24] This is misleading and self-serving. The lay concept of "ownership" does not neatly track onto a potential legal treatment of custodial holdings of cryptocurrency in bankruptcy, which is that the cryptocurrency would be treated as property of the exchange, rather than property of the customers.[25]

Indeed, one major exchange, despite using such lulling language of ownership in its user agreement, has even begun to disclose in its quarterly report (which is not provided to its customers) that its customers face the significant risk that their custodially held cryptocurrency could be treated as its property in the event of bankruptcy, rendering the customers as mere general unsecured creditors who stand last in line for repayment.[26]

To be sure, some awareness of these risks exists within the cryptocurrency investor community. The mantra "not your keys, not your coin[s]" appears frequently in online cryptocurrency forums.[27] Yet this mantra is generally recited without analysis or understanding of the particular nature of the underlying legal risks.

Because cryptocurrency is untested in American bankruptcy law, it is impossible to say with certainty how any particular United States bankruptcy court would treat custodial holdings of cryptocurrency.[28] What is certain is that the treatment will be contested. Even if cryptocurrency investors prevail

24. *See infra* subpart I(C).

25. *See infra* Part II.

26. Coinbase Glob., Inc., Quarterly Report (Form 10-Q) 93 (Aug. 9, 2022) (explaining that "because custodially held crypto assets may be considered . . . property of a bankruptcy estate, in the event of a bankruptcy, the crypto assets we hold in custody on behalf of our customers could be subject to bankruptcy proceedings and such customers could be treated as our general unsecured creditors"). For Coinbase's lulling language, see *infra* subpart I(C).

27. *E.g.*, *Where to Safely Keep Bicoin?*, BINANCE (Mar. 28, 2021), https://www.binance.com/ph/blog/all/where-to-safely-keep-bicoin-421499824684901861 [https://perma.cc/U95A-ESWJ].

28. To date, there is only one written court ruling on the issue. Memorandum Opinion and Order Regarding Ownership of Earn Account Assets at 5, *In re* Celsius Network LLC, No. 22-10964 (Bankr. S.D.N.Y. Jan. 4, 2023). There was an earlier bench ruling in the case regarding the ownership of assets held in another type of account at Celsius. Dietrich Knauth, *Celsius Bankruptcy Judge Orders Return of Some Crypto Assets to Customers*, REUTERS (Dec. 7, 2022, 6:34 PM), https://www.reuters.com/legal/celsius-bankruptcy-judge-orders-return-some-crypto-assets-customers-2022-12-07/ [https://perma.cc/B4MW-U4WF]. It is important to emphasize that this Article's analysis is focused on American bankruptcy law. Different outcomes could obtain under other countries' insolvency regimes.

in litigation, it will be only after cost and delay. Put another way, cryptocurrency investors will lose either way in an exchange's bankruptcy. The only issue is how much they will lose.

The custodial credit risk is a problem that has previously arisen in other financial markets, in particular with bank deposits and securities accounts at broker-dealers. While the custodial-credit-risk problem has been successfully addressed in those markets through federal prudential regulation and insurance, cryptocurrency remains in practice outside of the regulatory regimes for securities and commodities. Indeed, the risk to cryptocurrency exchange customers is particularly pronounced because of the lack of regulation of exchanges.

Unlike commodities futures, securities exchanges, or banks, there is no federal regulation of cryptocurrency exchanges other than for anti-money-laundering purposes.[29] No federal law expressly requires segregation of cryptocurrency customer assets or minimum levels of operational resiliency. While particular cryptocurrencies may be securities or commodities, cryptocurrency exchanges do not operate—and regulators have not generally treated them—as securities or commodities exchanges; the largest cryptocurrency exchanges operate without supervision by the U.S. Securities and Exchange Commission (SEC) or Commodity Futures Trading Commission (CFTC).

Many cryptocurrency exchanges do register as money transmitters with the states, but not all state money transmitter licenses cover transmission of digital assets.[30] Even if state money transmitter laws apply, they are inadequate for addressing the risks exchanges pose to their customers: the bonding requirements are massively too small, and the requirement of maintaining safe investments equal to the amount of customers' funds does not always apply to most cryptocurrency deposits.[31] New York and Wyoming have special cryptocurrency-specific regulatory regimes,[32] but only Wyoming's little-used regime offers any real protection for exchange customers.

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29. Arguably, cryptocurrency exchanges are unregistered securities and commodities futures exchanges, which would subject them to the regulatory regimes for these exchanges.

30. *See, e.g.*, *Cryptocurrency Laws and Regulations by State*, BLOOMBERG L. (May 26, 2022), https://pro.bloomberglaw.com/brief/cryptocurrency-laws-and-regulations-by-state/ [https://perma.cc/4DYN-4JYS] (reporting on money transmitter laws in the fifty states).

31. *See, e.g.*, KAN. STAT. ANN. § 9-513b (West, 2022) (requiring maintenance of permissible investments with an aggregate market value equal to that of the licensee's "outstanding payment liability"); *id.* § 9-508(i) (defining "outstanding payment liability" as limited to payment instruments sold and money taken for transmission). *But see* WASH. REV. CODE ANN. § 19.230.200(1)(b) (West, 2022) (requiring licensees to hold virtual currency of like-kind to that being transmitted in lieu of permissible investments).

32. *See infra* subparts IV(F)–(G).

Nor is there any sort of Federal Deposit Insurance Corporation or Securities Investor Protection Corporation insurance to protect cryptocurrency exchange customers. Likewise, there is no specialized regime for resolving failed cryptocurrency exchanges. Accordingly, there is no statutory prioritization of the claims of exchanges customers, unlike those of depositors in bank insolvencies.

To date, there has only been very limited scholarly engagement about the intersection of cryptocurrencies and insolvency.[33] The scant scholarship that has addressed cryptocurrency exchanges and insolvency has not done so with reference to U.S. law.[34] Instead, much of the extant literature focuses on the issue of how to classify cryptocurrencies under bankruptcy law—are they currencies, commodities, securities, or something else—rather than the risks attendant to the failure of exchanges.[35] While the classification issue has important ramifications regarding the ability of the bankruptcy trustee to claw back cryptocurrency transferred by the debtor shortly before bankruptcy, none of these analyses engage in more than a passing way with the broader issue of custodial holdings of cryptocurrency exchanges and what that means for exchanges' customers. In particular, there has been no prior

33. *See* Kara Bruce, Christopher K. Odinet & Andrea Tosato, *The Private Law of Stablecoins*, ARIZ. STATE L.J. (forthcoming 2023) (manuscript at 33–35), https://papers.ssrn.com/abstract=4191646 [https://perma.cc/NT7Z-TLKU] (analyzing the potential treatment of coinholders' claims to reserve assets in bankruptcy).

34. *See generally* Matthias Haentjens, Tycho De Graaf & Ilya Kokorin, *The Failed Hopes of Disintermediation: Crypto-Custodian Insolvency, Legal Risks and How to Avoid Them*, 2020 SING. J. LEGAL STUD. 526 (focusing on treatment of failed cryptocurrency exchanges under European and Dutch law); Dan Awrey & Kristin van Zwieten, *Mapping the Shadow Payment System* (SWIFT Inst., Working Paper No. 2019-001, 2019), https://ssrn.com/abstract=3462351 [https://perma.cc/4T64-TLBH] (mapping the global shadow payment system and identifying what mechanisms platforms use to protect their customers); Dan Awrey & Kristin van Zwieten, *The Shadow Payment System*, 43 J. CORP. L. 775 (2018) (examining potential risks to customers posed by shadow payment system).

35. *See generally* Brad M. Kahn, Rachel Biblo Block & Joseph E. Szydlo, *The Need for Clarity Regarding the Classification and Valuation of Cryptocurrency in Bankruptcy Cases*, 17 PRATT'S J. BANKR. L. 228 (2021) (discussing classification of cryptocurrency and blockchain in bankruptcy); Josephine Shawver, Note, *Commodity or Currency: Cryptocurrency Valuation in Bankruptcy and the Trustee's Recovery Powers*, 62 B.C. L REV. 2013 (2021) (arguing that bankruptcy courts should treat cryptocurrencies like commodities); Amanda Wiese, *Cryptocurrency Is Currency*, AM. BANKR. INST. J., Aug. 2021, at 17, 17 (arguing that cryptocurrency should be treated as currency in bankruptcy); Megan McDermott, *The Crypto Quandary: Is Bankruptcy Ready?*, 115 NW. U. L. REV. 1921 (2020) (explaining why cryptocurrencies' undefined nature poses problems in bankruptcy cases and arguing for a cogent and comprehensive approach to managing crypto assets in bankruptcy); Joanne Molinaro & Susan Poll Klaessy, *Bitcoin as a "Commodity" and the Resulting Impact on Bankruptcy Proceedings*, AM. BAR ASS'N (Mar. 5, 2019), https://www.americanbar.org/groups/litigation/committees/woman-advocate/articles/2019/winter2019-Bitcoin-as-a-commodity-and-the-resulting-impact-on-bankruptcy-proceedings/ [https://perma.cc/KW9E-9MAW] (discussing cryptocurrency valuation and classification in bankruptcy proceedings); Dennis Chu, Note, *Broker-Dealers for Virtual Currency: Regulating Cryptocurrency Wallets and Exchanges*, 118 COLUM. L. REV. 2323 (2018) (pointing to the regulation of broker-dealers as a template for how to approach regulation of cryptocurrency platforms).

analysis of whether under American law the assets in custodial accounts held by exchanges are property of the exchanges (making customers merely unsecured creditors of the exchanges) or property of the customers themselves. Likewise, prior consideration of cryptocurrency custody has not addressed bankruptcy risk.[36]

This Article examines the likely legal treatment of cryptocurrency exchange customers in the event an exchange were to fail and file for Chapter 11 bankruptcy in the United States. Part I of the Article reviews the role of cryptocurrency wallets and exchanges and the provisions in exchanges' user agreements regarding how customer funds are held. Part II examines the key issues confronting cryptocurrency customers in an exchange's bankruptcy. In particular, it considers whether the automatic stay would apply, whether custodial holdings would be considered property of the bankruptcy estate, whether pre-bankruptcy transfers could be avoided as preferences, and whether exchange customers would be relegated to the status of general unsecured creditors. Part III considers the additional credit risk that investors face when dealing with a staged cryptocurrency wallet where there is no direct investor privity with the actual custodian. Part IV addresses the lack of cryptocurrency exchange regulation and the inadequacy of money transmitter regulation and private insurance. It suggests that the Consumer Financial Protection Bureau is the agency best situated under existing legal authorities to ensure the protection of exchange customers' funds. The conclusion summarizes the nature of credit risk borne and not priced by cryptocurrency exchange customers, and the moral hazard this unpriced risk creates for exchanges.

I. Cryptocurrency Wallets and Exchanges

A. Crypto Wallets

Cryptocurrencies, such as bitcoin and ether, are purely digital assets.[37] There is no physical "coin" for these cryptocurrencies, despite meme images depicting physical coins. The cryptocurrency exists only as an entry on an append-only distributed ledger called a blockchain that associates a

36. *E.g.*, Wulf A. Kaal & Hayley Howe, *Custody of Digital Assets* (U. of St. Thomas (Minn.), Legal Studies Research Paper No. 22-05, 2021), https://ssrn.com/abstract=3936876 [https://perma.cc/UQC9-CDUN] (not including discussion of bankruptcy risk).

37. This Article assumes that once cryptocurrency exchanges are running Superbowl advertisements that readers will be familiar with the basic concept of cryptocurrencies, which have been amply described in numerous academic articles. Thus, this Article provides a discussion of how cryptocurrencies operate that is limited solely to what is germane to the issue of custodial holdings by exchanges.

cryptocurrency balance with a network address on the blockchain.[38] The blockchain tracks the association of cryptocurrency with cryptographic keys—alphanumeric strings—rather than who "owns" the keys.[39]

Undertaking a transaction in the cryptocurrency—that is to change the network address associated with some amount of cryptocurrency on the blockchain—requires a paired public key and a private key (password).[40] These keys are each associated with an address on the blockchain.[41] The public key is a large numerical value used for encrypting the transaction, while the private key is a password that is used to verify the authorization of the transaction.[42]

To transfer cryptocurrency to a blockchain address, a transferor must digitally sign the transaction with the private key of the address from which the cryptocurrency is being sent and the public key of the recipient address and broadcast the transaction to the blockchain network.[43] The transaction is verified through a cryptographic hashing process called mining.[44]

Cryptocurrencies vary in how they incentivize network participants to engage in mining. The crucial detail here is that without the private key, it is impossible to access cryptocurrency associated with a blockchain address. Thus, if a key is lost, so too is access to the cryptocurrency.

Critically, the private key can be used by anyone who has access to it, not just by its "owner." While the key is the authorization device for transactions on the blockchain, the mining system only checks the validity of the key, not the authorization for the key's use in the transaction. Each cryptocurrency runs on its own blockchain, and each cryptocurrency blockchain address has its own public and private key. Thus, if an individual owns both bitcoins and ether, the individual will have two separate sets of keys because there are two separate blockchains involved, one for each cryptocurrency.[45]

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38. Adam Hayes, *Blockchain Facts: What Is It, How It Works, and How It Can Be Used*, INVESTOPEDIA, https://www.investopedia.com/terms/b/blockchain.asp [https://perma.cc/92CX-SZ9Z] (Sept. 27, 2022).

39. *See generally* Cryptopedia Staff, *What Are Public and Private Keys*, GEMINI, https://www.gemini.com/cryptopedia/public-private-keys-cryptography [https://perma.cc/U94F-7YZF] (June 28, 2022) (explaining cryptographic keys).

40. *Id.*

41. *See id.* (explaining how transactions work).

42. *Id.*

43. Coinbase Glob., Inc., Amendment No. 2 to Registration Statement (Form S-1) 44–45 (Mar. 23, 2021).

44. *What Is Mining?*, COINBASE, https://www.coinbase.com/learn/crypto-basics/what-is-mining [https://perma.cc/JXW3-WQCM].

45. Further complicating things, however, a single wallet might contain the keys for multiple addresses on the same blockchain. Thus, a single wallet might contain separate keys for multiple

Investors need to keep their private keys somewhere when they are not using them. While a private key can be written down on paper and stored physically until it needs to be used, cryptocurrency investors generally store their keys in crypto wallets. Crypto wallets are encrypted software programs.[46] Typically the investor would enter a password in order to unencrypt the private key, which would then be used to authorize a transaction on the blockchain.[47]

There are two types of crypto wallets: unhosted and hosted.[48] An unhosted wallet involves storage of the investor's private keys in some format in the investor's possession.[49] This might be in the form of a non-custodial software wallet, such as a wallet app on the investor's phone or computer, a thumb drive, or even a scrap of paper. While an unhosted wallet lets the investor retain possession of the private key, it also poses a risk of loss. If the investor loses the digital device, the thumb drive, or the scrap of paper, then the key and thus access to the cryptocurrency is lost forever.

In contrast, a hosted or custodial wallet puts the customer's private keys in the custody of a third party, generally a cryptocurrency exchange or similar platform.[50] With a hosted wallet, the exchange has possession of the private keys, and the customer accesses them using a password or other security protocol provided by the exchange.[51] These security protocols might let a customer who forgot a password still access his private keys. Additionally, if the hosted wallet provider were to lose the keys, it would be liable to the customer.

Cryptocurrency investors use hosted wallets for several reasons: concerns about losing their own unhosted wallets; avoiding fees for transferring funds between wallets; the transactional ease offered through hosted wallets that are integrated with an exchange; access to additional income-generating services, such as lending and staking ventures, that exchanges offer customers with hosted wallets; and greater ease at converting

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addresses on multiple blockchains. Jake Frankenfield, *Cryptocurrency Wallet*, INVESTOPEDIA, https://www.investopedia.com/terms/b/Bitcoin-wallet.asp [https://perma.cc/UFG8-9TXA] (May 27, 2022).

46. *Id.*

47. *Id.*

48. Both unhosted and hosted wallets can be "cold" or "hot." A cold wallet, also called a hardware wallet, or offline wallet, is not connected to the Internet so it cannot be hacked. In contrast, a hot wallet is an online wallet. A wallet must be hot in order to transact. *Factsheet: Cryptoassets - Key Terms and Definitions*, GOV.UK (Sept. 22, 2022), https://www.gov.uk/government/publications/economic-crime-and-corporate-transparency-bill-2022-factsheets/factsheet-cryptoassets-key-terms-and-definitions [https://perma.cc/696K-6CLS]. The particular technological form of a wallet does not affect the analysis in this Article.

49. *Id.*

50. Krisztian Sandor, *What Is Crypto Custody?*, COINDESK (Feb. 18, 2022, 1:06 PM), https://www.coindesk.com/learn/what-is-crypto-custody/ [https://perma.cc/89ER-J2GH].

51. *Id.*

cryptocurrency to fiat currency or vice versa, which requires a service that can route fiat payments from a bank account or settle them into a bank account, something that is not possible on an unhosted wallet alone.[52]

B. *Cryptocurrency Exchanges*

1. The Need for Centralized Marketplaces.—It is possible for any two people with crypto wallets to transact bilaterally with each other. Suppose that Moe wishes to pay Curly back for a cup of coffee using bitcoin: Moe would use the private key in his digital wallet to direct the bitcoins associated with his Bitcoin blockchain address to a Bitcoin blockchain address associated with Curly's key, and once the transaction is processed (mined), then the Bitcoin blockchain will be amended to reflect this transaction.

This sort of bilateral transaction works fine when Moe and Curly know each other and have some reason to transact with each other. But suppose that Moe simply wants to sell his bitcoin for the highest available price, and Curly wishes to buy bitcoin for the lowest available price. In that situation bilateral contracting makes little sense—neither Moe nor Curly has any reason to think that the other is offering the best available price.

Indeed, neither Moe nor Curly necessarily even knows that the other is looking to transact. Learning who might want to transact and on what terms creates substantial search costs that might prevent some transactions from happening.

The solution to this problem is a cryptocurrency exchange. The exchange matches buyers and sellers with each other based on their bids and asks without the buyers ever having to know the sellers or vice versa. The exchange functions as a centralized marketplace that enables numerous buyers and sellers to transact without them having to identify each other. Moe and Curly can go to the exchange without having to know each other, transact with each other through the exchange, and have an assurance that they will get the best price being offered among exchange customers.

Moreover, they will benefit from network effects that enhance the value of a central exchange. The more users there are in a network, the more valuable the network is to all of its users. If Larry also goes to trade on the exchange, there is a better chance that Moe and Curly will get a better price than if Moe and Curly were the only ones making offers to buy and sell

52. If an investor with an unhosted wallet wishes to convert cryptocurrency to fiat currency, the investor will either need to use a peer-to-peer system (involving fees) or move the cryptocurrency keys from the unhosted wallet to a hosted wallet (for which there will also be a fee) and then sell the cryptocurrency on the exchange using an exchange-hosted wallet. The exchange will then settle the fiat currency (minus its fees) into the bank account the consumer directs. Using the exchange-hosted wallet eliminates the fees incurred by moving the cryptocurrency keys from the unhosted to hosted wallet.

because each additional participant adds additional possibility of the best price offer. Thus, the benefit further grows for Moe, Larry, and Curly if Shemp also trades on the exchange, and so forth.

2. The Dual Functions of a Cryptocurrency "Exchange."—The terminology of "exchange" in the cryptocurrency context is confusing because some of the functions performed by a cryptocurrency exchange are more akin to those of a broker in securities or commodities markets. To understand the particular role of a cryptocurrency exchange, it is necessary to understand the relationship of three different functions in financial marketplaces: exchanges, clearinghouses, and brokerages.

In general, an exchange is a marketplace that merely enables buyers and sellers to contract; it does not actually execute the contract.[53] The execution function is performed by the clearinghouse that accepts and processes the actual payments for the transactions agreed to on the exchange.[54] While the exchange and clearinghouse functions are technically separate, in the securities or commodities context, they are typically performed together by affiliated entities or even the same entity. In the cryptocurrency context, the blockchain sometimes performs part of the clearinghouse function.[55]

In the securities or commodities context, exchanges are not open to the public; instead, the exchange (and clearinghouse) are open only to their members. This is done as a way of ensuring the reputability of transacting parties because at the end of the day it is the exchange and associated clearinghouse member, not the member's customer, that is liable for payment to the clearinghouse.[56] The actual end buyers and sellers of securities and commodities thus access the exchanges and clearinghouses in an intermediated fashion through the exchange/clearinghouse members, which are called brokerages.[57]

To illustrate, suppose that Moe owns a share of Acme common stock, which he holds in a brokerage account at Howard Bros. Moe will instruct

53. Wayne Duggan & Jeff Reeves, *Exchange Definition*, U.S. NEWS: MONEY (May 25, 2022, 3:25 PM), https://money.usnews.com/investing/term/exchange [https://perma.cc/AJ4V-CFWW].

54. Adam J. Levitin, *Prioritization and Mutualization: Clearinghouses and the Redundancy of the Bankruptcy Safe Harbors*, 10 BROOK. J. CORP., FIN. & COM. L. 129, 137–38 (2015).

55. *See* Matt Levine, *Crypto, Clearing and Credit: Also Remote Work, Russia CDS and Crypto Lawsuits*, BLOOMBERG (June 1, 2022, 1:00 PM), https://www.bloomberg.com/opinion/articles/2022-06-01/crypto-clearing-and-credit [https://perma.cc/N293-WC3S] (explaining that simultaneous trading occurs on the blockchain); *see also* Philipp Sandner, *Will Blockchain Replace Clearinghouses? A Case of DVP Post-Trade Settlement*, FORBES (Dec. 2, 2020, 12:34 PM), https://www.forbes.com/sites/philippsandner/2020/12/02/will-blockchain-replace-clearinghouses-a-case-of-dvp-post-trade-settlement/ [https://perma.cc/8DS8-588F] (explaining that "blockchain-based multichain atomic swap technology will become a peer-to-peer alternative to a central clearing counterparty").

56. Levitin, *supra* note 54, at 137–38.

57. *Id.* at 138.

Howard Bros. to sell the share, which it will do by going to a stock exchange and finding the best price available. The bids offered on the stock exchange will come from other brokerages, which make the bids on behalf of their customers.

Let's suppose that the bid accepted by Howard Bros. is for $1 from the Shemp, Inc. brokerage on behalf of its customer, Larry. Howard Bros. and Shemp, Inc. will take their contract over to the clearinghouse affiliated with the exchange. The clearinghouse will novate itself into both sides of the contract: instead of Howard Bros. directly transferring the stock to Shemp, Inc. in exchange for a direct transfer of money, Howard Bros. will transfer the stock to the clearinghouse, and Shemp, Inc. will transfer the money to the clearinghouse. The clearinghouse will assume the role of each of the counterparties and transfer the stock and money, respectively, to each of the brokerages.[58] That way, Howard Bros. does not need to worry about the solvency of Shemp, Inc. or vice versa. They only need worry about whether the clearinghouse itself is solvent. The clearinghouse assumes the counterparty risk on both Howard Bros. and Shemp, Inc.

Once Howard Bros. has received the $1 from the clearinghouse and Shemp, Inc. has received the share of stock, Howard Bros. will "settle" the transaction by crediting Moe's brokerage account with $1 and debiting it for one share of Acme common stock. Shemp, Inc. will likely settle the transaction by crediting the account of Larry, the buyer, with one share of Acme common stock and debiting it for $1.

Things work somewhat differently with cryptocurrency. Let's suppose Moe wants to sell one bitcoin, the private key for which he maintains in an unhosted wallet. Moe wants to get the best price possible, so he goes to the Stooges Exchange, a cryptocurrency exchange. The prices quoted on the Stooges Exchange are based on the bids tendered by other customers of the Stooges Exchange (or by the Stooges Exchange in its own dealer capacity).[59]

If Moe wants to get the price quoted on the Stooges Exchange, he will have to transfer his bitcoin from his unhosted wallet to a hosted wallet provided by the exchange. His bitcoin will then be credited to the buyer's account at the exchange, and the buyer's payment—fiat or crypto—will be

58. *Id.*

59. An alternative trading method is to use a cryptocurrency broker. Whereas an exchange matches asks and bids on its own order book, a broker will attempt to execute the order using an over-the-counter dealer market or by searching exchange prices, meaning that the asks and bids are not limited to the broker's own order book. *See, e.g.*, Declaration of Stephen Ehrlich, Chief Executive Officer of the Debtors, in Support of Chapter 11 Petitions and First Day Motions at 10–11, *In re* Voyager Digital Holdings, Inc., No. 22-10943 (Bankr. S.D.N.Y. July 6, 2022) (stating that Voyager "surveys more than a dozen exchanges and liquidity providers and executes trades through a proprietary algorithm that evaluates the price, certainty of execution, reliability of the trading venue, and speed of execution"). In practice, the distinction between exchange and broker is often more fluid because the exchange or the broker will often itself be the real counterparty.

credited to Moe's account at the exchange. Because the payments going both directions are from accounts at the same exchange, the exchange has limited counterparty risk; it can tell whether the payment asset is present or not.

Whether the transfer of Moe's bitcoin will be recorded on the Bitcoin blockchain, as opposed to merely being reflected on the exchange's own books and records, will depend on the exchange's policies. If the payment is recorded on-chain, then the blockchain assumes part of the clearing function for the particular cryptocurrency associated with that blockchain. If the payments going both ways are in crypto—for example, Moe sells his bitcoin for thirty dogecoins—then all the clearing will be done on the blockchain (if the transactions are recorded on-chain), but the bitcoin transfer will clear on the Bitcoin blockchain, and the dogecoin transfer will clear separately (and without coordination) on the Dogecoin blockchain. Because the transaction will clear through two separate and uncoordinated blockchains there is credit risk in the transaction—the bitcoin transfer might go through, but not the reciprocal dogecoin transfer, leaving Moe with neither a bitcoin nor a dogecoin.

If the transaction is not recorded on-chain, then the exchange will act as the clearinghouse, simultaneously crediting Moe with the thirty dogecoin (minus any fees) on its books and records, while debiting his account balance one bitcoin, and the inverse for the counterparty's account. The same would hold true if Moe sells his bitcoin for a fiat payment of $20,000: Moe's crypto account balance at the exchange would be debited one bitcoin, and his cash account balance would be credited with $20,000 (again, minus any fees).

What we see then is that despite their names, cryptocurrency exchanges provide not just an exchange function but also a brokerage function and a clearinghouse function.[60] The on-ramp into a cryptocurrency exchange is a wallet hosted by the exchange that performs the same function as a brokerage account for securities or commodities.[61] That wallet is effectively a brokerage account,[62] and similar to securities and commodities brokerages, cryptocurrency exchanges will offer customers margin loans against the funds in their wallets. While the actual exchange and clearinghouse functions of cryptocurrency exchanges are important, for purposes of this Article, it is the brokerage function that is key. Indeed, it is easiest to understand the

60. The combination of brokerage (wallet) with exchange functions in cryptocurrency is unusual because in securities and commodities functions, exchanges are separate from and in fact regulate brokerages. The combination of exchange and brokerage functions raises considerable customer-protection and market-manipulation risks that are beyond the scope of this Article.

61. While it is possible for two parties to transfer cryptocurrency to each other without any intermediation, such bilateral transactions are comparatively rare because cryptocurrency is mainly used for speculation, where centralized markets are essential for getting the best price, rather than payments.

62. The main difference is that each cryptocurrency is in a separate wallet, whereas a traditional brokerage account can contain all manner of assets.

problem of exchange failures if one conceptualizes cryptocurrency exchanges as operating like unregulated securities or commodity brokerages that hold customer funds.

3. Custodial Practices of Cryptocurrency Exchanges.—Cryptocurrency exchanges will generally offer custodial services for hosted wallets for their customers.[63] This means that the customer is giving the private keys—and hence access to the associated cryptocurrency—to the exchange for safe-keeping.[64] While the exchange might be contractually limited in what, if anything, it can do with the private keys, the private keys are in the control of the exchange and can only be accessed by the customer through use of the exchange's security protocols.

Rather than leave each customer's account segregated, exchanges will often transfer the customer's cryptocurrency to an omnibus account for which it alone holds private key.[65] The customer's interest is then tracked solely on the exchange's books and records, rather than on the blockchain.[66]

Using a single omnibus account has a number of operational benefits for the exchange. Among other things, it lets the exchange avoid transaction fees paid to miners for validating on-chain transactions through bundling and netting.[67] The calculation of mining fees varies somewhat by blockchain, but generally mining fees are paid on a per-transaction basis and depend on the size of the transaction in terms of bytes (rather than the amount of cryptocurrency involved).[68] This is because the more data is included in the transaction, the more block space it will take up (limiting the number of other

63. Exchanges may also offer custodial holdings for customers' fiat currency assets, typically in omnibus bank accounts established "for the benefit of" the customers. Haentjens et al., *supra* note 34, at 533 n.29.

64. Sandor, *supra* note 50.

65. As a technical matter, the transfers would be to a distinct omnibus account, meaning a distinct blockchain address, for each type of cryptocurrency (although there will probably be a single address for all Ethereum-based tokens, be they ether or ERC-20 tokens). Depending on the technical workings of the particular cryptocurrency, one or more blockchain addresses might be used for it, such that an omnibus "account" might actually consist of multiple addresses on multiple blockchains that exist as an "account" only in the sense that the same party—the exchange—controls their private keys. *See* Haentjens et al., *supra* note 34, at 531, 536 (discussing the technical operation of Bitcoin addresses).

66. *Id.* at 536. The use of omnibus accounts thus obscures information flows to the market, as on-us trades conducted on an exchange are not publicly visible. Given that exchanges are themselves market participants, trading on their own account, their ability to see the on-us trades gives them a substantial inside informational advantage over their customers against whom they trade.

67. *See* Hooper, *supra* note 22 (explaining transaction fees in cryptocurrency).

68. *Transaction Fees on the Blockchain Explained*, CRYPTO APIS (May 17, 2022), https://cryptoapis.io/blog/82-transaction-fees-on-the-blockchain-explained [https://perma.cc/RL2X-T58C].

transactions on the block), and the more time or more computational power will be required to validate it.[69]

Suppose that Larry and Moe were both customers of an exchange and each wanted to send one bitcoin to Shemp, who is not a customer of the exchange. The transaction would have to be on-chain because Shemp is not an exchange customer. If the exchange undertakes separate transactions to send Larry's bitcoin and Moe's bitcoin, there will be a transaction fee for each transaction. If the exchange were to bundle the two transactions, however, and send Shemp two bitcoins in a single transaction, there would be only a single transaction fee. The exchange could either keep the savings itself or pass it along to customers in order to attract more business by offering lower costs.

Likewise, the per-transaction nature of the fees means that the exchange can use master accounts to capture savings from netting of on-us transactions.[70] If Moe and Curly are both customers of the same exchange (an on-us transaction), and Moe wishes to sell Curly his bitcoin for payment in ether, there would be a mining fee for Moe and one for Curly. But because they are both customers of the same exchange, the exchange can avoid the mining entirely and simply reallocate the ownership of the bitcoin and ether on its own books and records. The exchange can then capture the savings because it will charge both Moe and Curly a fee for the transaction based on the prevailing mining costs, even though no mining took place.

Because exchanges are able to achieve transaction account savings through bundling and netting, they are able to offer customers even better execution prices than bilateral trades, further encouraging use of exchanges by investors.

Yet the use of omnibus accounts poses an additional set of risks to customers. The use of omnibus accounts means that the customer is dependent upon the accuracy of the exchange's books and records and loses the independent verifiability of the blockchain. This means customers are exposed to an additional level of operational risk from exchanges.

The use of omnibus accounts also increases hacking risk by concentrating a large amount of cryptocurrency at one blockchain address. Such concentrated holdings make for a more tempting target for hackers, who need to hack only one private key to make off with a large haul. The concentrated target also means that hacking losses to an exchange are more likely to be catastrophic and cause the failure of the exchange than if a small amount of funds were stolen from a limited number of individual accounts. Exchanges also offer various add-on services for customers using their

69. *Id.*

70. *See* Awrey et al., *supra* note 34, at 20 (discussing "off chain" transactions between customers of centralized cryptocurrency exchanges).

custodial wallets. Some exchanges offer products that enable customers to lend their cryptocurrencies out in exchange for a return.[71] Relatedly, some exchanges offer staking services that enable customers to lend out their stake (essentially a voting right) in exchange for a return.[72] Parties looking to borrow cryptocurrencies or stakes do not want to have to identify and negotiate bilaterally with every Larry, Moe, or Curly investor, nor do they want to pay transaction fees for multiple funders if a single funder is not independently capable of funding their loan or stake. Bundling separate investors' holdings in a single omnibus account enables an exchange to offer one-stop funding to borrowers of various types. The same is true if the exchange has the right to rehypothecate the customers' holdings for its own benefit.

Thus, various cryptocurrency exchanges are incentivized to transfer customers' funds from dedicated custodial accounts for individual customers into a single commingled omnibus account for which the exchange alone holds the private key. Accordingly, some exchanges will offer customers the possibility of non-commingled holdings but will charge an extra fee for segregating funds.[73] The customers' interests in the cryptocurrency are merely tracked on the exchange's own ledger, not the blockchain. If the customer were to look at his account statement on the exchange, however, the account statement would indicate what is in the exchange's own ledger,

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71. *See, e.g.*, BlockFi Lending LLC, Securities Act Release No. 11029, Investment Company Act Release No. 34503 ¶ 1–2, 4 (Feb. 14, 2022) (stating crypto lending product was an unregistered securities offering).

72. *See, e.g.*, *Earn Staking Rewards*, KRAKEN, https://www.kraken.com/en-us/features/staking-coins [https://perma.cc/6FSH-LSMH] (explaining ability to stake crypto with Kraken in exchange for rewards). Cryptocurrencies are variously proof-of-work systems (such as Bitcoin or Ethereum 1.0) or proof-of-stake systems (such as Ethereum 2.0). Miranda Marquit, *Proof of Work vs. Proof of Stake: Why the Difference Matters for Ethereum Investors*, TIME: NEXTADVISOR (Sept. 16, 2022), https://time.com/nextadvisor/investing/cryptocurrency/proof-of-work-vs-proof-of-stake/ [https://perma.cc/9WJ5-DUNK]. In a proof-of-work system, multiple parties might attempt to mine a block, but the mining rewards are given only to the first party to successfully mine. *Id.*; *see also* Brian Baker, *What Is Bitcoin Mining and How Does It Work?*, BANKRATE (Sept. 27, 2022), https://www.bankrate.com/investing/what-is-bitcoin-mining/ [https://perma.cc/5T55-KNBG] (stating that to complete the process of Bitcoin mining, "miners must be first to arrive at the correct answer," and if they do, they will receive a predetermined number of bitcoins). Mining involves trying to solve a cryptographic puzzle and is largely a brute computing force exercise—computer bingo. Marquit, *supra* note 72. This makes mining an exercise in amassing the most computing power and incredibly inefficient, as rewards are not given to any party other than the successful miner. Baker, *supra* note 72. In contrast, in a proof-of-stake system, the right to mine a block and get the mining rewards is awarded to a party that has posted a sufficient stake to qualify. Marquit, *supra* note 72. The assignment might be random, or it might relate to a factor such as stake size. *Id.* A staking party does not have to undertake the mining itself; stakes can be pledged to others as part of staking pools, generally in exchange for part of the mining rewards if the right to mine is awarded. *Id.*; *see generally* Tanwa Arpornthip, *Staking Pool*, BINANCE ACADEMY, https://academy.binance.com/en/glossary/staking-pool [https://perma.cc/Q9SY-3ZMN] (explaining staking pools). A proof-of-stake system is much more efficient in use of computing power. Marquit, *supra* note 72.

73. *See infra* notes 90–93 and accompanying text.

not the blockchain. Without doing an audit of the blockchain, the transfer of the cryptocurrency from the customer's own private key to an omnibus account controlled by the exchange's own private key would not be visible to the customer.

While this sort of arrangement may facilitate transactions on the exchange (as well as the exchange's own use of the cryptocurrency deposited with it), it poses enormous risk for investors. As the following section addresses, if the cryptocurrency exchange were to fail, the cryptocurrency that it holds custodially—including when users of unhosted wallets temporarily use a hosted (custodial) wallet—would likely not be treated as property of the customers but as property of the exchange. The customers would not "own" the cryptocurrency but would be mere unsecured creditors of the exchange. That would put them almost last in line for repayment from the failed exchange's limited pool of assets.

C. Cryptocurrency Exchange User Agreements

Cryptocurrency exchanges' user agreements vary in terms of what they disclose to customers about customers' rights and risks. Some exchanges' user agreements are silent about how they hold customers' assets, leaving unclear what their actual practices are likely to be but raising the strong likelihood that these exchanges do not segregate customers' holdings. For example, Binance, the world's largest exchange,[74] discloses nothing about custody and ownership of customer funds.[75]

Other exchanges expressly indicate that they hold the assets in a merely custodial capacity. For example, Coinbase's user agreement provides that "[a]ll Supported Digital Assets held in your Digital Asset Wallet are custodial assets held by Coinbase for your benefit."[76] The Coinbase User Agreement further provides that:

> **2.7.1. Ownership.** Title to Supported Digital Assets shall at all times remain with you and shall not transfer to Coinbase. All interests in Digital Assets we hold for Digital Asset Wallets are held for customers, are not property of Coinbase, and are not subject to claims of Coinbase's creditors. As owner of the Supported Digital Assets in your Digital Asset Wallet, you shall bear all risk of loss of such Supported Digital Assets. Coinbase shall have no liability for Supported Digital Asset fluctuations or loss. None of the Supported Digital Assets in your Digital Asset Wallet are the property of, or shall or may be loaned to, Coinbase; Coinbase does not represent or treat

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74. *Top Cryptocurrency Spot Exchanges*, *supra* note 10.

75. *Binance Terms of Use*, BINANCE (Dec. 20, 2022), https://www.binance.com/en/terms [https://perma.cc/QZ7P-RZ4Q].

76. *Coinbase User Agreement*, COINBASE § 2.7, https://www.coinbase.com/legal/user_agreement/united_states [https://perma.cc/GMD3-UBC8] (Aug. 30, 2022).

> assets in User's Digital Assets as belonging to Coinbase. Coinbase may not grant a security interest in the Supported Digital Assets held in your Digital Asset Wallet. Except as required by law, or except as provided herein, Coinbase will not sell, transfer, loan, hypothecate, or otherwise alienate Supported Digital Assets in your Digital Asset Wallet unless instructed by you.[77]

The Coinbase User Agreement also provides:

> **2.7.3. Control and Customer Instructions.** You control the Digital Assets held in your Digital Asset Wallet. At any time, subject to outages, downtime, and other applicable policies, you may withdraw your Supported Digital Assets by instructing Coinbase to debit the applicable Supported Digital Asset from your Digital Asset Wallet and transfer the Digital Assets to a different blockchain address.[78]

These two sections tell the user that the user has "title" to the cryptocurrency and is the "owner" of the cryptocurrency. Yet section 2.7.3 goes on to say that: "As long as you continue to hold Supported Digital Assets with Coinbase, Coinbase shall retain control over electronic private keys associated with blockchain addresses operated by Coinbase, including the blockchain addresses used to hold the Supported Digital Assets credited to your Digital Asset Wallet."[79]

In other words, Coinbase, not the user, will have access to the private keys that are used to access the cryptocurrency. Moreover, the Coinbase User Agreement provides that Coinbase is allowed to store its customers' cryptocurrency in a shared blockchain address—unsegregated accounts for all purposes—controlled solely by Coinbase, with the individual customers' holdings tracked only on Coinbase's ledger and not reflected in the blockchain for the particular cryptocurrency:

> **2.7.4. Omnibus Accounts.** In order to more securely and effectively custody assets, Coinbase may use shared blockchain addresses, controlled by Coinbase, to hold Supported Digital Assets for Digital Asset Wallets on behalf of customers and/or held on behalf of Coinbase. Although we maintain separate ledgers for users' Coinbase Accounts and Coinbase accounts held by Coinbase for its own benefit, Coinbase shall have no obligation to create a segregated blockchain address for your Supported Digital Assets.[80]

The user agreement in place for cryptocurrency exchange Robinhood prior to July 2022 had similar provisions. On the one hand, Robinhood referred to the customer acquiring "title" to the cryptocurrency:

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77. *Id.* § 2.7.1.
78. *Id.* § 2.7.3.
79. *Id.*
80. *Id.* § 2.7.4.

> d) *Title and Ownership.* I understand that any order for Cryptocurrency that I place on the Robinhood Platform that is subsequently filled will result immediately in my RHC Account being credited the amount of such Cryptocurrency and me obtaining title to such Cryptocurrency. The amount of Cryptocurrency that I purchase will be reflected on the Robinhood Platform. After I obtain title to such Cryptocurrency, I may sell all or a portion of the Cryptocurrency using the Robinhood Platform. Except at my direction or instruction, or as may be required by applicable law or regulation or legal order, RHC will not loan, hypothecate, pledge, or encumber Cryptocurrency stored and held by RHC in one or more omnibus Cryptocurrency wallets for the benefit of RHC customers.[81]

On the other hand, Robinhood explained that it would commingle customers' cryptocurrency holdings in omnibus customer accounts:

> **9. Custody.** Cryptocurrencies that I purchase shall be stored and held by RHC in one or more omnibus cryptocurrency wallets for the benefit of RHC customers. RHC shall track the balance and ownership of Cryptocurrencies purchased as part of the RHC Services, and I understand that I can view the balance of Cryptocurrencies in my RHC Account on the Robinhood Platform. RHC shall use commercially reasonable efforts to securely store the private keys associated with my Cryptocurrencies.[82]

Likewise, the user agreement for exchange FTX.US, states that the funds are owned by the customer, but are not held in segregated accounts: "Title to cryptocurrency represented in your FTX.US Account shall at all times remain with you and shall not transfer to FTX.US. Your balances in your FTX.US Account are not segregated and cryptocurrency or cash are held in shared addresses or accounts, as applicable."[83]

The user agreement for FTX.US's affiliate, FTX Trading Ltd., which does not deal with American customers, does not even disclose whether accounts are segregated. It only represents that FTX Trading Ltd. does not treat customer funds as its own property:[84]

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81. *Robinhood Crypto User Agreement*, ROBINHOOD § 4(d) (Dec. 13, 2021), https://cdn.robinhood.com/assets/robinhood/legal/Robinhood%20Crypto%20User%20Agreement.pdf [https://perma.cc/5YU5-D5CM].

82. *Id.* § 9.

83. *FTX.US User Agreement*, FTX.US § 6, https://ftx.us/TermsOfService.pdf [https://perma.cc/7MPV-Y77T] (Sept. 16, 2022).

84. Despite this representation, it is reported that FTX Trading Ltd. used customer funds for its own investment purposes, the disclosure of which precipitated its collapse. *See* Vicky Ge Huang, Alexander Osipovich & Patricia Kowsmann, *FTX Tapped Into Customer Accounts to Fund Risky Bets, Setting Up Its Downfall*, WALL ST. J (Nov. 11, 2022, 12:16 PM), https://www.wsj.com/articles/ftx-tapped-into-customer-accounts-to-fund-risky-bets-setting-up-its-downfall-11668093732 [https://perma.cc/L2VM-PM94].

> Title to your Digital Assets shall at all times remain with you and shall not transfer to FTX Trading. . . . None of the Digital Assets in your Account are the property of, or shall or may be loaned to, FTX Trading; FTX Trading does not represent or treat Digital Assets in User's [sic] Accounts as belonging to FTX Trading.[85]

Similar disclosures can be found in the user agreements of many other cryptocurrency exchanges.[86]

Other exchanges, however, explain that they hold and use deposited cryptocurrency as their own funds. Exchange CEX states that it will hold customers' cryptocurrency in its own omnibus account and use the cryptocurrency for its own purposes as it sees fit, with investment gains and losses falling on it, not the customers:

> 24.1. The User agrees and acknowledges that the User expressly grants CEX.IO Corp. the right, to the fullest extent that it may effectively do so under applicable law to: (i) hold the Cryptocurrency in our own omnibus account and to pledge, repledge, hypothecate, rehypothecate, collateralize or otherwise transfer or use any of the Cryptocurrencies, with all attendant rights of ownership, and (ii) to use or invest the Cryptocurrencies for our own benefit or risk. The User agrees and acknowledges that with respect to Cryptocurrencies used by CEX.IO Corp. pursuant to this paragraph; (i) the User may not be able to exercise certain rights of ownership and (ii) CEX.IO Corp. may receive compensation in connection with collateralizing or otherwise using Cryptocurrencies in its business to which the User will have no entitlement.[87]

Likewise, Celsius Network characterized its Earn Service, which paid customers a yield in exchange for the use of their cryptocurrency, as a "loan":

> In consideration for the Rewards payable to you on the Eligible Digital Assets using the Earn Service, for us entering into any Loan

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85. *FTX Terms of Service*, FTX § 8.6.2(A)–(B) (May 13, 2022), https://help.ftx.com/hc/article_attachments/6260752238100/FTX_Terms_of_Service.pdf [https://perma.cc/5AYB-NZTA].

86. *See, e.g.*, *Legal & Privacy: Terms of Service*, BITFINEX § 17.16, https://www.bitfinex.com/legal/exchange/terms [https://perma.cc/6WVF-XJ9U] (warning users "that Fiat, Digital Tokens or other property reflected in your Account, subaccount or Digital Tokens Wallet are not segregated assets held in your name or for your benefit but reflected only in the books and records of Bitfinex"); *Terms of Use*, CELSIUS § 4.B, https://web.archive.org/web/20220511150849/https://celsius.network/terms-of-use (Apr. 14, 2022) (providing "[t]itle to any of your Eligible Digital Assets in a Custody Wallet shall at all times remain with you and not transfer to Celsius. Celsius will not transfer, sell, loan or otherwise rehypothecate Eligible Digital Assets held in a Custody Wallet unless specifically instructed by you" but warning "Eligible Digital Assets in a Custody Wallet may be comingled with the Eligible Digital Assets of other Users" and further that "Celsius is under no obligation to return the actual Eligible Digital Assets initially transferred by you to a Custody Wallet, but will return Eligible Digital Assets of the identical type reflected in your Celsius Account at the time you request such a return").

87. *Terms of Use*, CEX.IO § 24.1, https://cex.io/terms [https://perma.cc/V7WX-HXL4] (Aug. 12, 2022).

> Agreement, and the use of our Services, you grant Celsius, subject to applicable law and for the duration of the period during which you elect to utilize the Eligible Digital Assets in the Earn Service (if available to you) and thus loan such Eligible Digital Assets to us through your Celsius Account, or as collateral under the Borrow Service (if available to you), all right and title to such Eligible Digital Assets, including ownership rights, and the right, without further notice to you, to hold such Digital Assets in Celsius' own Virtual Wallet or elsewhere, and to pledge, re-pledge, hypothecate, rehypothecate, sell, lend, or otherwise transfer or use any amount of such Digital Assets, separately or together with other property, with all attendant rights of ownership, and for any period of time, and without retaining in Celsius' possession and/or control a like amount of Digital Assets or any other monies or assets, and to use or invest such Digital Assets in Celsius' full discretion.[88]

The "loan" characterization of Celsius's Earn Service contrasts with its "Custody Service," which represents title to funds as remaining with customers and not eligible for Celsius's use, suggesting something other than a debtor-creditor relationship.[89]

Cryptocurrency exchange Gemini takes a different approach that underscores the commingling issue. Gemini offers its customers two different ways of holding cryptocurrency assets: a Depository Account or a Custody Account. In a Depository Account, Gemini will pool customers' cryptocurrency holdings, which will be tracked solely on Gemini's own ledger.[90]

In contrast, in a Custody Account, Gemini will segregate the customer's holdings with unique blockchain addresses, directly verifiable via the applicable blockchain, that will be indicated in Gemini's books and records as "belonging" to the customer.[91] A Custody Account is "intend[ed] to create a bailment" of the cryptocurrency assets with Gemini.[92]

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88. *Terms of Use*, *supra* note 86, § 13.

89. *See id.* § 4.B ("Title to any of your Eligible Digital Assets in a Custody Wallet shall at all times remain with you and not transfer to Celsius. Celsius will not transfer, sell, loan or otherwise rehypothecate Eligible Digital Assets held in a Custody Wallet unless specifically instructed by you . . . .").

90. *User Agreement*, GEMINI, https://www.gemini.com/legal/user-agreement [https://perma.cc/GJA5-F42N] (Sept. 28, 2022) ("Digital Assets custodied in a Depository Account are pooled together in one or more of our Digital Asset wallets.").

91. *Custody Agreement*, GEMINI, https://www.gemini.com/legal/custody-agreement [https://perma.cc/BU2G-55WL] (Sept. 27, 2022) ("Your Custody Account will have one or more associated unique Blockchain Addresses in which your Assets will be (i) segregated from any and all other assets held by us and (ii) directly verifiable via the applicable blockchain.").

92. *Id.*

Using a Custody Account is more expensive however—Gemini charges a 0.4% annual fee and a $125 fee per withdrawal.[93] No such fees exist for Depository Accounts. In either case, however, Gemini claims that "Digital Assets custodied on your behalf and reflected in the Digital Asset Account of your Gemini Account are not treated as general assets of Gemini."[94]

Cryptocurrency user agreements do sometimes disclose the possibility of asset commingling, but as shown above, they simultaneously assure the customers about "ownership" and "title," which suggests that customers do not need to be concerned about commingling. Likewise, Gemini mentions that it is "a fiduciary under § 100 of the New York Banking Law (the NYBL) and a custodian that is licensed to custody your Digital Assets in trust on your behalf."[95] Yet it is not at all clear what this means—Gemini interacts with customers in a range of fashions. While it has fiduciary *powers* as a trust company under New York law, that does not mean that it is acting as a fiduciary for its customers in any particular capacity. Indeed, to the extent it is acting as a bailee, such as for a Custody Account, it is not a fiduciary. Similarly, being "licensed to custody your Digital Assets in trust on your behalf"[96] does not itself actually tell a customer anything about what is expected from Gemini, but it sounds very reassuring.

This sort of language in a user agreement is potentially lulling to customers who do not understand the intricacies of bankruptcy law. Cryptocurrency exchange user agreements are merely private law that can determine the relationship between the exchange and its customer. They cannot override public law such as bankruptcy law. Thus, even if an exchange tells its customers in a passive construction that the custodied assets "are not treated as general assets"[97] of the exchange, it can only definitively make such a statement regarding how *it* will treat the assets, not how the assets would be treated by a bankruptcy court. Indeed, Celsius Networks disclosed in a previous iteration of its user agreements that there was uncertainty about the legal treatment of its different types of accounts in the event of an insolvency.[98]

93. *What Are the Fees for Custody Accounts?*, GEMINI, https://support.gemini.com/hc/en-us/articles/360032825231-What-are-the-fees-for-Custody-accounts- [https://perma.cc/72PA-LFYC]

94. *User Agreement*, *supra* note 90.

95. *Id.*

96. *Id.*

97. *Id.*

98. *Terms of Use*, CELSIUS § 4.B, https://web.archive.org/web/20220511150849/https://celsius.network/terms-of-use (Apr. 14, 2022) (requiring users to "understand and acknowledge that the treatment of Digital Assets in the event of such an insolvency proceeding is unsettled, not guaranteed, and may result in a number of outcomes that are impossible to predict reliably," including the possibility of users "being treated as an unsecured creditor and/or the total loss of any and all Digital Assets reflected in [their] Celsius Account, including those in a Custody Wallet");

The ultimate treatment in bankruptcy is likely to depend in part on the particular contractual terms, but as the next section addresses, in bankruptcy, in many instances the custodial holdings will likely not be treated as property of the customers but as property of the exchange, with the customers as mere creditors of the exchange.

II. Cryptocurrency Exchanges in Bankruptcy

Let's imagine that a cryptocurrency exchange has failed and ends up in Chapter 11 bankruptcy, either voluntarily or involuntarily. What would happen to its customers? This part reviews the key questions regarding customer accounts that would arise in a cryptocurrency exchange's bankruptcy and how they would likely be resolved.

A. The Automatic Stay

When a company files for bankruptcy, two things immediately happen by function of law. First, a new legal entity springs into existence.[99] This is called the "bankruptcy estate," and it consists of "all legal or equitable interests of the debtor in property as of the commencement of the case."[100] Whatever the extent of the debtor's interest in the property becomes the extent of the estate's interest in the property. If property is property of the estate, then the debtor can use or sell that property, although doing so outside of the ordinary course of business requires court approval.[101] In practical terms, this means that the debtor could sell its cryptocurrency holdings to provide cash for funding its bankruptcy expenses, such as paying for its professionals. Those assets would not then be available for distribution to customer-creditors.

Second, most attempts to collect from the estate are stayed automatically, without need for an injunction.[102] This includes attempts to collect property in which the estate has merely a possessory interest.[103]

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id. § 13 (providing that if "Celsius becomes bankrupt, enters liquidation or is otherwise unable to repay its obligations, any Eligible Digital Assets used in the Earn Service or as collateral under the Borrow Service may not be recoverable" and users "may not have any legal remedies or rights in connection with Celsius' obligations to [users] other than [users'] rights as a creditor of Celsius under any applicable laws").

99. 11 U.S.C. § 541(a).

100. *Id.* § 541(a)(1).

101. *Id.* § 363(b)–(c).

102. *Id.* § 362(a). The stay exceptions for securities contracts, forward contracts, swaps, and repos are inapplicable. Even if a cryptocurrency is a security or a commodity, the stay exceptions do not cover custody, only financial transactions themselves, and even then, the exceptions permit only the termination, acceleration, and liquidation of margin posted to cover the transactions. *Id.* § 362(b). None of that applies to custody of cryptocurrency, where there is no margin.

103. *See, e.g.*, Eden Place, LLC v. Perl (*In re* Perl), 811 F.3d 1120, 1127–30 (9th Cir. 2016) (evaluating whether the debtor had any possessory interest).

Violations of the stay are subject to sanctions. The stay has the effect of channeling attempts to collect from the estate into a single forum—the bankruptcy court.

The automatic stay normally remains in effect until the end of the bankruptcy,[104] yet it can be lifted earlier upon motion "for cause"[105] or if the debtor does not have any equity in the property and it is not necessary for an effective reorganization,[106] but that requires parties actually going to court and litigating the issue. Accordingly, because an exchange will always have at least a possessory interest in cryptocurrency held for customers, customers are unlikely to ever have automatic access to their cryptocurrency in the event of an exchange bankruptcy, at least to the extent that the court can enforce the stay.

Although there are no jurisdictional limits to the automatic stay, enforcement of the stay can be difficult with respect to foreign entities and governments. This poses a particular limitation if a cryptocurrency exchange based outside of the United States files for Chapter 11.[107] As we will see, the foreign location of a cryptocurrency exchange can raise further complications in a bankruptcy.

B. *Property of the Estate*

Thus, the first issue for customers of a cryptocurrency exchange in a bankruptcy is whether the exchange's custodial holdings are property of the estate and therefore subject to the automatic stay.[108] If the assets are not

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104. 11 U.S.C. § 362(c).

105. *Id.* § 362(d)(1).

106. *Id.* § 362(d)(2).

107. Chapter 11 is available to foreign businesses provided that they have assets (including a subsidiary) in the United States or if an affiliate has already filed for bankruptcy in the United States. 28 U.S.C. § 1408. *See generally* Oscar Couwenberg & Stephen J. Lubben, *Corporate Bankruptcy Tourists*, 70 BUS. L. 719 (2015) (discussing use of Chapter 11 by foreign companies).

108. An issue *not* likely to arise under U.S. law is whether cryptocurrency can even be "property." Civil law jurisdictions have a strong *numerus clausus* principle that limits the recognition of new forms of property, and if ownership forms do not fit into recognized patterns, then ownership is not legally recognized. Thus, in the Japanese bankruptcy of the Mt. Gox exchange, the court held that there could not be ownership of bitcoins under the Japanese Civil Code because it was not a tangible thing and was not covered by other laws like copyright that recognize ownership based on exclusive control. Tōkyō Chihō Saibansho [Tokyo Dist. Ct.] Aug. 5, 2015, Hei 26 (wa) no. 33320, *translated in* Translated and Paraphrased Judgement of Tokyo District Court in Mt. Gox Bankruptcy, UNIV. OXFORD FAC. OF L., https://www.law.ox.ac.uk/sites/files/oxlaw/mtgox_judgment_final.pdf [https://perma.cc/RT26-PRG8]. Dutch and Russian courts have reached different conclusions on a similar question. *See* Anna Jeffrey, *When Bitcoin Meets Insolvency: Is Bitcoin Property? Dutch and Russian Responses*, LEXISNEXIS (June 8, 2018), https://www.lexisnexis.co.uk/blog/restructuring-and-insolvency/when-bitcoin-meets-insolvency-is-bitcoin-property-dutch-russian-responses [https://perma.cc/NPV5-M4QE] (stating that Dutch and Russian courts have acknowledged a property right over Bitcoin).

property of the estate, then the customers should be able to get access to their assets—to the extent they still exist—either through the exchange's voluntary cooperation or through court order, such as through a replevin or revendication action.

The starting point for analyzing the legal relationship between an exchange and its customers regarding custodial holdings will generally be the terms of the exchange's user agreement.[109] This means that the initial inquiry will sound in contract: did the customers agree to the user agreement and what exactly was agreed upon? Given variations in contracting processes, the possibility of individualized-contract defenses, and questions about the choice of law to apply, there will be a question about whether any particular customer is bound by the terms of the user agreement.[110]

Even if customers are bound by the user agreement, given the variation in exchange user agreement terms seen above, this means that there may not be a one-size-fits-all answer, but rather different characterizations of the relationship depending on the terms of the user agreement. Moreover, exchanges have often gone through multiple iterations of their user agreements, raising questions about whether users are bound by modifications to the agreement. Additionally, the user agreement—even if it binds the customers—may not be the end-all-be-all of the relationship, as there are potentially statutory and equitable factors to be considered.

Under American law, the legal relationship between a cryptocurrency exchange and a customer regarding the custodial holdings could potentially be characterized in several ways depending on the particular facts and legal analysis: as an express trust, a constructive trust, financial assets subject to Article 8 of the Uniform Commercial Code, a bailment, a loan, or a sale. If

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Property of the estate is not dependent on the location of the property or who has possession of the property. 11 U.S.C. § 541(a) ("[The] estate is comprised of all the following property, wherever located and by whomever held . . . ."). In other words, property of the estate includes property held outside of the United States. As a practical matter, however, the bankruptcy court may not be able to enforce its orders regarding property that is outside of the United States. Where cryptocurrency is located is likely a matter of the location of the private key.

109. *See* Memorandum Opinion and Order Regarding Ownership of Earn Account Assets at 5, *In re* Celsius Network LLC, No. 22-10964 (Bankr. S.D.N.Y. Jan. 4, 2023).

110. Resolution of ownership of property requires an adversary proceeding. FED. R. BANKR. PROC. 7001(2). An adversary proceeding is essentially a free-standing lawsuit brought in the context of a bankruptcy case. Bringing an adversary proceeding would require the debtor to litigate against thousands or millions of customers. While a defendant class action is theoretically possible, class certification on the question of whether customers are bound by a contract presents significant obstacles given the individualized nature of some contract defenses. *Id.* 7023. In practice, a debtor is likely to bring an adversary proceeding for declaratory relief regarding the ownership of the accounts. *Id.* 7001(9). Most customers are unlikely to respond to the suit, resulting in default judgments against them, enabling the debtor to settle with the minority that contest the suits. *Id.* 7055. If customers were to contest the adversary proceeding en masse, however, the resolution could be greatly delayed, as there is no standing coordination device for common issues in multiple adversary proceedings.

the custodial holdings are an express trust, a constructive trust, financial assets subject to Article 8 of the Uniform Commercial Code, or a bailment, then the exchange's interest is limited to its possessory interest,[111] and the debtor will not be able to use or sell the custodial holdings. In contrast, if holdings are through a loan or a sale, then the holdings are property of the estate outright, which it can use or sell,[112] and the customers would merely be creditors of the estate.

Put another way, if the exchange customers' interest in the custodial holdings is deemed a property interest of one sort or another, then that interest will be free of the claims of competing creditors, such as bondholders or employees. But if the exchange customers' interest in the custodial holdings is deemed to be merely contractual rights, then the customers will be competing with other creditor groups for the custodial holdings (and other assets of the exchange).

Unfortunately, the legal concepts of trust, financial assets, bailment, loan, and sale are often not as distinct as one might suppose.[113] The applicable law is generally common law, not statutory (other than about financial assets), and the case law is often older and confused. As a result, a transaction might be plausibly characterized in multiple ways.

This lack of clarity about legal characterization of custodial arrangements is the key point. The lack of legal clarity makes it impossible for cryptocurrency exchange customers to have confidence in their treatment in the event of the exchange's bankruptcy. Moreover, the lack of legal clarity almost assuredly means that there will be litigation in the bankruptcy regarding who "owns" the custodially held cryptocurrency and in what capacity. While that litigation is pending—which could be for significant time—exchange customers will not have access to the custodially held cryptocurrency.[114] This means that even if the customers prevail, they will bear exposure to market swings during the duration of the litigation and may also bear the costs of the litigation.

The remainder of this part considers in some detail the possible characterizations of custodial holdings of cryptocurrency: express trust, constructive trust, financial assets governed by Article 8 of the Uniform Commercial Code, bailment, and property sold to the exchange.

111. *See* 11 U.S.C. § 541(a)(1), (d) (stating that property in which the debtor only holds legal title becomes property of the estate "only to the extent of the debtor's legal title to such property, but not to the extent of any equitable interest in such property").

112. *Id.* § 363(b)–(c).

113. Transaction characterization, such as loan vs. lease, loan vs. sale, loan vs. time sale, or bailment vs. lease, is a problem that bedevils much of commercial law.

114. *See* Awrey & van Zwieten, *supra* note 34, at 814 (explaining, for example, that while a bankruptcy is pending, bankruptcy law imposes procedural obstacles to the exercise of beneficiary entitlements in the case of trusts).

1. Express Trust.—A common device used to make assets of all sorts bankruptcy remote is the trust.[115] When assets are "bankruptcy remote," it means that they will not become part of the debtor's bankruptcy estate.[116] When assets are held in trust, legal title (formal ownership) of the assets is separated from the beneficial interest (economic rights) in the assets. Legal title to the assets is held by the trustee while the beneficial interest belongs to the trust beneficiary. The trustee is a fiduciary for the beneficiary.

Bankruptcy law provides that when the debtor is the trustee for a trust, the bankruptcy estate's interest in the assets is limited to legal title to the assets; the beneficial interest remains with the nonbankrupt trust beneficiaries.[117] In such a case, the bankruptcy estate will relinquish legal title to the assets and distribute them to the trust beneficiaries.[118] The assets held in trust will not be available for distribution to the debtor's creditors.[119] Notably, the Bankruptcy Code does not prescribe any timetable for the distribution of the trust corpus to the beneficiaries, other than that it occur before the final distribution in the bankruptcy.

The device used to intentionally place assets in trust is an express trust. An express trust can be created by private parties or by statute. Each type is discussed in turn.

a. Privately Created Express Trust.—The private creation of an express trust requires a writing that manifests the intent to place the assets in trust for the benefit of currently or subsequently identifiable beneficiaries.[120]

Express trust arrangements for cryptocurrency can involve a direct entrustment or an intermediated entrustment. In a direct entrustment, the custodial funds are placed in trust *for the exchange's customer*. In an intermediated entrustment, the custodial funds are placed in trust *for the*

115. *See* Jonathan Greenacre & Ross P. Buckley, *Using Trusts to Protect Mobile Money Customers*, 2014 SING. J. LEGAL STUD. 59, 67 (stating that holding funds in a trust protects them from third-party creditors in the event of insolvency); Awrey & van Zwieten, *supra* note 34, at 26–27 (same).

116. ADAM J. LEVITIN, BUSINESS BANKRUPTCY: FINANCIAL RESTRUCTURING AND MODERN COMMERCIAL MARKETS 264 (3d ed. 2023). In contrast, when an *entity* is bankruptcy remote, it means that it cannot or will not file for bankruptcy. *Id.* at 892.

117. *See* 11 U.S.C. § 541(d) (stating that property where the debtor holds only legal title becomes property of the estate but not to the extent of equitable interest in the property).

118. *Id.* § 725 (requiring the bankruptcy estate to "dispose of any property in which an entity other than the estate has an interest . . . that has not been disposed of under another section of this title").

119. Pearlman v. Reliance Ins. Co., 371 U.S .132, 135–36 (1962) ("The Bankruptcy Act simply does not authorize a trustee [in bankruptcy, that is the individual managing the debtor's bankruptcy estate] to distribute other people's property among a bankrupt's creditors.").

120. *See* RESTATEMENT (THIRD) OF TRUSTS § 10 (AM. L. INST. 2003) (stating that trusts can be created by express declaration to hold property in trust); *id.* § 13 (requiring properly manifested intent to create a trust); *id.* § 22 (stating trusts require a signed writing to be enforceable); *id.* § 44 (requiring trusts to be created for ascertainable beneficiaries).

exchange. The difference is significant in terms of the bankruptcy because it changes whether the exchange is the trustee or the trust beneficiary.

In a direct entrustment, the exchange itself could hold the cryptocurrency in trust for its individual customers. If so, the exchange's bankruptcy would not change the customer's beneficial interest in the cryptocurrency. The bankruptcy estate's interest would be limited to legal title to the cryptocurrency,[121] and the estate would be required to relinquish control of the assets (assuming that there is not an assumable executory contract for custody). While the customers' ownership interest would be protected, they would still likely experience disruptions in liquidity and might have to obtain a court order authorizing the transfer of the assets out of the exchange.

Sometimes a third-party custodian (sometimes affiliated with the exchange, sometimes independent) serves as the trustee. Even then, a direct express entrustment is still possible. In such a situation, the failure of the exchange might, as an operational matter, affect customers' liquidity, but as a formal legal matter, the custodial cryptocurrency would not become part of the exchange's bankruptcy estate because legal title belongs to the trustee, not the exchange. To be sure, it is still possible that the trustee entity might itself file for bankruptcy, but third-party custodians tend to be entities with limited operational risk.

Cryptocurrency exchange user agreements for retail customers do not provide for the creation of an express trust. Language merely stating that "you retain ownership of the digital assets" or the like is not language of entrustment and is often further refuted by language in user agreements disclaiming any fiduciary relationship. This means that absent another document creating an express trust, exchanges do not directly hold the cryptocurrency in express trust for their retail customers.

In contrast, some institutional cryptocurrency investors do have direct entrustment agreements with custodians. For example, the Annual Report of Coinbase Global, Inc., the parent company of cryptocurrency exchange Coinbase, Inc., reports that its subsidiary Coinbase Custody Trust Company, LLC, a New York limited purpose trust company, holds cryptocurrency in trust for the benefit of certain *institutional clients*.[122] Thus, the issuers of

121. 11 U.S.C. § 541(d). Likewise, any power the debtor can exercise solely for the benefit of another entity than the debtor is not part of the estate. *Id.* § 541(b)(1). Thus, if the debtor has the power to put customer fiat funds in a bank account, those funds would not be property of the estate unless the debtor was able to benefit from them, as would be the case if the debtor were the party entitled to the interest earned on the funds.

122. Coinbase Glob., Inc., Annual Report (Form 10-K) 17 (Feb. 24, 2022) (listing as a subsidiary of Coinbase Global, Inc., "Coinbase Custody Trust Company, LLC, a New York limited liability trust company, which is authorized to exercise fiduciary powers under New York state banking law and holds certain crypto assets in trust for the benefit of our institutional customers").

certain securities that are backed by holdings of cryptocurrency entrust their holdings to Coinbase Custody Trust Company, LLC.[123] Notably, the entrustment in these cases occurs through a bespoke bilateral contract, rather than the Coinbase User Agreement.

Some exchanges appear to use intermediated entrustment for retail customers.[124] In an intermediated entrustment, the exchange, rather than its customer, is the trust beneficiary.[125] This sort of arrangement provides little protection for the cryptocurrency exchange's customers in the event of the exchange's failure, as it suggests that the economic interest in the cryptocurrency belongs to the exchange, not its customers, who merely have a general unsecured claim against the exchange. Intermediated entrustment requires the exchange to be able to alienate the cryptocurrency by placing it in a trust for itself. The ability to alienate the cryptocurrency is a strong indication that the cryptocurrency belongs to the exchange, rather than to the customer. If so, the exchange's customer is nothing more than a creditor of the exchange without a claim on a particular cryptocurrency asset.

If the exchange is the trust beneficiary, the trust structure only ensures that the cryptocurrency is being kept safe *for the exchange*, not for the customers (and even then, it is not a guarantee against loss of the assets). At most, the trustee has a financial obligation to the exchange if the cryptocurrency assets are lost, but if the trustee is an affiliate of the exchange, it is unlikely that it provides a material source of additional financial strength.

b. Public Law Express Trusts.—Many cryptocurrency exchanges have state money transmitter licenses. State money transmitter laws require the licensee to maintain a certain level of "permissible investments" relative to particular types of liabilities to customers.[126] By statute, these permissible investments are held in trust for the customers.[127] Additionally, funds received for transmission are deemed to be held in trust for customers.[128] These statutory provisions would presumably not be waivable and, if

123. *See, e.g.*, Osprey Bitcoin Tr., Current Report (Form 8-K) Exhibit 10.1 (Feb. 10, 2022) (exhibiting Coinbase Custody Custodial Services Agreement between Osprey Bitcoin Trust and Coinbase Custody Trust Company, LLC).

124. It is possible to create an express trust that would provide for the exchange's customers to be the trust beneficiaries, even though the customer base is dynamic. *See* RESTATEMENT (THIRD) OF TRUSTS § 44 cmt. a (AM. L. INST. 2003) (explaining that beneficiaries can be "capable of ascertainment from facts existing at the time the trust" is created or "capable of becoming existent and ascertainable in the future from facts that will be determinable within the period and terms of the rule against perpetuities").

125. This situation is a type of staged wallet. For a more general discussion of staged wallets, see *infra* Part III.

126. *E.g.*, MICH. COMP. LAWS § 487.1031(1) (2022).

127. *E.g.*, *id.* § 487.1031(3); TEX. FIN. CODE ANN. § 151.309(e) (West 2021).

128. *E.g.*, ARIZ. REV. STAT ANN. § 6-1222(C)(5), (E) (2022); MICH. COMP. LAWS § 487.1034(3) (2022); TEX. FIN. CODE ANN. § 151.404(a) (West 2021).

applicable, would apply regardless of the contractual terms of exchange user agreements.

Three questions exist about such trusts. First, does such a trust even apply to cryptocurrency deposits? Only a minority of state money transmitter laws expressly cover cryptocurrency,[129] so a challenge that a bankruptcy court will face is determining which state money transmitter laws apply and which create express trusts in custodial holdings of cryptocurrency. As a result, there could be different results depending on the state of the exchange's customer.

Second, even if the trust applies to cryptocurrency deposits, would such trusts even be honored in bankruptcy? Bankruptcy law will generally honor state law property entitlements, but if the state property law entitlement only springs on bankruptcy, as is the wording of some state laws,[130] it might be viewed as an *ipso facto* provision that bankruptcy law will not respect.[131]

And third, if there is a trust that applies to cryptocurrency holdings, what is the extent of the trust? In particular, if trust assets have been commingled with other assets of the debtor, they might be limited to identifiable proceeds using tracing principles. In the sole reported case to address this issue, the bankruptcy court dealt with state money transmitter laws that purported to create a trust not just on funds received by a debtor money transmitter for a payment instrument but also on any commingled property of the debtor.[132] The bankruptcy court held that federal bankruptcy law requires the imposition of tracing principles as a limitation on the scope of the trust.[133] In that case, the commingled funds were in a bank account that had a "lowest intermediate balance" of $0.[134] Accordingly, there was no longer an express trust because there was no longer a trust corpus. All the money transmitter's customers had was an unsecured claim.[135]

c. Summary.—To summarize, if the cryptocurrency is held in an express trust, whether privately or publicly created, the identifiable trust

129. *See, e.g.*, *Cryptocurrency Laws and Regulations by State*, *supra* note 30 (surveying all fifty states' cryptocurrency laws and regulations).

130. *See, e.g.*, MICH. COMP. LAWS § 487.1031(3) (2022) ("Even if commingled with other assets of a licensee, permissible investments are held in trust for the benefit of the purchasers and holders of the licensee's outstanding payment instruments *in the event of bankruptcy or receivership of the licensee*." (emphasis added)).

131. 11 U.S.C. § 545(a) (stating how trustees can avoid *ipso facto* liens). Arguably, a springing trust is the same as a springing lien in that it creates property rights contingent upon the filing of a bankruptcy or other event of insolvency.

132. Blackhawk Network, Inc. v. Alco Stores, Inc. (*In re* Alco Stores, Inc.), 536 B.R. 383, 401 (Bankr. N.D. Tex. 2015).

133. *Id.* at 402, 404–14.

134. *Id.* at 414.

135. *Id.* at 415.

beneficiary—the exchange customer—will retain its beneficial interest in the cryptocurrency in the event of the bankruptcy of the trustee, that is, the exchange. The customer should ultimately be able to exercise control of its holdings but likely not without disruption and delay.

For privately created trusts or retail investors, the trust beneficiary, however, is typically the exchange itself, rather than the exchange's customer, an arrangement that means that the exchange holds the beneficial interest in the cryptocurrency, and its customers are merely its unsecured creditors. Some state money transmitter laws create express trusts for cryptocurrency customers, but these laws are far from universal, and even when applicable, may not apply in bankruptcy. Even if they apply, however, it is still unclear whether commingling of assets will undermine the trusts because of the application of equitable tracing principles.

2. Constructive Trust.—Another possibility is that custodial accounts at an exchange are held in constructive trust for the exchange's customers. A constructive trust is a type of implied trust that is judicially created as a remedy when a party is unjustly enriched by the acquisition of title to identifiable property at the expense of another or in violation of the other's rights.[136] As Justice Cardozo explained, "A constructive trust is the formula through which the conscience of equity finds expression. When property has been acquired in such circumstances that the holder of the legal title may not in good conscience retain the beneficial interest, equity converts him into a trustee."[137]

If property is found to be in constructive trust for creditors, it will generally not be found to be property of the estate,[138] so the bankruptcy estate will be required to relinquish it to the trust beneficiaries, just as with an express trust.[139]

Whether a constructive trust exists is a matter of state law, and state law on constructive trusts varies substantially, with some states not even recognizing constructive trusts,[140] and other states not permitting their creation when parties' relationship is governed by contract because unjust

136. RESTATEMENT (THIRD) OF RESTITUTION AND UNJUST ENRICHMENT § 55 (AM. L. INST. 2011).

137. Beatty v. Guggenheim Expl. Co., 122 N.E. 378, 380 (N.Y. 1919).

138. 5 COLLIER ON BANKRUPTCY ¶ 541.28 (Richard Levin & Henry J. Sommer eds., 16th ed. 2022).

139. *See* 11 U.S.C. § 725 (requiring disposal of property in which an entity other than the estate has an interest).

140. *See, e.g.*, Tow v. Exxon Mobil Corp. (*In re* ATP Oil & Gas Corp.), 553 B.R. 577, 579 (Bankr. S.D. Tex. 2016) (acknowledging that Louisiana does not recognize constructive trusts).

enrichment will not lie when there is a breach of contract cause of action.[141] In yet other states, a constructive trust only arises upon a court order creating it,[142] so if there is no court order prior to the bankruptcy, there is no constructive trust. The creation of a constructive trust is an equitable remedy, however, and bankruptcy courts are permitted to consider different equities than a state court.[143]

Because constructive trusts benefit one group of claimants at the expense of others by precluding other claimants from benefitting from the trust corpus, bankruptcy courts have historically been hostile to the remedy, which runs contrary to the fundamental bankruptcy principle that equity is equality.[144] As the Sixth Circuit has noted, "[c]onstructive trusts are anathema to the equities of bankruptcy since they take from the estate, and thus directly from competing creditors, not from the offending debtor."[145]

The doctrinal state of constructive trusts in bankruptcy is "in great disarray,"[146] depending both on the particulars of state law and federal courts' view of its interaction with bankruptcy. It is possible that a court would rule that custodial holdings of cryptocurrency are held in constructive trust for the exchange's customers, but there is no guaranty about that, and the possibility should provide limited comfort for cryptocurrency exchange customers.

Critically, the doctrine of constructive trust would only protect exchange customers to the extent that the exchange still has its cryptocurrency or the traceable proceeds thereof, so commingling would potentially destroy or limit the trust depending on how tracing rules would apply. To the extent that the cryptocurrency is missing, the customers are merely creditors of the exchange, the treatment of which is covered below in subpart II(D).

3. Financial Assets Governed by UCC Article 8.—Yet another possible characterization of custodial holdings is as "financial assets" subject to

141. *See, e.g.*, *In re* Miami Metals I, Inc., 603 B.R. 727, 740 n.10 (Bankr. S.D.N.Y. 2019) (acknowledging both Florida and New York law preclude constructive trusts where an agreement governs the parties' relationship).

142. *See, e.g.*, CHoPP Comput. Corp. v. United States, 5 F.3d 1344, 1348–49 (9th Cir. 1993) (applying California law).

143. Ades & Berg Grp. Invs. v. Breeden (*In re* Ades & Berg Grp. Invs.), 550 F.3d 240, 245 (2d Cir. 2008).

144. *See, e.g.*, CRS Steam, Inc. v. Eng'g Res., Inc. (*In re* CRS Steam, Inc.), 225 B.R. 833 (Bankr. D. Mass. 1998) (explaining that there is a "bankruptcy principle favoring general equality among those having similar rights").

145. XL/Datacomp, Inc. v. Wilson (*In re* Omegas Grp., Inc.), 16 F.3d 1443, 1452 (6th Cir. 1994). Professor David Gray Carlson has rightly noted that the Sixth Circuit's ruling presumes that beneficiaries of constructive trusts are creditors, while the whole point of a constructive trust is that the beneficiaries are *not* creditors. David Gray Carlson, *Constructive Trusts and Fraudulent Transfers: When Worlds Collide*, 103 MARQ. L. REV. 365, 396 (2019).

146. Carlson, *supra* note 145, at 422.

Article 8 of the Uniform Commercial Code (UCC), a uniform state law. Article 8 provides a set of rules governing custodial holdings of certain investment assets.

a. Security Entitlements.—Historically, physical securities certificates were considered to be reifications of the actual financial rights, and they were transferred by negotiation, meaning indorsement and physical transfer.[147] As the volume of securities transactions grew in the 1960s, Wall Street experienced a "Paperwork Crisis" because the systems for processing the then-paper-based transfers were unable to keep up.[148] As a result, there was "a virtual breakdown in many firms of the control over the possession, custody, location, and delivery of securities, and the payment of money obligations to customers, all of which exposed customers to the risk of the loss of their cash and securities."[149]

Article 8 originated as part of the state-level legislative response to the Paperwork Crisis. Part 5 of Article 8 created a system of indirect securities holding based upon immobilization of legal title to securities: the physical securities certificates are deposited at issuance with a central securities depository (usually the Depository Trust Company), which maintains the physical certificates in its vaults.[150] The depository (called a securities intermediary) then tracks the beneficial interest in the securities, which is called a security entitlement, on its electronic books and records.[151]

Often there are stacked layers of security entitlements: the depository tracks the record holder of the security entitlement on its books, but that record holder is merely a broker, which in turn tracks the security entitlement of its customers on its books; the customer has a security entitlement in the broker, which has one in the depository. This way, trades between customers of the same brokerage are merely tracked on the brokerage's own balance sheet, and trades between customers of different brokerages are recorded electronically on the central depository's balance sheet. Because all the parties are using the same depository, the physical securities certificates never need to move. Article 8's security entitlement system, however, does

147. U.C.C. § 8-301(a) (AM. L. INST. & UNIF. L. COMM'N 2021).

148. Wyatt Wells, *Certificates and Computers: The Remaking of Wall Street, 1967 to 1971*, 74 BUS. HIST. REV. 193, 193–94, 194 n.1 (2000).

149. Michael P. Jamroz, *The Customer Protection Rule*, 57 BUS. L. 1069, 1074 (2002).

150. Russell A. Hakes, *UCC Article 8: Will the Indirect Holding of Securities Survive the Light of Day?*, 35 LOY. L.A. L. REV. 661, 668 (2002).

151. *See id.* at 679–86 (explaining Article 8's legal regime for indirect holding). Article 8 also applies to the broker–customer relationship: the customer has a security entitlement with the broker, which in turn has its own security entitlement with the central depository. *See* U.C.C. § 8-501(c) (AM. L. INST. & UNIF. L. COMM'N 2021) (providing that the securities intermediary does not have to hold the financial asset itself).

not merely apply to certificated securities. Instead, it covers uncertificated securities and certain other types of "financial assets," as discussed below.

Article 8's immobilization of title is a type of legal fiction—the central depository maintains legal title but nothing more in the securities. Accordingly, Article 8 provides that any securities or other financial assets held by a securities intermediary "are not property of the securities intermediary, and are not subject to claims of creditors of the securities intermediary" other than secured creditors.[152]

What's more, Article 8 presumes a commingling of all of the financial assets of a particular type held by a securities intermediary. Accordingly, if Article 8 applies to a cryptocurrency held by an exchange (the securities intermediary), then the investor's property interest in the cryptocurrency would be a pro rata property interest in all of that cryptocurrency held by the exchange.[153] In other words, there would be a property interest, but not in a specific identifiable asset, just a beneficial tenancy in common for the entire custodial pool of the type of asset.[154]

To illustrate, suppose the Three Stooges Exchange held 100 bitcoin and 100 ether for its customers, including 10 bitcoin for Moe and 20 ether for Schemp. Moe's security entitlement would give him a property interest of 10% of all of the bitcoin held by the exchange rather than on his particular ten bitcoin. If the exchange held 100 bitcoin for its customers, then Moe would have a right to get back ten bitcoin, but not necessarily the particular ones he deposited.[155] He would also not have any interest in the 100 ether held by the exchange.

Likewise, Schemp would have a security entitlement giving him a prorated property interest of 20% of all of the ether held by the exchange for its customers. If the exchange held 100 ether for its customers, then Shemp would have the right to get back twenty ether, but not the particular twenty ether he deposited. He also would not have any interest in the 100 bitcoin held by the exchange.

The pro rata nature of the property interest created by a security entitlement matters because if the exchange lost thirty bitcoin (say to a hacking), then Moe's security entitlement would still be 10% of all of the bitcoin held by the exchange, but that would now entitle him to just seven

152. U.C.C. §§ 8-503(a), 8-511 (AM. L. INST. & UNIF. L. COMM'N 2021).

153. *Id.* § 8-503(b).

154. The difference between a tenancy in the entirety and ownership of a specific can be conceptualized as the difference between owning shares in a co-op versus owning a specific condominium unit.

155. The technical workings of Bitcoin transfers can involve the combination of and splitting of particular bitcoin balances, but this complication is not relevant for understanding this hypothetical. Haentjens et al., *supra* note 34, at 532 (discussing Bitcoin's system of unspent transaction outputs (UXTOs)).

bitcoin (10% of the remaining seventy), even if the bitcoin that were hacked were not his bitcoin. What of the other three bitcoin in which Moe had previously held an interest? For those, he would just be a general unsecured creditor of the exchange. Article 8 assigns a pro rata property interest in the property that exists; if there is a shortfall in property held by the securities intermediary, that just becomes an unsecured claim.[156] Article 8's beneficial tenancy in common in the custodial pool implies that the exchange's customers should have priority in the custodial cryptocurrency pool, ahead of other creditors of the exchange. In other words, the custodial pool (even if it had deficiencies) would be reserved for the exchange's customers and off-limits for the exchange's other creditors, effectuating the equivalent of a constructive trust. Indeed, in a Securities Investor Protection Corporation liquidation, customers of a failed broker-dealer share ratably in the commingled holdings of customer securities and cash.[157] It is not clear exactly how this would play out in a bankruptcy, but there would at least be a credible argument that if Article 8 applies, then it creates a state law property right in the custodial asset pool that bankruptcy law must honor.[158]

b. Application of Article 8 to Cryptocurrency.—Does Part 5 of Article 8 apply to cryptocurrency? The Article 8 system of title immobilization in Part 5 is based upon the creation of a "security entitlement" for a person at a "securities intermediary" that maintains "securities accounts" for others.[159] The "security entitlement" exists when a "securities intermediary" credits another person's "securities account" with a "financial asset" on its books and records.[160] A "securities account" is defined as an account to which a "financial asset" may be credited.[161] In other words, a security entitlement requires a security account, which in turn requires there to be a financial asset. Thus, the key to the application of Article 8's title mobilization provision would seem to be whether an asset is a "financial asset."

Applying this terminology to a cryptocurrency, if a cryptocurrency were a "financial asset," then the exchange would be "securities intermediary" that would maintain a "securities account" for the exchange's customer, which would make the customer an "entitlement holder" that holds a "security

156. *See* U.C.C. § 8-511 cmt. 2 (AM. L. INST. & UNIF. L. COMM'N 2021) (noting that Article 8 does not protect against a securities intermediary failing to hold the customer funds it is supposed to hold).

157. 15 U.S.C. § 78fff-2(c)(1).

158. *See* 11 U.S.C. § 725 ("[T]he trustee . . . shall dispose of any property in which an entity other than the estate has an interest . . . and that has not been disposed of under another section of this title.").

159. U.C.C. § 8-501(a)–(b) (AM. L. INST. & UNIF. L. COMM'N 2021).

160. *Id.*

161. *Id.* § 8-501(a).

entitlement" with respect to the cryptocurrency held by the exchange.[162] This analysis tees up the question of whether a cryptocurrency is a "financial asset" for Article 8 purposes. Article 8 defines a "financial asset" as:

> (i) a security;
>
> (ii) an obligation of a person or a share, participation, or other interest in a person or in property or an enterprise of a person, which is, or is of a type, dealt in or traded on financial markets, or which is recognized in any area in which it is issued or dealt in as a medium for investment; or
>
> (iii) any property that is held by a securities intermediary for another person in a securities account if the securities intermediary has expressly agreed with the other person that the property is to be treated as a financial asset under this Article.[163]

Cryptocurrencies clearly do not qualify as "financial assets" under the first prong of the definition.[164] The definition of "security" for Article 8 does not track the Supreme Court's *Howey*[165] test for what constitutes a "security" under federal securities laws.[166] Article 8's definition requires, among other terms, that a "security" be "represented by a security certificate."[167] An official comment to Article 8 makes clear that the term "security certificate"

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162. *Id.* §§ 8-102(a)(7), -102(a)(17), -501(a).

163. *Id.* § 8-102(a)(9).

164. The 2022 revisions to Article 8 (not yet enacted) accord with this interpretation of the current version of Article 8. *See* U.C.C. §§ 8-102 cmt. 18 (AM. L. INST. & UNIF. L. COMM'N, amended 2022) ("[A] controllable electronic record may be a 'financial asset.' However, a controllable electronic record is not itself a 'security,' defined in part in Section 8-102(a)(15) as 'an obligation of an issuer or a share, participation, or other interest in an issuer or in property or an enterprise of an issuer.'"); *id.* § 8-103(h) ("A controllable account, controllable electronic record, or controllable payment intangible is not a financial asset unless Section 8-102(a)(9)(iii) applies."); *id.* § 8-103 cmt. 8 ("Subsection (g) allows a document of title to be a financial asset and thus subject to the indirect holding system rules of Part 5 only to the extent that the intermediary and the person entitled under the document so agree pursuant to Section 8-102(a)(9)(iii). Subsection (h), added pursuant to the 2022 Amendments, adopts the same approach for a controllable account, controllable electronic record, or controllable payment intangible. This is to prevent the inadvertent application of the Part 5 rules to intermediaries who may hold electronic or tangible documents of title or controllable accounts, controllable electronic records, or controllable payment intangibles.").

165. SEC v. W.J. Howey Co., 328 U.S. 293 (1946).

166. *See id.* at 299 (determining whether a transaction is a security if "a person invests his money in a common enterprise and . . . expect[s] profits solely from the efforts of the promoter or third party").

167. U.C.C. § 8-102(a)(15) (AM. L. INST. & UNIF. L. COMM'N 2021). Even if uncertificated, an obligation, interest of an issuer, interest in property, or an enterprise of an issuer can still be a "security" for Article 8 purposes if its transfer "may be registered upon books maintained for that purpose by or on behalf of the issuer." *Id.* § 8-102(a)(15)(i). Cryptocurrencies other than stablecoins generally lack an "issuer" entity, however, so this disjunctive part of the definition seems generally inapplicable.

refers to a paper certificate.[168] Thus, because cryptocurrency exists solely in digital form, no cryptocurrency is a "security" for purposes of UCC Article 8.

To qualify under the second prong of the definition of "financial asset," a cryptocurrency must be either "an obligation of a person or a share, participation, or other interest in a person or in property or an enterprise of a person."[169] Both of these possibilities require the involvement of a "person."

The term "person" is defined in the Uniform Commercial Code as "an individual, corporation, business trust, estate, trust, partnership, limited liability company, association, joint venture, government, governmental subdivision, agency, or instrumentality, public corporation, or any other legal or commercial entity."[170] This term must necessarily be tied to an actual legal entity—it cannot be read so broadly as to cover informal associations of individuals in a cryptocurrency project, or else the term would make little sense in many of the places it is used throughout the UCC. For example, the UCC refers to the "person maintaining the account."[171] An account cannot be maintained for something other than a legal entity. Likewise, the UCC refers to a person acquiring possession of a security certificate or becoming the registered owner of an uncertificated security, a usage of "person" that can only encompass legal entities.[172]

When a cryptocurrency has an issuing entity, rather than only an issuing algorithm, there is a person. Thus, a redeemable stablecoin, a type of cryptocurrency that is supposed to be redeemable from an issuer for fiat currency at a fixed price,[173] will always be an obligation of a person. For example, the stablecoin Tether is an obligation of its issuer, Tether Ltd.[174] Because Tether is a type of obligation that is traded on financial markets and recognized as a medium for investment, it is a "financial asset" for purposes of Article 8.

Cryptocurrencies other than stablecoins, however, are less likely to be "financial assets," because they do not involve "a person."[175] Instead, these

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168. *Id.* § 8-102 cmt. 16 ("The term 'security certificate' refers to the paper certificates that have traditionally been used to embody the underlying intangible interest.").

169. *Id.* § 8-102(a)(9)(ii).

170. *Id.* § 1-201(b)(27).

171. *Id.* § 8-501(a).

172. *Id.* § 8-301(a)(2), (b)(2).

173. Bruce et al., *supra* note 33, at 4.

174. *See What Are Tether Tokens and How Do They Work?*, https://tether.to/en/how-it-works [https://perma.cc/C8ZB-LBLG] (identifying Tether tokens as stablecoins that "are pegged at 1-to-1 with a matching fiat currency . . . and are backed 100% by Tether's reserves").

175. A cryptocurrency that operates on privately controlled software, rather than on a consensus mechanism for its users, necessarily involves "a person" who controls the software code, and users' tokens are likely to be interests in an enterprise of that person that are dealt in or traded on financial markets or recognized as a medium for investment. I have not been able to identify any example of a cryptocurrency that operates on privately controlled software, perhaps because investors would eschew the risk of the controlling party changing the code to deprive them of value.

cryptocurrencies are open-source software development projects that involve the collaboration of numerous persons, but no identifiable legal entity has control over the system. Rather, design choices are made through consensus mechanisms.

Bitcoin and ether, for example, are not obligations of anyone, nor are they a share, participation, or other interest in "a person," because there is no issuing entity of any sort involved. Nor are they an interest in the property of a "person," again, because there is no entity of any sort involved. Can they be said to be an interest in the enterprise of a "person" for whose enterprise is bitcoin or ether? Bitcoin lacks any sort of organization. Ether has an Ethereum Foundation that has an unofficial stewardship role in the Ethereum ecosystem, but the Ethereum Foundation does not control Ethereum.[176] Decentralized financial products lack the entity necessary for triggering the second prong of the definition of "financial asset" under Article 8.

The third prong of the definition of "financial asset" would defer to the parties' contractual choice to bring their relationship within the scope of Article 8.[177] This would be a simple enough thing to do, but it does not appear to be the practice of cryptocurrency exchanges. At present, the only cryptocurrency user agreements I have identified as invoking Article 8 are the August 30, 2022 version of the Coinbase user agreement,[178] and the September 13, 2022 version of the Robinhood user agreement.[179] No other retail cryptocurrency platform user agreement I have reviewed provides for the application of Article 8, suggesting that cryptocurrency exchanges do not generally desire the application of Article 8.[180]

176. *What Is the Ethereum Foundation*? ETHEREUM FOUND., https://ethereum.foundation/about/ [https://perma.cc/585K-G8KA].

177. U.C.C. § 8-102(a)(9)(iii) (AM. L. INST. & UNIF. L. COMM'N 2021).

178. *Coinbase User Agreement*, *supra* note 76, § 2.7.2 ("All Supported Digital Assets credited to the Digital Asset Wallet will be treated as 'financial assets' under Division 8 of the California Uniform Commercial Code . . . ."); *see also* Paul Grewal, *Setting the Record Straight: Your Funds Are Safe at Coinbase—And Always Will Be*, COINBASE (June 1, 2022), https://blog.coinbase.com/setting-the-record-straight-your-funds-are-safe-at-coinbase-and-always-will-be-f8cf2b588fd8 [https://perma.cc/J28Y-4A3W] (clarifying that Coinbase's updated user agreement expressly highlights the applicability of UCC Article 8); *see* @iampaulgrewal, TWITTER (June 1, 2022, 5:04 PM), https://twitter.com/iampaulgrewal/status/1532121035671080960 [https://perma.cc/ARF7-89WY] (same). Coinbase's June 1, 2022 change to its user agreement occurred shortly after the public circulation of a draft of this Article that observed that no exchange had opted into Article 8.

179. *Robinhood Crypto Customer Agreement*, ROBINHOOD § 9(c) (Sept. 13, 2022), https://cdn.robinhood.com/assets/robinhood/legal/Robinhood%20Crypto%20Customer%20Agreement.pdf [https://perma.cc/QE9W-VSXY].

180. The author's informal communications with attorneys who work in this area, however, suggest that institutional custody arrangements, which are individually negotiated, do commonly use the Article 8 framework. *See, e.g.*, Grayscale Ethereum Tr. (ETH), General Form for Registration of Securities (Form 10) Exhibit. 10.1, § 1.2 (Aug. 6, 2020) (stating that certain terms

Considering these three prongs, it would appear that under the present form of cryptocurrency user agreements, some cryptocurrencies—namely stablecoins—are, according to the black letter text of Article 8, likely covered by its provisions, while other cryptocurrencies are not. If Article 8 applies, then the custodial holdings of the cryptocurrency would be treated as property of the exchange's customers held as a tenancy in common. The cryptocurrency to which Article 8 applies should be released to the customers by the bankruptcy estate, and the estate's other creditors would not have a claim on it unless they held a lien on the custodial cryptocurrency.[181] The tenancy in common created by Article 8 would then dictate the distribution of the cryptocurrency among the exchange's customers, even if particular tokens are identifiable to particular customers' accounts at the exchange.

The possibility that Article 8 might apply to some cryptocurrencies but not others means that there could be divergent treatment of different types of cryptocurrency in bankruptcy based on technical distinctions, the significance of which investors are not likely to understand. It is not clear if such a divergence would trouble a court. Still, the possible divergence in treatment might incline consistency-minded courts toward rulings on the property status of non-Article 8 cryptocurrencies that would also take them out of the bankruptcy estate.

c. Effect of the Official Commentary to Article 8.—There is a substantial catch to this analysis, however. While the black-letter text of Article 8 is clear enough, the official commentary to Article 8, which is codified in some states' adoption of the Article, indicates that the black-letter text is to be disregarded if it does not make sense to apply the indirect holding system rules to the relationship:

> The fact that something does or could fall within the definition of financial asset does not, without more, trigger Article 8 coverage. The indirect holding system rules of Revised Article 8 apply only if the financial asset is in fact held in a securities account, so that the interest of the person who holds the financial asset through the securities account is a security entitlement. Thus, questions of the scope of the indirect holding system rules cannot be framed as "Is such-and-such a 'financial asset' under Article 8?" Rather, one must analyze whether the relationship between an institution and a person on whose behalf the institution holds an asset falls within the scope of the term securities account as defined in Section 8-501. That question turns in

of this agreement, such as "securities intermediary," "entitlement holder," and "financial assets," follow the definitions of Article 8 of the UCC). Institutional custody agreements, however, are not generally publicly available.

181. U.C.C. § 8-511(a)–(b) (AM. L. INST. & UNIF. L. COMM'N 2021).

> large measure on whether it makes sense to apply the Part 5 rules to the relationship.[182]

Thus, the real analysis is a purposivist analysis about "whether it makes sense to apply the Part 5 rules," rather than a literal analysis about whether Article 8 applies by its own textual terms. Likewise, another official comment notes that the question of whether there is a "securities account"—which is a precondition for there being a "security entitlement," which triggers the rest of Part 5—is to be determined through a purposivist analysis:

> Section 1-102 . . . states the fundamental principle of interpretation that the Code provisions should be construed and applied to promote their underlying purposes and policies. Thus, the question whether a given arrangement is a securities account should be decided not by dictionary analysis of the words of the definition taken out of context, but by considering whether it promotes the objectives of Article 8 to include the arrangement within the term securities account.[183]

What is one to make of this two-faced drafting?[184] On the one hand there is a detailed statutory scheme that by its plain black-letter text says one thing

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182. *Id.* § 8-102 cmt. 9. The 2022 amendments to comment 9, not yet enacted in any state, clarify that:

> It is not necessary for all of the Part 5 rules to be relevant to a particular financial asset for the relevant property to qualify as a "financial asset" credited to a securities account. Many of the duties set forth in Part 5 will often be relevant to a digital asset such as a "controllable electronic record" (Section 12-102), or a "controllable account" or "controllable payment intangible" (Section 9-102) evidenced by a controllable electronic record, treated as a financial asset credited to a securities account. These duties include the duty to exercise rights as directed by the entitlement holder, comply with the entitlement holder's entitlement orders, and change the position to another form of holding.

U.C.C. §§ 8-102 cmt. 9 (AM. L. INST. & UNIF. L. COMM'N, amended 2022). *See also id.* § 8-501 cmt. 4 (2022) (noting that UCC § 8-501(d) can in some circumstances apply to "controllable electronic records," that is, cryptocurrencies).

183. U.C.C. § 8-501 cmt. 1 (AM. L. INST. & UNIF. L. COMM'N 2021).

184. The implication of the official commentary is further complicated by the 2022 revisions of the Uniform Commercial Code. A new comment added in the 2022 revision explains that a securities account could extend to "controllable electronic records, controllable accounts, and controllable payment intangibles," U.C.C. § 8-501 cmt. 4 (AM. L. INST. & UNIF. L. COMM'N, amended, 2022), terms that encompass cryptocurrencies under the 2022 revisions to Article 9 and new Article 12 of the Uniform Commercial Code. *See id.* § 9-102(a)(27A)–(27B) (defining "[c]ontrollable account" and "[c]ontrollable payment intangible" as an account and payment intangible "evidenced by a controllable electronic record"); *id.* § 12-102(a)(1) (defining "[c]ontrollable electronic record" as "a record stored in an electronic medium"); *id.* § 12-104 reporter's note 4 ("An example of such a resulting controllable electronic record is the unspent transaction output (UTXO) generated by a transaction in bitcoin.").

The new comment to section 8-501 would distinguish between direct and indirect holdings of cryptocurrencies. The comment suggests that the relationship between the customer and the putative securities intermediary be considered one of direct holding (and thus not subject to the rule of Part 5) if the customer retains or shares control of the financial asset:

without any ambiguity. Normal canons of statutory interpretation would say that is the end of the matter. On the other hand, there is official commentary, which is sometimes itself formally codified law with equal status to the black-letter text. That official commentary instructs courts to defer to the policy goals of Part 5, rather than to the plain meaning of the text. Those policy goals, however, are never specified anywhere in the UCC. Instead, they need to be gleaned from its legislative history and surrounding commentary. So which controls? The black-letter text or the official commentary, which is not even always law?

It is hard to overstate how uniquely problematic Article 8's drafting is within the entirety of American law. Nevertheless, the official commentary provides a way to resolve the disparate application of Article 8 to stablecoins and other cryptocurrencies by teeing up the question about whether it makes sense to apply the Part 5 indirect holding system rules to cryptocurrencies in the first place.

d. Does Article 8 Make Sense for Cryptocurrency Custody?—At first glance, cryptocurrency custody arrangements seem like a good fit for the Article 8 indirect holding system. Article 8 facilitates all of the benefits of commingling and avoids the cumbersome process of moving assets in and out of direct holding, while maintaining protections for exchange customers.

On the other hand, Article 8 was always intended to operate as part of a universe of regulated financial institutions—securities and commodity broker-dealers.[185] While it has some protections for customers, it does not ensure that there will actually be assets to back up their security entitlement. Article 8 expressly assumes that will be handled by other regulation, and that Securities Investor Protection Corporation (SIPC) insurance will protect entitlement holders if the securities intermediary wrongfully lacks the financial assets it is supposed to maintain.[186] As an official comment to Article 8 notes: "Article 8 is premised on the view that the important policy

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> [T]he securities intermediary and the customer might share control of the financial asset under an arrangement whereby the exercise of powers, such as the power to transfer control, requires the exercise of the power by both the intermediary and the customer. Such an arrangement would be, functionally, substantially equivalent to the [direct holding] arrangement explicitly contemplated by subsection (d) [which is not subject to Part 5's rules].

Id. § 8-501 cmt. 4. The negative implication from this provision is that if the exchange has exclusive control of the private key to the cryptocurrency, then it is an indirect holding that is within the scope of the rules of Part 5. While this might well be the intent of the drafters, it is hardly explicit, and it seems to run contrary to the analysis of whether it makes sense to apply the Part 5 indirect holding rules to a system that does not need immobilization of title.

185. *See* U.C.C. § 8-511 cmt. 2 (AM. L. INST. & UNIF. L. COMM'N 2021) (noting that other regulatory regimes protect investors against the risk that a securities intermediary will not have the securities it was supposed to be holding).

186. *Id.*

of protecting investors against the risk of wrongful conduct by their intermediaries is sufficiently treated by other law."[187] That premise does not hold true for cryptocurrency, which is not covered by the securities regulation that Article 8 expects.

Article 8 permits outcomes that are harsh for entitlement holders because it assumes that the risk of these outcomes will be mitigated by federal regulation, and the outcome itself will be at least partially mitigated by SIPC insurance coverage.[188] Consider, for example, what would happen if a securities intermediary wrongfully granted a security interest in a financial asset and subsequently filed for bankruptcy. Article 8 requires a securities intermediary to obtain the consent of the holder of a security entitlement before granting a security interest in the entitlement holder's financial asset.[189] But if the entitlement holder does not consent, and a security interest is nevertheless granted, Article 8 upholds the validity of the wrongful security interest and exculpates the secured party from any liability unless it actively colluded with the securities intermediary.[190] The entitlement holder is left with nothing more than an unsecured claim against the bankrupt securities intermediary. The entitlement holder's pro rata property interest in the intermediary's aggregate holdings of the financial asset is gone because the intermediary no longer has any holdings of the financial asset.

This good-faith-purchaser "take free" rule imposes a harsh outcome on the innocent entitlement holder, but Article 8 presumes that regulatory oversight of securities intermediaries will avoid wrongful pledges, the failure to maintain the required financial assets, and the ultimate failure of securities intermediaries. Article 8 is also premised on the idea that entitlement holders will be compensated by SIPC insurance in the event of such a failure. None of that exists for crypto.[191]

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187. *Id.*

188. *Id.*

189. *Id.* § 8-504(b).

190. *See id.* § 8-504 cmt. 2 (stating that the rights of a secured party are determined by sections 8-503 and 8-511); *id.* § 8-503(e) (stating that the purchaser of a financial asset that gives value and obtains control of the financial asset has no liability to the entitlement holder if they do not collude with the securities intermediary); *id.* § 8-511(b) (stating that the claim of a secured creditor has priority in a financial asset over the claims of the entitlement holder if the secured creditor controls the financial asset).

191. The lack of a regulatory and insurance regime makes the newly proposed UCC Article 12 regime—which would apply such take free rules to crypto, which is not covered by Article 8—particularly harsh, especially since under the proposed Article 12 there is no requirement of customer consent for an exchange to grant a security interest in custodial digital assets. *Compare id.* § 9-207(c)(3) (permitting a secured party to create a security interest in collateral they possess or control), *with* U.C.C. § 12-104(e), (g) (AM. L. INST. & UNIF. L. COMM'N, amended, 2022) (providing that the qualified purchasers acquire rights to controllable electronic records without any property claims assertible against them).

In the absence of Article 8, a custodian's ability to grant a security interest would be limited to its own property. This is the basic rule of *nemo dat quod non habet*—you cannot give what you don't have. Thus, if the custodian's property interest is merely legal title, control, or possession, but not the beneficial ownership, then the security interest could only be in the legal title, control, or possessory interest—and would be of little value to the secured party. For example, if the parking valet borrows money, he cannot grant a security interest in your car. At most he can grant a security interest in his limited possessory right.

Outside of the Article 8 context, there is no take free rule that expands the scope of a security interest beyond the property interest of the custodian. Instead, such take free rules exist only for negotiable instruments and negotiable documents of title, where the law deliberately acts to protect holders in due course in order to enhance the liquidity of these instruments and documents.[192] As the parking valet example shows, a lack of take free rules makes sense absent a protective regulatory framework. Were it otherwise, not only could the parking valet give a security interest in your car that would trump your ownership interest, but *anyone* could give a security interest in any asset, irrespective of having any rights in the asset.[193] The Article 8 system makes sense only when combined with the robust system of federal securities regulation.

192. *See* U.C.C. § 3-306 (AM. L. INST. & UNIF. L. COMM'N 2021) ("A person having rights of a holder in due course takes free of the claim to the instrument."); *id.* § 7-502(a)(4) (providing a take free rule for negotiable documents). *See* Edward J. Janger, *The Costs of Liquidity Enhancement: Transparency Cost, Risk Alteration, and Coordination Problems*, 4 BROOK. J. CORP., FIN. & COM. L. 39, 39–40 (2009) (discussing negotiability as liquidity enhancer).

193. Note, however, that under UCC Article 9, a different rule applies regarding collateral in the control or possession of the secured creditor. *See* U.C.C. § 9-207(c)(3) (AM. L. INST. & UNIF. L. COMM'N 2021) (permitting a secured party to create a security interest in collateral they possess or control).

4. *Bailment vs. Loan or Sale*

a. Bailments.—Another possible characterization of custodial holdings is as a bailment. A bailment is a delivery of property from one person to another for a specific purpose under a contract providing that the property will be returned when that purpose has been accomplished or the bailor reclaims the property.[194] A bailment is not a fiduciary relationship: it is neither an agency relationship[195] nor an entrustment. A bailment is not an agency relationship because the bailee is free from control by the bailor, whereas the agent is subject to the control of the principal.[196] Moreover, an agent is precluded from conflicts of interest with the principal, whereas no such duty lies on the bailee.[197] Nor is a bailment an entrustment, even though courts will sometimes refer to the bailed property as being held "in trust."[198] Entrustment gives the trustee legal title to the asset, regardless of physical possession, whereas a bailment requires possession but does not transfer title.[199]

Bailment bifurcates ownership from possession; general ownership remains with the bailor while the bailee has lawful but limited possession.[200]

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194. United Truck Rental Equip. Leasing, Inc. v. Kleenco Corp., 929 P.2d 99, 103 (Haw. Ct. App. 1996); *see also* Sirpal v. Univ. of Mia., 684 F. Supp. 2d 1349, 1364 (S.D. Fla. 2010) (noting that a bailment "is generally a contractual relationship among parties in which the subject matter of the relationship is delivered temporarily to and accepted by one other than the owner" (quoting S & W Air Vac Sys., Inc. v. Dep't of Rev., 697 So. 2d 1313, 1315 (Fla. Dist. Ct. App. 1997))). "Found" property is also considered a bailment, even though there is no voluntary act of delivery. John C. Coffee, Jr., *Introduction: Mapping the Future of Insider Trading Law: Of Boundaries, Gaps, and Strategies*, 2013 COLUM. BUS. L. REV. 281, 301–02.

195. It should be clear that any sort of custodial holding of cryptocurrency by an exchange could not be an agency relationship as the exchange is acting on behalf of multiple, potentially adverse principals and may also trade on its own account in ways that are adverse to customers. Despite this distinction, at least one cryptocurrency exchange proclaims in its securities filings that:

> We act as an agent in the cryptocurrency transactions of our users. We have determined we are an agent because we do not control the cryptocurrency before delivery to the user, we are not primarily responsible for the delivery of cryptocurrency to our users, we are not exposed to risks arising from fluctuations of the market price of cryptocurrency before delivery to the customer and we do not set the prices charged to users.

Robinhood Mkts., Inc., Registration Statement (Form S-1) F-18 (July 1, 2021). Whatever the customer–exchange custodial relationship is, it cannot be properly characterized as a principal–agent relationship.

196. 8A AM. JUR. 2D *Bailments* § 17 (2022).

197. *Id.*

198. *Id.* § 19.

199. *Id.*

200. *See* Cornelius v. Berinstein, 50 N.Y.S.2d 186, 188 (N.Y. Sup. Ct. 1944) ("[I]t is a generally recognized feature of bailments that possession of the thing bailed is severed from ownership; the bailor retains the general ownership, while the bailee has the lawful possession or custody for the specific purpose of the bailment." (quoting 6 AM. JUR. *Bailments* § 27 (1950)). The bailee's possession is limited because it is only on behalf of the bailor.

While bailments are traditionally applied only to tangible goods, there is nothing that inherently limits the doctrine to tangible goods, and the doctrine could certainly apply to the storage of digital assets.[201]

When possession or control is not bifurcated from ownership, however, there is no bailment. For example, in the case of an individual renting a locker from another, the owner of the locker does not hold the contents of the locker as a bailment because the renter maintains a possessory interest in everything within the locker by virtue of control of the lock.[202]

Common examples of bailments are parking valets, coat checks, and safe deposit boxes. The parking valet does not acquire title to your car when you hand over the keys. Instead, the valet's interest is merely possessory, and the valet is obligated to return the car to you on demand. If the valet fails to do so, the valet will be liable to you for breach of contract for the value of the car (assuming no stipulated damages). Likewise, if the car is damaged due to the valet's negligence or purposeful behavior, then the valet is also liable for the diminution in the value of the car.

Bailment seems an apt description of the relationship described in some user agreements, which state that the customer retains ownership of the cryptocurrency and prohibit the exchange from using the bailed property for its purposes. Such a description does not seem applicable, however, when the exchange is authorized to use the cryptocurrency. Instead, when the exchange is allowed to use the cryptocurrency, the legal relationship looks more like a loan or a sale.

b. Loans.—The relationship between the customer and the exchange could be characterized as a loan of the cryptocurrency from the customer to the exchange. If so, it would mean that the customer would simply be an unsecured creditor of the exchange. When property is "loaned," it is in a sense still owned by the lender, even if the borrower has temporary use rights, but a bankruptcy filing effectively converts the property, so that the lender merely has a claim based on conversion or breach of contract. Surprisingly, no statutory provision expressly provides for this conversion, but it is implicit in the operation of the entire bankruptcy system. Were in otherwise, every party that loaned money or property to the debtor would be able to say that the money or property it loaned was actually its property and not property of the estate. That a lender to a debtor is merely a creditor and has no property interest in the property loaned (absent a security interest) is axiomatic in bankruptcy.

201. Danielle D'Onfro, *The New Bailments*, 97 WASH. L. REV. 97, 100 (2022).

202. *See Cornelius*, 50 N.Y.S.2d at 188 (describing a situation where the locker's owner would have "no semblance of custody, possession or control").

c. Sales.—A sale involves transfer of ownership from the buyer to the seller for a price.[203] Ownership is a tricky concept at law, however, as it is not a binary matter. Property ownership is thought of as a package of various rights—a bundle of sticks in the usual formulation—that can be divvied up among different parties. For example, I might "own" an estate called Blackacre, but I can rent the back forty to you, lease the westfold to your cousin, give your brother fishing rights in the stream, give your sister an easement to cross the forest and pick the mushrooms that grow there (but not those that grow in the meadow), give your aunt the right to the apples from the trees in the orchard (but not to the wood from the trees themselves), and give the bank a mortgage (that's a contingent property interest). Moreover, imagine that like Downtown Abbey or Mr. Bennet's property in *Pride and Prejudice*, that Blackacre is entailed, meaning that I have no power to transfer fee simple absolute title to anyone. I can give out a life estate, but upon my death it will go to my oldest male heir.[204]

In all of these situations, I still "own" Blackacre, but lots of other folks have property interests in it. What really matters in terms of "ownership" are rights to possess, consume, and alienate property interests,[205] including whether one's creditors can force the sale of the property in a foreclosure.

d. Bailment, Loan, or Sale?—While the question of whether a transaction is a bailment, loan, or a sale is a question of state law;[206] the United States Supreme Court has addressed the bailment vs. sale issue as a matter of general federal common law in a pair of nineteenth-century cases. While these Supreme Court cases are not binding in light of the Court's declaration in *Erie Railroad Co. v. Tompkins*[207] that there is no general federal common law,[208] they are nevertheless instructive.

In the first case, *Powder Co. v. Burkhardt*,[209] a plaintiff provided materials and money to the defendant, an inventor, to manufacture an explosive compound.[210] The Court held the contract was a sale because there

203. *See* U.C.C. § 2-106(1) (AM. L. INST. & UNIF. L COMM'N 2021).

204. This, of course, assumes that the property is not disentailed through common recovery. *See* Jeffery Evans Stake, *Evolution of Rules in a Common Law System: Differential Litigation of the Fee Tail and Other Perpetuities*, 32 FLA. STATE. U. L. REV. 401, 416 (2005) (explaining common recovery).

205. *See* U.C.C. § 2-403 (AM. L. INST. & UNIF. L. COMM'N 2021) (providing for situations in which a person can transfer better title than they themselves have).

206. Butner v. United States, 440 U.S. 48, 55 (1979). *See also In re* Joliet-Will Cnty. Cmty. Action Agency, 847 F.2d 430, 432–33 (7th Cir. 1988) (considering whether a relationship between the federal government and a grantee was best characterized as custodial or as a sale).

207. 304 U.S. 64 (1938).

208. *Id.* at 78.

209. 97 U.S. 110 (1877).

210. *Id.* at 116.

was nothing in the contract that required the identical materials to be returned to the plaintiff—the inventor was free to exchange the materials for others as he saw fit.[211] The Court explained:

> [W]here logs are delivered to be sawed into boards, or leather to be made into shoes, rags into paper, olives into oil, grapes into wine, wheat into flour, if the product of the identical articles delivered is to be returned to the original owner in a new form, it is said to be a bailment, and the title never vests in the manufacturer. If, on the other hand, the manufacturer is not bound to return the same wheat or flour or paper, but may deliver any other of equal value, it is said to be a sale or a loan, and the title to the thing delivered vests in the manufacturer.[212]

In the second case, *Sturm v. Boker*,[213] the Court addressed which party—the shipper or the shipping company—bore the risk of loss when a ship transporting a consignment of arms and munitions to Mexico sank in a storm.[214] The Court reiterated that the distinction between a bailment and a sale hinges on the obligation to return the specific property entrusted or merely another thing of value:

> The recognized distinction between bailment and sale is that when the identical article is to be returned in the same or in some altered form, the contract is one of bailment, and the title to the property is not changed. On the other hand, when there is no obligation to return the specific article, and the receiver is at liberty to return another thing of value, he becomes a debtor to make the return, and the title to the property is changed; the transaction is a sale.[215]

The bailment vs. sale difference matters in general because of the questions of which party bears the risk of loss of the goods and whether the goods are subject to the claims of the creditors of the party holding them.[216]

e. Commingled Property.—When cryptocurrency exchanges transfer custodial holdings into omnibus wallets controlled by the exchange, the custodial assets are commingled.[217] When the assets involved in a contract

211. *Id.* at 117, 120.

212. *Id.* at 116.

213. 150 U.S. 312 (1893).

214. *Id.* at 314, 322.

215. *Id.* at 329–30.

216. *See* U.C.C. § 2-326(2) (AM. L. INST. & UNIF. L COMM'N 2021) (goods in the buyer's possession held on "sale or return" are subject to claims of the buyer's creditors).

217. How this commingling actually occurs depends on the technical details of particular cryptocurrencies. While some cryptocurrencies can be commingled into a single address, bitcoin transfers are traceable and remain at separate blockchain addresses with a transferee, but if the

are commingled with other assets, then the sale vs. bailment question becomes more complicated. This complication of the legal question should itself be concerning to cryptocurrency investors because there is no guarantee about how any particular court will analyze the issue given the facts presented to it.

The problem is that commingling of fungible assets can, in some circumstances, destroy a bailment and constitute conversion by the bailee.[218] When the commingled assets are fungible, the treatment as a bailment has generally depended upon whether the transfer is made for the purpose of processing rather than mere storage or transport. If the transfer is made for processing, then unless the processed asset is to be made solely from the transferred good and not possibly from another like-kind good, there is no bailment.[219] For example, if a farmer gives wheat to a miller to mill into flour, unless the agreement is that the miller will give the farmer flour made solely from his wheat, then there is no bailment.[220] The examples that the Supreme Court gave in *Powder Co. v. Burkhardt*—processing of logs into boards or leather into shoes—fit into this situation.[221]

Yet if the contract is for storage or transport, some courts have held that commingling does not destroy the bailment, at least when the bailor specifically intended to retain ownership of a known share of the commingled goods.[222] The storage and transportation cases, however, have arisen in the context of oil and gas, where there are particular industry customs and practices and additional statutory frameworks. In contrast, when courts have dealt with money—the most fungible of goods—they have held that a commingling of customer funds defeats a bailment.[223]

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transferee undertakes any further transfers, the Bitcoin protocol's software will select at random which of the balances at the various addresses it controls will be used for the transfer, effectuating something like a commingling. Haentjens et al., *supra* note 34, at 531, 558–59.

218. 8A AM. JUR. 2D *Bailments* §§ 71–72 (2022).

219. *See, e.g.*, *In re* Miami Metals I, Inc., 603 B.R. 727, 741 (Bankr. S.D.N.Y. 2019) (commingling of non-fungible precious metals held not to be a bailment); B.A. Ballou & Co., Inc. v. Citytrust, 591 A.2d 126, 130 (Conn. 1991) (commingling of scrap metals held not to be a bailment).

220. Slaughter v. Green, 22 Va. (1 Rand.) 3, 9 (1821).

221. 97 U.S. 110, 116 (1877).

222. *See, e.g.*, Pub. Serv. Elec. & Gas Co. v. Fed. Power Comm'n., 371 F.2d 1, 4 (3d Cir. 1967) (commingling of natural gas in a pipeline is not inconsistent with a bailment); Nat'l Corp. for Hous. P'ship v. Liberty State Bank, 836 F.2d 433, 436–37 (8th Cir. 1988) (rejecting argument that unless a landlord was required to return to the tenant the identical check or money the tenant deposited, the relation cannot be a bailment); *In re* Enron Corp., No. 01-16034, 2003 Bankr. LEXIS 2262, at *11 (Bankr. S.D.N.Y. Jan. 22, 2003) (commingling of natural gas did not default a bailment).

223. *See, e.g.*, Picard v. JPMorgan Chase & Co. (*In re* Bernard L. Madoff Inv. Sec. LLC), 721 F.3d 54, 73 (2d Cir. 2013) (commingling of brokerage account funds defeats bailment); Hossain v. Rauscher Pierce Refsnes, Inc., 15 F. App'x 745, 748 (10th Cir. 2001) (delivery of an investor's funds to a clearing broker does not create a bailment since the investor has no expectation of a return of the identical property).

Indeed, in the context of deposit accounts, courts have distinguished "specific deposits" (such as items placed in safe deposit boxes) from "general deposits" based on the commingling.[224] A general deposit of money into a bank account does not entitle the depositor to the return of a specific bill, only to the return of currency of the same value. A general depositor is merely an unsecured creditor of a bank. In contrast, if the depositor put property into a safe deposit box or under a contract that required its segregation, it would have made a special deposit, which entitles the depositor to the return of the same item deposited. Thus, if you put a dollar with a particular serial number in the safe deposit box, you are entitled to the return of that very same dollar, not any old dollar.

A general deposit is a loan to the bank of the currency: you give the bank currency now in exchange for a return of currency (perhaps with interest) later. In contrast, a special deposit is a bailment: you give the bank a good for safekeeping and expect the return of that same good later.[225] When courts have analyzed the issue, they look at whether the customer had an expectation of getting back the specific good given (a bailment, even if the good has been improved), a like-kind good (a sale), or like-kind good plus a finance charge (a loan).

224. Peoples Westchester Sav. Bank v. FDIC, 961 F.2d 327, 330 (2d Cir. 1992); United States v. Khan, No. 97–6083, 1997 U.S. App. LEXIS 31870, at *6 (2d Cir. Nov. 10, 1997). *See also* Laura B. Bartell, *The Lease of Money in Bankruptcy: Time for Consistency?*, 16 BANKR. DEVS. J. 267, 306 (2000) (noting different treatment of specific accounts).

225. Adam J. Levitin, *Safe Banking: Finance and Democracy*, 83 U. CHI. L. REV. 357, 367–369 (2016). *But see* Richard A. Lord, *The Legal Relationship Between the Bank and Its Safe Deposit Customer*, 5 CAMPBELL L. REV. 263, 264–65 (1983) (noting that bank safe deposit agreements frequently defined the relationship as something other than a bailment—typically a landlord–tenant relationship—so as to reduce the standard of care for the bank).

5. *Other Factors Affecting Property of Estate Treatment*

a. Inaccurate Books and Records.—Besides the questions of whether a constructive trust exists and whether a transaction is a bailment or sale, there are additional issues that can affect whether an exchange's custodial holdings of cryptocurrency are treated as property of the bankruptcy estate. Suppose an exchange filed for bankruptcy, and one of its customers moved to lift the stay to recover her custodially held cryptocurrency. If there are any concerns about the accuracy of the estate's books and records, or if the estate lacks sufficient cryptocurrency holdings to satisfy all customer obligations, then the stay is unlikely to be lifted, even if the estate's interest is merely possessory. As it turns out, this is not an idle concern. After this Article entered the editing process, cryptocurrency exchange FTX filed for bankruptcy.[226] A new CEO was brought in on the eve of the bankruptcy filing.[227] In his first day declaration in the case, the CEO stated "The FTX Group did not keep appropriate books and records, or security controls, with respect to its digital assets."[228] Likewise, in exchange Celsius's bankruptcy the examiner discovered that Celsius engaged in manual reconciliation of certain customer deposits and did so only on weekdays, despite operating 24/7.[229]

If an exchange's books and records are not fully reliable in terms of identifying owners of assets, then the bankruptcy court will be unlikely to lift the stay because of the concern that the wrong parties might get paid in full, leaving the rightful parties with claims on the estate's diminished remaining assets. Similarly, if the debtor's books and records do not accurately reflect the estate's actual cryptocurrency holdings, the court might be chary of releasing any cryptocurrency holdings lest it turn into a first-come, first-serve situation that results in an inequitable distribution among customers who could not prove what they individually were owed.[230]

b. Shortfalls in Custodial Holdings.—Property can only be property of the estate if it exists. If any part of a customer's holdings of cryptocurrency has been lost—it has been stolen in a hack, the exchange has lost the private

226. David Yaffe-Bellany, *New Chief Calls FTX's Corporate Control a 'Complete Failure'*, N.Y. TIMES (Nov. 17, 2022), https://www.nytimes.com/2022/11/17/business/ftx-bankruptcy.html [https://perma.cc/LMV6-3F9V].

227. *Id.*

228. Declaration of John J. Ray III in Support of Chapter 11 Petitions and First Day Pleadings at 22, *In re* FTX Trading Ltd., No. 22-11068 (Bankr. D. Del. Nov. 17, 2022).

229. Interim Report of Shoba Pillay, Examiner at 6, 58, 64, *In re* Celsius Network LLC, No. 22-10964 (Bankr. S.D.N.Y. Nov. 19, 2022).

230. *See* Stoebner v. Consumers Energy Co. (*In re* LGI Energy Sols., Inc.), 460 B.R. 720, 732–733 (8th Cir. B.A.P. 2011) (citing a concern that the creditors who complain the loudest will get paid to the detriment of the others).

key,[231] or the exchange has used and lost the cryptocurrency in its own business dealings (including transactions with affiliated entities)—then the customer is merely an unsecured creditor of the exchange to the extent of the missing holdings,[232] and there would be no cause for lifting the automatic stay, at least in regard to the missing funds.

c. Exchange Use of Custodial Holdings.—If the exchange has any rights to use the cryptocurrency, such as lending it out or the associated staking rights, that would only strengthen the case for it being property of the estate. For example, Coinbase offers a staking arrangement in which it shares the profit with a 25% cut of the staking rewards as a "commission" and agrees to indemnify the customer for any slashing losses if the stake is awarded the mining rights but fails to successfully mine the block within the allotted time.[233] The shared gains and internalized losses suggest an investment partnership in which the exchange has a property interest beyond the possessory interest in the underlying cryptocurrency.

d. Ponzi Scheme Treatment.—If the exchange is found to have been a Ponzi scheme—that is, a business that is capable of paying off its obligations only by obtaining funds from new creditors, rather than from its own earnings—then the underlying contracts with its users could be treated as void as against public policy.[234] If the contracts with the users are set aside, the entire analytical basis for determining ownership of the funds is upset, but the practical effect would likely be that the funds would be treated as property of the estate.

6. Summary.—Given that the express trust vs. constructive trust vs. bailment vs. sale treatment turns on the specifics of state law and contractual provisions, it is impossible to state with certainty whether custodially held cryptocurrency would be treated as an express trust, a constructive trust, or bailment rather than as a sale. There is, however, a substantial possibility that courts would treat it by analogy to money deposits, rather than analogizing to natural gas shipment contracts, particularly if the cryptocurrency is not

231. *See* Coinbase Glob., Inc., Amendment No. 2 to Registration Statement (Form S-1) 9, 34 (Mar. 23, 2021) ("The loss or destruction of private keys required to access any crypto assets held in custody for our own account or for our customers may be irreversible. If we are unable to access our private keys or if we experience a hack or other data loss relating to our ability to access any crypto assets, it could cause regulatory scrutiny, reputational harm, and other losses.").

232. As discussed in *infra* subpart II(D), the claim should be for whatever it would have been in U.S. dollars under applicable nonbankruptcy law as of the date of the bankruptcy filing.

233. *Coinbase User Agreement*, *supra* note 76, app. 4, § 3.1.2. Separately, such arrangements raise questions about whether the staking offering is a security.

234. *See* Picard v. Citibank, N.A. (*In re* Bernard L. Madoff Inv. Sec. LLC), 12 F.4th 171, 202 (2d Cir. 2021) (Menashi, J., concurring).

itself in identifiable units.[235] For example, bitcoins do not have serial numbers but are just balances associated with particular digital keys.[236]

If any additional factors are involved—inaccurate books and records, shortfalls in custodial holdings, exchange use of custodial holdings, or a Ponzi scheme—then a court would be likely to rule that the custodially held cryptocurrency was property of the estate, so the automatic stay would prevent attempts to recover it outside of the bankruptcy process. At the very least, the estate accedes to the exchange's possessory interest in the private keys. That alone should trigger the automatic stay.

If the estate's interest is limited to the possessory interest, then customers should be able to get the stay lifted either for cause or because the estate has no equity interest in the custodial holdings and does not need them for an effective reorganization. Getting the stay lifted, however, will require them to file a lift stay motion with the court and possibly litigate the issue. The lift stay process will impose some costs on the customers and more importantly, take time during which period they would not have access to their cryptocurrencies and not be able to sell if market prices were falling.

Again, the key point about the preceding analysis is that it does not predict a definitive outcome. How any particular bankruptcy court would characterize custodial holdings of cryptocurrency in light of the particular facts before it is uncertain and sure to be contested. That alone should be cause for concern to cryptocurrency investors. Even if the investors were to ultimately prevail, it would not be until after drawn-out litigation with all of the attendant delays and costs.

C. Preference Actions

If the debtor is in Chapter 7 bankruptcy, an independent trustee appointed by the Department of Justice will manage the estate.[237] If the debtor is in Chapter 11 bankruptcy, the debtor will manage the estate itself as a "debtor in possession" (DIP).[238] Either way, the trustee or DIP is charged with maximizing the value of the estate. This means, among other things, that the trustee or DIP will exercise the estate's power to unwind certain pre-bankruptcy transactions.

In particular, certain transfers of interest of the debtor in property to or for the benefit of creditors that are made in the 90 days before the bankruptcy

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235. *See supra* subsection II (B)(4)(d).

236. Cryptoassets are potentially traceable, however. *See, e.g.*, Mary Young, *Comment: The Traceability of Crypo-Assets*, INT'L INV. (Mar. 28, 2019), https://www.internationalinvestment.net/opinion/4001556/comment-traceability-crypto-assets [https://perma.cc/3T38-RA3G] (discussing both common law and equitable tracing of cryptocurrencies).

237. 11 U.S.C. §§ 323, 701–702.

238. *Id.* § 1107.

filing may be unwound as voidable preferences.[239] If this happens, the asset transferred prior to the bankruptcy (or potentially its value) must be returned to the estate.[240] With the transfer unwound, the transferee is now just a creditor in the bankruptcy. In practical terms, if a transfer is clawed back, the transferee returns an asset at 100¢ on the dollar but will get a corresponding bankruptcy claim that will likely be paid only pennies on the dollar.

The policy behind this power is to ensure an equality of distribution among unsecured creditors, on the theory that like claims should be treated alike.[241] The ability to avoid a preferential transfer prevents the debtor from favoring certain creditors when it is on the cusp of bankruptcy and also discourages creditor runs on the debtor by making them reversible.

There are some exceptions and defenses to preference actions.[242] In particular, some transfers might qualify for the *de minimis* exception for transfers to one beneficiary aggregating less than $7,575 (as of 2022).[243] Additionally, some transfers might qualify for the "ordinary course" exception.[244] This requires not only that the transfer be made according to ordinary business terms but also that it be made in the ordinary course of both the debtor and the transferee's business.[245] While redemptions are likely to be made according to ordinary business terms and be in the ordinary course of an exchange's business, they might not be in the ordinary course of a transferee's business. Many transferees hold their crypto for long periods of time without redemptions,[246] suggesting that redemptions might not be in the ordinary course of some customers' business.[247]

239. *Id.* § 547(b).

240. *Id.* § 550(a). If the value of the asset is to be recovered, there is a subsidiary issue about the timing of that valuation.

241. DOUGLAS G. BAIRD, THE ELEMENTS OF BANKRUPTCY 78–79 (West Acad., 7th ed. 2022) (1992).

242. Prior to bringing a preference action, the estate is first required to undertake reasonable due diligence about the transfer and any known or reasonably known affirmative defenses. 11 U.S.C. § 547(b). This precludes omnibus preference actions undertaken on a "shoot first and ask questions later" basis. Nevertheless, the cost of defending against a preference action may be preclusive for many small cryptocurrency investors.

243. *Id.* § 547(c)(9); Adjustment of Certain Dollar Amounts in the Bankruptcy Code, 87 Fed. Reg. 6625, 6626 (Feb. 4, 2022).

244. 11 U.S.C. § 547(c)(2).

245. *Id.* § 547(c)(2)(A).

246. Stablecoins are more likely to be regularly redeemed because they are primarily used as a mechanism for undertaking crypto-to-crypto transactions in order to avoid the higher trading fees exchanges charge for crypto-to-fiat transactions. Julian Dossett, *What Are Stablecoins and Are They Less Risky? The Details Crypto Investors Should Know*, CNET, https://www.cnet.com/personal-finance/crypto/stablecoins-what-they-are-how-they-work-and-why-they-are-freaking-out-crypto-investors/ [https://perma.cc/XR4S-2FV8] (Sept. 27, 2022).

247. Preference actions could also be applied to on-us transactions in which one type of crypto is exchanged for another. The estate could prosecute a preference action against only the side of the

There also is the possibility that a preference action could face either the "settlement payment" or the "financial institution" beneficiary defense.[248] These defenses provide that a transfer cannot be avoided as a preference if it is a settlement payment or margin payment made to or for the benefit of a financial institution; if it is a payment made by or to a financial institution in connection with a securities contract, commodity contract, or forward contract; or if it is made to or for the benefit of a swap participant.[249]

In order to trigger these defenses, there would first have to be a determination that the cryptocurrency is a security, commodity, or currency that is the subject of a swap. While two courts have held in a nonbankruptcy context that *particular* cryptocurrencies are commodities, subject to CFTC regulation[250] or securities, subject to SEC regulation,[251] the issue is not definitively unresolved, and cryptocurrency transactions are not commonly documented in the same way as security, commodity, or swap contracts. Moreover, the determination would need to be made on a cryptocurrency-by-cryptocurrency basis because not all cryptocurrencies operate the same way.

If a court were to determine that a cryptocurrency were a security or commodity, the defenses against preference avoidance might hold if the customer was itself a financial institution,[252] but the lack of application of the extensive regulatory regimes for securities and commodities futures might give a court pause.[253] Similarly, it is questionable whether a court would treat a cryptocurrency as currency if it lacks legal tender status.

All of this is to say that if custodial cryptocurrency holdings are property of the estate, rather than mere bailments, there is a risk of pre-bankruptcy transfers being unwound as preferences. If so, there is a question about the measure of recovery: is the recovery of the cryptocurrency itself or merely of its value, and if of the value, then as of what date—the transfer date, the bankruptcy date, or the recovery date? Resolution of this issue determines who gets the benefit of any appreciation subsequent to the transfer. Once

exchange that received a currency that subsequently appreciated. By avoiding the transfer, the estate could capture the subsequent gain in market value for itself.

248. 11 U.S.C. § 546(e)–(g).

249. *Id.* § 546(e), (g).

250. CFTC v. My Big Coin Pay, Inc., 334 F. Supp. 3d 492, 495–98 (D. Mass. 2018) (discussing Bitcoin's commodity status and finding that the plaintiff adequately alleged that My Big Coin is a commodity); *see also* CFTC v. McDonnell, 287 F. Supp. 3d 213, 217 (E.D.N.Y. 2018) (holding that virtual currencies are subject to CFTC regulation).

251. SEC v. LBRY, Inc., No. 21-CV-260, 2022 WL 16744741, at *7–9 (D.N.H. Nov. 7, 2022) (concluding that the LBC blockchain token is a security).

252. *See, e.g.*, Enron Creditors Recovery Corp. v. Alfa, S.A.B. de C.V., 651 F.3d 329, 335 (2d Cir. 2011) (holding that bond redemption payments were settlement payments).

253. *See In re* Tribune Co. Fraudulent Conveyance Litig., 946 F.3d 66, 94 (2d Cir. 2019) ("[S]ecurities markets are heavily regulated by state and federal governments. The statutory supplements used in law school securities regulation courses are thick enough to rival Kevlar in stopping bullets.").

again, the classification question matters. If cryptocurrencies are classified as currencies, then liability would presumably be in the dollar value of the cryptocurrency as of the transfer date. If, on the other hand, the cryptocurrency were treated as a commodity, then the liability would be for the return of the cryptocurrency itself or its value as of the recovery date.[254]

To the extent that custodial holdings are property of the estate beyond a mere possessory interest, then preference actions would pose a threat to former customers of a cryptocurrency exchange as well as existing customers who made redemptions during the 90 days before the bankruptcy.

D. Status of Exchange Customers' Claims

Custodial holdings of cryptocurrency might be held in express or constructive trust, might be financial assets governed by UCC Article 8, or might be a bailment—statuses that would make the custodial holdings property of the exchange's customers.[255] If they are not, however, then the cryptocurrency exchange's customers would be merely general unsecured creditors of the exchange, meaning that they would have a "claim"—a right to payment—in the bankruptcy.[256]

Creditors collect on obligations in the bankruptcy process by filing a proof of claim against the debtor (or the debtor might schedule the claim itself).[257] The claim will be deemed allowed absent an objection,[258] but claim allowance does not mean that a creditor gets paid, only that it is eligible to be paid if there are sufficient assets available. The claim will be for the dollar value of the cryptocurrency as of the date of the bankruptcy filing,[259] so any future appreciation will go to the estate for distribution according to bankruptcy law's priority scheme, rather than to the exchange's customers.

The Bankruptcy Code's priority scheme depends in the first instance on whether a claim is a secured claim or an unsecured claim. If the claim is for an obligation secured by a lien or for which a right of setoff exists, then the

254. *See* Hashfast Techs. LLC v. Lowe (*In re* Hashfast Techs. LLC), No. 14-30725, slip op. at 1–2 (Bankr. N.D. Cal. Feb. 22, 2016) (addressing the impact of the currency-versus-commodity classification on which party bears the risk in the shift of the cryptocurrency's value subsequent to the transfer).

255. Exchange customers might also have cash holdings. The analysis for customer cash holdings should be similar but might be covered by different contractual provisions, in particular, it might be in express trusts by virtue of being in bank accounts "for the benefit of" the customers. *In re* Voyager Digit. Holdings, Inc., No. 22-10943, 2022 WL 3146796 at *1,*3 (Bankr. S.D.N.Y. Aug. 5, 2022) (holding that customers should be permitted to withdraw funds from accounts "actually held for them" for their benefit).

256. 11 U.S.C. § 101(5).

257. *Id.* § 501(a), (c).

258. *Id.* § 502(a).

259. *Id.* § 502(b).

claim will be a secured claim to the extent of the lien or the setoff obligation.[260] Otherwise it will be an unsecured claim.[261]

Secured claims are paid first out of their collateral or its proceeds.[262] The debtor's remaining assets are then distributed to creditors with statutory priority claims until they are paid in full.[263] This includes the administrative expenses of the bankruptcy, including the debtor's and any official creditors' committee's attorneys and financial advisors and the costs of otherwise operating the debtor in bankruptcy.[264] If funds are left over, they are then distributed on a pro rata basis to unsecured creditors.[265] The unsecured creditors are essentially at the back of the distribution line, ahead of only equity holders and any subordinated creditors. Unsecured creditors are likely to get paid little, if anything, and payment might not be for quite a while.

To the extent that there are no funds remaining, a creditor's claim will simply not be paid. If the debtor is liquidating, that is the end of the matter; while if the debtor is reorganizing in Chapter 11, the unpaid debts will be discharged, which means that a permanent federal injunction prohibits attempts to collect them.[266]

If a cryptocurrency exchange's customers are just general unsecured creditors in regards of their custodial holdings, they would rank at the bottom for repayment priority and could expect to see recoveries of far less than par in an exchange's bankruptcy. The one possible boon for them is that if the estate continues to hold onto the cryptocurrency during the bankruptcy and it appreciates, they will potentially be able to share in the appreciation, but that will be only after all priority creditors are paid in full.[267] In short, if cryptocurrency exchange customers are just unsecured creditors, then bankruptcy is likely to be an unhappy outcome for them.

III. The Additional Risks of Staged Wallets

The regular risks of bankruptcy are compounded for cryptocurrency investors who use staged wallets. A staged wallet, such as the intermediated express trust discussed above in section II(B)(1), involves two financial institutions: the investor purchases cryptocurrency via one financial

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260. *Id.* § 506(a)(1).

261. *Id.*

262. *See id.* §§ 726(a), 1129(a)(7) (noting the principle that secured claims must be paid in full before any unsecured claims are paid).

263. *Id.* §§ 726(a), 1129(a)(9).

264. *Id.* §§ 503(b), 507(a)(2). There is also priority repayment for up to $3,350 per creditor of funds deposited for goods or services. *Id.* §§ 104, 507(a)(7). It is unclear if custodial holdings would qualify for this treatment.

265. *Id.* §§ 726(a)(4), 1129(a)(7).

266. 11 U.S.C. § 1141(d).

267. *See id.* §§ 507, 726, 1129(a)(7) (stating priority rules for repayment).

institution, which tracks the investor's holdings on its own books and records, but that financial institution actually holds the cryptocurrency in its own wallet, which is held at a second financial institution.[268] Many exchanges use a staged wallet structure, but there is variation in whether the actual custodian is a corporate affiliate of the exchange or merely a contractual counterparty.

In a staged wallet, the investor has a relationship with the first financial institution, which holds the wallet keys, but none with the second financial institution that provides the actual wallet. The investor's lack of privity with the actual wallet provider matters here because in the event of a problem with the actual wallet provider, the investor's recourse is solely against the first financial institution.

Venmo provides an example of this staged wallet structure. When an investor purchases cryptocurrency through Venmo, the investor has a cryptocurrency balance at Venmo, but that is merely a notation on Venmo's books and records.[269] Venmo does not itself provide the cryptocurrency wallet, meaning the digital address for sending and receiving the cryptocurrency that will be recorded on the cryptocurrency's blockchain. Instead, Venmo holds all of its customers' cryptocurrency investments in commingled wallets hosted by Paxos Trust Company, LLC (Paxos Trust), a New York limited purpose trust company.[270] As Venmo discloses:

> Any balance in your Cryptocurrencies Hub represents your ownership of the amount of each type of Crypto Asset shown. We combine your Crypto Asset balance with the Crypto Asset balances of other Venmo accountholders and hold those Crypto Assets in an omnibus account through our custodial Service Provider. We keep a record of your interest in that omnibus account based on the amount of each type of Crypto Asset that is reflected in your balance. You do not own any specific, identifiable, Crypto Asset. These Crypto Assets are held apart from our corporate assets and we will neither use these assets for our operating expenses or any other corporate or business purposes, nor will it voluntarily make these Crypto Assets available to its creditors in the event of bankruptcy.[271]

Venmo's customers are thus exposed to *two* levels of credit risk, one indirect and one direct. First is the indirect credit risk, namely that Paxos Trust fails, potentially imperiling Venmo. If Paxos Trust were to fail,

268. *See* Adam J. Levitin, *Pandora's Digital Box: The Promise and Perils of Digital Wallets*, 166 U. PA. L. REV. 305, 317–18 (2018) (explaining staged wallets).

269. *See Venmo Cryptocurrency Terms and Conditions*, VENMO, https://venmo.com/legal/us-user-agreement/ [https://perma.cc/3R6K-7UK6] (Feb. 28, 2022) (describing how Venmo manages customers' crypto assets).

270. *Id.*

271. *Id.*

Venmo's customers would not have any claim against Paxos Trust, as they have no contractual relationship with it. It is not *their* funds deposited with Paxos Trust but Venmo's. Instead, Venmo's customers would have only an unsecured claim against Venmo.

If Paxos Trust were to fail, Venmo would face all of the problems that cryptocurrency investors generally face in the event of an exchange's bankruptcy, as described in the previous Part. The loss or illiquidity could in turn render Venmo insolvent and unable to pay its customers, who have only general unsecured claims against Venmo rather than any sort of property-based claim.

Even if Venmo remained solvent, that might be cold comfort to its customers. While it's possible that Venmo would attempt to purchase cryptocurrency on the open market to cover its customers' holdings, there would still inevitably be delay in access to funds for customers, leaving them illiquid and exposed to market swings. And that assumes that Venmo would attempt to fix the problem itself as opposed to requiring customers to sue it for damages. Damages would be paid in dollars, not cryptocurrency, and would raise the question of the valuation date of the damages claim—not an insignificant issue given the price volatility of cryptocurrencies. And even if customers were paid in full, there would be no guarantee as to when they would be compensated.

The second level of credit risk is the direct credit risk of Venmo unrelated to Paxos Trust. Even if Paxos Trust were solvent, Venmo could itself fail, which would leave Venmo's customers with mere unsecured claims against Venmo. While Venmo says that it will not use the custodial cryptocurrency for its own operating purposes and will not "voluntarily" make the custodial cryptocurrency available to other creditors in the event of its bankruptcy,[272] this is not a specifically enforceable promise. It is just a covenant, the breach of which does not result in any claim for damages over and above the lost cryptocurrency itself. Moreover, the "voluntarily" language is somewhat misleading because in bankruptcy, a trustee might be appointed, obviating any choice for Venmo, and even if a trustee were not appointed, Venmo would be acting as a debtor in possession—a distinct legal identity with fiduciary duties that would override this prebankruptcy covenant.[273] Because staged wallets increase the credit risk assumed by the exchange, staged wallets present even greater credit risk to cryptocurrency investors than regular hosted wallets.

272. *See id.* ("These Crypto Assets are held apart from our corporate assets and we will neither use these assets for our operating expenses or any other corporate or business purposes, nor will it voluntarily make these Crypto Assets available to its creditors in the event of bankruptcy.").

273. The only time Venmo would have agency in bankruptcy as Venmo, rather than as a debtor in possession, would be in terms of proposing a Chapter 11 plan. 11 U.S.C. § 1121 (stating that initial exclusive right to propose a plan is held by the debtor not the debtor in possession).

IV. Inadequacy of Most Existing Regulatory Regimes

Cryptocurrency exchanges are subject to a range of private and public law regulatory systems. This Part reviews these systems in turn, starting with market self-regulation and insurance before turning to public law systems.

A. Market Self-Regulation

The cryptocurrency market is unable to engage in self-regulation to protect the custodial holdings of exchange customers. There are three reasons for this. In the first instance, the market is constrained by the public law system of bankruptcy. Bankruptcy honors *property* rights but not *contract* rights. Contract rights merely result in a general claim on the bankruptcy estate rather than a claim on specific property. The ability of parties to cast their relationships as ones of property, rather than contract, is constrained by what bankruptcy law will recognize as a property right, as the discussion of constructive trusts, bailments, and sales in Part II indicates.

But even if customers had the ability to cast their relationship with exchanges as one of property rights, rather than contract rights, it seems unlikely that they would take care to do so. Cryptocurrency investors are unlikely to understand their legal treatment in the event of an exchange bankruptcy. The technical workings of bankruptcy law are not well understood by most laypersons or even attorneys (it is not a bar exam topic, for example). Retail investors are also unlikely to give bankruptcy risk much thought as it is hard to quantify in terms of likelihood and magnitude; if investors thought there were material risk of an exchange failing, they would likely avoid that exchange altogether. Instead, because investors cannot quantify the risk, they treat it as nonexistent.

On top of this, as noted above, cryptocurrency exchanges are incentivized to lull customers with misleading language about "ownership" and "title," lest the customers start pricing for the credit risk of the exchange. Indeed, Gemini's extra charges for segregated holdings (which do not alone solve all of the issues) indicate that the costs of the credit risk are real.[274]

B. Insurance

Some cryptocurrency exchanges have third-party insurance for their custodial holdings,[275] including under required surety bonds.[276] It is unclear,

274. *See supra* notes 91–93 and surrounding text.

275. *See, e.g.*, *User Agreement*, *supra* note 90 ("We maintain commercial crime and specie insurance for Digital Assets we custody in trust on your behalf . . . . Our policy insures against the theft of Digital Assets from our Hot Wallet that results from a direct security breach or hack of Gemini's systems, a fraudulent transfer initiated by Gemini, or theft by a Gemini employee.").

276. *See, e.g.*, N.Y. COMP. CODES R. & REGS. tit. 23, § 200.9(a) (2022) (stating that each licensee must maintain a surety bond or trust account for the benefit of its customers).

however, how much coverage exists under these policies and what the precise exclusions are from coverage. Whatever the extent of coverage, the loss payee is the exchange, not the customer.

While third-party insurance might well be adequate to cover losses on a onesies-twosies basis, it seems unlikely that it would be sufficient to cover a major hacking that drains billions of dollars of custodial holdings from an exchange. More to the point, there is no way for a customer to tell. Third-party cryptocurrency exchange insurance policies are private contracts; the terms of the coverage are not publicly known and advertised, unlike Federal Deposit Insurance Corporation (FDIC) deposit insurance or Securities Investor Protection Corporation brokerage account insurance. The possibility of third-party insurance provides little assurance for cryptocurrency customers regarding the credit risk posed by exchanges.

C. Smart Contracts

In theory, cryptocurrency exchange customers could be protected via blockchain-based smart contracts that would automatically transfer their prorated share of the exchanges' cryptocurrency holdings to them upon the occurrence of a trigger event. For example, the failure of an exchange's auditor to make a periodic certification of the exchange's holdings could be the trigger. This system would effectuate a private liquidation of the exchange's custodial holdings according to its own priority system outside of the bankruptcy system.

This type of regime suffers from four problems. First, it is not in the interest of the cryptocurrency exchange because whatever the specified trigger event is would be tantamount to the liquidation of the cryptocurrency exchange. An exchange is unlikely to agree to such an automatic corporate death penalty.

Second, it would be difficult to set properly calibrated triggers that do not rely on the actions of third parties of some sort. Complete automation of such a system might not be possible, meaning that there would be some agency risk, such that investors would risk that the smart contract might not be triggered when it should be.

Third, smart contracts could actually be self-defeating for investors because of the fire sale effect. A smart contract could trigger a massive sell-off of cryptocurrencies by the exchange that would force down crypto prices, resulting in a smaller recovery for the exchange and thus for its customers.

And fourth, this kind of system would not actually be bankruptcy remote. Nothing would prevent the exchange from subsequently filing for bankruptcy (or being put into involuntary bankruptcy). All of the smart contract transfers would be vulnerable to being unwound as voidable preferences, and the ordinary course defense would not be available for such

an extraordinary transfer.[277] Given that the exchange would have records of who its customers were, it would be no problem to identify the transferees.

D. *Federal Regulation*

The Paperwork Crisis of the 1960s led to numerous trades failing because securities were not timely delivered to buyers.[278] The liability from these failed executions resulted in the failure of some broker-dealers.[279] When these broker-dealers failed, their books and records did not accurately reflect their customers' holdings because of problems in processing transactions and remitting payments.[280]

A system of title immobilization through Article 8 of the Uniform Commercial Code was the state law response to the Paperwork Crisis.[281] The federal response came in the form of the Securities Investor Protection Act of 1970 (SIPA).[282] SIPA created a system for liquidating broker-dealers as well as an insurance program to protect investors against loss of securities and cash held in accounts at broker-dealers.[283] The SIPA liquidation process still has some of the uncertainty, delay, and cost of the bankruptcy process. Accordingly, the SEC has adopted both a Net Capital Rule and a Customer Protection Rule under SIPA.

The Net Capital Rule,[284] which requires broker-dealers to have sufficient liquid resources on hand to satisfy customer claims, aims to prevent broker-dealer failures in the first place.[285] If they do fail, however, the Customer Protection Rule is designed to enable a liquidation without a legal proceeding so as to provide the customer uninterrupted access to the assets in his investment account.[286]

The Customer Protection Rule requires "registered broker-dealers to maintain adequate liquid assets, to keep current and accurate books and

277. *See supra* subpart II(C).

278. *See supra* subsection II(B)(3)(a).

279. JOEL SELIGMAN, THE TRANSFORMATION OF WALL STREET: A HISTORY OF THE SECURITIES AND EXCHANGE COMMISSION AND MODERN CORPORATE FINANCE 451-57 (3d ed. 2003).

280. *Id.*

281. Peter F. Coogan, *Security Interests in Investment Securities Under Revised Article 8 of the Uniform Commercial Code*, 92 HARV. L. REV. 1013, 1017 (1979).

282. *Securities Investor Protection Act (SIPA)*, U.S. COURTS, https://www.uscourts.gov/services-forms/bankruptcy/bankruptcy-basics/securities-investor-protection-act-sipa [https://perma.cc/L3ZS-L4UC].

283. Securities Investor Protection Act of 1970, Pub. L. No. 91-598, § 6, 84 Stat. 1636, 1646–52.

284. 17 C.F.R. § 240.15c3-1 (2021).

285. *Id.*

286. Jamroz, *supra* note 149, at 1069–70.

records, and to safeguard the investment assets under their control."[287] Safeguarding of investment assets requires brokers—which play the role of wallet providers in the securities and commodities systems—to segregate customers' holdings of securities or commodities from their own funds (although the holdings of different customers can be commingled).[288] This is done both to ensure that a broker does not use customer funds for its own proprietary trading and to protect customers in the event of a broker's insolvency. As a backstop, missing assets from segregated securities brokerage funds (but not commodities futures funds) are insured by the Securities Investor Protection Corporation.[289]

A parallel system (but without insurance) exists for forward commission merchants dealing in commodities futures.[290] In contrast, banks are not required to segregate general deposits, but they are subject to a stricter supervisory regime for safety and soundness, and their deposit liabilities are covered by FDIC insurance, which guaranties that all but the largest deposit accounts will be made whole upon a loss.[291]

Cryptocurrency exchanges, however, are generally not regulated for safety and soundness or investor protection by federal regulators. Neither federal banking regulators, the SEC, nor the CFTC has to date claimed general jurisdiction over cryptocurrency exchanges for exchange activity, as opposed to other types of activity, in part because of questions about precisely what any particular cryptocurrency or cryptocurrency-related product is in terms of legal categories.

The SEC has brought a few enforcement actions against crypto platforms for operating as unregistered securities exchanges.[292] It has not, to

287. *Id.*

288. *See* 17 C.F.R. § 240.15c3-3 (2021) (stating segregation requirements for brokers and dealers).

289. *See* 15 U.S.C. § 78fff-3 (specifying how much money SIPC can advance for each customer).

290. *See* 17 C.F.R. § 1.20 (2021) (detailing holding requirements for futures commission merchants).

291. *See* 12 U.S.C. § 1821 (stating FDIC insurance requirements).

292. Poloniex, LLC, Order Instituting Cease-and-Desist Proceedings, Exchange Act Release No. 92607 ¶ 23 (Aug. 9, 2021); Complaint at 1, SEC v. Bitqyck, Inc., No. 3:19-cv-02059 (N.D. Tex. Aug. 29, 2019); Coburn, Order Instituting Cease-and-Desist Proceedings, Exchange Act Release No. 84553 ¶ 27 (Nov. 8, 2018); Complaint at 1, SEC v. Montroll, No. 1:18-cv-01582 (S.D.N.Y. Feb. 21, 2018). The SEC reportedly threatened suit against Coinbase for an unregistered offering of a cryptocurrency lending product, rather than for being an unregistered exchange. Matthew Goldstein & Ephrat Livni, *Coinbase Says the S.E.C. Has Threatened to Sue It Over a Plan to Pay Interest.*, N.Y. TIMES, http://www.nytimes.com/2021/09/08/business/coinbase-sec.html [https://perma.cc/M35A-Z677] (Sept. 17, 2021).

date, taken the stance that all cryptocurrency exchanges are subject to the requirements of the Securities Exchange Act of 1934.[293]

Likewise, the CFTC has brought enforcement actions against some cryptocurrency exchanges based on their conducting transactions for customers in cryptocurrency options and futures without being registered as futures commission merchants.[294] The CFTC's jurisdiction over spot markets—markets for prompt delivery—is limited, however. While the CFTC did note in an order that the exchange "never transferred possession and control of the entire quantity of the assets purchased using margin,"[295] it did not charge the exchange with a violation of its rule requiring segregation of customer assets[296] but rather with failing to be registered as a futures commission merchant.[297]

While both the SEC and CFTC have claimed jurisdiction over some cryptocurrency exchange activity through enforcement actions, neither has acted more broadly to regulate cryptocurrency exchanges for safety and soundness or to ensure the type of investor protections that are required of securities and commodities exchanges. Instead, the major form of regulation of cryptocurrency exchanges is at the state level—state money transmitter statutes and the special cryptocurrency-specific licensing regimes for New York's Bitlicense and Wyoming's Special Purpose Depository Institution (SPDI) charters. Each in turn is reviewed below.

293. *See* Gary Gensler, Chair, U.S. Sec. & Exch. Comm'n, Prepared Remarks of Gary Gensler on Crypto Markets, Penn Law Capital Markets Association Annual Conference (Apr. 4, 2022), https://www.sec.gov/news/speech/gensler-remarks-crypto-markets-040422 [https://perma.cc/C78Y-GWLC] (noting that SEC staff had been asked to work on getting cryptocurrency exchanges registered as securities exchanges because "crypto platforms play roles similar to those of traditional regulated exchanges. Thus, investors should be protected in the same way"). The SEC also has authority over investment advisors, that is persons who "for compensation, engage[] in the business of advising others, either directly or through publications or writings, as to the value of securities or as to the advisability of investing in, purchasing, or selling securities, or who, for compensation and as part of a regular business, issues or promulgates analyses or reports concerning securities." 15 U.S.C. § 80b-2(a)(11). While investment adviser status again requires the involvement of "securities," the triggering security need not be cryptocurrency. Instead, any compensated advising about a security will trigger investment adviser status for the entity, which in turn triggers a requirement to "take such steps to safeguard client assets over which such adviser has custody." *Id.* § 80b-18b. The SEC's Custody Rule for investment advisers, 17 C.F.R. § 275.206(4)-2 (2021), applies to the custody of not just to securities, but to all customer "funds," a term that can encompass cryptocurrency holdings. The Custody Rule requires that funds be kept at an audited "qualified custodian," which will maintain separate accounts for each client or in the name of the adviser as trustee or agent for the client. *Id.* § 275.206(4)-2(a)(1).

294. *In re* Payward Ventures, Inc., CFTC No. 21-20 (Sept. 28, 2021); CFTC, CFTC Charges 14 Entities for Failing to Register as FCMs or Falsely Claiming to be Registered, Release No. 8434-21 (Sept. 29, 2021).

295. *Payward Ventures*, *supra* note 294, at 3.

296. 17 C.F.R. § 1.20 (2021).

297. *Payward Ventures*, *supra* note 294, at 5.

E. State Money Transmitter Laws

Every state has a money transmitter statute that requires money transmitters to be licensed, and it is a federal felony to engage in money transmission without a state license.[298]

The basic features of money transmitter laws is that they require a licensee to show a certain level of financial capacity and character,[299] the posting of a surety bond of a relatively modest amount,[300] and the maintenance of safe, "permissible investments" or "eligible securities" equal to the aggregate amount of its outstanding money transmission obligations.[301] These requirements are enforced through a supervisory regime, although the frequency of examination is limited, meaning that it is entirely possible for a money transmitter to be out of compliance with its permissible investment requirement most days of any given year.

Only a handful of state money transmitter laws expressly apply to cryptocurrencies.[302] and it is unclear if those that do not expressly apply cover cryptocurrencies. In particular, it is unclear if the permissible investments requirement applies to custodial holdings of cryptocurrency, which are not clearly "payment instruments," "stored value," or "money" under the definitions used in these statutes.[303] While the major U.S.-based cryptocurrency exchanges have money transmitter licenses from all or nearly all states, it is unclear how the exchanges interpret the application of those laws to their custodial holdings. They might hold the licenses out of an abundance of caution or because some of their activities besides custodial holdings require a license.

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298. 18 U.S.C. § 1960.

299. *See, e.g.*, MICH. COMP. LAWS ANN. §§ 487.1012–13 (West 2022) (requiring applicants for a license to provide financial details).

300. *See, e.g.*, *id.* § 487.1013(5) (requiring applicants for a license to include with their application a surety bond between $500,000 and $1,500,000).

301. *See, e.g.*, *id.* § 487.1031(1) (requiring licensees to maintain permissible investments not less than the aggregate amount of their outstanding obligations); CAL. FIN. CODE § 2081 (West 2022) (requiring licensees to own eligible securities of no less aggregate value than their aggregate outstanding obligations).

302. *See generally Cryptocurrency Laws and Regulations by State*, *supra* note 30 (compiling state rules and regulations regarding cryptocurrency).

303. *See, e.g.*, CAL. FIN. CODE § 2003(p), (s), (x) (West 2022) (defining "money" as "a medium of exchange that is authorized or adopted by the United States or a foreign government. The term includes a monetary unit of account established by an intergovernmental organization or by agreement between two or more governments"; "payment instrument" as "a check, draft, money order, traveler's check, or other instrument for the transmission or payment of money or monetary value, whether or not negotiable"; and "stored value" as "monetary value representing a claim against the issuer that is stored on an electronic or digital medium and evidenced by an electronic or digital record, and that is intended and accepted for use as a means of redemption for money or monetary value or payment for goods or services").

As a result, it is not clear that cryptocurrency exchanges are generally holding permissible investments equal to their custodial holding obligations. Indeed, given the enormous volatility of cryptocurrencies, it would seem difficult for an exchange to actually stay in compliance with a permissible investment obligation. Whereas a regular money transmitter like Western Union could use cash given to it for transmission to purchase safe assets like permissible investments, that is not possible for a cryptocurrency exchange except at great investment risk.

For example, if a cryptocurrency exchange were to take custody of ten bitcoin (posit a market value $1 million) and then use that to purchase $1 million of U.S. Treasury securities, the exchange would face the risk that when the bitcoins were subsequently redeemed it would need to convert the Treasury securities into bitcoin in order to transfer them to whatever wallet its customers had directed. If the price of bitcoin had gone up—for example, suppose that ten bitcoin would now cost $3 million to purchase—the exchange might not be able to cover its redemption obligations. In other words, the permissible investment requirement could actually undermine a money transmitter's safety and soundness. While a few states have addressed this issue by allowing the permissible investment requirement for cryptocurrency to be satisfied by the holding of an equal amount of the like-kind cryptocurrency,[304] for other states, this question remains.

Money transmitters are eligible to file for bankruptcy although states may also have special parallel insolvency regimes that a money transmitter may use. The permissible investments are meant to serve as a pool from which customers can be compensated in the event of a money transmitter insolvency. As discussed above in subsection II(B)(1)(b), some states' statutes even specify the permissible investments are held in trust for the benefit of customers "in the event of bankruptcy" of the money transmitter.[305] It is unclear if this sort of *ipso facto* provision would not be honored in bankruptcy, however,[306] and even if honored, its scope is unclear.[307]

What this all means is that money transmitter statutes provide relatively little protection to cryptocurrency exchange customers. There is no guarantee that an exchange will actually have maintained the permissible investments

304. *See, e.g.*, WASH. REV. CODE ANN. § 19.230.200(1)(b) (West 2022) (requiring holding of "like-kind virtual currencies of the same volume").

305. *E.g.*, CAL. FIN. CODE § 2081(c) (West 2022) (specifying that eligible securities are deemed to be held in trust for the benefit of purchasers and holders of outstanding payment instruments and obligations); MICH. COMP. LAWS ANN. § 487.1031(3) (West 2022) (specifying that permissible investments are held in trust for the benefit of the purchasers and holders of outstanding payment instruments).

306. 11 U.S.C. § 545(a) (avoiding *ipso facto* liens). Arguably a springing trust is the same as a springing lien in that it creates property rights contingent upon the filing of a bankruptcy or other event of insolvency.

307. *See supra* notes 132–135 and accompanying text.

required (or that the requirement will even apply to custodially held cryptocurrency), and even if it does, the customers are still going to be just general unsecured creditors in the event of the exchange's bankruptcy.

F. New York Limited Purpose Trust Companies & Bitlicense

New York is one of three states with a special cryptocurrency institution regulatory regime.[308] New York offers two special organizational forms for companies in cryptocurrency businesses. One is a limited purpose trust company charter. The other is a Bitlicense.

The limited purpose trust company charter is not a cryptocurrency-specific organizational form. Instead, it is a general form of organization for companies that engage primarily in custodial operations of all sorts.[309] New York began to issue charters for "limited purpose trust companies" in 1971 in response to the Paperwork Crisis.[310] While there is no specific statutory authorization in New York for limited purpose trust companies, as opposed to trust companies in general, the term "limited purpose" indicates that the trust company lacks the power to take deposits or make loans.[311] Instead, the trust company holds property in trust as a fiduciary for its customers.[312] Thus, a cryptocurrency exchange (or its custodian) can be structured as a limited purpose trust company.

The advantages to using a limited purpose trust company form are that the assets would be held in an express trust, substantially reducing the credit risk in the event of the trust company's failure. Moreover, the trust company is unlikely to fail as it cannot make loans, so its own operational risk is slight. Additionally, although a trust company's custodial holdings are not FDIC insured, the trust company is subject to prudential regulation by the New

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308. N.Y. COMP. CODES R. & REGS. tit. 23, § 200.1 (2021). The other states are Nebraska, NEB. REV. STAT. ANN. §§ 8-3001–8-3031 (West 2022), which has not chartered any cryptocurrency institutions to date, and Wyoming, discussed *infra* Part IV(G).

309. ANDREW P. SCOTT, CONG. RSCH. SERV., R47014, AN ANALYSIS OF BANK CHARTERS AND SELECTED POLICY ISSUES 17–18 (2022).

310. *Organization of a Trust Company for the Limited Purpose of Exercising of Fiduciary Powers*, N.Y. STATE DEP'T. OF FIN. SERVS., https://www.dfs.ny.gov/apps_and_licensing/banks_and_trusts/procedure_certificate_merit_trust_comp [https://perma.cc/3SBP-THRN].

311. *Id.* The term "deposit" is not defined in New York law, but in this context it would seem to have to apply to deposits of money as opposed to deposits of securities, jewelry, etc. *See* First Nat'l Bank of Lyons v. Ocean Nat'l Bank, 60 N.Y. 278, 287–288 (1875) (noting that a principal attribute of a bank is the right to "receive deposits of money" and differentiating it from the business of a safe deposit company). *Cf.* 12 U.S.C. § 1813(l) (defining "deposit" for federal law as including "money or its equivalent", "funds", or "money received"). It is not clear, therefore, whether the prohibition on taking "deposits" extends solely to taking fiat currency deposits and thus does not require that cryptocurrency actually be held in trust.

312. *See* N.Y. BANKING LAW § 100 (McKinney 2021) (detailing the fiduciary powers and responsibilities for a trust company).

York Department of Financial Services.[313] As of October 2022, there were nine limited purpose trust companies licensed by New York for virtual currency business.[314]

In addition to the limited purpose trust company charter that can be used by custodians, New York offers a Bitlicense for companies that store, receive for transmission, broker, exchange, or control or administer virtual currencies involving New York or a New York resident.[315] Thus, a broader range of cryptocurrency entities can have a Bitlicense than can have a limited purpose trust company charter. It is possible for an exchange to have a Bitlicense and then affiliate with a trust company that acts as its custodian. Alternatively, the Bitlicensee exchange can provide the custody services itself.

The granting of a Bitlicense is discretionary to the New York Superintendent of Financial Services, as are many of the conditions of the license.[316] Only twenty-three Bitlicenses were outstanding as of October 2022.[317]

The Bitlicense regime imposes individualized capital requirements upon the licensee that are left to the discretion of the New York Superintendent of Financial Services.[318] Nothing requires the particular capital requirements to be publicly disclosed, so the capitalization of a Bitlicensee may vary and will not necessarily be known to customers.

The Bitlicense also requires the licensee to maintain a surety bond or trust account for the benefit of its consumers in an amount again left to the New York Superintendent of Financial Service's discretion;[319] requires the licensee to actually hold virtual currency of the same type and amount as any

313. *Organization of a Trust Company for the Limited Purpose of Exercising of Fiduciary Powers*, *supra* note 310. It is unclear how a failed trust company would be resolved. One possibility would be a state bank insolvency proceeding. Another would be a federal bankruptcy proceeding, but it is unclear if a trust company is eligible to be a debtor in bankruptcy. The Bankruptcy Code precludes "banks" from being debtors. 11 U.S.C. § 109(b)(2). Only a handful of cases have addressed the question of whether a trust company qualifies as a "bank" for purposes of eligibility for bankruptcy, but those cases have generally held that a trust company that does not engage in the core business of banking—accepting deposits—is not a bank. *E.g.*, McKinney v. Jones (*In re* Republic Fin. Corp.), 77 B.R. 282, 284–85 (N.D. Okla. 1987). Irrespective, for assets held in trust, the difference between the insolvency regimes is not likely to be material.

314. *Virtual Currency Businesses: Regulated Entities*, N.Y. STATE DEPT OF FIN. SERVS., https://www.dfs.ny.gov/virtual_currency_businesses [https://perma.cc/V8K4-7MBQ] (Feb. 5, 2023).

315. N.Y. COMP. CODES R. & REGS. tit. 23, §§ 200.2(q), 200.3 (2022).

316. *Id.* § 2004(c).

317. *Virtual Currency Businesses: Number of Entities Approved to Use Coins*, N.Y. STATE DEPT OF FIN. SERVS., https://www.dfs.ny.gov/virtual_currency_businesses [https://perma.cc/3CRR-2K7C] (Feb. 14, 2023).

318. N.Y. COMP. CODES R. & REGS. tit. 23, § 200.8 (2022).

319. *Id.* § 200.9(a).

virtual currency assets it has agreed to hold custodially;[320] and prohibits the licensee from using custodial assets other than at the customer's direction.[321]

While the Bitlicense also subjects licensees to supervisory authority and to various security requirements,[322] nothing guarantees that a licensee will in fact remain solvent and will actually abide by the terms of its license. Moreover, a Bitlicense is not a banking license, and there is no special insolvency regime for Bitlicense holders, which are eligible to file for Chapter 11 bankruptcy.

The Bitlicense is meant to ensure that licensees remain solvent and do not enter Chapter 11. If the regulatory regime fails—for example, there is a hacking that results in the theft of substantial amounts of cryptocurrency, rendering the licensee insolvent—then nothing in the Bitlicense regime affects an exchange's customers' treatment in bankruptcy. The exchange customers that are Bitlicense holders will be general unsecured creditors in the exchanges' bankruptcy.

In January 2023, in response to cryptocurrency exchange bankruptcies, the New York Department of Financial Services issued "Guidance on Custodial Structures for Customer Protection in the Event of Insolvency" for virtual currency entities—Bitlicensees and limited purpose trust companies alike.[323] The guidance explains that virtual currency entities are expected to segregate customer funds and account for them separately, both on-chain and on internal books and records, although this can be satisfied with omnibus accounts that contain only customer funds.[324] The guidance also sets forth an expectation that virtual currency entities will not use customer funds in any way and will clearly disclose the nature of the custodial relationship, making clear that it is not a debtor-creditor relationship.[325]

Most importantly, the guidance provides that virtual currency entities are expected to "structure their custodial arrangements in a manner that preserves the customer's equitable and beneficial interest in the customer's virtual currency." While the guidance leaves open the choice of *how* to do so, it makes clear that the New York Department of Financial Services expects its regulated virtual currency entities to enter into debtor-creditor arrangements with customers only when that is clearly indicated and otherwise to make sure that customers' rights to cryptocurrency are preserved

320. *Id.* § 200.9(b).

321. *Id.* § 200.9(c).

322. *Id.* §§ 200.13, 200.16.

323. *Virtual Currency Guidance*, NEW YORK DEPT. OF FIN. SERVS. (Jan. 23, 2023), https://www.dfs.ny.gov/industry_guidance/industry_letters/il20230123_guidance_custodial_structures [https://perma.cc/5R5A-NC95].

324. *Id.*

325. *Id.*

in bankruptcy. That likely presses for contractual adoption of UCC Article 8 treatment or for express trust relationships.

G. *Wyoming Special Purpose Depository Institutions*

The only existing regulatory regime that seems to successfully address most of the custodial holding risk is Wyoming's regime. In 2019, Wyoming created a new type of banking charter for "Special Purpose Depository Institutions" (SPDIs) in order to attract crypto business to the state.[326] Wyoming SPDIs hold a type of limited banking charter that allows them to act primarily as custodians in cryptocurrencies.[327] Wyoming law requires deposit balances to be at least $5,000.[328] This precludes many smaller retail customers from using Wyoming SPDIs.

Wyoming SPDIs are generally prohibited from making loans using customer deposits of fiat currency.[329] They are prohibited from rehypothecating consumer assets or otherwise using them without customer instructions.[330] They must also constantly maintain unencumbered, high-quality liquid assets worth 100% or more of their "depository liabilities."[331] That term is undefined in Wyoming law, but it does not appear to cover custodial holdings of cryptocurrency, just cash accounts for customers to move funds in and out of the SPDI; were it otherwise, SPDI's liability coverage requirements would fluctuate with cryptocurrency market prices rather than being tied to the fixed dollar-amount obligation of a deposit. Wyoming SPDIs are subject to supervision by the Wyoming Division of Banking.[332]

It is unclear whether a Wyoming SPDI is eligible to file for bankruptcy.[333] If an SPDI were to liquidate under Wyoming law, customers'

326. *Special Purpose Depository Institutions*, WYOMING DIV. OF BANKING, https://wyomingbankingdivision.wyo.gov/banks-and-trust-companies/special-purpose-depository-institutions [https://perma.cc/W3CH-LLUL].

327. *Id.*

328. WYO. STAT. ANN. § 13-12-104(a) (West 2022).

329. *Id.* § 13-12-103(c).

330. *Id.* § 34-29-104(k).

331. *Id.* § 13-12-105. The eligible assets are basically limited to cash and government and agency securities, *id.* §§ 13-3-202, 13-12-105, meaning that cryptocurrency held in Wyoming SPDIs is basically a monetization of U.S. government debt, an irony given that part of the attraction of cryptocurrencies is that it is supposed to be delinked from government debts. Wyoming SPDIs must also maintain a contingency account equal to 2% of their assets. *Id.* §§ 13-12-105, -106.

332. *Id.* § 13-12-119(c).

333. A "bank" may not file for bankruptcy, 11 U.S.C. § 109(b)(2), but the term "bank" is undefined in the Bankruptcy Code. There is scant case law on the subject under the current Bankruptcy Code. Law courts have applied no less than three distinct tests, none of which involve a bright-line factor. *See In re* Colo. Indus. Bank of Fort Collins, 84 B.R. 735, 739 n.3 (Bankr. D. Colo. 1988) (describing tests); *In re* Bankwest Boulder Indus. Bank, 82 B.R. 559, 564 (Bankr. D.

custodial holdings would likely be treated as the property of those customers. But even if a Wyoming SPDI were to end up a debtor in bankruptcy, Wyoming law includes a critical additional piece that makes it more likely that custodially held cryptocurrency would be treated as a bailment in bankruptcy. Wyoming law departs from UCC Article 8 and specifies a different property law treatment of digital assets held in custody.

Rather than Article 8's beneficial tenancy in common approach, Wyoming law provides that custodially held digital assets are neither liabilities nor assets of a bank.[334] Instead customers must elect one of two forms of custody: a bailment, which shall be "strictly segregated from other assets,"[335] or a bailment under which the bank may undertake transactions with the digital asset (and possibly commingling the assets) but with a specified time for return and for which all risk of loss remains on the customer.[336] While it seems clear that bankruptcy law would respect the former type of a bailment arrangement by virtue of it being deemed a bailment under state law, it is less clear how a bankruptcy court would treat the second arrangement, particularly with commingling.

While Wyoming's laws seem to offer the greatest assurance to cryptocurrency exchange customers, Wyoming has only issued a handful of SPDI charters, and most cryptocurrency exchanges are not Wyoming SPDIs.[337] This suggests that customers are not placing substantial value on bankruptcy risk or that there are other offsetting disadvantages of a Wyoming SPDI charter that have led most major institutions to prefer the New York Bitlicense and limited purpose trust company charter.

Colo. 1988) (same). Reflecting the legislative history of the Bankruptcy Code, which provides that banks are excluded from bankruptcy "because they are bodies for which alternate provision is made for their liquidation under various State or Federal regulatory laws," S. REP. NO. 95-989, at 38 (1978), the most important factor in the analysis is typically the availability of an alternative liquidation procedure, but even that is not determinative. *See In re* Republic Trust & Sav. Co., 59 B.R. 606, 614 (Bankr. N.D. Okla. 1986) (urging courts to consider whether there are alternatives to bankruptcy proceedings, like state and federal nonbankruptcy methods). Other commonly considered factors include what the institution is called and whether it accepts deposits. DuVoisin v. Anderson (*In re* S. Indus. Banking Corp.), 59 B.R. 978, 982–83 (Bankr. E.D. Tenn. 1986). SPDIs are allowed to call themselves "banks," WYO. STAT. ANN. § 13-1-204(b) (West 2022), and can take deposits, *id.* § 13-12-013(b)(iv) but are subject to a state liquidation procedure. *Id.* §§ 13-12-122, -123. This leaves uncertain whether they would be eligible to be debtors under federal bankruptcy law.

334. WYO. STAT. ANN. § 34-29-104(d) (West 2022).

335. *Id.*

336. *Id.* § 34-29-104(d)(ii)–(e), (g)(iv).

337. Nate DiCamillo, *Commercium Financial Becomes Fourth Wyoming-Chartered Crypto Bank*, NASDAQ (Aug. 11, 2021, 10:08 AM), https://www.nasdaq.com/articles/commercium-financial-becomes-fourth-wyoming-chartered-crypto-bank-2021-08-11 [https://perma.cc/S3CM-NBLP].

H. Consumer Financial Protection Bureau Regulation

A potential, but to date unrealized, source of regulation is the federal Consumer Financial Protection Bureau (CFPB). The CFPB has regulatory jurisdiction over "consumer . . . financial product[s] or service[s]."[338] Such products or services must be provided or offered "for use by consumers primarily for personal, family, or household purposes,"[339] and include:

> (iv) engaging in deposit-taking activities, transmitting or exchanging funds, or otherwise acting as a custodian of funds or any financial instrument for use by or on behalf of a consumer;
>
> (v) selling, providing or issuing . . . payment instruments . . . ;
>
> . . . .
>
> (vii) providing payments or other financial data processing products or services to a consumer by any technological means, including processing or storing financial or banking data for any payment instrument, or through any payments systems or network used for processing payments data . . . .[340]

Whether cryptocurrency products are offered "primarily for personal, family, or household purposes," is debatable, but if an exchange is dealing with retail customers, they are presumably investing for personal or family use rather than for business use. To the extent cryptocurrency products are used "primarily for personal, family, or household purposes," cryptocurrency custody could readily fall under three different identified categories of consumer financial products and services regulated by the CFPB. First, cryptocurrency exchanges act "as a custodian of funds . . . for use by . . . a consumer."[341] Second, because exchanges provide wallets that are used for the payment of cryptocurrencies, they provide "payment instruments," which are defined as meaning "a check, draft, warrant, money order, traveler's check, electronic instrument, or other instrument, *payment of funds, or monetary value (other than currency)*."[342] And third, by providing wallets, exchanges provide payment processing products or services, both for transactions and for "storing financial . . . data" for payment instruments.[343]

There are limits on CFPB jurisdiction, however. The CFPB has no enforcement power over entities that are registered (or required to be

338. 12 U.S.C. § 5536(a)(1) (prohibiting offering or provision of a "consumer . . . financial product or service not in conformity with Federal consumer financial law").

339. *Id.* § 5481(5).

340. *Id.* § 5481(15)(A)(iv)–(v), (vii) (emphasis added).

341. *Id.* § 5481(15)(A)(iv).

342. *Id.* § 5481(18) (emphasis added).

343. *Id.* § 5481(15)(A)(vii). Beyond this jurisdictional hook, the CFPB also administers certain provisions in the Federal Deposit Insurance Act, *id.* § 1831t(b)–(f), dealing with disclosure requirements, uninsured depositories, and institutions that could reasonably be mistaken for a depository by consumers. *Id.* § 5481(12)(I), (14).

registered) with the SEC or CFTC.[344] This means that while the CFPB can promulgate rules that cover these entities, it cannot bring enforcement actions against them. Instead, enforcement is limited to the respective federal regulator or state attorneys general.[345] This jurisdictional limit tees up the question of whether any particular exchange is supposed to be registered with the SEC or CFTC, but that is only a question about enforcement authority, not rulemaking authority, and the key issue is about rulemaking because once a rulemaking is in place, there is likely to be compliance.

The CFPB has not exercised jurisdiction over cryptocurrency to date. Yet it would be squarely within the CFPB's regulatory ambit to require the providers of cryptocurrency wallets to:

(1) hold custodial funds in a segregated, U.S.-based, bankruptcy-remote arrangement (unless the consumer affirmatively opts-out), analogous to the SEC's Customer Protection Rule[346] or through a qualified custodian, analogous to the SEC's Custody Rule for investment advisers;[347]
(2) hold individual customers' custodial funds in separate accounts from each other (that is, not in omnibus accounts);
(3) not rehypothecate or otherwise use customer funds without express customer opt-in;
(4) not grant or suffer to exist liens on custodial funds;
(5) disclose in a standardized fashion that the custodial funds are uninsured and the risks associated with custodial holdings;[348] and
(6) have policies and procedures to ensure operational continuity that will protect customers against liquidity disruptions in the

344. *Id.* §§ 5481(20)–(21), 5517(i)–(j).

345. *Id.* §§ 5517(i)–(j), 5552(a)(1).

346. *See* 17 C.F.R. § 240.15c3-3 (2021) (requiring the seller to "keep the [buyer's] securities segregated at all times, unless in this agreement the [buyer] grants the [seller] the right to substitute other securities" (alterations in original)). It would similarly be in the CFPB's regulatory ambit to extend a similar requirement to stablecoin issuers, mandating that the assets they hold to back their stablecoins be held in a bankruptcy-remote arrangement for the benefit of the stablecoin holders. The CFPB could also mandate disclosure of stablecoin reserves. *See* 12 U.S.C. § 5532(a) (allowing the CFPB to "prescribe rules to ensure that the features of any consumer financial product . . . are . . . disclosed to consumers").

347. 17 C.F.R. § 275.206(4)-2 (2021).

348. 12 U.S.C. § 1831t(c)–(f) (authorizing the CFPB to regulate the manner and content of disclosures for uninsured depositories or institutions that could be mistaken for depositories); *id.* § 5481(12)(I) (giving the CFPB authority over disclosures under 12 U.S.C. § 1831t); *id.* § 5532(a) (authorizing the CFPB to require disclosures for covered persons).

> event of a bankruptcy, effectively a sort of partial resolution plan or "living will."[349]

Specifically, the CFPB has the power to prohibit unfair, deceptive, and abusive acts and practices in connection with the offering or provision of a consumer financial product or service.[350] An act or practice is unfair if it "causes or is likely to cause substantial injury to consumers which is not reasonably avoidable by consumers" and "such substantial injury is not outweighed by countervailing benefits to consumers or to competition."[351] An act or practice is abusive if, inter alia, it "takes unreasonable advantage of[] a lack of understanding on the part of the consumer of the material risks, costs, or conditions of the product or service."[352]

A cryptocurrency exchange's failure to hold customer funds in a bankruptcy-remote arrangement would seem to be unfair. It would be unfair because it is likely to cause substantial injury to consumers in the event of an exchange's bankruptcy. The consumer cannot reasonably avoid the injury because that would require engaging in a technical legal analysis of the details of exchange-custody arrangements along the lines of this Article. The same is true regarding the use of omnibus accounts, which expose consumers to material risks of hacks that result in the failure of the exchange, inaccurate off-chain books and records, and possible confusion about ownership in bankruptcy. There are no obvious benefits to consumers from nonbankruptcy-remote arrangements or use of omnibus accounts. At best, such practices result in greater net revenue for exchanges that can be passed through to consumers in the form of lower prices, but unless the pass-through is 100%, then rewards from greater risk cannot outweigh the increased risk.

Likewise, a cryptocurrency exchange's failure to hold customer funds in a bankruptcy-remote arrangement would seem to be abusive. Consumers are unlikely to understand the highly technical nature of bankruptcy-remote arrangements, which is a material risk of the product or service. Because the exchange benefits from avoiding bankruptcy-remote arrangements (for why else would the exchange not use a bankruptcy-remote arrangement?), it is taking unreasonable advantage of consumers' lack of understanding.

Similarly, the use of omnibus accounts would seem to be abusive because it exposes customers to a greater risk of hacking, deprives them of the value of independently verifiable on-chain transactions, forces reliance on the accuracy of exchange books and records, and could add to confusion over ownership in the event of bankruptcy. These are all material risks of the

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349. *See id.* § 5365(b)(1)(A)(iv) (granting the "Board of Governors" the power to set standards which include risk, liquidity, and "resolution plan" requirements); 12 C.F.R. pt. 243 (2021) (discussing the rules for resolution plans).

350. 12 U.S.C. § 5531(c)–(d).

351. *Id.* § 5531(c)(1).

352. *Id.* § 5531(d)(2)(A).

product or service that consumers are unlikely to understand, and the use of omnibus accounts takes unfair advantage of such lack of understanding.

Mandating the use of bankruptcy-remote structures will not guarantee against liquidity disruption in the event of an exchange bankruptcy, but such disruptions can be minimized with advanced planning. A resolution plan that might have in place plans for the selling or transfer of specific assets could help minimize liquidity disruption.

The CFPB has yet to act in the cryptocurrency space, but it appears to have the authority to do so.[353] CFPB action presents the most direct route to having a level playing field that ensures a consistent level of protection for all cryptocurrency customers.

I. Summary

The customer-protection regulation of cryptocurrency exchange custodial holdings is entirely on the state level and varies considerably depending on the applicable state regime: money transmitter acts, New York's limited purpose trust company charter, New York's Bitlicense, or Wyoming's SPDI charter. How any of these regimes interact with bankruptcy in the cryptocurrency context is untested, but only Wyoming's system seems likely to ensure that custodial holdings would be treated as bailments that are not property of the bankruptcy estate. The express trust that exists with custodial holdings of New York's limited purpose trust charters ensures that the custodial holdings would not be property of the trust company, but because the trust beneficiary is most likely the exchange, the custodial assets would likely be deemed property of the exchange rather than of its customers. For exchanges governed by the Bitlicense or money transmitter acts, the custodial holdings are more likely to be deemed property of the estate and the exchange's customers as mere unsecured creditors. New York's January 2023 guidance on custodial arrangements should result in exchanges adopting clearer policies that will preserve customers' rights in bankruptcy, but the guidance is not formally binding and does not specify how exchanges are to comply, only the expected result.

The contrast between this uncertain and likely unfavorable treatment for cryptocurrency investors and the greater protections that exist for bank depositors and securities and commodities brokerage customers is striking. While cryptocurrencies benefit in certain ways from avoiding federal regulation, the lack of regulation also imposes substantial credit risk on the

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353. California's Consumer Financial Protection Law, which is in large part a word-for-word version of the federal Consumer Financial Protection Act, would also seem to give the California Department of Financial Protection and Innovation similar authority to the CFPB, at least over cryptocurrency exchanges doing business in California. CAL. FIN. CODE § 90000 (West 2022). Many exchanges, however, will not do business with California persons.

users of cryptocurrency exchanges when dealing with exchanges, which are the central nodes of the cryptocurrency ecosystem. This credit risk is exacerbated by the lack of regulatory oversight of the exchanges' operations, which can itself be a source of risk.

The easiest resolution under existing legal authorities would be a CFPB rulemaking that would require all cryptocurrency exchanges to hold custodial funds in bankruptcy-remote arrangements, unless a consumer expressly consents to an alternative custody arrangement. Such a requirement could be bolstered by a resolution-plan requirement to minimize liquidity disruptions in the event of an exchange bankruptcy. To date, however, the CFPB has not engaged in regulation of the cryptocurrency market.

Conclusion

While cryptocurrencies are designed to address the credit risk that exists from transacting, namely the double-spend problem, they are still vulnerable to the credit risk that arises from passive holding in custodial arrangements. Cryptocurrency investors do not generally seem aware of the credit risk involved with custodial holdings and do not appear to price for this risk, meaning that exchanges are benefitting from imposing a substantial unpriced risk on their customers. What's more, because the exchanges' credit risk is completely externalized on its customers, there is a serious moral hazard problem: the exchanges have every incentive to engage in riskier behavior because they gain all of the upside from their risky ventures while the downside is externalized on their customers.

Bankruptcy (and bank insolvency) law has special regimes to protect the customers of insolvent securities and commodities brokerages and banks. But because cryptocurrency institutions—even if particular cryptocurrencies are a security, commodity, or currency—have not been subjected to those special regulatory regimes, cryptocurrency is subject to the default treatment in bankruptcy. Bankruptcy law honors property rights, not contract rights. If a customer does not hold the private key to cryptocurrency, its beneficial interest in a custodially held cryptocurrency could well be characterized as a mere contract right rather than a property right. That means that the customer of a failed exchange could end up in the unhappy position of being a general unsecured creditor of the exchange, looking at eventually recovering only pennies on the dollar, rather than being deemed the owner of the cryptocurrency. Unfortunately, it might well take several high-profile cryptocurrency exchange bankruptcies for cryptocurrency investors to understand this Article's basic lesson: "not your keys, not your coins."