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Regulating Crypto, On and Off the Chain

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REGULATING CRYPTO, ON AND OFF THE CHAIN

ERIC D. CHASON*

ABSTRACT

Cryptocurrency had its most turbulent year in 2022. The collapse of TerraUSD ushered in a broad market decline, and the FTX debacle brought new publicity and scrutiny to crypto's woes. Both events will likely spark new regulation and legislation.

Policymakers and regulators should regulate market structures like exchanges. While many cryptocurrencies are extremely transparent and require little if any additional disclosures, others are plagued by serious informational asymmetries. An exchange might allow participants to trade Bitcoin, and regulators need to protect investors who rely on such exchanges. Investors may face informational asymmetries regarding the operation and safety of the exchange. Nevertheless, the exchange is unrelated to traded assets like Bitcoin and Ether. Thus, we could consider securities and exchange regulation to be ancillary to crypto itself.

Regulators should focus on such ancillary regulation of market structures and resist calls to impose minimum-product standards on crypto. The FTX debacle involved the soundness of the exchange and not the soundness of mainstream cryptocurrencies like Bitcoin. Even before the collapse of TerraUSD, prominent voices called for stablecoins to be brought within the tightly regulated world of banks and other insured depository institutions. Even if such moves could have protected investors in TerraUSD, protection is not necessarily sound policy. At the present time, stablecoins do not function as methods of payments. Moreover, extending banking regulation to stablecoins almost certainly would mean governmental support if not outright deposit

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insurance. Such a move would also make many stablecoins impractical if not illegal. For now, regulators should let developers and investors continue to take risks in the design of stablecoins and other crypto rather than imposing direct regulation.

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INTRODUCTION

When delivering my remarks at the *Law Review's* Symposium on Cryptocurrencies in February 2022, I argued for a regulatory structure that acknowledges, and even uses, the peculiarities of the blockchain. Specifically, I argued that regulators should consider the extent to which various cryptocurrencies are inherently transparent. Bitcoin, for example, is so decentralized that it is likely not a “security” for purposes of U.S. securities laws. We would struggle to find a central party with otherwise hidden information that should be disclosed to investors. Moreover, policymakers likely could not effectuate changes to the Bitcoin blockchain directly. For example, policymakers might have concerns over the environmental impact of Bitcoin mining operations.¹ Yet, because Bitcoin is so decentralized, policymakers could not readily mandate changes to Bitcoin’s mining protocols in the hopes of lessening the environmental impact.

Thus, policymakers should focus their attention on activities that exist outside of the Bitcoin protocol. Policymakers might be powerless to change the mining protocol, but they could regulate mining operators within their jurisdictions. Similarly, policymakers have regularly focused their attention on market actors in order to curtail fraud and manipulation. In short, policymakers cannot regulate Bitcoin itself, but they can regulate actors who deal with Bitcoin.

In my remarks at the Symposium, I urged policymakers and scholars to consider this distinction as they examine emerging problems in the world of cryptocurrencies. For example, policymakers will inevitably impose some regulatory structure on stablecoins (cryptocurrencies pegged to the U.S. dollar or other sovereign currency).² The regulatory approach should, however,

1. See, e.g., Amanda Gulli, Note, *[Un]Sustainability of Bitcoin Mining*, 46 RUTGERS COMPUT. & TECH. L.J. 95, 115-23 (2020) (discussing the environmental impact of Bitcoin mining and limitations on regulation).

2. Cf. PRESIDENT’S WORKING GRP. ON FIN. MKTS., FDIC & OFF. OF THE COMPTROLLER OF THE CURRENCY, REPORT ON STABLECOINS 15 (2021) [hereinafter PWG REPORT], https://home.treasury.gov/system/files/136/StableCoinReport_Nov1_508.pdf [<https://perma.cc/3Q26-FTEW>] (“[A] consistent and comprehensive regulatory framework is needed both to increase transparency into key aspects of stablecoin arrangements and to ensure that stablecoins function

depend on how individual projects are organized. The DAI stablecoin relies on smart contracts and the blockchain to maintain a peg between its value and the U.S. dollar.³ In contrast, the Tether stablecoin (USDT) relies on financial reserves of bank accounts and other high-quality assets.⁴ Under my suggestion, USDT should be the subject of greater regulatory scrutiny rather than DAI because Tether's structure is inherently more centralized and less transparent than DAI's.

This Article continues to advocate these points but acknowledges the challenges of later events. In early May 2022, the TerraUSD stablecoin lost its U.S.-dollar peg, sending shockwaves through cryptocurrency markets.⁵ From May 1 to May 15, TerraUSD itself was down 82 percent from its previously pegged market price of \$1.00. TerraUSD's peg mechanism relies on a related cryptocurrency, Luna, which became functionally worthless.⁶ Bitcoin, by far the largest cryptocurrency in terms of market capitalization, did not escape the shockwaves, falling 20 percent over these two weeks.⁷

Many observers drew comparisons between Terra's collapse and prior financial crises and scandals. If the Terra collapse was a "Lehman moment" for cryptocurrencies (or at least stablecoins),⁸ then the Dodd-Frank style policy response should soon appear on the horizon. Indeed, some could interpret Terra's fall as vindicating earlier calls for stricter regulation of stablecoins.

in both normal times and in stressed market conditions.").

3. See Part III.A.1.

4. See Part III.B.1.

5. See David Yaffe-Bellany & Erin Griffith, *How a Trash-Talking Crypto Founder Caused a \$40 Billion Crash*, N.Y. TIMES (May 20, 2022), <https://www.nytimes.com/2022/05/18/technology/terra-luna-cryptocurrency-do-kwon.html> [<https://perma.cc/4X5E-FMLG>].

6. *Id.*

7. *Id.*

8. See Alex Hern, *Could Terra Fall Prove to Be Lehman Brothers Moment for Cryptocurrencies?*, THE GUARDIAN (May 11, 2022, 11:35 AM), <https://www.theguardian.com/technology/2022/may/11/terra-price-cryptocurrency-stablecoin> [<https://perma.cc/S48A-SXAU>].

Before succumbing again to the crisis/legislation cycle,⁹ policy-makers should note that Terra's collapse has shown no signs of destabilizing larger financial markets or the economy. Rather than Lehman, the better analogy might turn out to be the dotcom crash of 2000. Unless there is something special about cryptocurrencies and stablecoins, the events of May 2022 could simply be another popped bubble, sorting out winners and losers. Regulators, too, will be moved to take more assertive action in the absence of reform legislation.

This Article attempts to sketch a regulatory approach for crypto that can endure the current turbulence. Most fundamentally, regulators should take a neutral posture toward crypto, letting markets and legislatures decide whether crypto is a good or bad thing. Within this posture of neutrality, regulators should incorporate crypto design into their regulatory systems whenever possible. Many regulatory systems are, however, ancillary to the innovations of cryptocurrencies. Taxing authorities, for example, must find ways to incorporate crypto into systems of taxation,¹⁰ but they generally will not need to think deeply about fundamental issues of crypto design. Similar considerations apply to regulatory systems dealing with fraud and market manipulation.

Mandatory information disclosures (such as those required by securities law) are most affected by crypto design. Many cryptocurrencies are extremely transparent and require little if any additional disclosures. Others, however, are plagued by serious informational asymmetries. Regulators will need to consider these fundamental issues as they decide whether to include individual cryptocurrencies within the definition of a "security."

Finally, regulators should resist calls to impose minimum-product standards on crypto. Even before the collapse of TerraUSD,

9. Cf. Roberta Romano, *The Sarbanes-Oxley Act and the Making of Quack Corporate Governance*, 114 YALE L.J. 1521, 1524 (2005) ("[T]he political science literature identifies shifts in national mood and turnover of elected officials, coupled with focusing events, as key determinants that open 'policy windows' for policy entrepreneurs to link their proposed solutions to a problem." (citing JOHN W. KINGDON, *AGENDAS, ALTERNATIVES, AND PUBLIC POLICIES* 20-21, 170-72, 206-08 (1984))).

10. See generally Eric D. Chason, *Crypto Assets and the Problem of Tax Classifications*, 100 WASH. U. L. REV. (forthcoming 2023) (describing problems of classifying cryptoassets for tax purposes).

prominent voices called for stablecoins to be brought within the tightly regulated world of banks and other insured depository institutions.¹¹ Even if such moves could have protected investors in TerraUSD, protection is not necessarily sound policy. Currently, stablecoins do not function as methods of payments.¹² Moreover, extending banking regulation to stablecoins almost certainly would mean governmental support if not outright deposit insurance. Such a move would also make many stablecoins impractical if not illegal. For now, regulators should let developers and investors continue to take risks in the design of stablecoins rather than imposing rigid regulation.

I. REGULATORY MODELS FOR CRYPTO

A. Introduction

1. The Modern Regulatory State

For many of its proponents, cryptocurrency opened a new horizon of deregulation and laissez-faire economics.¹³ In one extreme view, decoupling money from the state would weaken and undermine the state, leading to a golden era of crypto-anarchy.¹⁴ Even within the modern state, cryptocurrency could open illegal activities like drug trafficking and tax evasion.¹⁵ In a more moderate view,

11. See PWG REPORT, *supra* note 2, at 2 (“To address risks to stablecoin users and guard against stablecoin runs, legislation should require stablecoin issuers to be insured depository institutions, which are subject to appropriate supervision and regulation, at the depository institution and the holding company level.”).

12. *Cf. id.* at 2 n.2 (“Stablecoins are being used for trading, lending, borrowing, and, *in the future*, may also be widely used by households and businesses as a means of payment.” (emphasis added)).

13. *Cf.* Jeanne L. Schroeder, *Bitcoin and the Uniform Commercial Code*, 24 U. MIA. BUS. L. REV. 1, 5 (2016) (referring to a “vocal minority of radical libertarians and anarchists” engaged with Bitcoin).

14. For a detailed account of how libertarians and anarchists drove the rise of Bitcoin, see generally FINN BRUNTON, *DIGITAL CASH: THE UNKNOWN HISTORY OF THE ANARCHISTS, UTOPIANS, AND TECHNOLOGISTS WHO CREATED CRYPTOCURRENCY* (2019).

15. See Nikolei M. Kaplanov, Note, *Nerdy Money: Bitcoin, the Private Digital Currency, and the Case Against Its Regulation*, 25 LOY. CONSUMER L. REV. 111, 131 n.126 (2012) (citing Anthony Freeman, *Bitcoin: The Ultimate Offshore Bank Account*, ECON. & LIBERTY (Aug. 23, 2011), <http://economicsandliberty.wordpress.com/2011/08/23/bitcoin-the-ultimate-offshore-bank-account/>).

cryptocurrencies would simply lead to more private and secure money.¹⁶ Admittedly, I am painting simple figures with very wide strokes. Not all cryptocurrency proponents are libertarians or anarchists; those who are have diverse motives. My goal, simply put, is to identify a perspective that is hostile or skeptical toward most forms of cryptocurrency regulation.

For such skeptics, the questions raised by this Article are largely beside the point. For example, a recurring question is whether cryptocurrency should be regulated as a security. Libertarians may well answer “No.” In reaching this answer, they may not care about the nuances of securities law, the *Howey* test,¹⁷ and the unique aspects of a particular cryptocurrency. Instead, a libertarian may well claim that securities laws are a form of misguided paternalism that should be minimized or abolished.¹⁸

This Article will not engage with this point of view for several reasons. Most importantly, doing so would require us to engage in a much larger discussion about the modern state. Indeed, this discussion would not ultimately even be about cryptocurrency. To be clear, I do not mean to dismiss a libertarian (or even anarchistic) critique of the regulatory state. The goal, at least of this Article, is to determine how cryptocurrency should be treated by the modern regulatory state.

2. *Neutrality*

Arguments against crypto regulation may also be transient. Some readers will recall the internet tax policies of the late 1990s and early 2000s. At the time, policymakers viewed the internet as a fragile bud that needed a few years to mature before it could

16. See Saule T. Omarova, *New Tech v. New Deal: Fintech as a Systemic Phenomenon*, 36 YALE J. ON REGUL. 735, 773 (2019) (“[M]any tech-savvy millennials prefer Bitcoin simply because it combines cost-saving efficiencies with greater privacy and security.” (citing JOSE PAGLIERY, BITCOIN AND THE FUTURE OF MONEY 115-20 (2014))).

17. See SEC v. W.J. Howey Co., 328 U.S. 293, 301 (1946) (“The test is whether the scheme involves an investment of money in a common enterprise with profits to come solely from the efforts of others.”).

18. See Susanna Kim Ripken, *Paternalism and Securities Regulation*, 21 STAN. J.L. BUS. & FIN. 1, 56 (2015) (“While federal securities law purports to take a distinctly non-paternalistic approach to securities transactions through the disclosure regime, the reality is that many securities rules reflect paternalistic policies.”).

reasonably be subjected to the full force of the modern regulatory state. This transient approach proved to be persuasive, resulting in dispensations like the Internet Tax Freedom Act.¹⁹

Critics of regulation could make similar arguments about crypto today. Like the internet of the late 1990s, crypto has the potential to fundamentally alter the economy in the coming decades.²⁰ Temporary forbearance from tax and regulation may not, however, be the appropriate response. Such forbearance is, in effect, a subsidy for new market entrants. Arguably, new entrants should be required to compete with established players on similar regulatory footing.

This Article will assume that the regulatory policy surrounding crypto should be neutral. Crypto should not receive any special breaks absent express legislative directive. Conversely, it should not face any special barriers either. At least for purposes of this Article, the goal should be to impose regulation on a basis comparable to existing products and investments.

This orientation towards neutrality does answer some questions. For example, libertarians might object to the taxation of crypto simply because they object to taxation (at least in its current forms). Others might argue that crypto should be taxed only after some period of incubation that allows for the development of the technology and market structures. As this Article does not consider these arguments, it will presume that crypto transactions should be subject to income taxation, as investors clearly earn income when they buy and sell crypto.

Neutrality does not, though, answer every question. In the tax context, various classifications may (or may not) plausibly apply to crypto. Is it “property”? A “foreign currency”?²¹ It does, though, remove distracting questions like whether crypto generally is a good

19. Internet Tax Freedom Act, Pub. L. No. 105-277, § 1101(a), 112 Stat. 2681-719 (1998) (codified as amended at 47 U.S.C. § 151 note); *see also* Genna Autumn Conti, Note, *Tapping the Netflix Binge: Cities Binging on Taxing Streaming Services Violate Federal Law*, 69 RUTGERS U. L. REV. 1653, 1661-63 (2017) (discussing the history of the Act).

20. *See* ARVIND NARAYANAN, JOSEPH BONNEAU, EDWARD FELTEN, ANDREW MILLER & STEVEN GOLDFEDER, *BITCOIN AND CRYPTOCURRENCY TECHNOLOGIES: A COMPREHENSIVE INTRODUCTION*, at vii (2016).

21. *See* Chason, *supra* note 10, *passim*.

or bad thing or whether to hold off on taxing crypto income until the future.

B. Ancillary Regulation

1. Anti-Money Laundering

In 2013, the Financial Crimes Enforcement Network (FinCEN) issued a memorandum entitled *Application of FinCEN's Regulations to Persons Administering, Exchanging, or Using Virtual Currencies*.²² Referred to in this Article as the “2013 FinCEN Guidance,” the memorandum was perhaps the first significant crypto guidance by a U.S. regulator. It was not a regulation and arguably has little or no formal legal weight. Nevertheless, courts have later cited and followed it.²³

Although an in-depth discussion of the 2013 FinCEN Guidance is beyond the scope of this Article, we should note its basic approach. The 2013 FinCEN Guidance was not concerned with protecting customers or investors from risky investments in crypto. Instead, it was focused on how crypto transactions should be treated under U.S. anti-money laundering standards.²⁴ Under the 2013 FinCEN Guidance, Bitcoin and other “convertible virtual currenc[ies]” are, in effect, currency for purposes of U.S. anti-money laundering rules.²⁵ As a result, certain market participants could find

22. FIN. CRIMES ENF'T NETWORK, U.S. DEP'T OF THE TREASURY, FIN-2013-G001, APPLICATION OF FINCEN'S REGULATIONS TO PERSONS ADMINISTERING, EXCHANGING, OR USING VIRTUAL CURRENCIES (2013) [hereinafter 2013 FINCEN GUIDANCE], <https://www.fincen.gov/sites/default/files/shared/FIN-2013-G001.pdf> [<https://perma.cc/2R7G-K2SJ>].

23. See, e.g., *United States v. Harmon*, 474 F. Supp. 3d 76, 105 (D.D.C. 2020) (citing the 2013 FinCEN guidance); *In re Search of Multiple Email Accts. Pursuant to 18 U.S.C. § 2703 for Investigation of Violation of 18 U.S.C. § 1956*, 585 F. Supp. 3d 1, 11 (D.D.C. 2022) (stating that “*Harmon* codified FinCEN's guidance”).

24. See generally 2013 FINCEN GUIDANCE, *supra* note 22.

25. More technically, cryptocurrencies will be “value that substitutes for currency.” See FIN. CRIMES ENF'T NETWORK, U.S. DEP'T OF THE TREASURY, FIN-2019-G001, APPLICATION OF FINCEN'S REGULATIONS TO CERTAIN BUSINESS MODELS INVOLVING CONVERTIBLE VIRTUAL CURRENCIES 7 (2019) [hereinafter 2019 FINCEN GUIDANCE], <https://www.fincen.gov/sites/default/files/2019-05/FinCEN%20Guidance%20CVC%20FINAL%20508.pdf> [<https://perma.cc/8N9C-GKNE>].

themselves subject to regulation as “money transmitters” under the 2013 FinCEN Guidance.²⁶

A business that exchanges Bitcoin for U.S. dollars, for example, would be a money transmitter under the 2013 FinCEN Guidance.²⁷ Such a business would need to register with FinCEN and, if applicable, state authorities. The business would also need to collect certain information from its customers and file reports with FinCEN and the state authorities.

Although this regulatory overlay may have legitimized early crypto exchanges,²⁸ the regulatory purpose was not to protect or reassure customers. The wisdom or safety of an investment in Bitcoin was not the point. Instead, FinCEN’s guidance was issued to carry out its mission of combatting money laundering and the financing of terrorism. Accordingly, this Article categorizes the 2013 FinCEN Guidance as *ancillary regulation*, issued in order to further a preexisting regulatory regime from a threat posed by the rise of crypto.

2. Tax Compliance

Shortly after the issuance of the 2013 FinCEN Guidance, the Internal Revenue Service (IRS) issued Notice 2014-21,²⁹ which addressed basic principles of taxing transactions in cryptocurrency. As with the 2013 FinCEN Guidance, a complete description is inappropriate and unnecessary for our purposes. In brief, however, the IRS asserted that cryptocurrency transactions are subject to U.S. federal income taxation.³⁰ In particular, the IRS treated

26. See 2013 FINCEN GUIDANCE, *supra* note 22, at 2.

27. *Id.* at 5 (“[A] person is an exchanger and a money transmitter if the person accepts such de-centralized convertible virtual currency from one person and transmits it to another person as part of the acceptance and transfer of currency, funds, or other value that substitutes for currency.”).

28. Nicole Mirjanich, Comment, *Digital Money: Bitcoin’s Financial and Tax Future Despite Regulatory Uncertainty*, 64 DEPAUL L. REV. 213, 234 (2014) (“Bitcoin proponents are advocating mainstream compliance with anti-money laundering laws to legitimize Bitcoin’s future as an alternative payment system.” (citing Stephen Foley, *New York Finance Regulator Voices Backing for Bitcoin*, FIN. TIMES (Jan. 29, 2014, 6:27 PM), <http://www.ft.com/content/2b25c21c-88a9-11e3-9f48-00144feab7de> [<https://perma.cc/BZM6-7JP8>])).

29. I.R.S. Notice 2014-21, 2014-16 I.R.B. 938.

30. See *id.*

cryptocurrency as “property,”³¹ much like securities or real estate. Moreover, the IRS asserted that cryptocurrencies are not “foreign currency” eligible for special rules.³²

As with the 2013 FinCEN Guidance, Notice 2014-21 arguably legitimized Bitcoin. At the time, potential investors may have been unnerved by scandals such as Silk Road and Mt. Gox,³³ wondering if the government might try to outlaw Bitcoin altogether. Notice 2014-21 surely dampened such fears, signaling a certain acceptance by the government.³⁴ Nevertheless, Notice 2014-21 has nothing direct to say about the wisdom or safety of cryptocurrency transactions. They are taxed as property transactions, regardless of their soundness or wisdom.

3. Summary

As used in this Article, “ancillary regulation” refers to preexisting regulatory regimes that must evolve to accommodate the rise of cryptocurrency. To be “ancillary,” the regime must have goals other than protecting investors or ensuring that cryptoassets function properly. The 2013 FinCEN Guidance, for example, broadly focuses on curtailing the use of cryptocurrency by criminals and terrorists.³⁵ IRS Notice 2014-21 focuses on applying the federal income tax to cryptocurrency transactions.³⁶ Neither set of guidance is concerned with whether cryptocurrency is a suitable investment that meets the expectations of investors.

Certainly, some observers would prefer lesser regulation and argue against projects like the 2013 FinCEN Guidance and IRS

31. *Id.*

32. *Id.*

33. See Jake Frankenfield, *Silk Road (Website)*, INVESTOPEDIA, <https://www.investopedia.com/terms/s/silk-road.asp> [<https://perma.cc/NEW5-JKWL>] (last updated July 26, 2021); Jake Frankenfield, *Mt. Gox*, INVESTOPEDIA, <https://www.investopedia.com/terms/m/mt-gox.asp> [<https://perma.cc/FM6X-NCR8>] (last updated July 17, 2022).

34. See Kevin V. Tu, *Perfecting Bitcoin*, 52 GA. L. REV. 505, 505 (2018) (“[L]egal and regulatory developments, like ... federal taxation of virtual currency as property, can be viewed as legitimizing [Bitcoin’s] use.”).

35. See 2019 FINCEN GUIDANCE, *supra* note 25, at 10.

36. I.R.S. Notice 2014-21, *supra* note 29.

Notice 2014-21. There are (at least) two types of criticisms. Some might argue that these projects were overly aggressive or ill-conceived. For example, a critic might argue that anti-money laundering rules do need to cover cryptocurrencies but that the 2013 FinCEN Guidance did so poorly.³⁷ Such criticisms are potentially valid but ultimately focus on the particulars of individual regulatory initiatives.

Other critics, however, take a more fundamental approach, hoping that cryptocurrency could usher in a new era of laissez-faire deregulation.³⁸ For them, cryptocurrency is a tool for deregulation and for transforming the modern regulatory state.³⁹ Ultimately, such critics are focused on the regulatory state itself. If we view the modern regulatory state as a given, we must find appropriate ways for it to cover cryptocurrencies. Accordingly, this Article views ancillary regulation as being largely noncontroversial. As crypto-assets continue to evolve, the regulatory state will need to follow along.

C. Curtailing Fraud and Market Manipulation

Even in the early days of crypto, financial regulators took note of fraudulent and abusive practices in the nascent crypto markets.⁴⁰ The Securities and Exchange Commission (SEC) might seem to be the most plausible regulator to deal with such abuses. However, it could exert jurisdiction only if the underlying cryptoasset were considered a “security.”⁴¹

37. Cf., e.g., Stephen T. Middlebrook & Sarah Jane Hughes, *Virtual Uncertainty: Developments in the Law of Electronic Payments and Financial Services*, 69 BUS. LAW. 263, 266 (2013) (noting criticism of 2013 FinCEN Guidance by Bitcoin proponents).

38. See Martin C.W. Walker, *Designed to Avoid Regulation — The Real Roots of Bitcoin*, LONDON SCH. OF ECON. BUS. REV.: BLOG (Sept. 28, 2021), <https://blogs.lse.ac.uk/businessreview/2021/09/28/designed-to-avoid-regulation-the-real-roots-of-bitcoin/> [<https://perma.cc/HY3J-L3QG>].

39. *Id.*

40. See William Hinman, Dir., Div. of Corp. Fin., Sec. & Exchg. Comm’n, Remarks at the Yahoo Finance All Markets Summit: Crypto: Digital Asset Transactions: When Howey Met Gary (Plastic) (June 14, 2018), <https://www.sec.gov/news/speech/speech-hinman-061418> [<https://perma.cc/XN47-E8NK>].

41. See MARC LABONTE, CONG. RSCH. SERV., R44918, WHO REGULATES WHOM? AN OVERVIEW OF THE U.S. FINANCIAL REGULATORY FRAMEWORK 16-17 (2020).

The Commodity Futures Trading Commission (CFTC) overcame this limitation by successfully asserting that Bitcoin and other cryptocurrencies are “commodities.”⁴² A perusal of the statutory definition of commodities would not immediately indicate coverage for cryptocurrencies. Under the Commodity Exchange Act (CEA), the term expressly covers agricultural items like wheat, cotton, and rice.⁴³ The CEA also includes a catchall covering “all services, rights, and interests ... in which contracts for future delivery are presently or in the future dealt in.”⁴⁴

In early enforcement actions, the CFTC relied on this catch-all to exert jurisdiction over derivatives contracts for Bitcoin.⁴⁵ Statutory coverage for derivatives contracts is relatively straightforward because they typically do not result in the immediate transfer of the underlying asset (here, Bitcoin or another cryptocurrency). Later enforcement actions, however, focused on fraudulent practices in the “spot market” for cryptocurrencies.⁴⁶ In a spot market, the underlying asset is immediately transferred from buyer to seller.⁴⁷ Thus, the fraudulent practice does not involve future delivery and is more peripheral to the CFTC’s jurisdiction.

Nevertheless, the CFTC successfully maintained its jurisdiction in cases dealing with the spot market. For Bitcoin, jurisdiction was relatively straightforward. Bitcoin was clearly subject to contracts for future delivery quite early on in the development of crypto markets. Thus, Bitcoin is a “commodity” making it subject to CFTC jurisdiction.⁴⁸

42. See Dafan Zhang, *Security Tokens: Complying with Security Laws and Regulations Provides More than Token Rewards*, 88 UMKC L. REV. 323, 331 (2019).

43. 7 U.S.C. § 1a(9).

44. *Id.*

45. See *In re Coinflip, Inc.*, CFTC No. 15-29, 2015 WL 5535736 (Sept. 17, 2015).

46. See COMMODITY FUTURES TRADING COMM’N, THE CFTC’S ROLE IN MONITORING VIRTUAL CURRENCIES 1, 3-4 (2020), <https://www.cftc.gov/digitalassets/index.htm> [<https://perma.cc/U9VS-LCB7>] (under “Related Links” click “The CFTC’s Role in Monitoring Virtual Currencies”) (listing numerous CFTC enforcement actions).

47. See *Spot Market*, THOMPSON REUTERS PRACTICAL LAW GLOSSARY (2022), 0-500-3116 (“A commodities or securities market in which goods are sold under a purchase order or contract at the price prevailing at the time of the sale and delivered immediately. The purchaser is not obligated to acquire any additional goods or services.”).

48. Daniel Kuhn, Opinion, *SEC’s Gensler Reiterates Bitcoin Alone Is a Commodity. Is He Right?*, COINDESK (June 28, 2022, 1:05 PM), <https://www.coindesk.com/layer2/2022/06/28/secs-gensler-reiterates-bitcoin-alone-is-a-commodity-is-he-right/> [<https://perma.cc/D4U2-97JB>].

Jurisdiction for other cryptocurrencies was less straightforward. In *My Big Coin Pay*, the CFTC asserted that a promoter created a new cryptocurrency (My Big Coin or MBC) and sold it fraudulently.⁴⁹ According to the CFTC, “falsities included that My Big Coin was ‘backed by gold,’ could be used anywhere Mastercard was accepted, and was being ‘actively traded’ on several currency exchanges.”⁵⁰ The CFTC did not allege, however, that MBC itself was subject to contracts for future delivery. Instead, the CFTC asserted that MBC was a cryptocurrency like Bitcoin, which is subject to contracts for future delivery.⁵¹ The United States District Court for the District of Massachusetts agreed with the CFTC, holding that MBC was a commodity subject to CFTC’s antifraud and market manipulation jurisdiction.⁵² Under the reasoning of the decision, *every* cryptocurrency could be considered a commodity because contracts for future delivery existed for one cryptocurrency (Bitcoin).

Although the court’s reasoning might be questionable as a matter of jurisdiction and statutory text, some regulator should possess antifraud jurisdiction. Cryptocurrency is a financial product, and curtailing fraud is one of the primary goals of financial regulators.⁵³ We should not tolerate fraudulent practices with respect to cryptocurrency simply because they are a new product that does not fit easily within the portfolio of an existing financial regulator. Like ancillary regulation, then, antifraud regulation should be non-controversial, at least under the assumptions of this Article. Once we accept this basic assertion, there still remains work to be done. Should the CFTC have regulatory authority? Should it lie with another regulator?⁵⁴ And, as with ancillary regulation, this Article

49. CFTC v. My Big Coin Pay, Inc., 334 F. Supp. 3d 492, 494 (D. Mass. 2018).

50. See *id.* (quoting Amended Complaint for Injunctive and Other Equitable Relief and for Civil Monetary Penalties Under the Commodity Exchange Act and Commission Regulations ¶ 39, CFTC v. My Big Coin Pay, Inc., 334 F. Supp. 3d 492 (D. Mass. 2010) (No. 18-cv-10077)).

51. *Id.* at 496-97.

52. *Id.* at 498-99.

53. See LABONTE, *supra* note 41, at 4 (discussing reforming the Byzantine jurisdiction of U.S. financial regulation).

54. For a discussion of the comparative jurisdiction of the SEC and CFTC, see Jerry W. Markham, *Merging the SEC and CFTC—A Clash of Cultures*, 78 U. CIN. L. REV. 537, 552, 567-73 (2009).

does not intend to engage those topics deeply, instead looking to draw the basic outline of how crypto should be regulated.

Before concluding the discussion of antifraud regulation, we can compare it with ancillary regulation. Under this Article, the two regimes have different goals. Ancillary regulation will uphold some goals other than the functioning of crypto markets (for example, collecting revenue, combating crime). Antifraud regulation, in contrast, should be directed at crypto markets themselves. As with ancillary regulation, antifraud regulation is subject to a libertarian critic.⁵⁵ Arguably, such regulation is unnecessary as market reputation and private lawsuits could stamp out fraud. Again, this critique might be correct, but it is directed at broader targets such as the CFTC and even financial regulation itself.⁵⁶

D. Information Disclosure

Combatting fraud and manipulation should be part of every form of financial regulation. Nevertheless, regulation often goes beyond this minimum.⁵⁷ We could readily imagine a regulatory regime that requires (or tries to require) crypto promoters to describe how commonly their product will be accepted as a method of payment. Such affirmative disclosures are not the usual part of CFTC jurisdiction because commodities are typically homogenous and well understood by market participants.⁵⁸ Returning to *My Big Coin Pay*, the CFTC has jurisdiction if the promoters make fraudulent statements (for example, that MBC is accepted on the same basis as Mastercard).⁵⁹ The CFTC would not have jurisdiction, however, if the promoters had simply remained silent about the issue of merchant acceptance.⁶⁰ The promoters would likely know that no

55. See *supra* note 18 and accompanying text.

56. See discussion *supra* Part I.B.3.

57. See LABONTE, *supra* note 41, at 3-5.

58. *Id.* at 4-5.

59. See 334 F. Supp. 3d 492, 495 (D. Mass. 2018).

60. Cf. Frank H. Easterbrook & Daniel R. Fischel, *Mandatory Disclosure and the Protection of Investors*, 70 VA. L. REV. 669, 680 (1984) ("In a world with an anti-fraud rule but no mandatory disclosure system, firms could remain silent with impunity.").

one accepts MBC as a method of payment, but they would have no duty to disclose that fact to potential purchasers.⁶¹

Perhaps the most prominent regulatory issue for crypto is the application of U.S. securities laws, which require information disclosures by issuers.⁶² The doctrinal question is whether a particular form of cryptocurrency is a “security.” If a cryptocurrency is a security, then issuers must file a registration statement that discloses information considered pertinent to investors.⁶³ Registrants must also file periodic statements that supplement the original registration.⁶⁴ This Article will categorize such regulation as “information-disclosure” regimes.

Information-disclosure requirements are additional to antifraud measures. Issuers are not free to engage in fraud simply because they faithfully addressed the information-disclosure standards.⁶⁵ Furthermore, information disclosure typically operates separately from ancillary regulation. “Securities” status would not, for example, alter the *anti-money* laundering standards discussed above. Similarly, general principles of taxation would remain the same (although special provisions of the Internal Revenue Code can apply to securities).⁶⁶

Information-disclosure requirements differ from the ancillary and antifraud regimes in an important way. They do not generally apply to all cryptocurrencies under current law.⁶⁷ Clearly, some cryptocurrencies are securities, functioning as traditional equity investments in active businesses.⁶⁸ To use a trivial example, suppose that a publicly traded company “tokenized” shares so that every share

61. *Id.* at 696.

62. *See id.* at 669.

63. *See id.* at 670, 680.

64. *Id.* at 669.

65. *See* THOMAS LEE HAZEN, *THE LAW OF SECURITIES REGULATION* 456 (8th ed. 2021) (“The overwhelming majority of the securities laws’ liability provisions (both civil and criminal) focus on disclosure and registration requirements. In addition, there is a group of provisions geared to preventing artificial market activity and practices designed to have the effect of setting manipulated—and hence, artificial—security prices.”).

66. *See* Chason, *supra* note 10, at Part IV.A (discussing the effect of securities classification under the Internal Revenue Code).

67. *See, e.g.,* PWG REPORT, *supra* note 2, at 9.

68. *See, e.g.,* Zhang, *supra* note 42, at 334 (“Proponents of security tokens agree with the view that security tokens representing interests in underlying assets are securities under the *Howey* test, and thus, are subject to the regulation under the Security Act.”).

was represented by a cryptoasset. Clearly, repackaging shares as cryptoassets would not remove the shares from the reach of U.S. securities laws. At the other extreme, Bitcoin is a very decentralized cryptocurrency with no backing assets or business.⁶⁹ Simply as a matter of securities law doctrine, it is unlikely to be a security. Moreover, the SEC could hardly find a party to gather information for registration statements and the like.⁷⁰

Between these two extremes there is a spectrum of cryptoassets with varying degrees of decentralization.⁷¹ Somewhere on this spectrum, a line must exist that separates securities from nonsecurities. Identifying the location of this has been one of the thorniest challenges of crypto regulation.⁷² Sometimes, the SEC has been able to assert security status in a fairly amicable way, obtaining a settlement from the parties involved.⁷³ In 2020, however, the SEC initiated the most contentious litigation in crypto's brief history when it asserted that the XRP cryptocurrency is, in fact, a security.⁷⁴

As with prior regulatory regimes, this Article will assume that the information-disclosure regime of the securities laws is legitimate. Again, a libertarian might criticize application of securities laws to crypto as unwarranted paternalistic meddling.⁷⁵ Finally, critics might argue that the securities laws do not effectively reduce

69. SATOSHI NAKAMOTO, BITCOIN: A PEER-TO-PEER ELECTRONIC CASH SYSTEM 1, 2-3, <https://bitcoin.org/bitcoin.pdf> [<https://perma.cc/7BCY-VUHT>].

70. See Hinman, *supra* note 40.

71. See Travis Reeder, *The Decentralized to Centralized Performance Spectrum*, MEDIUM (Sept. 10, 2019), <https://medium.com/the-capital/the-decentralized-to-centralized-performance-spectrum-e0b83a749257> [<https://perma.cc/7YH7-RLJK>].

72. See William A. Powers, *Is Crypto a Security or Commodity? Look to Congress' Ethics Rules*, BLOOMBERG (July 14, 2022, 4:00 AM), <https://news.bloombergtax.com/crypto/is-crypto-a-security-or-commodity-look-to-congress-ethics-rules> [<https://perma.cc/C4TN-9H62>].

73. See, e.g., Bloom Protocol, LLC, Securities Act Release No. 11089 (Aug. 9, 2022), 2022 WL 3273493.

74. See Complaint at 1, SEC v. Ripple Labs, Inc., No. 20-cv-10832 (S.D.N.Y. Dec. 22, 2020) ("From at least 2013 through the present, Defendants sold over 14.6 billion units of a digital asset security called 'XRP,' in return for cash or other consideration worth over \$1.38 billion U.S. Dollars ('USD'), to fund Ripple's operations and enrich Larsen and Garlinghouse. Defendants undertook this distribution without registering their offers and sales of XRP with the SEC as required by the federal securities laws, and no exemption from this requirement applied.").

75. See *supra* note 18 and accompanying text.

information asymmetries.⁷⁶ This critique is fundamentally more about the wisdom of the securities laws than about crypto itself.

Below, this Article introduces a different critique that is about crypto itself. Presumably, securities laws exist to remedy information asymmetries.⁷⁷ Insiders hold information that would be useful to investors when making decisions about whether to invest in a particular asset. Functionally, “securities” status should apply when information asymmetries are particularly strong. For many cryptocurrencies, there is absolutely no information asymmetry to solve. Again, consider Bitcoin but assume that an investor is trying to discern whether to invest in it. Most, if not all, relevant information about Bitcoin is already publicly available. The algorithm for creating new Bitcoin units and transferring existing units is available for all to see.⁷⁸ Moreover, Bitcoin has no underlying business or investment activities that prospective investors would be interested in.⁷⁹

Consider a hypothetical cryptocurrency (HypoCoin) that is formally decentralized and relies on proof-of-work mining like Bitcoin does. A venture capital fund (CoinFund), however, acquires a large portion of an existing cryptocurrency and also comes to dominate its mining activities. CoinFund does not have the power to change HypoCoin’s algorithm. Thus, HypoCoin remains formally decentralized as there are no users with special privileges. CoinFund does, however, hold a huge amount of influence over HypoCoin and plans to use that influence to enhance the value of HypoCoin before selling its interest to later investors. CoinFund might do this in a variety of ways, such as seeking out merchants who would be willing to accept HypoCoin as a new method of payment.

Later investors may well be relying primarily on CoinFund’s promotional activities when buying HypoCoin, and CoinFund is currently the main party positioned to make sales. Depending on CoinFund’s ownership stake and degree of control, information-reporting

76. See Easterbrook & Fischel, *supra* note 60, *passim*.

77. See LABONTE, *supra* note 41, at 16-17.

78. See BITCOIN, <https://bitcoin.org> [<https://perma.cc/HS5H-XZHQ>].

79. See Eric D. Chason, *How Bitcoin Functions as Property Law*, 49 SETON HALL L. REV. 129, 135-36 (2018).

regulation (and security status) may be appropriate in this hypothetical.⁸⁰ Thus, decentralization must be both formal and functional in order to negate the need for information-reporting.

E. Cryptocurrency Design and Quality Standards

For some cryptocurrencies, there is no plausible notion of inherent quality that a regulator could demand. Because Bitcoin is backed by no external assets and is administered by a decentralized community of disparate actors,⁸¹ a regulator could not plausibly demand that Bitcoin satisfy product standards. Earlier, this Article noted the environmental impact of Bitcoin mining and the near futility of trying to curtail it.⁸² In terms of consumer protection, Bitcoin transactions are practically irreversible whereas credit card transactions are reversible by regulation.⁸³ Even if a financial regulator wanted Bitcoin transactions to be reversible like credit card transactions, there is no simple way that the regulator could effectuate such a change.⁸⁴ No single party controls the algorithm that governs Bitcoin transactions.⁸⁵

Not all cryptocurrencies are as decentralized as Bitcoin. Ether is a decentralized cryptocurrency, but the Ethereum Foundation maintains a particularly prominent voice in its community. In 2016, the Ethereum Foundation famously used this voice to convince most of the community to reverse a series of illicit transactions effectuated by hackers.⁸⁶ Other cryptocurrencies are much more centralized. For example, Tether maintains a high degree of formal control over the administration of the USDT stablecoin.⁸⁷ Depending

80. See Hinman, *supra* note 40 (discussing the role of promotional activities).

81. See Chason, *supra* note 79, at 133.

82. See *supra* note 1 and accompanying text.

83. See NAKAMOTO, *supra* note 69, at 1.

84. See Chason, *supra* note 79, at 171.

85. *Id.* at 133, 135-36.

86. See Carol Goforth, *The Lawyer's Cryptionary: A Resource for Talking to Clients About Crypto-Transactions*, 41 CAMPBELL L. REV. 47, 72-73 (2019).

87. See Marco Dell'Erba, *Stablecoins in Cryptoeconomics: From Initial Coin Offerings to Central Bank Digital Currencies*, 22 N.Y.U. J. LEGIS. & PUB. POL'Y 1, 10 (2019) ("[F]iat-currency asset-backed stablecoins (so-called off-chain collateralized stablecoins) rely on fiat currencies as a collateral, and due to this characteristic cannot be fully decentralized.").

upon the degree of control, cryptocurrencies could well be subject to minimum-quality standards.

Returning to the hypothetical of transaction reversibility, we can see important shifts from the prior regulatory models introduced by this Part. First, the hypothetical regulation is directed at the nature of the cryptoasset itself. In contrast, the prior regulatory models were directed at activities surrounding the cryptoasset. Thus, a disclosure regime might require information about transaction reversibility, whereas minimum-quality standards could try to require reversibility. Second, regulating inherent product quality is plausible only if regulators can obtain jurisdiction over parties with power or control. Regulators probably cannot alter the inherent nature of Bitcoin transactions because no party has enough power or control over Bitcoin to effectuate the regulatory standards.⁸⁸ In contrast, Tether has sufficient power over the USDT cryptocurrency that it could conceivably implement transaction reversibility.⁸⁹

Financial regulators have begun to take serious note of stablecoins, which are cryptocurrencies designed to maintain a stable value against the U.S. dollar or other currency.⁹⁰ In a recent report, financial regulators asserted that stablecoins should be issued only by banks and other insured depository institutions.⁹¹ One rationale for such a requirement would be to protect investors from a risk of loss.⁹² Stablecoins should track the value of the dollar, and depository institutions could effectively maintain that peg in a variety of ways (such as holding actual dollar reserves to back the stablecoins they issue).

Below, this Article argues against mandatory quality standards for cryptoassets. Focusing on stablecoins, the next Part argues that mandatory quality standards could impede innovation in cryptoassets. Stablecoins currently come in a variety of models, and some

88. See John O. McGinnis & Kyle Roche, *Bitcoin: Order Without Law in the Digital Age*, 94 IND. L.J. 1497, 1502 (2019) (“[B]itcoin is more resistant to state control than private currencies of old because it ... has no particular jurisdiction where it is created or resides.”).

89. See *infra* Part III.B.1.

90. See PWG REPORT, *supra* note 2, at 7, 9.

91. See *id.* at 16 (“[L]egislation should limit stablecoin issuance, and related activities of redemption and maintenance of reserve assets, to entities that are insured depository institutions. The legislation would prohibit other entities from issuing payment stablecoins.”).

92. See *id.* at 16-17 (referring to “[u]ser [p]rotection”).

of those models are plainly inconsistent with issuance by an insured depository institution. For example, some stablecoins are simply created by smart contracts, which are computer programs that can control cryptoassets.⁹³ Such stablecoins would be riskier than bank-issued stablecoins, but risk is not always a bad thing. Moreover, there is no obvious reason why crypto investors should receive special protection that is typically limited to bank depositors.

F. Mixed Regimes

Until now, this Part has divided crypto regulation into regimes defined by purpose or goals. Some regulatory regimes, however, might have multiple goals. Despite rapid growth, stablecoins are not currently an important part of the overall financial system.⁹⁴ Suppose, however, that changes in the near future and a significant portion of the population uses stablecoins to buy goods and services. At that point, regulators might have two concerns with stablecoins.⁹⁵ First, as described in the prior Section, stablecoin losses could hurt investors. Second, stablecoin losses could destabilize the entire financial system if they cause weaknesses in other segments.⁹⁶

Bringing stablecoins into the insured and regulated world of depository institutions solves both of these problems (assuming they are, in fact, problems). Banking regulators could require sufficient reserves to make sure that regulated stablecoins are administered with sufficient “safety and soundness.” Doing so makes losses less likely. If losses do arise, they are absorbed by depository insurance, protecting both the holders of stablecoins and the entire financial system from loss.

Thus, both individual holders and the entire system are potentially protected by the proposed initiative. In one sense, the proposal is ancillary regulation because it protects the financial system as a

93. See, e.g., Part III.A.1 (describing the DAI stablecoin).

94. See PWG REPORT, *supra* note 2, at 16-17 (stating that stablecoins are “inconsistently addressed”).

95. See *supra* Part I.E.

96. See PWG REPORT, *supra* note 2, at 1-2 (referring to stablecoin users and risks of stablecoin runs).

whole. In another sense, the proposal functions like the mandatory standards described in Part I.E.

Mixed regimes are potentially problematic because we need to discern the relative importance of the various motives (for example, protecting stablecoin holders versus protecting the entire system). In the case of stablecoins, however, the analysis should be fairly straightforward. To the extent they function as a method of payment, they should be brought within the scope of banking regulation and depository insurance.

G. Summary

This Part presented a broad outline for how regulators and others should approach the growing field of crypto regulation. The following basic principles emerged:

1. We take the modern regulatory state as a given. Of course, criticisms are appropriate, but they are largely unrelated to cryptoassets. For example, an observer who objects to the taxation of cryptocurrency is essentially objecting to taxation.
2. Regulation should apply in a neutral fashion. Thus, regulators should not seek regulatory forbearance as a way to incubate the growth of crypto. Similarly, regulators should not seek to stifle or kill crypto with overly burdensome regulation. Again, these points of view are not illegitimate or intellectually void. Rather, they are about a larger policy of promoting or curtailing crypto. Such decisions should not be left in the hands of regulators but should be made by legislatures.
3. Taxation, anti-money laundering, and other ancillary regulatory structures should continue to evolve in a neutral fashion. Similarly, financial regulators should continue to apply antifraud and market manipulation standards. Regulators will, of course, find sticky issues when applying regulatory standards to new crypto products. This Article does not have much more to say about these standards.
4. Securities status and required information disclosures will remain the most difficult regulatory issue for crypto. Here, it is not enough to say that regulators should apply existing

standards in a neutral fashion because the standards depend so much on the design of individual cryptocurrencies. Decentralized cryptocurrencies, like Bitcoin, have no need for information disclosures. The information already exists on the blockchain and in the relevant algorithms. Centralized cryptocurrencies, however, present much more significant information asymmetries. Centralization and information asymmetries will be a major focus of the remainder of this Article.

5. Mixed regimes may present some difficulty in application, but regulators should ordinarily look to the different underlying purposes of the regulatory regime. For example, depository insurance and safety-and-soundness regulation arguably protect both depositors and the financial system as a whole. Later, this Article will attempt to unravel the various motivations for such regulations, attempting to answer whether they should apply to stablecoins.

II. THE TERRAUSD DEBACLE

A. Introduction

The Terra Money Whitepaper (Terra Whitepaper) proposed “a cryptocurrency, Terra, which is both price-stable and growth-driven,” one that would be the “best use case for cryptocurrencies” if it succeeds.⁹⁷ The Terra Whitepaper notes the familiar problem with using Bitcoin and other cryptocurrencies as a medium of exchange.⁹⁸ Potential users face substantial volatility between the time they receive payment (for example, as payment of wages) and the time they convert payment to goods or services.⁹⁹ Bitcoin fails even worse as a “unit of account” used to denominate future payments such as a rent.¹⁰⁰ Although a merchant might be willing to tolerate some Bitcoin volatility during the hours or days between payment in Bitcoin and conversion to dollars, a long-term lease

97. EVAN KEREIAKES, DO KWON, MARCO DI MAGGIO & NICHOLAS PLATIAS, TERRA MONEY: STABILITY AND ADOPTION, at Abstract (2019) [hereinafter TERRA WHITEPAPER], https://assets.website-files.com/611153e7af981472d8da199c/618b02d13e938ae1f8ad1e45_Terra_White_paper.pdf [https://perma.cc/EBA7-NHSR].

98. *Id.* at 1.

99. *Id.*

100. *See id.* at 1-2.

would expose both parties to enormous volatility if far-distant payments were to be made in Bitcoin.¹⁰¹

Terra was certainly not the first cryptocurrency designed to overcome these difficulties. “Stablecoins” are cryptocurrencies pegged to national currencies such as the U.S. dollar.¹⁰² In summer 2022, Tether (USDT) and USD Coin (USDC) were the two largest stablecoins.¹⁰³ They share a similar approach in that units of USDT and USDC are backed by high-quality, dollar-denominated assets.¹⁰⁴ Other stablecoins are backed by more volatile cryptocurrencies.¹⁰⁵ For example, DAI is a stablecoin backed by Ether and other Ethereum-based cryptocurrencies.¹⁰⁶ Unlike the dollar-backed USDT and USDC,¹⁰⁷ units of DAI require significantly higher amounts of collateral relative to the amount of stablecoins issued.¹⁰⁸

Terra took a different approach. It used “an elastic monetary policy [that] would maintain a stable price” between its stablecoin and the dollar.¹⁰⁹ The Terra Protocol actually supported a variety of stablecoins pegged to a variety of fiat currencies.¹¹⁰ The largest and most important was TerraUSD (abbreviated “UST”), which was pegged to the U.S. dollar.¹¹¹ From its inception in late 2020 until early May of 2022, TerraUSD successfully maintained this peg.¹¹²

The Terra Protocol used a system of smart contracts in its attempt to maintain parity between TerraUSD and the dollar.¹¹³ For

101. *Id.* at 1.

102. See CAMPBELL R. HARVEY, ASHWIN RAMACHANDRAN & JOEY SANTORO, *DeFi and the Future of Finance* 24 (2021).

103. See *Top Stablecoin Tokens by Market Capitalization*, COINMARKETCAP, <https://coinmarketcap.com/view/stablecoin/> [<https://perma.cc/4RGB-MUTK>]; see also HARVEY ET AL., *supra* note 102, at 25.

104. See HARVEY ET AL., *supra* note 102, at 25.

105. See *id.* at 25-26 (explaining the class of crypto-collateralized stablecoins).

106. See *id.* at 26.

107. See *id.* at 25.

108. See *id.* at 70-71.

109. TERRA WHITEPAPER, *supra* note 97, at 1.

110. See *id.* at 2.

111. See *TerraClassicUSD to USD Chart*, COINMARKETCAP, <https://coinmarketcap.com/currencies/terrausd/> [<https://perma.cc/63K8-B2E4>].

112. See *id.*

113. Krisztian Sandor, *What Is LUNA and UST? A Guide to the Terra Ecosystem*, COINDESK (May 9, 2022, 8:10 PM), <https://www.coindesk.com/learn/what-is-luna-and-ust-a-guide-to-the-terra-ecosystem/> [<https://perma.cc/GBU2-KWPT>]; see HARVEY ET AL., *supra* note 102, at 21 (“A smart contract is code that can create and transform arbitrary data or tokens on top of the blockchain to which it belongs. Powerfully, it allows the user to trustlessly

the system to work, it first needs information about the market price of TerraUSD.¹¹⁴ Although blockchains can effectively maintain a record of transactions, they cannot independently determine market prices.¹¹⁵ Blockchains can use external actors, known as oracles, to make the pricing information available on the blockchain.¹¹⁶ The Terra Protocol did just that, using a system by which miners essentially voted on the dollar-denominated price of TerraUSD.¹¹⁷

If the price deviated from its peg, then the Terra Protocol would need to take corrective action to ensure that one TerraUSD is worth one dollar.¹¹⁸ If TerraUSD's price exceeds one dollar, then the correction would be almost trivial.¹¹⁹ The Terra Protocol simply needs to create new units of TerraUSD and introduce them into the market.¹²⁰ Unlike Tether and DAI,¹²¹ TerraUSD does not require backing by other assets.¹²² In a sense, TerraUSD could "print" new money as if it were a government unbound by a gold standard or the like.¹²³

The true challenge for TerraUSD comes when its price falls below one dollar. In concept, the correction is similar to when the price is too high.¹²⁴ The Terra Protocol needs to shrink the supply of outstanding TerraUSD in order to bring its price up to one dollar.¹²⁵ Compared to TerraUSD, dollar- and crypto-backed stablecoins have more apparent mechanisms for shrinking their supply.¹²⁶ During TerraUSD's collapse, many holders of other stablecoins sought

encode rules for any type of transaction and even create scarce assets with specialized functionality.").

114. See TERRA WHITEPAPER, *supra* note 97, at 2-3.

115. See HARVEY ET AL., *supra* note 102, at 23-24.

116. See *id.*; ANDREAS M. ANTONOPOULOS & GAVIN WOOD, MASTERING ETHEREUM: BUILDING SMART CONTRACTS AND DAPPS 254-55 (2018) (noting the use of oracles in cryptocurrency pricing).

117. See TERRA WHITEPAPER, *supra* note 97, at 3.

118. See *id.* at 4.

119. See *id.*

120. See *id.*

121. HARVEY ET AL., *supra* note 102, at 25-26.

122. See Sandor, *supra* note 113.

123. See TERRA WHITEPAPER, *supra* note 97, at 4, 6.

124. See *id.* at 4.

125. See *id.*

126. See HARVEY ET AL., *supra* note 102, at 74.

redemptions.¹²⁷ For example, Tether's USDT stablecoin has fallen dramatically in market capitalization from \$83 billion in early May 2022 to \$66 billion in early August 2022.¹²⁸

TerraUSD, in contrast, is not formally backed by specified collateral.¹²⁹ Instead, the Terra Protocol sought to maintain the dollar peg in a manner analogous to the open-market transactions of the Federal Reserve.¹³⁰ The Federal Reserve maintains a sizable balance sheet of assets beyond the reserve deposits of its members.¹³¹ If the Federal Reserve sought to contract the money supply, it could sell some of these assets.¹³² Purchasers would tender their dollars, which would leave the money supply.¹³³ Such operations could, in a sense, correct the price of the dollar relative to goods and services.¹³⁴ During times of inflation, when the dollar is too cheap relative to goods and services, the Federal Reserve can make it more dear by reducing its supply.¹³⁵

The Terra Protocol attempted similar maneuvers, though at a much smaller scale. One mechanism used its control of the mining process.¹³⁶ If the price of TerraUSD fell relative to the dollar, then the Terra Protocol would hold auctions to admit new potential miners.¹³⁷ The new entrants would pay for the right in TerraUSD, thus reducing the overall supply.¹³⁸ Preexisting miners, however,

127. See *TerraClassicUSD to USD Chart*, *supra* note 111.

128. See *Historical Data for Thether*, COINMARKETCAP, <https://coinmarketcap.com/currencies/tether/historical-data/> [<https://perma.cc/B4FS-A6YV>].

129. Sandor, *supra* note 113.

130. See TERRA WHITEPAPER, *supra* note 97, at 4.

131. See *The Federal Reserve's Balance Sheet*, BD. OF GOVERNORS OF THE FED. RSRV. SYS., https://www.federalreserve.gov/monetarypolicy/bst_fedsbalancesheet.htm [<https://perma.cc/H2YU-6XNN>] (last updated July 9, 2020).

132. See Kesavan Balasubramaniam, *How Do Open Market Operations Affect the U.S. Money Supply?*, INVESTOPEDIA, <https://www.investopedia.com/ask/answers/06/openmarketoperations.asp> [<https://perma.cc/R4KP-SY6G>] (last updated Apr. 8, 2022).

133. See *id.*

134. See *id.*

135. See *id.*; *Open Market Operations*, BD. OF GOVERNORS OF THE FED. RSRV. SYS., <https://www.federalreserve.gov/monetarypolicy/openmarket.htm> [<https://perma.cc/433B-DNQ7>] (last updated July 27, 2022).

136. See TERRA WHITEPAPER, *supra* note 97, at 4.

137. See *id.* ("During a contraction, the system mints and auctions more mining power to buy back and burn Terra. This contracts the supply of Terra until its price has returned to the peg, and temporarily results in mining power dilution.").

138. See Sandor, *supra* note 113.

would see their expected rewards diluted by the entrants'.¹³⁹ To compensate them, the Terra Protocol would later increase mining rewards and buy back mining franchises.¹⁴⁰

The Terra Protocol had another, stronger response that more closely resembled the open-market transactions of the Federal Reserve. The Terra Protocol created several stablecoins¹⁴¹ and also created a separate cryptocurrency known as Luna.¹⁴² Apart from open-market transactions, Luna had value in order to facilitate mining operations.¹⁴³ The Terra Protocol worked on a proof-of-stake system, and potential miners would need to stake their Luna if they hoped to receive a mining reward.¹⁴⁴ In rough terms, Luna parallels the computational power needed for Bitcoin mining.¹⁴⁵ If mining TerraUSD were profitable, then Luna would be valuable.¹⁴⁶

If TerraUSD fell below the dollar, then the Terra Protocol would attempt to buy TerraUSD by issuing new Luna.¹⁴⁷ Arbitrageurs could buy cheap TerraUSD (for example, for \$0.95) and send them to the Terra Protocol in exchange for Luna worth one dollar.¹⁴⁸ The reverse would occur if TerraUSD's price rose above the dollar.¹⁴⁹ In effect, the Terra Protocol sought to maintain the dollar peg much like the Federal Reserve seeks to manage monetary policy.¹⁵⁰ The stark difference is that the Terra Protocol had only one asset—Luna—which it could use to conduct its version of open-market transactions.¹⁵¹

139. See TERRA WHITEPAPER, *supra* note 97, at 4.

140. See *id.* (“[T]he system continues to buy back mining power until a fixed target supply is reached, thereby creating long-run dependability on available mining power. Second, the system increases mining rewards, which will be explained in more detail in a later section.”).

141. See *id.* at 2; Sandor, *supra* note 113.

142. See TERRA WHITEPAPER, *supra* note 97, at 5.

143. See *id.*

144. See *id.* (“The Terra Protocol runs on a Proof of Stake (PoS) blockchain, where miners need to stake a native cryptocurrency Luna to mine Terra transactions.”).

145. See *id.*

146. See *id.*

147. *Id.*

148. *Id.*

149. *Id.*

150. See *id.* at 4.

151. See *id.* at 5.

B. TerraUSD's Rise

The preceding summarizes the operation of TerraUSD and Luna at the protocol level. On paper, they rely on adoption of TerraUSD as a medium of exchange, envisioning a world in which folks pay their rent and grocery bills using TerraUSD rather than with bank transfers and credit cards.¹⁵² In reality, there was never such an adoption. Although there must have been enthusiasts who paid for goods and services using TerraUSD, such use was rare and could not explain the multi-billion-dollar market capitalizations of TerraUSD and Luna.¹⁵³

What, then, explains TerraUSD's rise if not use as a medium of exchange? As a stablecoin, TerraUSD could be useful as a way to facilitate trading in cryptocurrencies.¹⁵⁴ Some cryptocurrency exchanges do not deal directly in U.S. dollars or other sovereign money.¹⁵⁵ Some crypto exchanges simply let participants exchange one cryptocurrency for another (for example, Bitcoin for Ether).¹⁵⁶ Without actual dollar accounts, the exchange may not provide adequate price discovery, particularly for assets that are not widely traded elsewhere. By adding stablecoins, such exchanges can provide better price discovery in terms of the U.S. dollar. Perhaps more importantly, participants on the exchange would have access to a stable asset without needing to exit the exchange altogether.¹⁵⁷ For example, traders who expect the broader crypto market to decline in value would want to move their holdings into a stable asset.¹⁵⁸ Liquidating their holdings for actual dollars might be costly.¹⁵⁹ Instead, the traders could exchange their holdings in stablecoins.¹⁶⁰ In short, stablecoins allow traders to park their

152. *See id.* at 1.

153. *See* PWG REPORT, *supra* note 2, at 2 n.2 (discussing different uses for stablecoins).

154. *See Explained: TerraUSD (UST)*, BYBIT LEARN (Mar. 29, 2022), <https://learn.bybit.com/stablecoin/explained-terrausd-ust/> [<https://perma.cc/JUQ9-ZPK8>].

155. *See* Cryptopedia Staff, *What Is a Crypto Exchange?*, CRYPTOPEDIA, <https://www.gemini.com/cryptopedia/what-is-a-crypto-exchange> [<https://perma.cc/8SA6-U7FR>] (last updated June 28, 2022).

156. *See id.*

157. *See Explained: TerraUSD (UST)*, *supra* note 154.

158. *See id.*

159. *See id.*

160. *See id.*

crypto investments during market downturns without having to convert to actual dollars.¹⁶¹

Facilitating crypto trading is a substantial use case for stablecoins.¹⁶² But, it probably does not explain the rise of TerraUSD either.¹⁶³ The true driver was decentralized finance (DeFi) and the allure of above-market returns.¹⁶⁴ For example, until its collapse, TerraUSD served as the gateway to annual, *fixed* returns of 20 percent.¹⁶⁵ In a world of 1 percent returns on savings accounts,¹⁶⁶ a 20 percent return is extraordinary.¹⁶⁷ Almost certainly, these returns were the best “use case” for TerraUSD.¹⁶⁸ In the aftermath of TerraUSD’s collapse, observers characterized these returns as unstable and hallmarks of a pyramid scheme.¹⁶⁹

C. Comparing the TerraUSD Peg to Other Stablecoins

Fiat-backed stablecoins, like Tether and USDCoin, rely on backing with actual dollars or high-quality, dollar-denominated assets.¹⁷⁰ When the peg falters, these reserves are used to stabilize the price.¹⁷¹ Crypto-backed stablecoins like DAI have reserves as well.¹⁷² The difference, however, is that the reserves are cryptocurrencies

161. See *id.*

162. See *id.*

163. See Gian M. Volpicelli, *Terra’s Crypto Meltdown Was Inevitable*, WIRED (May 12, 2022, 3:14 PM), <https://www.wired.com/story/terra-luna-collapse/> [<https://perma.cc/5WG9-QYRR>]; Everstake, *Yield Farming in the Terra Ecosystem: How to Get Started and 10 Strategies for Newbies*, MEDIUM (Sept. 30, 2021), <https://everstake.medium.com/yield-farming-in-the-terra-ecosystem-how-to-get-started-and-10-strategies-for-newbies-364882d24e8d> [<https://perma.cc/WS3Y-55MW>] (describing the Terra ecosystem).

164. See Everstake, *supra* note 163.

165. See *id.* (“[T]he stable yield on UST savings deposits is nearly 20% per annum.”).

166. Lauren Perez, *What Is the Average Interest Rate for Savings Accounts?*, SMARTASSET (Sept. 9, 2022), <https://smartasset.com/checking-account/average-savings-account-interest#:~:text=According%20to%20the%20FDIC%2C%20the,with%20a%20balance%20over%20%24100%2C000> [<https://perma.cc/H2Y2-7RXC>].

167. See Everstake, *supra* note 163.

168. See Volpicelli, *supra* note 163.

169. See Taylor Locke, *Bill Ackman Calls Terra a ‘Pyramid Scheme’ and Warns that ‘Hyping’ This Kind of Token ‘Will Destroy the Entire Crypto Industry’*, FORTUNE (May 18, 2022, 2:51 PM), <https://fortune.com/2022/05/17/bill-ackman-calls-terra-ust-luna-pyramid-scheme-crypto-regulation-herbalife/> [<https://perma.cc/LFU9-YZRG>].

170. See HARVEY ET AL., *supra* note 102, at 25.

171. See *id.*

172. See *id.* at 25-26.

rather than dollars.¹⁷³ For these stablecoins, the reserves are independent of the stablecoin's system.¹⁷⁴ To state the obvious, the financial assets used to secure Tether and USDCoin are created by the issuers (for example, the U.S. government).¹⁷⁵ DAI is backed by a variety of Ethereum-based assets.¹⁷⁶ Notably, Ether is a cryptocurrency created by the Ethereum blockchain.¹⁷⁷ Thus, the Ether and Ethereum tokens that back DAI exist independently from DAI.¹⁷⁸

Now we can see how TerraUSD fundamentally differs from fiat- and crypto-backed stablecoins. Its primary source of stability comes from Luna, a cryptocurrency that is inherently related to TerraUSD.¹⁷⁹ In effect, price volatility and riskiness are shifted from TerraUSD to Luna.¹⁸⁰

To see why this is a problem, suppose that all owners of both TerraUSD and Tether's USDT panicked and wanted to sell. At this point, TerraUSD is supported only by the ability to issue more Luna,¹⁸¹ whereas USDT is supported by financial reserves held elsewhere.¹⁸² Despite the questions surrounding the adequacy and quality of these reserves, they surely exist.¹⁸³ For this reason, USDT has been able to endure the crypto crisis despite a massive contraction.¹⁸⁴

Terra, in contrast, must issue more Luna.¹⁸⁵ Newly issued Luna does not create new value.¹⁸⁶ Instead, the issuance simply dilutes

173. *See id.*

174. *See id.*

175. *See id.* at 77.

176. *See id.* at 26.

177. *See id.* at 162.

178. *See id.* at 25-26 (describing the class of crypto-collateralized stablecoins).

179. *See* TERRA WHITEPAPER, *supra* note 97, at 5.

180. *See id.* ("Miners absorb short-term Terra volatility.")

181. *See id.* at 5-7.

182. *See* HARVEY ET AL., *supra* note 102, at 25.

183. *See* Sam Klemens, *Is USDT Safe? Everything You Need to Know*, EXODUS (Aug. 2, 2020), <https://www.exodus.com/news/is-usdt-safe/> [<https://perma.cc/LRB3-87JL>].

184. *See* Andrew Singer, *Tether Fortifies Its Reserves: Will It Silence Critics, Mollify Investors?*, COINTELEGRAPH (July 11, 2022), <https://cointelegraph.com/news/tether-fortifies-its-reserves-will-it-silence-critics-mollify-investors> [<https://perma.cc/3N27-F6KQ>]. *But see* Klemens, *supra* note 183.

185. *See* TERRA WHITEPAPER, *supra* note 97, at 5-7.

186. *See id.* at 5-6.

the claims of old holders.¹⁸⁷ In effect, Terra is shifting value from old holders of Luna to sellers of TerraUSD.¹⁸⁸ Consider the not-so-hypothetical situation of May 1, 2022. At that time, the market capitalization of Luna was \$28.4 billion,¹⁸⁹ and the market capitalization of TerraUSD was \$18.6 billion.¹⁹⁰ For the moment, let us assume that the two were uncorrelated in price movement. Terra could support TerraUSD by issuing some multiple of the number of Luna units outstanding.¹⁹¹ If it doubled the number of outstanding units, for example, it should be able to raise half of the Luna market cap or \$14.2 billion. If it tripled the number of outstanding Luna units, it could raise \$18.3, almost enough to buy all \$18.6 billion of outstanding TerraUSD.

To be sure, no one expected the need for such drastic measures. During a bank run, however, the ability to withstand drastic withdrawals is the primary way to quell panic.¹⁹² Close reflection should show why Terra's stability mechanism would suffer during a panic. In effect, Terra allowed its TerraUSD holders to convert their holdings into Luna.¹⁹³ Panicked holders of TerraUSD want actual dollars, but they are getting Luna.¹⁹⁴ Once they hold Luna, they will want to sell, and these sales will adversely affect the price of Luna, which is the support mechanism for TerraUSD.¹⁹⁵ Moreover, Luna's economic value derives from expected mining fees earned on TerraUSD transactions.¹⁹⁶ When the price support mechanism is engaged, however, the supply of TerraUSD is contracting, meaning there will be fewer expected transactions in the future.¹⁹⁷

187. *Id.* at 6.

188. *See id.* at 4.

189. *See Historical Data for Terra Classic*, COINMARKETCAP, <https://coinmarketcap.com/currencies/terra-luna/historical-data/> [<https://perma.cc/AV6U-RWB5>].

190. *See Historical Data for TerraClassicUSD*, COINMARKETCAP, <https://coinmarketcap.com/currencies/terrausd/historical-data/> [<https://perma.cc/DFK4-G43A>].

191. *See* TERRA WHITEPAPER, *supra* note 97, at 4-6.

192. Tether, for example, has seemingly weathered a large run by redeeming holders of USDT. *See* David Canellis, *The Historic Significance of Tether's \$16B "Bank Run,"* BLOCKWORKS (July 1, 2022, 6:15 PM), <https://blockworks.co/the-historic-significance-of-tether-16b-bank-run/> [<https://perma.cc/5WTU-SLGR>].

193. *See* TERRA WHITEPAPER, *supra* note 97, at 5.

194. *See* Juxtathinka, *What Happened to Terra Luna?*, HACKERNOON (July 22, 2022), <https://hackernoon.com/what-happened-to-terra-luna> [<https://perma.cc/A5XW-FPFC>].

195. *See id.*

196. *See* TERRA WHITEPAPER, *supra* note 97, at 6.

197. *See id.* at 4, 6.

Again, a dramatic thought experiment illustrates the point. Suppose that Terra needed to convert the entire supply of TerraUSD into Luna in order to fight a panic. After the conversion, it is unclear why Luna would have value at all because the source of Luna's value—mining TerraUSD transactions—has disappeared.¹⁹⁸ Thus, during a panic, the prices of TerraUSD and Luna would be expected to fall at the same time.¹⁹⁹ In the jargon of financial regulation, the stability mechanism is procyclical during a panic.²⁰⁰

Even without these mechanical ties, TerraUSD and Luna share a common origin in the Terra Protocol.²⁰¹ Like different securities in the same corporation, TerraUSD and Luna share certain fundamental strengths and weaknesses. If the TerraUSD peg slips because of concerns about the Terra Protocol or “ecosystem,” then those concerns would presumably extend to Luna.²⁰² As before, we can see a contrast between fiat-backed stablecoins and TerraUSD.²⁰³ Concerns about USDT would not typically be concerns about its financial reserves.²⁰⁴ Similarly, crypto-backed stablecoins like DAI enjoy a certain separation between the protocol (MakerDAO) and the reserve assets (approved Ethereum-based assets).²⁰⁵

In summary, TerraUSD seems to have been designed to maintain a peg during mild market perturbations. A slip in the peg of a cent could be remedied by converting a relatively small amount of TerraUSD into Luna.²⁰⁶ The system could not, however, handle a full-on panic.²⁰⁷

198. *See id.* at 4-6 (explaining Terra transactions).

199. *See Juxtathinka, supra* note 194.

200. *See* Akhilesh Ganti, *Procyclic*, INVESTOPEDIA, <https://www.investopedia.com/terms/p/procyclic.asp> [<https://perma.cc/B8K3-8RNJ>] (last updated Sept. 13, 2021) (“Procyclic describes a state where the behavior and actions of a measurable product or service move in tandem with the cyclical condition of the economy.”).

201. *See* TERRA WHITEPAPER, *supra* note 97, at 5.

202. *See id.*

203. *See supra* Part II.C.

204. *See generally* Klemens, *supra* note 183 (explaining the relative stability of USDT).

205. *See* HARVEY ET AL., *supra* note 102, at 25-26.

206. *See* TERRA WHITEPAPER, *supra* note 97, at 5.

207. *See* Ryan Clements, *Built to Fail: The Inherent Fragility of Algorithmic Stablecoins*, 11 WAKE FOREST L. REV. ONLINE 131, 142 (2021) (“In order for this ecosystem to be continually viable, there must be a perpetual baseline level of demand in the Terra stablecoins and also the governance token, LUNA.”).

D. Regulating Algorithmic Stablecoins After Terra's Collapse

Even before TerraUSD's collapse, U.S. regulators were sounding alarms about stablecoins.²⁰⁸ In November 2021, the President's Working Group on Financial Markets released its *Report on Stablecoins*.²⁰⁹ The *Report* urged Congress to bring stablecoins within the U.S. financial-regulatory complex, recommending "that Congress act promptly to enact legislation to ensure that payment stablecoins and payment stablecoin arrangements are subject to a federal prudential framework on a consistent and comprehensive basis."²¹⁰ One recommendation was particularly relevant to TerraUSD's collapse: "To address risks to stablecoin users and guard against stablecoin runs, legislation should require stablecoin issuers to be insured depository institutions."²¹¹ The President's Working Group was arguably focused on a different stablecoin, Tether's USDT, when making this recommendation.

Before analyzing this proposal, we should briefly discuss the preexisting regulatory regime. The CFTC has a much more limited jurisdiction than banking regulators like the FDIC because the CFTC's jurisdiction does not empower it to regulate the inherent structure of cryptocurrencies.²¹² The SEC's jurisdiction over securities is similar,²¹³ although securities regulation does require its wards to disclose information through registration and annual statements.²¹⁴ Both, however, focus on the information provided to investors.²¹⁵ Neither is in the business of deciding whether investments are sound enough to be on the market.²¹⁶

Banking regulators, in contrast, are deeply concerned with the inherent stability of their wards. An insured depository institution could not escape regulatory action by honestly disclosing how risky

208. See PWG REPORT, *supra* note 2, at 12.

209. *Id.* at 1.

210. *Id.* at 2.

211. *Id.*

212. See *id.* at 11.

213. *Id.*

214. See *The Laws that Govern the Securities Industry*, INVESTOR.GOV, <https://www.investor.gov/introduction-investing/investing-basics/role-sec/laws-govern-securities-industry> [<https://perma.cc/82EC-8D2Z>].

215. See PWG REPORT, *supra* note 2, at 11.

216. See *supra* Parts I.C & I.D (discussing SEC and CFTC approaches to crypto).

and underfunded it is.²¹⁷ Its regulator (for example, the FDIC) is empowered to regulate the “safety and soundness” of the institution and to require “[p]rompt [c]orrective [a]ction[.]” where appropriate.²¹⁸ Banking regulators have this expanded authority because banks and the like are special: unstable banks threaten not just depositors and investors but the entire financial system.²¹⁹ Looking to expand the reach of banking regulation, the *Report* recommended stablecoins be issued only by insured depository institutions like banks.²²⁰ Beyond this, the *Report* offered little in the way of specifics into how banking regulators would incorporate stablecoins into their regimes.²²¹

Congress should decline this recommendation. In a footnote, the *Report* claimed that its recommendations were limited to stablecoins that could be converted to fiat currency.²²² This limitation is puzzling, if not baffling, given that the *Report* does include the DAI stablecoin in its discussion.²²³ Moreover, the *Report* does not elaborate on this limitation.²²⁴ It is worth noting that the *Report*, released in November 2021, does not discuss TerraUSD at all.²²⁵ While raising some legitimate concerns about stablecoins and financial stability, the *Report* failed to foresee the largest crash in crypto history.

217. See FDIC, RMS MANUAL OF EXAMINATION POLICIES, SECTION 15.1, FORMAL ADMINISTRATIVE ACTIONS, 2, 4-5 (2016), <https://www.fdic.gov/regulations/safety/manual/section15-1.pdf> [<https://perma.cc/JB7W-W7YW>].

218. *Id.* at 10, 12.

219. See Reyes Pariente, *Why Is the Financial System's Stability So Important for the Economy?*, BBVA (May 31, 2018), <https://www.bbva.com/en/financial-systems-stability-important-economy/> [<https://perma.cc/2VEX-RQZ7>].

220. See PWG REPORT, *supra* note 2, at 16.

221. See *id.*

222. See *id.* at 4 n.5 (“Stablecoins that are purportedly convertible for an underlying fiat currency are distinct from a smaller subset of stablecoin arrangements that use other means to attempt to stabilize the price of the instrument.... Because of their more widespread adoption, this discussion focuses on stablecoins that are convertible for fiat currency.”).

223. See *id.* at 7, 10 (including DAI in explanatory charts).

224. See *id.*

225. The *Report* does not even describe algorithmic stablecoins in any detail and seemingly misclassifies DAI as algorithmic in nature. See *id.* at 9 (describing DAI as “an algorithmic stablecoin”). DAI is collateralized by other cryptocurrencies while algorithmic stablecoins are not. See HARVEY ET AL., *supra* note 102, at 26 (describing DAI as a “crypto-collateralized stablecoin”); Clements, *supra* note 207, at 135 (describing DAI as “over-collateralized” and distinguishing it from “algorithmic” stablecoins, which are not fully collateralized).

Algorithmic stablecoins like TerraUSD are not simple banks that take deposits and keep them on reserve elsewhere. Indeed, it is hard to analyze Terra from a balance-sheet perspective because it arguably has no assets as defined by accounting.²²⁶ What, then, should financial regulators do if they obtained jurisdiction over algorithmic stablecoins? Regulators could not supervise the adequacy and stability of the reserves because there are no reserve assets other than a utility token like Luna. In all likelihood, algorithmic stablecoins are so radically different from banks that a banking regulator would disallow them. Such a decision to outlaw algorithmic stablecoins should be left to legislatures, not regulators.²²⁷

Before concluding this discussion, we should briefly consider information disclosure, especially because the Terra Protocol seemed to be decentralized at first glance.²²⁸ However, Terra had a powerful founder exerting considerable control over its Protocol.²²⁹ Furthermore, many investors bought TerraUSD with the hopes of earning high yields.²³⁰ Although this Article does not engage in a full analysis of whether TerraUSD was a security, such a classification seems plausible under these two facts.

III. APPLYING THE MODEL TO OTHER CRYPTOASSETS

A. *MakerDAO's DAI Stablecoin*

1. *Introduction*

Like TerraUSD, MakerDAO's DAI is a stablecoin, with a value pegged to the U.S. dollar. Neither TerraUSD nor DAI is backed by

226. Cf. LAWRENCE A. CUNNINGHAM, INTRODUCTORY ACCOUNTING, FINANCE AND AUDITING FOR LAWYERS 459 (7th ed. 2018) (referring to future economic benefits obtained from past events or transactions).

227. See *supra* Part I.G (advocating for few if any required standards for crypto).

228. Cf. TERRA WHITEPAPER, *supra* note 97, at 14 ("Terra is looking to become the first usable currency and stability platform on the blockchain, unlocking the power of decentralization for mainstream users, merchants, and developers.").

229. See Disha Sinha, *Terra Was Never a Decentralized Platform, Thanks to Do Kwon's Luna Wealth*, ANALYTICS INSIGHT (June 17, 2022), <https://www.analyticsinsight.net/terra-was-never-a-decentralized-platform-thanks-to-do-kwons-luna-wealth/> [<https://perma.cc/PQ6Y-7WLD>].

230. See *supra* note 140 and accompanying text.

financial assets like actual dollars or bank deposits. DAI differs from TerraUSD, however, in that it is backed by other cryptocurrencies.²³¹

Anyone with Ether or other approved collateral can transfer the collateral to a MakerDAO smart contract known as a vault and receive back DAI.²³² For example, anyone with \$100 worth of Ether could deposit it in a vault and receive 68 units of DAI. This person could later retrieve the deposited Ether by repaying the 68 units of DAI plus a stability fee that accrues over the life of the smart contract.²³³

MakerDAO is a “decentralized autonomous organization” that manages certain aspects of the protocol. For example, MakerDAO will approve collateral types (for example, allowing Ether to be used), set collateral ratios (for example, specifying that holders get 68 units of DAI for \$100 worth of Ether), and fine-tune the stability fee.²³⁴ MakerDAO’s actions and features of the smart contract are designed to ensure a one-to-one peg between DAI and the U.S. dollar.²³⁵ If the peg is successful, then the 68 units of DAI will be worth \$68.

2. Information Reporting

In many respects, MakerDAO presents a good case for excusing it from information-reporting regulation. All of the mechanical steps occur on the blockchain, making them fully transparent.²³⁶ Holders create DAI directly via smart contract, and they do not need to “trust” MakerDAO to secure their collateral.²³⁷ Because MakerDAO is a decentralized autonomous organization, DAI holders can also

231. See HARVEY ET AL., *supra* note 102, at 25-26.

232. See *id.* at 70.

233. See *id.* Currently, the vault known as “ETH-A” has a collateral ratio of 145 percent. *Collateral*, DAI STATS, <http://www.daistats.com/#/collateral> [<https://perma.cc/5B3R-VAGW>] (last updated Sept. 4, 2022) (tracking and auto-updating collateral ratio and other measurements in real time). Depositing \$100 worth of Ether, the investor could withdraw 68 DAI, because the collateral (\$100 of Ether) is worth more than 145 percent of the withdrawn DAI ($\$100 / \$68 = 147$ percent).

234. See MAKERDAO, THE MAKER PROTOCOL: MAKERDAO’S MULTI-COLLATERAL DAI (MCD) SYSTEM (2020).

235. See *id.*

236. See *id.*

237. See *id.*

monitor its decision-making and even participate in it.²³⁸ That being said, regulators should still monitor promotional activities surrounding DAI. As noted in the CoinFund/HypoCoin example,²³⁹ a party could exert considerable control and influence over a decentralized cryptocurrency. This control could even rise to a sufficient level where the SEC would find the cryptocurrency to be a “security.”²⁴⁰

3. *PWG Report and Minimum Standards*

Crypto-backed stablecoins like DAI could conceivably fit within the traditional structure of banking regulation. As with fiat-backed stablecoins, the primary question would be measuring the adequacy and stability of reserve assets.²⁴¹ Banking regulation asks whether the institution has adequate “capital.”²⁴² In rough terms, capital is the difference between the assets of the regulated institution and the fixed claims against it (like those of bondholders and depositors).²⁴³ Super-safe assets such as U.S. Treasury debt require little or no capital; risky assets such as corporate equities require more.²⁴⁴

The Maker Protocol, which controls the creation of DAI, already functions similarly to this. Every unit of DAI is created by depositing another cryptoasset into a smart contract known as a “vault,” and the amount of DAI produced depends on the riskiness of the deposited asset.²⁴⁵ USDC, similar to Tether, is a fiat-backed

238. *See id.*

239. *See supra* Part I.D.

240. The SEC has taken note of promotional activities surrounding decentralized cryptocurrencies. *See* Hinman, *supra* note 40 (“Is there a person or entity others are relying on that plays a key role in the profit-making of the enterprise such that disclosure of their activities and plans would be important to investors?”).

241. *See* PWG REPORT, *supra* note 2, at 12.

242. *See id.* at 16.

243. *See* Joseph G. Haubrich, *A Brief History of Bank Capital Requirements in the United States*, FED. RSRV. BANK OF CLEVELAND (Feb. 28, 2020), <https://www.clevelandfed.org/en/newsroom-and-events/publications/economic-commentary/2020-economic-commentaries/ec-202005-evolution-bank-capital-requirements.aspx> [<https://perma.cc/BL22-CHTK>].

244. For a comprehensive introduction to bank capital standards, see generally MICHAEL S. BARR, HOWELL E. JACKSON & MARGARET E. TAHYAR, *FINANCIAL REGULATION: LAW & POLICY* 277-305 (3d ed. 2021).

245. *See* HARVEY ET AL., *supra* note 102, at 70.

stablecoin.²⁴⁶ Someone holding 101 USDC could deposit those units in a Maker vault and receive 100 DAI in return. The depositor could later retrieve the deposited USDC by repaying the newly minted DAI. Under the Maker Protocol, USDC is considered a safe asset that requires only a small amount of excess value (functionally capital).²⁴⁷ On the other hand, suppose an Ether investor wanted to mint 100 DAI. This person would need to deposit Ether worth \$145. Under the Maker Protocol, Ether is considered a risky asset that requires significant excess value against the newly minted DAI.²⁴⁸

Thus, we see clear parallels between traditional capital regulation and the Maker Protocol. If DAI and Maker become subject to financial regulation, however, the regulators may not agree with the levels of capital under the Maker Protocol. Capital regulation does not readily extend to cryptocurrencies like Ether.²⁴⁹ Arguably, Ether is an impermissible asset for a bank to hold.²⁵⁰ And, even if a bank could hold Ether, regulators might object to using it as a reserve to support deposits.²⁵¹ Under this view, the Maker Protocol could not accept Ether as a way to mint DAI.

Even if financial regulators could make their peace with the Maker Protocol, they would face an extremely difficult jurisdictional issue. The Maker Protocol may well be too decentralized to regulate. Recall that the protocol uses smart contracts to mint new units of DAI.²⁵² “Smart contracts” are really just computer programs that can control cryptoassets.²⁵³ Typical actions would be to receive, transfer, create, or destroy cryptoassets.²⁵⁴ Because they are just computer programs, the Maker vaults themselves could not be

246. See *USDCoin*, CIRCLE, <https://www.circle.com/en/usdc> [<https://perma.cc/8N26-ATP9>].

247. See *DAI STATS*, *supra* note 233.

248. Here, I am referring to the ETH-A and USDC-A vaults, which have collateral ratios of 145 percent and 101 percent, respectively. See *id.*

249. See Echo Wang, *U.S. Regulators Exploring How Banks Could Hold Crypto Assets — FDIC Chairman*, REUTERS, Oct. 26, 2021, 5:43 PM, <https://www.reuters.com/business/finance/us-regulators-exploring-how-banks-could-hold-crypto-assets-fdic-chairman-2021-10-26/> [<https://perma.cc/52ZE-53W9>].

250. See *id.*

251. See *id.*

252. See *The Maker Protocol: MakerDAO’s Multi-Collateral DAI (MCD) System*, *supra* note 234.

253. See *What Is a Smart Contract?*, COINBASE, <https://www.coinbase.com/learn/crypto-basics/what-is-a-smart-contract> [<https://perma.cc/JPE8-5PCZ>].

254. See *id.*

regulated directly. Instead, financial regulators would need to obtain leverage over real-world parties who have the power to effectuate changes to the Maker Protocol.

B. Tether's USDT Stablecoin

1. Introduction

Tether is the largest stablecoin and third-largest cryptocurrency.²⁵⁵ Unlike TerraUSD, Tether is backed by bank accounts and other high-quality assets, making it relatively simple in terms of product.²⁵⁶ As a stablecoin, USDT is intended to be pegged to the U.S. dollar.²⁵⁷ In order to maintain this peg, Tether reports that “[a]ll Tether tokens are pegged at 1-to-1 with a matching fiat currency ... and are backed 100% by Tether’s reserves.”²⁵⁸ These reserves are held as traditional financial assets such as U.S. Treasury bills.²⁵⁹ Because these assets are held in traditional financial accounts, potential holders of USDT cannot verify the reserves via a blockchain.

Tether has long been plagued by concerns over the quality and sufficiency of its reserves. According to the CFTC, “from at least June 1, 2016 to February 25, 2019, Tether misrepresented to customers and the market that Tether maintained sufficient U.S. dollar reserves to back every USDT in circulation with the ‘equivalent amount of corresponding fiat currency’ held by Tether and

255. See *Today's Cryptocurrency Prices by Market Cap*, COINMARKETCAP, <https://coinmarketcap.com> [<https://perma.cc/FBA7-CBXR>] (last updated Sept. 4, 2022) (listing market capitalizations for all cryptocurrencies each day); *Top Stablecoin Tokens by Market Capitalization*, COINMARKETCAP, <https://coinmarketcap.com/view/stablecoin> [<https://perma.cc/PW9Z-MLNU>] (last updated Sept. 4, 2022) (listing market capitalizations for stablecoins each day).

256. See Krisztian Sandor, *What Is Tether? How USDT Works and What Backs Its Value*, COINDESK (June 1, 2022, 5:37 PM), <https://www.coindesk.com/learn/2022/06/01/what-is-tether-how-usdt-works-and-what-backs-its-value> [<https://perma.cc/5J5L-5QC2>].

257. See *id.*

258. *What Are Tether Tokens and How Do They Work?*, TETHER, <https://tether.to/en/how-it-works/> [<https://perma.cc/GU4J-B4QU>].

259. See Ryan Browne, *Tether Claims Its Stablecoin Is Now Partially Backed by Non-U.S. Government Bonds*, CNBC (May 19, 2022, 4:34 PM), <https://www.cnbc.com/2022/05/19/tether-claims-usdt-stablecoin-is-backed-by-non-us-bonds.html> [<https://perma.cc/365J-C2H7>].

‘safely deposited’ in Tether’s bank accounts.”²⁶⁰ Tether settled with the CFTC, paying a fine and modifying its representations about its reserves.²⁶¹ Presumably to disentangle itself from U.S. regulators, Tether pulled back its outreach to U.S. customers.²⁶²

Presently, Tether does not refer to deposits when describing its reserves. It also releases “attestations” prepared by an accounting firm located in the Cayman Islands.²⁶³ These attestations are not the same as the typical unqualified audit reports submitted by publicly traded companies.²⁶⁴

2. Information Reporting

Tether and USDT present significant informational asymmetries and appear to be prime candidates for information-disclosure regulation. A prospective purchaser of USDT would likely want additional information and audited financial statements before purchasing USDT.

One might argue, in response, that USDT buyers should be fully aware of Tether’s turbulent past. This response could, however, be leveled against securities regulation in general. As noted before, the goal of this Article is to outline a regulatory approach for crypto that is consistent with current structures and policy.²⁶⁵ Requiring disclosures from promoters with important inside information is one of those policies.

In practical terms, forcing information disclosures from Tether could be a challenge for U.S. regulators. Tether operates outside of the United States.²⁶⁶ Moreover, a stablecoin *might* fail to satisfy the

260. See Press Release, CFTC, CFTC Orders Tether and Bitfinex to Pay Fines Totaling \$42.5 Million (Oct. 15, 2021), <https://www.cftc.gov/PressRoom/PressReleases/8450-21> [<https://perma.cc/2KAB-RVFQ>].

261. See *id.*

262. See *US Residents*, TETHER, <https://tether.to/en/us-residents/> [<https://perma.cc/UN5V-WTLU>].

263. See Helene Braun, *Tether’s New Accounting Firm Is the Old One, with Baggage*, COINDESK (Jan. 26, 2022, 11:56 AM), <https://www.coindesk.com/markets/2022/01/26/tethers-new-accounting-firm-is-the-old-one-with-baggage/> [<https://perma.cc/98FB-RV73>].

264. See Singer, *supra* note 184 (“Tether continues to avoid a more intensive, intrusive and comprehensive audit, in favor of a more limited ‘attestation’ with regard to the firm’s reserves.”).

265. See *supra* Part I.A.

266. See *US Residents*, *supra* note 262.

Howey test for securities status, as the stablecoin would not appreciate in value against the U.S. dollar.²⁶⁷ Tether, nevertheless, presents a useful test case for the model of this Article, which points toward expanding the reach of disclosures to reduce information asymmetries.

3. *PWG Report*

The *PWG Report* spent considerable time discussing the “reserve assets” of stablecoins.²⁶⁸ We can surmise that the agencies had Tether and USDT in mind. Moreover, it is likely that financial regulators feel comfortable regulating fiat-convertible cryptocurrencies but not the others.²⁶⁹ If subject to banking regulation, Tether would need to demonstrate that its reserves were adequate and stable enough to pay off any holders of USDT that demanded conversion.²⁷⁰ For example, a financial regulator might plausibly demand that every USDT unit be backed by one dollar held in a demand account at another depository institution subject to U.S. regulation. Under this model, Tether could not rely on non-U.S. deposits and nondepository assets as reserves.

Even as applied to Tether and similar cryptocurrencies, this model has weaknesses. The *Report* limited its application to cryptocurrencies that are convertible to dollars or other fiat currencies.²⁷¹ After its settlement with the CFTC, however, Tether retreated from the U.S. and stopped converting TerraUSD held by U.S. customers.²⁷² The lack of convertibility seems to distinguish TerraUSD from traditional depository institutions. The lack of outreach to U.S. customers arguably removes Tether from U.S. jurisdiction altogether, and unlike the banks of yesteryear, cryptocurrencies do not have a necessary jurisdictional home based on physical presence.

267. *Cf.* SEC v. W.J. Howey Co., 328 U.S. 293, 301 (1946) (referring to “profits” in the definition of a security).

268. The term appears twenty-seven times. *See* PWG REPORT, *supra* note 2, *passim*.

269. *See* Marc Jones & Katanga Johnson, *U.S. SEC’s Peirce Sees ‘Movement’ on Stablecoin Regulations*, REUTERS, May 12, 2022, 2:04 PM, <https://www.reuters.com/business/finance/secs-hester-sees-movement-us-stablecoin-regulations-2022-05-12> [<https://perma.cc/9N83-RCZP>].

270. *See* PWG REPORT, *supra* note 2, at 4.

271. *See generally id.*

272. *See supra* notes 260-62 and accompanying text.

Other factors point against imposing minimum standards on Tether, at least at this time. Tether is simply not that large compared to depository institutions. In September 2022, its USDT coin had a market capitalization of around \$67 billion.²⁷³ If it were a commercial bank, it would rank #43.²⁷⁴ Its USDT coin is not commonly accepted as a method of payment, and it does not pose any obvious risk to the U.S. financial system.²⁷⁵ Perhaps most importantly, the market itself seems to be functioning without disruption. Tether has faced massive withdrawals since the Terra collapse and has, so far, been able to handle them.²⁷⁶

C. *Wrapped Bitcoin*

Smart contracts are computer programs that users can deploy on some cryptocurrency blockchains. Most notably, smart contracts are part of the Ethereum platform and add a large degree of functionality that Bitcoin does not have.²⁷⁷ In the Ethereum blockchain, for example, users can create “tokens,” which resemble cryptocurrency.²⁷⁸ Tokens are different from Ether because token transactions occur only inside of user-created smart contracts, whereas Ether transactions occur on the Ethereum blockchain that everyone uses.²⁷⁹ Many stablecoins are, in fact, simply tokens created on the Ethereum blockchain.

Smart contracts and stablecoins allow for innovative (and sometimes controversial) projects known as decentralized finance (or

273. See *Tether to USD Chart*, COINMARKETCAP, <https://coinmarketcap.com/currencies/tether/> [<https://perma.cc/V2CY-4XBZ>] (last updated Sept. 4, 2022).

274. Cf. *Banks Ranked by Total Deposits*, US BANK LOCATIONS (Sept. 30, 2022), <https://www.usbanklocations.com/bank-rank/total-deposits.html> [<https://perma.cc/BZ73-W6LF>] (ranking Banco Popular de Puerto Rico as the forty-second-largest bank with \$56.9 billion in deposits as of September 2022).

275. See Ryan Browne, *Regulators Are Getting Nervous About Stablecoins After Terra’s Stunning Collapse*, CNBC (June 29, 2022, 12:36 AM), <https://www.cnbc.com/2022/05/13/regulators-anxious-about-stablecoins-like-tether-after-ust-collapse.html> [<https://perma.cc/KTE4-Q5LX>].

276. See *supra* note 192 and accompanying text.

277. See ANTONOPOULOS & WOOD, *supra* note 116, at 3-6.

278. See *id.* at 227.

279. See *id.* (“Sending ether is an intrinsic action of the Ethereum platform, but sending or even owning tokens is not.”).

DeFi).²⁸⁰ Focusing on the Ethereum blockchain, DeFi projects have faced an important limitation because the projects can transact only in those assets that can be transacted in the Ethereum blockchain.²⁸¹ Thus, a DeFi project could transact in Ether and in Ethereum tokens. It could not transact in actual dollars. Nevertheless, any Ethereum token created as a stablecoin could be a stand-in for actual dollars. Similarly, an Ethereum-based DeFi project could not transact directly in Bitcoin. Bitcoin functions on its own blockchain, which is separate from Ethereum's.

As with stablecoins, developers have created a new Ethereum token called "Wrapped Bitcoin," which tracks the value of Bitcoin while still transacting on the Ethereum blockchain.²⁸² An owner would transfer Bitcoin to a custodian, and the custodian would transfer a Wrapped Bitcoin token back to the owner. Economically, the Wrapped Bitcoin should have value equal to the value of Bitcoin or close to it. Mechanically, however, the Wrapped Bitcoin exists on the Ethereum blockchain (via a smart contract), whereas Bitcoin exists on its own blockchain.²⁸³

Wrapped Bitcoin presents a potentially strong case of information asymmetry. Someone who deposits actual Bitcoin will not necessarily know that it is being held as collateral that backs newly issued Wrapped Bitcoin. However, the Wrapped Bitcoin project does take steps to assure depositors that deposited Bitcoin remains as-is.²⁸⁴

Less careful promoters, however, might develop variants of the Wrapped Bitcoin.²⁸⁵ Suppose another promoter develops a new project called Wrapped Bitcoin Plus. The promoter takes Bitcoin deposits but deploys them for other purposes, perhaps loaning the

280. See Jamie Kim, Note, *Regulation of Decentralized Systems: A Study of Uniswap*, 35 HARV. J.L. & TECH. 335, 335 (2021) ("DeFi projects are powered by self-executing protocols known as 'smart contracts.'").

281. See *id.* at 335-36.

282. See HARVEY ET AL., *supra* note 102, at 128-29.

283. See WBTC, <https://wbtc.network> [<https://perma.cc/LQ7A-6VB9>].

284. See Martin Young, *\$1B in Wrapped Bitcoin Now Being Audited Using Chainlink's Proof of Reserve*, COINTELEGRAPH (Oct. 2, 2020), <https://cointelegraph.com/news/1b-in-wrapped-bitcoin-now-being-audited-using-chainlink-s-proof-of-reserve> [<https://perma.cc/H8KH-3HBM>].

285. Cf. Tim Copeland, *Huobi's Version of Wrapped Bitcoin Has a Transparency Problem*, THE BLOCK (July 14, 2022, 4:20 AM), <https://www.theblock.co/post/156559/huobis-version-of-wrapped-bitcoin-has-a-transparency-problem> [<https://perma.cc/3E7K-C6J7>] ("The issue is that market observers cannot see for themselves whether the token is still backed.").

Bitcoin to other market actors. This hypothetical Wrapped Bitcoin Plus might plausibly make an additional return for the promoters or even the depositors. But, it introduces an additional level of control and activity on the part of the promoter.

Finally, none of these problems can be solved directly by the blockchain. With real-world Wrapped Bitcoins, depositors can actually see the amount of Bitcoin held as reserves and the amount of Wrapped Bitcoin issued.²⁸⁶ The blockchain would not, however, tell a depositor about the safety of the deposit (for example, from the claims of the promoter's creditors). Moreover, in the hypothetical Wrapped Bitcoin Plus, the blockchain tells depositors nothing about any relationships with the Bitcoin borrowers.

CONCLUSION

Regulating cryptocurrency has long produced difficult issues. This Article does not presume an easy solution to them. Instead, it aims to offer a model for approaching regulation. Most importantly, regulators should adopt a posture of neutrality towards crypto. While legislatures might legitimately decide to promote or suppress crypto, regulators should seek to incorporate it into existing regulatory frameworks.

Crypto will continue to produce difficult issues even with this model. For example, taxing authorities may struggle when defining crypto as "money," "property," or some other class important to taxation. For many such problems, however, the important issue will be how the public uses crypto.

More fundamentally, regulators should be open to relying on decentralization when crafting their regulatory schemes. For truly decentralized cryptocurrencies, the public may not need regulatory structures like the required disclosures of securities law. The information already exists on the blockchain and in algorithms.

286. See *Transparency Improves Trust*, WBTC, <https://wbtc.network/dashboard/audit> [<https://perma.cc/RJ96-Y3NQ>].